

State of Colorado
Energy & Carbon Management Commission

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Document Number:
404320985
Receive Date:
09/12/2025
Report taken by:
Krystal Heibel

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: <u>MAGPIE OPERATING INC</u>	Operator No: <u>52530</u>	Phone Numbers Phone: <u>(970) 669-6308</u> Mobile: <u>()</u>
Address: <u>2707 SOUTH COUNTY RD 11</u>		
City: <u>LOVELAND</u>	State: <u>CO</u>	Zip: <u>80537</u>
Contact Person: <u>Ross Warner</u>	Email: <u>ross.magpieoil@gmail.com</u>	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 13484 Initial Form 27 Document #: 402026653

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>PIT</u>	Facility ID: <u>111980</u>	API #: _____	County Name: <u>LOGAN</u>
Facility Name: <u>WARNECKE LEASE</u>	Latitude: <u>40.624978</u>	Longitude: <u>-103.334998</u>	
** correct Lat/Long if needed: Latitude: <u>40.625044</u>		Longitude: <u>-103.335102</u>	
QtrQtr: <u>SESE</u>	Sec: <u>30</u>	Twp: <u>8N</u>	Range: <u>53W</u> Meridian: <u>6</u> Sensitive Area? <u>No</u>
Facility Type: <u>LOCATION</u>	Facility ID: <u>312143</u>	API #: _____	County Name: <u>LOGAN</u>
Facility Name: <u>WARNECKE-68N53W 30SESE</u>	Latitude: <u>40.625638</u>	Longitude: <u>-103.337188</u>	
** correct Lat/Long if needed: Latitude: <u>40.625285</u>		Longitude: <u>-103.335214</u>	
QtrQtr: <u>SESE</u>	Sec: <u>30</u>	Twp: <u>8N</u>	Range: <u>53W</u> Meridian: <u>6</u> Sensitive Area? <u>No</u>

SITE CONDITIONS

General soil type - USCS Classifications CL

Most Sensitive Adjacent Land Use Crop land

Is domestic water well within 1/4 mile? Yes

Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

Domestic Well - Permit #36326 - 1300' SSW

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|--|--|--|
| <input checked="" type="checkbox"/> E&P Waste | <input type="checkbox"/> Other E&P Waste | <input type="checkbox"/> Non-E&P Waste |
| <input checked="" type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | |
| <input checked="" type="checkbox"/> Oil | <input type="checkbox"/> Tank Bottoms | |
| <input type="checkbox"/> Condensate | <input type="checkbox"/> Pigging Waste | |
| <input type="checkbox"/> Drilling Fluids | <input type="checkbox"/> Rig Wash | |
| <input type="checkbox"/> Drill Cuttings | <input type="checkbox"/> Spent Filters | |
| | <input type="checkbox"/> Pit Bottoms | |
| | <input type="checkbox"/> Other (as described by EPA) | |

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	To be determined	Soil sampling 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.

On 8/30/23 Jody Kost of Magpie met with the landowner to discuss next steps of surface excavation and sampling to address inorganic soils that still remain. On 9/13/23 Sunstate Equipment delivered an excavator to the location. On 9/14/23 a track was thrown from the excavator and Sunstate sent out maintenance to repair. On 9/15/23 Washington County Landfill was closed half day, work ceased at noon. On 9/18/23 Jody Kost had a phone conversation with Krystal Heibel of ECMC to discuss remediation report and status of ongoing remedial activities. On 9/19/23 a front loader was delivered to location to assist with loading trucks to haul the removed top 3' of inorganic impacted soil from the area of the former pit to Washington County Landfill. Manifests can be found in document number 403625692 that was submitted with approved SF27 document number 403612100. Approximately 2,800 cubic yards of material was removed. From 10/4/23 to 10/6/23, further horizontal and vertical delineation took place using a hand auger. Results show further horizontal and vertical delineation of Table 915-1 Soil Suitability for Reclamation impacts is needed in certain areas. See below proposed sampling plan and Figure 5 in the attached site investigation report for proposed additional delineation. On 11/9/23, the site was visited to sample the pit bottom (Pit-SS@4'), a landowner manure stockpile (Manure) and a dirt stockpile (Stockpile). The samples were submitted to Origins for full Table 915-1 analysis, however the Manure sample did not have Table 915-1 Metals run. Results confirmed no organics impacts in any of the 3 samples. See ECMC Document 404161948 and 404253505 and associated documents for additional details.

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):

To support delineation of soil impacts resulting from operation of the facility at this Location, Magpie proposes to advance three (3) soil borings within the former pit footprint to pursue vertical delineation of SSR and metal constituents. One proposed location will be drilled to a depth of 100 feet as preliminary data and regional hydrogeology suggests a confining layer above this depth, and widespread groundwater is not expected to be encountered. The remaining borings will be drilled to depths of 40 feet and will be logged, field-screened, and sampled at 30, 40, 60, 80, and 100 feet for the full Table 915-1 analytical suite. See Site Investigation Report associated with Document 404253505 for investigation details and the associated Proposed Boring Location Diagram for further details.

Proposed Groundwater Sampling

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

Groundwater has not been encountered at any point during investigation activities to date. If encountered, Magpie will attempt to collect a sample for characterization if groundwater is encountered during site investigation activities.

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 198

Number of soil samples exceeding 915-1 140

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

Approximate areal extent (square feet) 28000

NA / ND

-- Highest concentration of TPH (mg/kg) 29.46

-- Highest concentration of SAR 215

BTEX > 915-1 No

Vertical Extent > 915-1 (in feet) 20

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet)

Number of groundwater monitoring wells installed

Number of groundwater samples exceeding 915-1

Highest concentration of Benzene (µg/l)

Highest concentration of Toluene (µg/l)

Highest concentration of Ethylbenzene (µg/l)

Highest concentration of Xylene (µg/l)

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?

On 10/11/22, 3 background samples were collected from 0-3' and submitted to Origins for analysis of EC, pH, and SAR. On 1/12/23, an additional 13 background samples were collected from 3', 6', and 10' bgs and submitted to Origins for analysis of ECOM Table 915-1 Soil Suitability for Reclamation and Metals. Magpie proposes to advance three (3) additional soil borings in the surrounding field to establish background values for potentially naturally occurring constituents of concern (SSR and metals). In particular, 2023 background samples used a detection limit of 0.5 mg/kg for hexavalent chromium, which was inadequate to determine compliance with PGSSL. Updated laboratory methods in 2024 will allow for a more definitive analysis of hexavalent chromium concentrations in comparison to recently collected characterization samples.

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 and the Site Investigation Report associated with Document 404253505 for investigation details.

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.

Well is plugged and abandoned, equipment has been removed, pit has been excavated to approximately 3' bgs. Magpie is in the process of determining the extent of impacts associated with the project. See the attached ROWC for additional details. The proposed site investigation strategy is designed to confirm, or refute, the results of the previously provided lithological and hydrogeological study demonstrating that no pathway to groundwater exists and that the appropriate cleanup standard for this project should be RSSL not PGSSL. With these results, a definitive cleanup standard (RSSL vs. PGSSL) should remove any remaining uncertainty about administrative points of compliance. Once confirmed, a informed horizontal delineation plan, and site investigation and remediation plan can be progressed in a coordinated manner.

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.

Remediation of existing soil impacts at the Warnecke 1 Location will be accomplished through a phased approach, prioritizing vertical delineation, and background sampling to support risk-based closure under ECMC Rules 915.b and 914. Magpie proposes advancing six soil borings: three within the former pit footprint (to depths of 40 to 100 feet) and three background borings in surrounding cropland (to 25 feet). Samples will be analyzed for the full Table 915-1 suite. This approach addresses ECMC's requirement for vertical delineation to assess potential pathways to groundwater and confirm whether observed exceedances—particularly for SSR constituents and hexavalent chromium—are naturally occurring. Field activities are scheduled for July 7–10, 2025, with lab results and a Supplemental Form 27 anticipated in Q3 2025. a definitive cleanup standard (RSSL vs. PGSSL) should remove any remaining uncertainty about administrative points of compliance. Once confirmed, a informed horizontal delineation plan, and site investigation and remediation plan can be progressed in a coordinated manner. If remediation is required, options may include in-situ treatment or targeted excavation and soil amendment for SSR impacts. Final remedial design and implementation will be developed following receipt of sampling results and ECMC review. See the Site Investigation Report associated with Document 404253505 for investigation details.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

_____ If Yes: Estimated Volume (Cubic Yards) _____ 2800

_____ Air sparge / Soil vapor extraction

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

_____ Natural Attenuation

_____ Excavate and onsite remediation

Yes _____ Other Gypsum application occurred in 2021 as a chemical soil amendment _____

_____ 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.

Groundwater is not anticipated to be encountered. If observed, Magpie will attempt to collect a sample for characterization if groundwater is encountered during site investigation activities.

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 Proposed Site Investigation Plan Update

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.

Magpie has financial assurance bonding per Rule 702 in excess of \$1.2 million and carries General Liability Insurance in the amount of \$5,000,000 per occurrence in compliance with Rule 705. No claim is anticipated for this cleanup effort. Magpie has its own roustabout crew, heavy machinery, and hauling trucks in-house to eliminate vendor costs. Project is 75% complete.

Operator anticipates the remaining cost for this project to be: \$ 25000

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:

none

Volume of E&P Waste (solid) in cubic yards 2800

E&P waste (solid) description Inorganic impacted soil

ECMC Disposal Facility ID #, if applicable: _____

Non-ECMC Disposal Facility: Washington County Landfill, Pawnee Waste

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

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? No

Does the previous reply indicate consideration of background concentrations? _____

Does Groundwater meet Table 915-1 standards? Yes

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.

Reclamation will be in accordance with 1000 series rules and in coordination with the Surface Owner land use plans. In July and August 2024, Maggie completed final reclamation of the wellhead and access road at the request of the landowner.

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. 10/01/2025

Proposed date of completion of Reclamation. 12/31/2025

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. 04/08/2019

Actual Spill or Release date, or date of discovery. 07/11/2019

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/13/2019

Proposed site investigation commencement. 06/13/2019

Proposed completion of site investigation. 08/28/2025

REMEDIAL ACTION DATES

Proposed start date of Remediation. 03/03/2020

Proposed date of completion of Remediation. 12/31/2025

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 implementation schedule has been changed due to the necessity to backfill the Location's pit prior to the completion of additional site investigation activities. The proposed site investigation will be completed between August 25 and August 28, 2025.

OPERATOR COMMENT

This form is being submitted to provide an update to the site investigation plan originally proposed in Document 404253505 for the Location. The investigation will proceed as outlined, with one modification: the removal of the 5-foot and 10-foot sampling intervals for each of the three boreholes located within the pit footprint. This adjustment is based on the substantial volume of historical sampling data and the limited relevance of these intervals given current site conditions.

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: 09/12/2025

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: Krystal Heibel

Date: 10/07/2025

Remediation Project Number: 13484

COA Type**Description**

	<p>Doc# 404253505 was reviewed on July 8, 2025, with a site investigation plan, over 91 days ago. Operator has yet to conduct field investigation work.</p> <p>Operator shall conduct proposed investigation within 30 days of approval (no later than Nov 6, 2025) and propose additional remediation with a detailed standalone implementation schedule on the next Supplemental Form 27. Operator shall update the "Proposed completion of site investigation." date within the Implementation Schedule since Operator is 40 days delinquent based on the August 28, 2025, plan.</p>
	<p>ECMC has processed this form as an update; no analytical was attached thus approval of this form does not imply any agreement with comments on completion of site investigation. All ongoing/unaddressed comments/COAs from previous Forms remain applicable.</p>
	<p>As stated in Doc # 404253505, Operator shall sample all three soil borings within the former pit area for full Table 915-1 analytes and ensure that vertical delineation is achieved. If hydrocarbon odor is observed from borings, Operator shall take a sample at that soil's depth for potential of impact, regardless if it's at one of the 5' or 10' intervals.</p> <p>"This form is being submitted to provide an update to the site investigation plan originally proposed in Document 404253505 for the Location. The investigation will proceed as outlined, with one modification: the removal of the 5-foot and 10-foot sampling intervals for each of the three boreholes located within the pit footprint. This adjustment is based on the substantial volume of historical sampling data and the limited relevance of these intervals given current site conditions."</p>
3 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**

404320985	FORM 27-SUPPLEMENTAL-SUBMITTED
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Total Attach: 1 Files

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

Environmental	ECMC does not approve of Operator's request to use Table 915-1 Residential Soil Screening Levels at this time. Once delineation is complete, ECMC will re-investigate using Residential SSLs vs Protection of Groundwater SSLs at this location.	10/07/2025
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Total: 1 comment(s)