

State of Colorado  
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:  
401964588  
Receive Date:  
03/28/2019  
Report taken by:  
KRIS NEIDEL

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: SANDRIDGE EXPLORATION & PRODUCTION LLC	Operator No: 10598	<b>Phone Numbers</b>
Address: 123 ROBERT S KERR AVE		Phone: (405) 4295745
City: OKLAHOMA CITY State: OK Zip: 73102		Mobile: (405) 6853
Contact Person: Matt Church	Email: mchurch@sandridgeenergy.com	

PROJECT, PURPOSE & SITE INFORMATION

**PROJECT INFORMATION**  
Remediation Project #: 12465 Initial Form 27 Document #: 401914656

**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 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: 460719	API #: _____	County Name: JACKSON
Facility Name: Gregory 0780 1-09H	Latitude: 40.585538	Longitude: -106.388126	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SWSW	Sec: 9	Twp: 7N	Range: 80W Meridian: 6 Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications GP Most Sensitive Adjacent Land Use Livestock Grazing

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**

Grizzly Creek is located 816 feet northwest of release location. Groundwater elevations are estimated to be 7 feet bgs (below ground surface) near Grizzly Creek. Elevation of the site is approximately 25 feet higher than Grizzly Creek and therefore the estimated groundwater elevations are estimated to be 25-30 feet bgs at the release location.

# 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	SOILS	Approximately 2,000 square feet.	Form 19 Sup. Inv. and 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.

Initial Form 19 was submitted 1/15/2019. After the oil collection system was shut down, hydrovac and excavation equipment were dispatched immediately and impacted materials were removed to the extent that frozen ground conditions would allow. A Supplemental Form 19 was submitted 1/23/2019 in conjunction with this Form 27 Initial. Root Cause analysis identified the sprayed fluid was released from the flare's back pressure valve. The overtopped tank's fluid ran into the gas-to-flare line where a pressure regulator at the meter caused liquid to spray from the back pressure valve and back into the overtopped tank. The containment was originally constructed with a geotextile liner. The "spray area" encompasses an area 75x 50 feet (3,750).

## 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 ):

On 1/15/2019, two soil grab samples were collected (1-2 inches below ground surface) outside of the secondary containment to evaluate the potential for soil to be impacted. Based upon visual observations, the first sample (SDE\_G\_SS\_01\_1-2) was collected in the most impacted location where oil had contacted the ground. The second sample (SDE\_G\_SS\_02\_1-2) was collected within the area where oil spray contacted the ground. After excavation efforts, five additional samples (total of 7) were collected on 1/21/2019 to determine the extent of contamination that may have occurred in the subsurface (2-6 inches below ground surface). Samples were screened for the presence of hydrocarbons with a photoionization detector (PID) and submitted to Pace/ESC Labs for COGCC Table 910-1 Analyses.

### Proposed Groundwater Sampling

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

### 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 ):



# 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.

SandRidge has and will continue to conduct source removal of the impacted soil via dig and haul activities.

## 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.

Hydrovac and excavation equipment have removed the majority of impacted materials but oil staining remains on the surface in spots due to limitations of excavating in frozen ground conditions. Further excavation is required to remove staining and also impacted soil with elevated pH outside of containment and elevated hydrocarbon concentrations from inside containment (SDE\_G\_SS\_05\_2\_6 and SDE\_G\_SS\_07\_2\_6). Impacted materials will be disposed of at a properly licensed disposal facility. Clean backfill material will be imported when confirmation soil samples confirm all impacted materials have been removed.

## Soil Remediation Summary

In Situ

Ex Situ

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

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

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

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 100

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

\_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_ 211979

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

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

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

\_\_\_\_\_ 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 Status Update \_\_\_\_\_

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:

Soil waste was excavated and hauled to Twin Enviro for disposal.

Volume of E&P Waste (solid) in cubic yards \_\_\_\_\_ 10

E&P waste (solid) description Excavated oil, produced water  
impacted soil. \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_ 211979

Non-COGCC Disposal Facility: \_\_\_\_\_

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? \_\_\_\_\_

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 facility is presently in use and reclamation activities are not warranted at this time onsite. The offsite area of excavation will be evaluated at the beginning of the growing season to determine the best plan, if any is needed, for reclamation.

Is the described reclamation complete? \_\_\_\_\_

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. 01/15/2019

Actual Spill or Release date, if known. 01/15/2019

### **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 01/15/2019

Date of commencement of Site Investigation. 01/15/2019

Date of completion of Site Investigation. 01/21/2019

### **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 01/15/2019

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

### **SITE RECLAMATION DATES**

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

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

**OPERATOR COMMENT**

Further excavation of the impacted area will be completed as soon as feasible, depending upon when winter conditions subside. Confirmation soil samples will be collected, after excavation is completed, and sent to a laboratory for analysis. A Form 27 Supplemental Report will be submitted that will include all waste disposal manifests for this remediation project.

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

Signed: ` Joel Mason \_\_\_\_\_

Title: Project Manager \_\_\_\_\_

Submit Date: ` 03/28/2019 \_\_\_\_\_

Email: joel.mason@absarokasolutions.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: KRIS NEIDEL \_\_\_\_\_

Date: 04/10/2019 \_\_\_\_\_

Remediation Project Number: 12465 \_\_\_\_\_

**COA Type****Description**

	Enough confirmation samples to adequately characterize the 50x75 foot spray area should be analyzed for full COGCC table 910-1.
	This report show that impacts remain (PAH, TPH, benzene). The impacted area should be inspected daily, impacted material should be removed as soon as allowable, stormwater should be prevented from contacting impacted soils, confirmation samples should be taken after removal of impacted material.

**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**

401964588	FORM 27-SUPPLEMENTAL-SUBMITTED
401986797	PHOTOS
401988124	MAP
401988126	SITE MAP
401988127	SOIL SAMPLE LOCATION MAP
401988128	OTHER
401988129	ANALYTICAL RESULTS
401988130	ANALYTICAL RESULTS
401988131	ANALYTICAL RESULTS

Total Attach: 9 Files

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

Environmental	Ground water is relatively shallow 25-30 feet, consideration should be made to determine the potential impact to ground water.	04/10/2019
Environmental	This form addresses a question from COA on initial, doc 401914656, stated here, "The containment was originally constructed with a geotextile liner."	04/01/2019

Total: 2 comment(s)