

State of Colorado
Oil and Gas Conservation Commission

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Document Number:
402054280

Receive Date:

Report taken by:

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) 429-5747 |
| 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 #: 12668 Initial Form 27 Document #: 401940011

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: 461449 | API #: _____ | County Name: JACKSON |
| Facility Name: Janet 0780 3-16H21 3-16H21 | Latitude: 40.584779 | Longitude: -106.387475 | |
| ** 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 approximately 0.2 miles from the release location. Adjacent water well permits were reviewed to determine groundwater depth. Water well permit number 73634 is a stock well, drilled to a total depth of 12 feet BGS, and it's first beneficial use was in 1960. Water well permit number 73634 is located 0.7 miles NW of release location. Water well permit number 73212-A, permitted in 1994, recorded a static water level of 7 feet BGS. Water well permit number 73212-A is located 0.75 miles NW of release location. Groundwater elevations are estimated to be 7 feet (below ground surface) near Grizzly Creek. Elevation of the site is approximately 25 feet higher than Grizzly Creek and the estimated groundwater elevations is estimated to be 25-30 feet bgs onsite.

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 450 square feet. | Form 19 Supplemental Investigation and soil screening |

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 1/24/2019. At 1115 on 1/23/2019 well testers noticed a leak on the Janet 3 dump line leaving the allocation dual pack vessel. They immediately shut in the well and called the night pumper. When the night pumper arrived they had shut down the Janet 4 as well because these two wells use the same truck line. All lines to the associated wells were isolated. The surface area potentially impacted was 10 feet wide by 10 feet in length, approximately 100 square feet total. A hydro vac truck was then used to recover released fluid. The equipment that failed (4"x2" swage) was replaced.

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 1/30/2019, two soil grab samples were collected (1-2 inches in depth) within the spill area to evaluate the potential for soil to be impacted by the spill (SDE_J_SS_01 and SDE_J_SS_02). 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. Additional samples will be collected at the sample location of SDE_J_SS_01 after impacted materials are excavated.

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 2
Number of soil samples exceeding 910-1 2
Was the areal and vertical extent of soil contamination delineated? Yes
Approximate areal extent (square feet) 450

NA / ND

-- Highest concentration of TPH (mg/kg) 1940
-- Highest concentration of SAR 9.19
 BTEX > 910-1 No
 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?

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? No _____

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. Soil waste was hauled to Twin Enviro for disposal.

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.

On 1/24/2019, hydrovac equipment removed the majority of spilled material but oil staining remained on the surface in spots due to limitations of excavating in frozen ground conditions. Further excavation is required to remove staining and also hydrocarbon impacted soil, indicated from sample SDE_J_SS_01 analytical results, as noted in the Form 27 Supplemental Report 401986961, submitted on 3/31/2019. On 4/4/2019, the COGCC completed Inspection 689802465 and noted the aforementioned surface oil staining, within secondary containment. On 4/9/19, the stained soil was investigated using a PID to screen soil samples collected with a shovel from 0 to 2 feet below ground surface (BGS) in the most heavily stained areas. PID detections indicate that soil from the surface down to 2 feet BGS may have elevated hydrocarbons, above Table 910-1 acceptable concentrations. A lining was not encountered within the secondary containment during sample collection. Further investigation into the subsurface will be pursued using a handheld soil auger to sample at varying locations and depths to delineate the horizontal and vertical impacts. Additional grab samples will be collected to adequately characterize the extent of impacts. Samples will be analyzed for TPH-GRO, TPH-DRO, and BTEX. Impacted materials will be disposed at a properly licensed disposal facility. Clean backfill material will be spread on location 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) _____ 20

_____ Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or COGCC Facility ID # _____ 211979

_____ Natural Attenuation

No _____ 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 Monthly

Report Type: Groundwater Monitoring Land Treatment Progress Report O&M Report
 Other Status Report

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 hydro-vac excavated and hauled to Twin Enviro for disposal.

Volume of E&P Waste (solid) in cubic yards 1

E&P waste (solid) description Oil impacted soil Hydro-vac waste

COGCC Disposal Facility ID #, if applicable: 211979

Non-COGCC Disposal Facility: _____

Volume of E&P Waste (liquid) in barrels 15

E&P waste (liquid) description Oil impacted soil Hydro-vac waste

COGCC Disposal Facility ID #, if applicable: 211979

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.

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. 01/24/2019

Actual Spill or Release date, if known. 01/23/2019

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 01/30/2019

Date of commencement of Site Investigation. 01/30/2019

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. 04/24/2019

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

On 4/18/2019, Absaroka personnel further delineated the area of impacts with a handheld soil auger, following the steps outlined in Form 27 document #402003695. Absaroka hand excavated a hole at soil sampling location "SDE_J_SS_03" (See Attachment B) and used a PID to screen for VOCs in 6 inch intervals. Soil samples were collected from 0-6 inches in depth (highest PID reading) and from 36-42 inches in depth (lowest PID reading). Both soil samples were analyzed for BTEX, GRO, and DRO. The 0-6 in depth sample, SDE_J_SS_03_00_06, had total TPH of 15,400 mg/kg. The 36-42" sample, SDE_J_SS_03_36_42 had total TPH of 24.5 mg/kg. Absaroka did not excavate at soil sampling location SDE_J_SS_04 due to its proximity to buried utilities. The location of SDE_J_SS_03 was determined to be the most impacted location within the spill area, with the most significant TPH impacts at the soil's surface. The estimated excavation volume has been increased from 5 to 20 yards. The spill area is being observed weekly and no remaining impacted materials were observed to be migrating from the location. Excavation of the location will be pursued when weather conditions allow. When impacted material excavation is complete, the bottom and sides of the pit will be screened using a PID and confirmation samples will be collected to adequately characterize the remaining subsurface with at least 1 sample analyzed for full Table 910-1 constituents.

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: _____

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: _____

Date: _____

Remediation Project Number: 12668 _____

COA Type**Description**

| COA Type | Description |
|----------|-------------|
| | |

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**

| | |
|-----------|--------------------------|
| 402054582 | MAP |
| 402054583 | SOIL SAMPLE LOCATION MAP |
| 402054587 | OTHER |
| 402054588 | OTHER |
| 402054589 | OTHER |
| 402061708 | PHOTOS |

Total Attach: 6 Files

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

| User Group | Comment | Comment Date |
|------------|---------|---------------------|
| | | Stamp Upon Approval |

Total: 0 comment(s)