

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:
402181227
Receive Date:
10/11/2019
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	Phone Numbers
Address: 123 ROBERT S KERR AVE		Phone: (405) 651-6853
City: OKLAHOMA CITY State: OK Zip: 73102		Mobile: (405) 651-6853
Contact Person: Matt Church	Email: mchurch@sandridgeenergy.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 12465 Initial Form 27 Document #: 401914656

PURPOSE INFORMATION

- 901.e. Sensitive Area Determination
- 909.c.(1), Rule 905: Pit or PW vessel closure
- 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
- 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 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):

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 7

Number of soil samples exceeding 910-1 3

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

Approximate areal extent (square feet) 2000

NA / ND

-- Highest concentration of TPH (mg/kg) 8890

-- Highest concentration of SAR 0.74

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 0

Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet)

Number of groundwater monitoring wells installed

Number of groundwater samples exceeding 910-1

 Highest concentration of Benzene (µg/l)

 Highest concentration of Toluene (µg/l)

 Highest concentration of Ethylbenzene (µg/l)

 Highest concentration of Xylene (µg/l)

 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?

Analyses for organic compounds in the sample collected within the spray area (SDE_G_SS_01_1-2) were below Table 910-1 regulatory limit.

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.

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

REMEDICATION 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

_____ 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
 _____ 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 Closure Request

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 was excavated and hauled to Twin Enviro for disposal.

Volume of E&P Waste (solid) in cubic yards 180

E&P waste (solid) description Hydrocarbon & produced water impacted soil

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: Twin Enviro Landfill, # 211979

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? Yes

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? 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 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. 07/08/2019

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

A Form 27 Supplemental Report (Doc# 401964588) was submitted to the COGCC on 3/28/2019, notifying that remediation of the location would proceed during permissible weather conditions. SandRidge completed excavation of impacted soil from the spill area on 7/8/2019. The adjacent irrigation ditch was not flowing with water and did not appear to be active for this growing season. Confirmation samples were collected in the excavation bottom to verify that all impacts were removed. All confirmation soil sample results were below COGCC Table 910-1 allowable concentrations for organic compounds. All confirmation soil samples results exceeded Table 910-1 allowable concentrations for arsenic. SandRidge is requesting relief from elevated arsenic concentrations via COGCC FAQ 31. The confirmation sample SDE_G_SS_14_NE, had a pH of 5.12. The pH exceedance is not likely a result of the spill as other related parameters such as SAR and EC were as expected. The pH exceedance appears to be an anomaly and potentially a natural occurrence within the subsurface soil composition. If however elevated pH originated from impacts of the spill they would be de minimis and will naturally attenuate over time. SandRidge is requesting final closure of 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: 10/11/2019 _____

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: 12/11/2019 _____

Remediation Project Number: 12465 _____

COA Type**Description**

	Arsenic concentrations in samples are consistent with those of background concentrations, per data provided. Request for relief of Arsenic levels on table 910-1, per 2008 rule making FAQ question 31, is approved.
	Based on review of the information provided, it appears that no further action is necessary at this time and COGCC approves the closure request. Should conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards, or, if groundwater is found to be significantly impacted, further investigation and/or remediation activities may be required at the site.

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**

402181227	FORM 27-SUPPLEMENTAL-SUBMITTED
402181237	MAP
402181243	ANALYTICAL RESULTS
402181244	PHOTOS
402181245	DISPOSAL MANIFESTS
402181248	OTHER
402194180	SOIL SAMPLE LOCATION MAP
402194182	OTHER
402207638	ANALYTICAL RESULTS

Total Attach: 9 Files

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

Environmental	COGCC recognizes, the pH in sample "SDE_G_SS_14_NE" is below the allowable range. The pH level may be an anomaly or maybe attributed to a shallow fluctuating groundwater table, or soil chemistry.	12/11/2019
Agency	Root Cause of spill was addressed in document 401914522.	12/11/2019
Environmental	The spray area was delineated in Form 27 document 401964588 (and it's accompanying documents).	12/11/2019

Total: 3 comment(s)