

# 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 INFORMATION

Name of Operator: SRC ENERGY INC	Operator No: 10311	<b>Phone Numbers</b> Phone: (970) 4755220 Mobile: ( )
Address: 1675 BROADWAY SUITE 2600		
City: DENVER	State: CO Zip: 80202	
Contact Person: Dave Castro	Email: dcastro@srcenergy.com	

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 11384

Initial Form 27 Document #: 401654942

#### 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 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 Facilities ( 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:

☒ 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
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.

Partially buried produced water vault was removed.

### 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 ):

From February 4 through February 14, 2019, Eagle Environmental provided environmental oversight and collected soil samples during excavation activities. An area approximately 50 feet long by 20 feet wide by 30 feet deep was excavated beneath the former tank battery. During excavation activities, soil samples were collected throughout the excavation and screened for VOCs PID. Eagle submitted a total of 25 sidewall soil samples for analysis of BTEX, TPH-GRO and TPH-DRO. Based on lab analytical results, none of the 25 soil samples submitted contained concentrations of BTEX or TPH exceeding their applicable COGCC Table 910-1 limits.

#### Proposed Groundwater Sampling

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

During excavation/back-filling activities, all monitoring wells were destroyed. On March 18 and 19, 2019, Eagle installed 7 replacement MWs (MW-10 through MW-16). Eagle will conduct quarterly groundwater monitoring sampling the 3rd month of each quarter until 4 consecutive Table 910-1 compliant quarters have been achieved. 2019Q1 is the first compliant quarter.

#### 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? Yes

Approximate areal extent (square feet)

### NA / ND

NA Highest concentration of TPH (mg/kg)

NA Highest concentration of SAR

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet)

### Groundwater

Number of groundwater samples collected 7

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 26

Number of groundwater monitoring wells installed 7

Number of groundwater samples exceeding 910-1 0

ND Highest concentration of Benzene (µg/l)

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

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) 5764

Volume of liquid waste (barrels) 71

☐ 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.

From February 4 through February 14, 2019, Eagle Environmental provided environmental oversight and collected soil samples during excavation activities. An area approximately 50 feet long by 20 feet wide by 30 feet deep was excavated beneath the former tank battery. During excavation activities, soil samples were collected throughout the excavation and screened for VOCs PID. Eagle submitted a total of 25 sidewall soil samples for analysis of BTEX, TPH-GRO and TPH-DRO. Based on lab analytical results, none of the 25 soil samples submitted contained concentrations of BTEX or TPH exceeding their applicable COGCC Table 910-1 limits.

## 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) 5764  
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 )  
Yes \_\_\_\_\_ Chemical oxidation  
☐ Air sparge / Soil vapor extraction  
☐ Natural Attenuation  
Yes Other carbon/gypsum groundwater amendment \_\_\_\_\_

## 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.

Eagle will conduct quarterly groundwater monitoring sampling the 3rd month of each quarter until 4 consecutive Table 910-1 compliant quarters have been achieved. 2019Q1 is the first compliant quarter.

## REMEDATION 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:

none

Volume of E&P Waste (solid) in cubic yards 5764

E&P waste (solid) description produced water contaminated soil

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

Non-COGCC Disposal Facility: North Weld Landfill

Volume of E&P Waste (liquid) in barrels 71

E&P waste (liquid) description produced water impacted groundwater

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

Non-COGCC Disposal Facility: NGL

## REMEDATION COMPLETION REPORT

### REMEDATION 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.

Excavation has been backfilled and location reclaimed.

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. \_\_\_\_\_

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. 04/01/2019

### REMEDIAL ACTION DATES

Date of commencement of Remediation. 02/04/2019

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

### SITE RECLAMATION DATES

Date of commencement of Reclamation. \_\_\_\_\_

Date of completion of Reclamation. 03/15/2019

### OPERATOR COMMENT

This SF27 is to report 2019Q2 groundwater monitoring results. All results are within Table 910-1 limits. This is the 2nd consecutive quarter of Table 910-1 compliance. All figures, tables, and lab analytical reports are attached to this document. The 2019Q3 groundwater monitoring sample event will take place in September 2019.

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: 07/22/2019

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: PETER GINTAUTAS

Date: 07/22/2019

Remediation Project Number: 11384

### COA Type

### Description

	Submit reports of site investigation and progress of remediation including results of sampling and analysis on a quarterly basis or more often until remediation is closed.
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## 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

402117596	FORM 27-SUPPLEMENTAL-SUBMITTED
402117605	GROUND WATER SAMPLE LOCATION
402117607	GROUND WATER ELEVATION MAP
402117608	ANALYTICAL RESULTS
402117609	ANALYTICAL RESULTS

Total Attach: 5 Files

## General Comments

### User Group

### Comment

### Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)