

State of Colorado  
Oil and Gas Conservation Commission

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Document Number:  
402011879  
Receive Date:  
04/17/2019

Report taken by:  
RICK ALLISON

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	<b>Phone Numbers</b>
Address: 1675 BROADWAY SUITE 2600		Phone: (970) 4755220
City: DENVER State: CO Zip: 80202		Mobile: ( )
Contact Person: Dave Castro	Email: dcastro@srcenergy.com	

PROJECT, PURPOSE & SITE INFORMATION

**PROJECT INFORMATION**  
Remediation Project #: 10672 Initial Form 27 Document #: 401452818

**PURPOSE INFORMATION**

<input type="checkbox"/> 901.e. Sensitive Area Determination	<input checked="" type="checkbox"/> 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
<input checked="" 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 checked="" 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 type="checkbox"/> Other

**SITE INFORMATION** N Multiple Facilites ( in accordance with Rule 909.c. )

Facility Type: SPILL OR RELEASE	Facility ID: 451116	API #: _____	County Name: WELD
Facility Name: Eldridge 4-23	Latitude: 40.475524	Longitude: -104.736213	
	** correct Lat/Long if needed: Latitude: 40.475525	Longitude: -104.736236	
QtrQtr: SENE	Sec: 23	Twp: 6N	Range: 66W Meridian: 6 Sensitive Area? No

**SITE CONDITIONS**

General soil type - USCS Classifications SC Most Sensitive Adjacent Land Use agriculture

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**

Seeley Lake, various

# 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	GROUNDWATER	190' x 80'	groundwater sampling
Yes	SOILS	130' x 130'	soil 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.

On January 15 and 16, 2019, Eagle installed 10 air sparge (AS) wells and 15 soil vapor extraction (SVE) wells at the Eldridge 4-23 site. AS/SVE conveyance lines were installed on January 30 and 31, 2019 and AS/SVE system startup activities commenced on February 15, 2019. Due to generator issues the AS/SVE system ran intermittently until February 22, 2019 when issues were resolved. The system has been operating consistently since that time.

## 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 ):

Periodically going forward until all impacted soil areas above Table 910-1 limits are within compliance.

### Proposed Groundwater Sampling

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

Quarterly groundwater monitoring samples from the monitoring wells for BTEX the 3rd month of each quarter until 4 consecutive quarters of Table 910-1 compliance has been achieved. As groundwater impacts decrease monitoring wells may be removed from the sampling plan as long as point of compliance is maintained.

### 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 0  
Was the areal and vertical extent of soil contamination delineated? No  
Approximate areal extent (square feet) \_\_\_\_\_

### NA / ND

-- Highest concentration of TPH (mg/kg) \_\_\_\_\_  
-- Highest concentration of SAR \_\_\_\_\_  
BTEX > 910-1 No  
Vertical Extent > 910-1 (in feet) \_\_\_\_\_

### Groundwater

Number of groundwater samples collected 19  
Was extent of groundwater contaminated delineated? Yes  
Depth to groundwater (below ground surface, in feet) 7'  
Number of groundwater monitoring wells installed 25  
Number of groundwater samples exceeding 910-1 3

-- Highest concentration of Benzene (µg/l) 1540  
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  
0 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?

Quarterly groundwater monitoring samples from the monitoring wells for BTEX the 3rd month of each quarter until 4 consecutive quarters of Table 910-1 compliance has been achieved. As groundwater impacts decrease monitoring wells may be removed from the sampling plan as long as point of compliance is maintained.

# 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.

Initial source removal was completed via excavation in June 2017. Additional 1800 cubic yards of impacted soil were excavated to finish source removal activities in September 2018, and more carbon and gypsum amendment placed in the excavation before backfill in the SW corner of the site where the trench was opened up for amendment placement.

## **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.

On January 15 and 16, 2019, Eagle installed 10 air sparge (AS) wells and 15 soil vapor extraction (SVE) wells at the Eldridge 4-23 site. AS/SVE conveyance lines were installed on January 30 and 31, 2019 and AS/SVE system startup activities commenced on February 15, 2019. Due to generator issues the AS/SVE system ran intermittently until February 22, 2019 when issues were resolved. The system has been operating consistently since that time.

## **Soil Remediation Summary**

In Situ

Ex Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

Yes \_\_\_\_\_ Excavate and offsite disposal

Yes \_\_\_\_\_ Chemical oxidation

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 1800

Yes \_\_\_\_\_ Air sparge / Soil vapor extraction

\_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_

\_\_\_\_\_ Natural Attenuation

\_\_\_\_\_ Excavate and onsite remediation

\_\_\_\_\_ Other \_\_\_\_\_

\_\_\_\_\_ Land Treatment

\_\_\_\_\_ Bioremediation (or enhanced bioremediation)

\_\_\_\_\_ Chemical oxidation

\_\_\_\_\_ Other \_\_\_\_\_

## **Groundwater Remediation Summary**

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

Yes \_\_\_\_\_ Chemical oxidation

Yes \_\_\_\_\_ 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.

Quarterly groundwater monitoring samples from the monitoring wells for BTEX the 3rd month of each quarter until 4 consecutive quarters of Table 910-1 compliance has been achieved. As groundwater impacts decrease monitoring wells may be removed from the sampling plan as long as point of compliance is maintained.

## 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? Yes

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

impacted soil

Volume of E&P Waste (solid) in cubic yards 1800

E&P waste (solid) description hydrocarbon impacted soils

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: North Weld Landfill

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

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? No

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? Yes

Does Groundwater meet Table 910-1 standards? No

Is additional groundwater monitoring to be conducted? Yes

## 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.

Location has been reclaimed and seeded per COGCC 1000 series rules.

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? Yes

If NO, does the seed mix comply with local soil conservation district recommendations? Yes

## IMPLEMENTATION SCHEDULE

### **PRIOR DATES**

Date of Surface Owner notification/consultation, if required. 06/14/2017

Actual Spill or Release date, if known. 06/14/2017

### **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 06/14/2017

Date of commencement of Site Investigation. 06/14/2017

Date of completion of Site Investigation. 03/01/2018

### **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 02/15/2019

Date of completion of Remediation. \_\_\_\_\_

### **SITE RECLAMATION DATES**

Date of commencement of Reclamation. 02/04/2019

Date of completion of Reclamation. 02/08/2019

**OPERATOR COMMENT**

This SF27 is to provide 2019Q1 project update on all activities completed during the quarter which includes AS/SVE installation, system startup, and quarterly groundwater monitoring sample event. All logs, figures, tables, and lab analytical reports are attached to this document.

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: 04/17/2019

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: RICK ALLISON

Date: 04/18/2019

Remediation Project Number: 10672

**COA Type****Description**

	If groundwater elevation does not recover, replacement of MW-18 will be necessary.
	Include SVE/AS O&M data (injection rates and SVE emissions data) with the next Quarterly Report.
	Confirmation soil samples will be required in areas with remaining impacts to soil above the Table 910-1 Concentration Levels to demonstrate remediation has achieved compliance with Table 910-1 prior to requesting No Further Action.
	Approval from COGCC is required prior to removing monitoring wells from the monitoring program.

**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**

402011879	FORM 27-SUPPLEMENTAL-SUBMITTED
402011989	LOGS
402011991	LOGS
402011993	ANALYTICAL RESULTS
402011994	SITE MAP
402011997	GROUND WATER SAMPLE LOCATION
402012000	GROUND WATER ELEVATION MAP
402012004	ANALYTICAL RESULTS

Total Attach: 8 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)