

# State of Colorado Oil and Gas Conservation Commission

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Report taken by:

Candice (Nikki) Graber

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

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 9825 Initial Form 27 Document #: 200440189

#### 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 checked="" 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: <u>SPILL OR RELEASE</u>	Facility ID: <u>445470</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>Peterson 1-12</u>		Latitude: <u>40.507591</u>	Longitude: <u>-104.609899</u>
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NENW</u>	Sec: <u>12</u>	Twp: <u>6N</u>	Range: <u>65W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>

#### SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use CROP LAND

Is domestic water well within 1/4 mile? Yes 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

The Greeley No. 2 Canal 100' east; 4 domestic water wells: 380' WNW, 360' WSW, 485' WSW, and 1170' NNW.

## 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 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	300 square feet	Site Assessment and excavation groundwater samples
Yes	SOILS	50 feet by 50 feet by 9 feet bgs	Drilling and excavation soil samples

### INITIAL ACTION SUMMARY

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

Historical impacts were observed during the removal of a partially buried produced water vault during plugging and abandonment activities at the Peterson 1-12 tank battery. The associated well was decommissioned prior to removing the concrete vault. Source removal was conducted upon discovery of the historical impact.

### 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 ):

Four confirmation soil samples were collected from the source excavation area. An additional 14 soil samples were collected during monitoring well installation. Samples were collected from the unsaturated zone of the soil boring exhibiting the greatest potential for petroleum hydrocarbon impact (i.e., PID readings, staining, and odors) and analyzed for BTEX and TPH.

#### Proposed Groundwater Sampling

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

A groundwater sample was collected from the initial excavation. Groundwater samples were collected from the 14 monitoring wells on site. All samples were analyzed for BTEX.

#### 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) 0

### NA / ND

NA 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 5

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet) 7'

Number of groundwater monitoring wells installed 15

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)           

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? Yes \_\_\_\_\_

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

The partially buried produced water tank was removed from service and the site production well been plugged and abandoned. Source removal excavation was conducted.

## 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.

The impacted soil was treated via ex-situ mechanical shredding and application of a hydrogen peroxide solution. Upon confirmation soil samples indicating compliance with applicable COGCC Table 910-1 standards, the soil was used to backfill the excavation. Prior to backfilling, BOS 200® was applied to the floor of the excavation, and an infiltration gallery was installed for potential future injection of groundwater amendments.

## 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 # \_\_\_\_\_

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

No \_\_\_\_\_ Land Treatment

No \_\_\_\_\_ Bioremediation (or enhanced bioremediation)

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

No \_\_\_\_\_ Other \_\_\_\_\_

## Groundwater Remediation Summary

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

No \_\_\_\_\_ Chemical oxidation

No \_\_\_\_\_ Air sparge / Soil vapor extraction

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

Per document number 200440189, the COGCC had previously approved a reduction in the monitoring program to include monitoring wells MW02, MW03, and MW15. Due to a slight shift in the groundwater flow direction, Synergy will continue quarterly sampling in the monitoring well representative of the source area (MW15) and downgradient monitoring wells MW02, MW03, MW07R, and MW08R. Samples will be collected on quarterly basis and submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes. Quarterly monitoring will continue with the goal of obtaining four consecutive quarters indicating compliance with applicable COGCC Table 910-1 under static conditions.

## 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? 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: \_\_\_\_\_

## REMEDATION COMPLETION REPORT

### REMEDATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? Yes

Do all soils meet Table 910-1 standards? Yes

Does the previous reply indicate consideration of background concentrations? No

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? Yes

Is additional groundwater monitoring to be conducted? No

## 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 location has been 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). \_\_\_\_\_

Date of commencement of Site Investigation. 04/12/2016

Date of completion of Site Investigation. 04/25/2016

### **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 06/13/2016

Date of completion of Remediation. 07/19/2017

### **SITE RECLAMATION DATES**

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

Date of completion of Reclamation. \_\_\_\_\_

**OPERATOR COMMENT**

Attached is LTE's 2017Q2 quarterly groundwater monitoring report. 2017Q2 was the 4th and final consecutive quarter of Table 910-1 compliant results. However, a SF27 was never submitted for closure request results. This SF27 is to submit the 2017Q2 monitoring report and request NFA closure on this project.

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: ` 10/10/2019

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: Candice (Nikki) Graber

Date: 10/10/2019

Remediation Project Number: 9825

**COA Type****Description**

	<p>Based on the information presented, it appears that no further action is necessary at this time and the COGCC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if ground water is found to be impacted, then further investigation and/or remediation activities may be required. In addition, the surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules.</p> <p>For locations with active ongoing oil and gas operations, comply with Rule 1003 interim reclamation requirements.</p>
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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**

402205007	FORM 27-SUPPLEMENTAL-SUBMITTED
402205014	MONITORING REPORT

Total Attach: 2 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)