

State of Colorado
Oil and Gas Conservation Commission

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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 Phone: (405) 429-5745 Mobile: (405) 651-6853
Address: 123 ROBERT S KERR AVE		
City: OKLAHOMA CITY	State: OK	Zip: 73102
Contact Person: Matt Church	Email: mchurch@sandridgeenergy.com	

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION
Remediation Project #: 13743 Initial Form 27 Document #: 402073369

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: 324757	API #:	County Name: JACKSON
Facility Name: Mutual Pad 01-17H	Latitude: 40.584359	Longitude: -106.404626	
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: NWNW	Sec: 17	Twp: 7N	Range: 80W Meridian: 6 Sensitive Area? Yes

SITE CONDITIONS

General soil type - USCS Classifications SM Most Sensitive Adjacent Land Use Hay Meadow

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

The Mutual Ditch is located adjacent to the west edge of the pad and is currently in use. The irrigation ditch is approximately 60 feet west of the spill, outside the well pad containment berm. Grizzly Creek is approximately 2,300 feet east of the spill location.

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> E&P Waste | <input type="checkbox"/> Other E&P Waste | <input checked="" type="checkbox"/> Non-E&P Waste |
| <input type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | Contaminated groundwater |
| <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
UNDETERMINED	GROUNDWATER	Approximately 48 inches bgs	Hand auger to depth and step out delineation
Yes	SOILS	Approximately 200 square feet	Hand auger and step out delineation

INITIAL ACTION SUMMARY

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

A soil auger and PID meter was used to identify hydrocarbon impacts from collected soil samples. The extent of the spill area was preliminarily delineated.

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):

One grab sample was collected from the soil identified to contain the highest hydrocarbon impacts.

Proposed Groundwater Sampling

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

A groundwater sample will be collected from water within the impacted area. The groundwater sample will be analyzed for TPH (GRO and DRO), BTEX, SVOCs, pH, and specific conductivity.

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):

The Mutual Ditch is located approximately 60 feet west of the spill area. Irrigation water is flowing at near full capacity of the ditch embankment. The ditch will be monitored daily adjacent to, and downstream of the spill area for potential oil sheen.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 1
Number of soil samples exceeding 910-1 1
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 800

NA / ND

-- Highest concentration of TPH (mg/kg) 2743
-- Highest concentration of SAR 1.99
BTEX > 910-1 No
Vertical Extent > 910-1 (in feet) 3

Groundwater

Number of groundwater samples collected 6
Was extent of groundwater contaminated delineated? No
Depth to groundwater (below ground surface, in feet) 3'
Number of groundwater monitoring wells installed 0
Number of groundwater samples exceeding 910-1 2

-- Highest concentration of Benzene (µg/l) 2260
-- Highest concentration of Toluene (µg/l) 5540
-- Highest concentration of Ethylbenzene (µg/l) 992
-- Highest concentration of Xylene (µg/l) 3140
NA Highest concentration of Methane (mg/l)

Surface Water

2 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?

One background surface water sample, SDE_M7_17_SW_00, was collected from the Mutual Ditch upstream of the Mutual 7-17 pad.

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?

SandRidge was directed by the COGCC to to perform investigations during remediation excavations. SandRidge was able to determine the total extent of impacts, both horizontal and vertical. No further investigation and delineation will be 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.

SandRidge removed source material via dig and haul operations. All impacted soil waste was hauled via truck to Twin Enviro Landfill for disposal, located in Milner, Colorado. Water removed from the excavation was collected in frac tanks and hauled to NGL Water Solutions for disposal, located in Greely, Colorado. Manifests are provided in Attachment O and P.

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.

An onsite was conducted 6/17/2019 with the COGCC to determine the best approach. Please review the attached Remediation Summary Report.

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) _____ 250
Name of Licensed Disposal Facility or COGCC Facility ID # _____
No _____ Excavate and onsite remediation
_____ Land Treatment
_____ Bioremediation (or enhanced bioremediation)
_____ Chemical oxidation
_____ Other _____

Groundwater Remediation Summary

No _____ Bioremediation (or enhanced bioremediation)
No _____ Chemical oxidation
No _____ Air sparge / Soil vapor extraction
No _____ Natural Attenuation
Yes _____ Other _____ Pump and dispose _____

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.

An onsite was conducted 6/17/2019 with the COGCC to determine the best approach.

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:

Soil waste was excavated and hauled for disposal to Twin Enviro in Milner, CO. Soil waste manifests are provided in Attachment O. All groundwater removed from the excavation was hauled to NGL Water Solutions DJ, LLC. Fluid waste manifests are provided in Attachment P.

Volume of E&P Waste (solid) in cubic yards 915

E&P waste (solid) description Hydrocarbon contaminated soil

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: Twin Enviro Landfill # 211979

Volume of E&P Waste (liquid) in barrels 960

E&P waste (liquid) description Hydrocarbon contaminated groundwater

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: NGL Water Solutions

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? 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 facility is presently in use and reclamation activities are not warranted at this time onsite.

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. 06/11/2019

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 06/11/2019

Date of commencement of Site Investigation. 06/11/2019

Date of completion of Site Investigation. 06/24/2019

REMEDIAL ACTION DATES

Date of commencement of Remediation. 06/17/2019

Date of completion of Remediation. 06/24/2019

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

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: 12/04/2019

Remediation Project Number: 13743

COA Type	Description
	A supplemental report should be submitted that describes how quarterly sampling of groundwater will occur.
	Quarterly sampling of the groundwater should be done to demonstrate no impact to groundwater remains.
	COGCC staff removed the request for closure in this form 19 to allow for approval. See additional COA's for required action.
	A supplemental report should be submitted that describes the action taken with the failed flowline; was it removed, does any part remain, capped, flushed, location, etc.

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
402093377	FORM 27-SUPPLEMENTAL-SUBMITTED
402178478	MAP
402178479	MAP
402178481	OTHER
402178485	ANALYTICAL RESULTS
402178486	ANALYTICAL RESULTS
402178487	MAP
402178488	OTHER
402178489	ANALYTICAL RESULTS
402178491	SOIL SAMPLE LOCATION MAP
402178493	OTHER
402178494	ANALYTICAL RESULTS
402178495	ANALYTICAL RESULTS
402178496	PHOTOS
402185336	DISPOSAL MANIFESTS
402185355	DISPOSAL MANIFESTS
402185361	OTHER
402185409	ANALYTICAL RESULTS

Total Attach: 18 Files

General Comments

User Group	Comment	Comment Date
Environmental	No Further action is required at this time regarding the impacted soil identified in this project.	12/04/2019

Total: 1 comment(s)