

State of Colorado Oil and Gas Conservation Commission

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Report taken by:

Jason Kosola

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>	Phone Numbers Phone: <u>(713) 227-0391</u> Mobile: <u>()</u>
Address: <u>952 ECHO LANE SUITE 480</u>		
City: <u>HOUSTON</u> State: <u>TX</u> Zip: <u>77024</u>		
Contact Person: <u>Kevin Oakes</u> Email: <u>kevin@d90energy.com</u>		

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 24082 Initial Form 27 Document #: 403098697

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

☐ Yes ☐ Multiple Facilities

Facility Type: <u>LOCATION</u>	Facility ID: <u>440099</u>	API #: _____	County Name: <u>LINCOLN</u>
Facility Name: <u>KEYSTONE 3-7</u>	Latitude: <u>39.460030</u>	Longitude: <u>-103.482520</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NWNE</u> Sec: <u>7</u> Twp: <u>7S</u> Range: <u>54W</u> Meridian: <u>6</u>	Sensitive Area? <input type="checkbox"/> Yes		
Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>481586</u>	API #: _____	County Name: <u>LINCOLN</u>
Facility Name: <u>KEYSTONE 3-7</u>	Latitude: <u>39.460040</u>	Longitude: <u>-103.483070</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>NWNE</u> Sec: <u>7</u> Twp: <u>7S</u> Range: <u>54W</u> Meridian: <u>6</u>	Sensitive Area? <input type="checkbox"/> Yes		

SITE CONDITIONS

General soil type - USCS Classifications SC

Most Sensitive Adjacent Land Use Crop Land

Is domestic water well within 1/4 mile? No

Is surface water within 1/4 mile? No

Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

SITE INVESTIGATION PLAN

TYPE OF WASTE:

☒ E&P Waste ☐ Other E&P Waste ☐ Non-E&P Waste

☐ Produced Water

☐ Workover Fluids

☒ 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
Yes	SOILS	14,107 square feet	Soil analytical

INITIAL ACTION SUMMARY

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

Heater treater malfunction, shut off well, closed all needed valves, contractor cleanup, excavated approximately 108 yards of impacted soil from inside heater treater shed, inside heater treater containment and in all 4 cardinal directions from the heater treater containment, west excavation 130' x 100', east excavation 41' x 27', depths of 0.25 to 2.5 feet below ground surface, impacted soil hauled to Denver Arapahoe Disposal site, On 2/15/22, 10 soil confirmation samples collected from excavation plus two background samples, excavation backfilled upon receipt of soil analytical data. On 7/27/22, to address COA on Form 27 - Initial, three additional soil samples were collected via hand-auger at the previous FS01 sample location where elevated SAR/EC were detected.

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):

To determine potential SAR/EC impact vertically and horizontally from FS01 sample location elevated SAR/EC concentrations and determine if SAR/EC impact is present within the root zone (0-5 feet) of the surrounding sorghum crop, proposing to hand auger and collect additional samples in all cardinal directions from FS01 from depths below the previous confirmation samples including from 5.0 feet at FS02 and FS03 (previous samples were collected from 2.5 feet) and from 2.5 and 5.0 feet at FS04, FS05, FS07 and previous background sample BS02 (see attached figure showing all locations). Will analyze for the only two compounds previously detected in excess of standards, SAR and EC.

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

NA / ND

Number of soil samples collected 15

ND Highest concentration of TPH (mg/kg)

Number of soil samples exceeding 915-1 4

-- Highest concentration of SAR 26.7

Was the areal and vertical extent of soil contamination delineated? No

BTEX > 915-1 No

Approximate areal extent (square feet) 15

Vertical Extent > 915-1 (in feet) 10

Groundwater

Number of groundwater samples collected 0

NA Highest concentration of Benzene (µg/l)

Was extent of groundwater contaminated delineated? No

NA Highest concentration of Toluene (µg/l)

Depth to groundwater (below ground surface, in feet) 25

NA Highest concentration of Ethylbenzene (µg/l)

Number of groundwater monitoring wells installed 0

NA Highest concentration of Xylene (µg/l)

Number of groundwater samples exceeding 915-1 0

NA Highest concentration of Methane (mg/l)

Surface Water

0 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?

Crop land to west sprayed with oil, depth of impact <0.25 feet, impacted soil scraped with excavator, confirmation samples offsite to west had no analytes exceeding 915.1 standards. Sorghum crop has been replanted and growing. No landowner concerns.

☒ Were background samples collected as part of this site investigation?

Two background soil samples collected southeast of release on south end of production pad and west of release in unimpacted crop land at depths of 0.5 feet below ground surface

☐ 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?

One soil sample north of heater treater shed within heater treater containment (FS01) at a depth of 3 feet below ground surface exceeded SAR standard at 7.19 and EC standard at 10.1, to address COA, three additional soil samples collected 7-27-22 at the FS01 location at depths of 5, 7.5 and 10 feet below ground surface. SAR was detected in excess of the standard at concentrations of 26.7, 22.2 and 15.4, respectively. EC was detected in excess of the standard at concentrations of 6.6 at 7.5 feet and 13.1 at 10 feet. To determine horizontal extent of SAR/EC and vertical extent and presence or absence within the surrounding sorghum crop root zone of up to 5 feet deep, proposing collection of 10 additional hand-augered soil samples from depths below previous confirmation samples in all cardinal directions from the FS01 location including from 5 feet at FS02 and FS03 (previously collected samples from 2.5 feet) and 2.5 and 5.0 feet at FS04, FS05, FS07 and the background sample BS02 (see attached figure for locations). Samples will only be analyzed for SAR/EC.

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.

108 cubic yards of impacted soil removed via excavation, backfilled by 3-18-22. Based on results of 7-27-22 additional confirmation sampling at FS01 to determine vertical extent of SAR/EC impact (horizontal extent had been defined), proposing to collect additional samples in all cardinal directions from FS01 at previous shallow confirmation sample locations to define presence or absence of impact with the root zone of the surrounding sorghum crop (5 feet).

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.

Requesting no additional soil removal necessary at this time unless additional soil results determine a need. If results of additional soil sampling are below Table 915.1 standards for SAR/EC, will request leaving limited area of SAR/EC impact at FS01 in situ.

Soil Remediation Summary

☒ In Situ

☒ Ex Situ

No Bioremediation (or enhanced bioremediation)

No Chemical oxidation

No Air sparge / Soil vapor extraction

Yes Natural Attenuation

Yes Other If additional SAR/EC results
<Table 915.1 standards, leave
one limited area of SAR/EC in
situ

Yes Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) 108

Name of Licensed Disposal Facility or COGCC Facility ID #

Yes Excavate and onsite remediation

No Land Treatment

No Bioremediation (or enhanced bioremediation)

No Chemical oxidation

Yes Other Previously excavated 108 cubic yards of
impacted soil, disposed of at Denver
Arapahoe Disposal Site

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.

No groundwater impacts or risk to groundwater detected

REMEDATION PROGRESS UPDATE

PERIODIC REPORTING

Approved Reporting Schedule:

☐ Quarterly☐ Semi-Annually☐ Annually☒ Other

Requesting no further remediation at this time, only additional soil sampling

☐ Request Alternative Reporting Schedule:

☐ Semi-Annually☐ Annually☒ Other

Requesting no further remediation at this time, only additional soil sampling

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 Requesting no monitoring at this time

Adequacy of Operator's General Liability Insurance and Financial Assurance

Describe the adequacy of the Operator's general liability insurance and Financial Assurance to fully address the anticipated costs of Remediation, including the estimated remaining cost for this project (below).

If this information has been provided on a Form 27 within the last 12 months, provide the Document Number of that form.

Operator anticipates the remaining cost for this project to be: \$ 0

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:

None

Volume of E&P Waste (solid) in cubic yards 108

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

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility: Denver Arapahoe Disposal site

Volume of E&P Waste (liquid) in barrels 0

E&P waste (liquid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

REMEDATION COMPLETION REPORT

REMEDATION 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? No

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.

Excavated areas backfilled with clean soil on and off location, completed by 3-18-22. Landowner to west of release re-seeded excavated and backfilled area of impact offsite and west of the release. Sorghum crop currently growing. No landowner concerns..

Is the described reclamation complete? Yes

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? Yes

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

Did the local soil conservation district provide the seed mix? No

SITE RECLAMATION DATES

Proposed date of commencement of Reclamation. 03/02/2022

Proposed date of completion of Reclamation. 06/01/2023

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. 02/02/2022

Actual Spill or Release date, or date of discovery. 02/02/2022

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 02/15/2022

Proposed site investigation commencement. 08/15/2022

Proposed completion of site investigation. _____

REMEDIAL ACTION DATES

Proposed start date of Remediation. 02/02/2022

Proposed date of completion of Remediation. 03/18/2022

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

COA from Form 27 Initial of delineating vertical and horizontal extent of impact greater than Table 915-1 has been completed. Additional confirmation samples were collected 7-27-22 at depths of 5, 7.5 and 10 feet below ground surface, beneath the previous FS01 sample at 3 feet that had SAR and EC concentrations >915-1 standards. These samples indicated exceedances of the Table 915-1 for EC and SAR. To determine horizontal and vertical extent of SAR/EC within the surrounding sorghum crop root zone (5 feet), proposing to collect 10 additional hand-augered soil samples in all cardinal directions from the FSO1 location at depths below previous confirmation samples. If those results from the root zone are below Table 915.1 for SAR/EC we will respectfully request approval to leave the remaining limited soil impact at FS01 in-situ until any future site decommissioning activities if necessary to address at that time.

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

Signed: Kevin Oakes

Title: Regulatory Manager

Submit Date: 08/11/2022

Email: kevin@d90energy.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: Jason Kosola

Date: 08/12/2022

Remediation Project Number: 24082

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

	COGCC added Spill 481586 to facility type list.
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**

403120382	FORM 27-SUPPLEMENTAL-SUBMITTED
403120420	PHOTO DOCUMENTATION
403133837	ANALYTICAL RESULTS
403133878	ANALYTICAL RESULTS
403133879	SOIL SAMPLE LOCATION MAP

Total Attach: 5 Files

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

		Stamp Upon Approval
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Total: 0 comment(s)