

State of Colorado Oil and Gas Conservation Commission

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Document Number:

402705609

Receive Date:

06/01/2021

Report taken by:

ALEX FISCHER

Site Investigation and Remediation Workplan (Initial 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 INFORMATION

Name of Operator: <u>HEFNER & CHRIST</u>	Operator No: <u>39166</u>	Phone Numbers
Address: _____		Phone: <u>(303) 894-2100</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: _____
Contact Person: <u>Shannon Chollett</u>	Email: <u>shannon.chollett@state.co.us</u>	Mobile: <u>()</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 20502Initial Form 27 Document #: 402705609

PURPOSE INFORMATION

- | | |
|--|--|
| <input type="checkbox"/> 901.e. Sensitive Area Determination | <input type="checkbox"/> 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water |
| <input type="checkbox"/> 909.c.(1), Rule 905: Pit or PW vessel closure | <input type="checkbox"/> Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b. |
| <input type="checkbox"/> 909.c.(2), Rule 906: Spill/Release Remediation | <input type="checkbox"/> Rule 909.e.(2)B.: Closure of remediation project |
| <input type="checkbox"/> 909.c.(3), Rule 907.e.: Land treatment of oily waste | <input type="checkbox"/> Rule 906.c.: Director request |
| <input type="checkbox"/> 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure | <input checked="" type="checkbox"/> Other <u>Plug and abandon well and decommission on site production equipment and flow line(s).</u> |

SITE INFORMATION

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

Facility Type: <u>WELL</u>	Facility ID: _____	API #: <u>007-05170</u>	County Name: <u>ARCHULETA</u>
Facility Name: <u>SHAHAN (OWP) 2</u>		Latitude: <u>37.038345</u>	Longitude: <u>-106.842857</u>
		** correct Lat/Long if needed: Latitude: _____	Longitude: _____
QtrQtr: <u>NESE</u>	Sec: <u>4</u>	Twp: <u>32N</u>	Range: <u>1E</u>
		Meridian: <u>N</u>	Sensitive Area? <u>Yes</u>

SITE CONDITIONS

General soil type - USCS Classifications MLMost Sensitive Adjacent Land Use GrazingIs domestic water well within 1/4 mile? YesIs surface water within 1/4 mile? YesIs groundwater less than 20 feet below ground surface? Yes

Other Potential Receptors within 1/4 mile

Little Navajo River.

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	Field screening, analytical results
UNDETERMINED	SOILS	5' by 5'	Visual observation of stained area.

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 COGCC Orphan Well Program will be potentially re-entering and plugging the Shahan (OWP) #2 well and decommissioning any associated flow lines and/or production equipment. Soil samples will be collected in accordance with COGCC Rule 915.e(2)B. Samples will be collected from the wellhead excavation, flow line path(s), as well as any other area likely to have been impacted. Samples will be submitted for laboratory analysis of Table 915-1 constituents.

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):

Soil samples will be collected for laboratory analysis of Table 915-1 constituents from areas most likely to have been impacted. Visual inspection and field screening of soils will be conducted in the areas surrounding the flow line and well head. Based on these observations, soil samples may be collected and submitted for laboratory analysis of Table 915-1 constituents. Discrete soil samples will be collected for confirmation of compliance with Table 915-1.

Proposed Groundwater Sampling

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

If a pathway to groundwater is discovered or groundwater is encountered during remediation activities, a sample(s) will be collected and analyzed for Table 915-1 constituents and notice given to COGCC.

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 _____ 0
Number of soil samples exceeding 910-1 _____
Was the areal and vertical extent of soil contamination delineated? _____
Approximate areal extent (square feet) _____

NA / ND

_____ Highest concentration of TPH (mg/kg) _____
_____ Highest concentration of SAR _____
_____ BTEX > 910-1 _____
_____ Vertical Extent > 910-1 (in feet) _____

Groundwater

Number of groundwater samples collected _____ 0
Was extent of groundwater contaminated delineated? No _____
Depth to groundwater (below ground surface, in feet) _____
Number of groundwater monitoring wells installed _____
Number of groundwater samples exceeding 910-1 _____

_____ 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 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?

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

Background soil conditions will be determined by the analysis of a sample(s) collected from nearby, non-impacted native soil to establish background concentrations.

☐ 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?

REMEDIAL ACTION PLAN

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

The Shahan (OWP) #2 well will be plugged and abandoned. Any/all production equipment associated with this well on the Oil and Gas Location will be removed or decommissioned.

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.

Impacted material discovered during the scope of this work plan will be removed and disposed of as E&P waste at an approved facility.

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 COGCC 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

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

Report Type: ☐ Groundwater Monitoring ☐ Land Treatment Progress Report ☐ O&M Report

☒ Other Facility closure _____

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? No

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 _____

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: _____

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

E&P waste (liquid) description _____

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: _____

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 COGCC 1000 Series 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 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. _____

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 07/05/2021

Date of commencement of Site Investigation. _____

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 07/05/2021

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

This Site Investigation and Remediation Work Plan is being submitted on behalf of the COGCC Orphaned Well Program.

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

Signed: Jim Hughes

Title: SW EPS

Submit Date: 06/01/2021

Email: jimo.hughes@state.co.us

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: ALEX FISCHER

Date: 10/19/2021

Remediation Project Number: 20502

Condition of Approval**COA Type****Description**

	If groundwater is encountered during any excavation, a minimum of one surface/groundwater sample shall be collected per Rule 913.c.(6) for those constituents listed in Table 915-1.
	Attachment (Aerial Image) did not show soils sample location. A representative number of soil sample shall be collected to adequately characterize and delineate the impacted area(s). Discrete soil samples shall be collected and analyzed for Table 915-1 Cleanup Concentrations using the Protection of Groundwater Screening Level Concentrations.
	Form 44 not found in well file for offline flowline abandonment. Comply with COGCC Rule 1105 flowline abandonment requirements, including notification and verification requirements.
	A supplemental Form 27 will be submitted within 45 days of the completion of the actions described in this submission.
	Upon discovery of flowline release during the PA and removal, the operator must investigate the extent of release and provide form 19 and a supplemental form 27 with proposed investigation sample sites for COGCC staff approval.
	If during P&A activities of the well and flow line, historic impact are observed the operator must investigate the extent of release and provide form 19 and a supplemental form 27 with proposed investigation sample sites for COGCC staff approval. Attachment (Aerial Image) did not show soils sample location. A representative number of soil sample shall be collected to adequately characterize and delineate the impacted area (s).
	If gas is observed to coming up the well, a sample of gas shall be collected and submitted for laboratory analysis of the gas composition and stable isotopes. The compositional analysis should include hydrogen, argon, oxygen, carbon dioxide, nitrogen, methane (C1), ethane (C2), ethene, propane (nC3), isobutane (iC4), butane (nC4), isopentane (iC5), pentane (nC5), hexanes +, specific gravity and British Thermal Units (BTU). The stable isotope analysis should include delta DC1, delta 13C1, delta 13C2, delta 13C3, delta 13iC4, delta 13nC4, delta 13iC5 (if possible), delta 13nC5 (if possible), and delta 13C of CO2 (if possible). The analytical results shall be submitted to the COGCC via Form 43 (Analytical Sample Submittal Form). Gas sample containers should be filled in accordance with container manufacturer or laboratory recommendations; purging multiple container volumes may not be feasible due to limited gas volumes.
	If fluid is present in the well, fluids samples from the well shall be collected and submitted for the laboratory analysis of major anions (chloride, carbonate, icarbonate, and sulfate), cations (sodium, potassium, calcium, and magnesium) total dissolved solids (TDS), BTEX, DRO, GRO, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene and dissolved gasses (RSK 175).

8 COAs

Attachment Check List

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

Att Doc Num**Name**

402705609	FORM 27-INITIAL-SUBMITTED
402705618	AERIAL IMAGE

Total Attach: 2 Files

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

Environmental	Location ID: 4378515 API 007-05170 Historic Well IHS Soil = Herm family, clay loam, cool, 3 to 12 percent slopes Inspection Doc #669500233 with attached Photo Doc #s 669500240 and 669500241 show apparent salt staining in an approximate 8-10 foot radius around the well head. Historic topo map shows a "Spring" approximately 578 feet north of the well location. Little Navajo River approximately 185 feet west of the well location. Wetland fresh water emergent feature approximately 222 feet north of the well location. Groundwater is estimated to be 10' or less below ground surface.	10/19/2021
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Total: 1 comment(s)