

State of Colorado  
Oil and Gas Conservation Commission

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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.

Closure request is not available for an Initial Site Investigation and Remediation Workplan.

OPERATOR INFORMATION

Name of Operator: <u>D90 ENERGY LLC</u>	Operator No: <u>10706</u>	<b>Phone Numbers</b>
Address: <u>952 ECHO LANE SUITE 480</u>		
City: <u>HOUSTON</u>	State: <u>TX</u>	Zip: <u>77024</u>
Contact Person: <u>David Boyer</u>	Email: <u>david@d90energy.com</u>	Phone: <u>(303) 994-0000</u>
		Mobile: <u>(303) 994-0000</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

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

PURPOSE INFORMATION

- Rule 913.c.(1): Pit or Cuttings Trench closure.
- Rule 913.c.(2): Buried or partially buried vessel closure, which will be by removal.
- Rule 913.c.(3): Remediation of Spill and Releases pursuant to Rule 912.
- Rule 913.c.(4): Land treatment of Oily Waste pursuant to Rule 905.e.
- Rule 913.c.(5): Closure of Centralized E&P Waste Management Facilities pursuant to Rule 907.h.
- Rule 913.c.(6): Remediation of impacted Groundwater pursuant to Rule 915.e.(3).D, and the contaminant concentrations in Table 915-1.
- Rule 913.c.(7): Investigation and remediation of natural gas in soil or Groundwater.
- Rule 913.c.(8): When requested by the Director due to any potential risk to soil, Groundwater, or surface water.
- Rule 913.c.(9): Decommissioning of Oil and Gas Facilities.
- Rule 913.g: Changes of Operator.
- Rule 915.b: Request to leave elevated inorganics in situ.
- Other: \_\_\_\_\_

SITE INFORMATION

No  Multiple Facilities

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

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:**

- E&P Waste**
- Other E&P Waste**
- Non-E&P Waste**
- Produced Water
- Workover Fluids
- Contaminated groundwater
- Oil**
- Tank Bottoms
- Condensate
- Pigging Waste
- Drilling Fluids
- Rig Wash
- Drill Cuttings
- Spent Filters
- Pit Bottoms
- 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 Form 27 Supplemental Report 402093377 closure requests was submitted on 10/11/2019. A summary of investigation and remediation actions performed is included in Attachment C of Form 27 Supplemental Report 402285583. The COGCC has requested further action of quarterly sampling of groundwater. In response, SandRidge has installed monitoring wells at the location for quarterly monitoring.

**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 ):

Soil samples were collected from each boring location during the installation of monitoring wells. Grab samples were collected in 2 foot intervals (or less) and screened with a PID for VOC concentrations. Depending upon VOC detection and potential concentration a soil sample may be collected and submitted to the laboratory and analyzed for BTEX and TPH (DRO & GRO).

**Proposed Groundwater Sampling**

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

A total of five 4 groundwater monitoring wells were installed as part of the site investigation plan. Groundwater samples were collected from each monitoring well following installation and sampled for BTEX, TPH (DRO&GRO), pH, and specific conductivity. Groundwater samples will be collected from monitoring wells on a quarterly basis for at least four (4) consecutive quarters.

**Proposed Surface Water Sampling**

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

One (1) downstream surface water sample will be collected from the Mutual Ditch (located approximately 60 feet west of the spill area) on a quarterly basis when water is flowing, likely to occur in 2Q2020 and 3Q2020. Surface water will be analyzed for BTEX, TPH (DRO & GRO).

**Additional Investigative Actions**

Additional alternative investigative actions described in attached Site Investigation Plan ( summary ):

[Empty box for additional alternative investigative actions]

**SITE INVESTIGATION REPORT**

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 0  
Number of soil samples exceeding 915-1 0  
Was the areal and vertical extent of soil contamination delineated? Yes  
Approximate areal extent (square feet) 0

### NA / ND

-- Highest concentration of TPH (mg/kg) 0  
-- Highest concentration of SAR 0  
BTEX > 915-1 No  
Vertical Extent > 915-1 (in feet) 0

### Groundwater

Number of groundwater samples collected 4  
Was extent of groundwater contaminated delineated? Yes  
Depth to groundwater (below ground surface, in feet) 3'  
Number of groundwater monitoring wells installed 4  
Number of groundwater samples exceeding 915-1 0

-- Highest concentration of Benzene (µg/l) 0  
ND Highest concentration of Toluene (µg/l) 0  
-- Highest concentration of Ethylbenzene (µg/l) 0  
ND Highest concentration of Xylene (µg/l) 0  
NA Highest concentration of Methane (mg/l) 0

### Surface Water

1 Number of surface water samples collected  
0 Number of surface water samples exceeding 915-1

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) 1 Volume of liquid waste (barrels) 0

Is further site investigation required?

Groundwater monitoring wells will be sampled on a quarterly basis in 2021. If analytical results indicate groundwater constituents are below COGCC Table 910-1 acceptable concentrations for all 2021 quarterly samples then the wells will be plugged and abandoned per State of Colorado requirements and upon COGCC approval. If groundwater impacts are consistently observed, a remedial action plan will be developed and submitted to the COGCC.

## 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 impacted material via dig and haul operations. During remedial excavation the failed flowline causing spilled oil was pressure tested, flushed and removed to the extent of the excavation eastern wall where no impacted soil remained and the flowline was capped. Work was completed by Session & Sons, LLC on June 24, 2019. 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 of Form 27 Supplemental Report 402093377.

### 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.

All post-remediation groundwater and soil sample results collected from the excavation were below Table 910-1 acceptable concentrations for organic constituents. Groundwater samples collected outside and surrounding the excavation were also below Table 910-1 acceptable concentrations for organic constituents. The COGCC has requested further groundwater monitoring as a COA for Form 27 Supplement Report 402093377. Installation of monitoring wells were installed 2/27/2020 and will be monitored quarterly during 2020 & 2021.

### Soil Remediation Summary

In Situ

Ex Situ

- \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )
- \_\_\_\_\_ Chemical oxidation
- \_\_\_\_\_ Air sparge / Soil vapor extraction
- \_\_\_\_\_ Natural Attenuation
- \_\_\_\_\_ Other \_\_\_\_\_

- \_\_\_\_\_ Excavate and offsite disposal
- \_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_
- \_\_\_\_\_ 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**

- No \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )
- No \_\_\_\_\_ Chemical oxidation
- No \_\_\_\_\_ Air sparge / Soil vapor extraction
- No \_\_\_\_\_ Natural Attenuation
- No \_\_\_\_\_ 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.

Monitoring wells within the spill location (MW-2, MW-3 and MW-4) and upgradient from the spill (MW-1) have been monitored for the past 4 quarters of 2020 & first two quarters of 2021. Monitoring wells MW-1 through MW-4 remain consistent with no detections for contaminants of concern. MW-3 has had detections of benzene, ethylbenzene and xylenes with benzene concentrations above Table 910-1 acceptable concentrations in the past. As approved by the COGCC, ORC socks were installed in MW-3 on November 12, 2020 to enhance remediation of groundwater impacts. Benzene concentrations in MW-3 were non-detect (ND) when sampled during the 4Q2020, 1Q2021, 2Q2021 monitoring events. D90 will continue monitoring natural attenuation parameters on a monthly basis. Naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene will also be analyzed from all collected water samples during the 3rd quarter sampling event.

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

### Approved Reporting Schedule:

Quarterly     Semi-Annually     Annually     Other

### Request Alternative Reporting Schedule:

Semi-Annually     Annually     Other

Rule 913.e:

After initial approval of a Form 27, the Operator will provide quarterly update reports in a Supplemental Form 27 to document progress of site investigation and remediation, unless an alternative reporting schedule has been requested by the Operator and approved by the Director. The Director may request a more frequent reporting schedule based on site-specific conditions.

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: \_\_\_\_\_

# REMEDIATION COMPLETION REPORT

## REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project?    No

If YES:

Compliant with Rule 913.h.(1).

Compliant with Rule 913.h.(2).

Compliant with Rule 913.h.(3).

Do all soils meet Table 915-1 standards?    \_\_\_\_\_

Does the previous reply indicate consideration of background concentrations?    \_\_\_\_\_

Does Groundwater meet Table 915-1 standards?    Yes

Is additional groundwater monitoring to be conducted?    \_\_\_\_\_

Operator shall comply with the COGCC 1000-Series Reclamation Requirements for all impacted and disturbed areas.

# 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 provide the seed mix? \_\_\_\_\_

If YES, does the seed mix comply with local soil conservation district recommendations? \_\_\_\_\_

Did the local soil conservation district provide the seed mix? \_\_\_\_\_

## SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. \_\_\_\_\_

Proposed date of completion of Reclamation. \_\_\_\_\_

## IMPLEMENTATION SCHEDULE

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

### PRIOR DATES

Date of Surface Owner notification/consultation, if required. 06/11/2019

Actual Spill or Release date, or date of discovery. \_\_\_\_\_

### SITE INVESTIGATION DATES

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

Proposed site investigation commencement. 06/11/2019

Proposed completion of site investigation. \_\_\_\_\_

### REMEDIAL ACTION DATES

Proposed start date of Remediation. 06/17/2019

Proposed date of completion of Remediation. 06/26/2019

Per Rule 913.d.(2): Any change from the approved implementation schedule will be requested at least 14 days in advance, and the Operator may not make the change without the Director's approval.

Change from approved implementation schedule per Rule 913.d.(2).

Basis for change in implementation schedule:

\_\_\_\_\_

**OPERATOR COMMENT**

Narrative is provided describing second quarter monitoring for 2021 and continued monitoring throughout 2021 (Attachment A). Table 915-1 additional parameters of Naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene will be analyzed during the 3rd quarter sampling event of 2021 per COGCC request.

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

Signed: Joel Mason

Title: Senior Project Manager

Submit Date: 07/07/2021

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: 09/27/2021

Remediation Project Number: 13743

**Condition of Approval****COA Type****Description**

	Per Rule 915.f, if the remediation project is not completed by January 15, 2022, soils shall comply with Table 915-1.
1 COA	

**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**

402735838	FORM 27-SUPPLEMENTAL-SUBMITTED
402740390	MONITORING REPORT
402740391	SITE MAP
402740392	AERIAL IMAGE
402740393	GROUND WATER ELEVATION MAP
402740396	ANALYTICAL RESULTS
402740397	ANALYTICAL RESULTS
402740398	ANALYTICAL RESULTS
402740405	ANALYTICAL RESULTS
402740409	ANALYTICAL RESULTS

Total Attach: 10 Files

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

Environmental	The observable decline in DO is interesting and satisfies the requirement to evaluate the oxygen sock effectiveness COA on previous Form 27.	09/27/2021
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Total: 1 comment(s)