FORM 27 Rev 3/16

State of Colorado
Oil and Gas Conservation Commission

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Report taken by: PETER GINTAUTAS

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: SRC ENERGY INC Operator No: 10311
Address: 1675 BROADWAY SUITE 2600
City: DENVER State: CO Zip: 80202
Contact Person: Dave Castro Email: dcastro@srcenergy.com

Phone Numbers
Phone: (970) 4755220
Mobile: ( )

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 11384 Initial Form 27 Document #: 401654942

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
- [x] 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: 455228 API #: County Name: WELD
Facility Name: Keto Tank Battery Latitude: 40.321034 Longitude: -104.930732
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: swse Sec: 7 Twp: 4n Range: 67w Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications: SM
Most Sensitive Adjacent Land Use: crop land
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? No

Other Potential Receptors within 1/4 mile

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [x] **E&P Waste**
  - [x] Produced Water
  - [ ] Oil
  - [ ] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	GROUNDWATER	tank battery	sampling
Yes	SOILS	tank battery	sampling

INITIAL ACTION SUMMARY

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

7 monitoring wells were installed, per approved document number 401654942. Soil samples were collected and tested for BTEX, DRO, andd GRO. Groundwater samples were collected form all 7 MWs and sampled for BTEX. Those results and sample location figures are attached.

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):

No further soil samples are anticipated at this time.

Proposed Groundwater Sampling

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

No further MW installation activities are planned at this time. Only quartyerly monitoring of the existing 7 MWs will continue.

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: 6

Number of soil samples exceeeding 910-1: 0

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet): 1500

NA / ND

ND — Highest concentration of TPH (mg/kg):

NA — Highest concentration of SAR:

BTEX > 910-1: No

Vertical Extent > 910-1 (in feet): 0

Groundwater

Number of groundwater samples collected: 7

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet): 25`

Number of groundwater monitoring wells installed: 7

Number of groundwater samples exceeding 910-1: 1

-- — Highest concentration of Benzene (µg/l): 27.7

-- — Highest concentration of Toluene (µg/l): 17.7

-- — Highest concentration of Ethylbenzene (µg/l): 15.4

-- — Highest concentration of Xylene (µg/l): 172

NA — 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?

☐ 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

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.

Partially buried produced water vault was removed and hauled to North Weld Landfill.

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.

Contaminated soil excavated from Eagle's initial investigation was hauled off to North Weld Landfill. The excavation is being backfilled with clean dirt. SRC and Eagle plan to install MWs to first define the the extents and concentrations of the impacted groundwater. Once these are known, a more strategic remediation will be planned, which could include groundwater amendment injection, air sparging, or natural attenuation.

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) 100
  - 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
- Yes 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.

Natural attenuation is the chosen method for this project. The 7 MWs will be sampled quarterly until all MWs have 4 consecutive quarters of compliance with Table 910-1 limits.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

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

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

☐ Other _____

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 _____

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: _____

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 impacted soil excavation under the previous location of the partially buried produced water vault wax backfilled with clean dirt and the secondary containment berm around the tank battery repaired.

Is the described reclamation complete? Yes

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). 04/04/2018

Date of commencement of Site Investigation. 05/18/2018

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. _____

Date of completion of Remediation. 07/18/2018

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

This SF27 is for the submission of results from the impact investigation completed by Eagle Environmental. After review of all results, SRC has chose natural attenuation to be an appropriate remediation for this project. Quartlery monitoring will continue until all 7 MWs have 4 consecutive quarters compliant with Table 910-1 limits.

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

Signed:` Dave Castro Title: Sr. Env. Specialist

Submit Date:` 07/03/2018 Email: dcastro@srcenergy.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: PETER GINTAUTAS Date: 07/03/2018

Remediation Project Number: 11384

COA Type	Description
	Submit reports of site investigation and progress of remediation including results of sampling and analysis on an annual basis or more often until remediation is closed.

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
401692841	FORM 27-SUPPLEMENTAL-SUBMITTED
401692880	SOIL SAMPLE LOCATION MAP
401692882	SOIL SAMPLE LOCATION MAP
401692883	GROUND WATER SAMPLE LOCATION
401692884	GROUND WATER ELEVATION MAP
401692885	ANALYTICAL RESULTS
401692886	ANALYTICAL RESULTS
401692888	ANALYTICAL RESULTS
401692891	ANALYTICAL RESULTS
401692898	ANALYTICAL RESULTS

Total Attach: 10 Files

General Comments

User Group	Comment	Comment Date
		Stamp Upon Approval

Total: 0 comment(s)