

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203
Phone: (303) 894-2100 Fax: (303) 894-2109



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402149004
Receive Date:
08/26/2019

Report taken by:
Steven Arauza

Site Investigation and Remediation Workplan (Initial 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 INFORMATON

Name of Operator: <u>VANGUARD OPERATING LLC</u>	Operator No: <u>10531</u>	Phone Numbers
Address: <u>5847 SAN FELIPE #3000</u>		Phone: <u>(970) 876-1959</u>
City: <u>HOUSTON</u>	State: <u>TX</u>	Zip: <u>77057</u>
Contact Person: <u>Scott Ghan</u>	Email: <u>sghan@vnrenergy.com</u>	Mobile: <u>()</u>

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 14050 Initial Form 27 Document #: 402149004

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 Facilites (in accordance with Rule 909.c.)

Facility Type: <u>SPILL OR RELEASE</u>	Facility ID: <u>466240</u>	API #: _____	County Name: <u>GARFIELD</u>
Facility Name: <u>Gibson Gulch Unit-66S91W/29SWSW 323972</u>	Latitude: <u>39.492469</u>	Longitude: <u>-107.585501</u>	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: <u>SWSW</u>	Sec: <u>29</u>	Twp: <u>6S</u>	Range: <u>91W</u>
		Meridian: <u>6</u>	Sensitive Area? <u>Yes</u>

SITE CONDITIONS

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

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 type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | _____ |
| <input type="checkbox"/> Oil | <input type="checkbox"/> Tank Bottoms | |
| <input checked="" 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	undetermined	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.

Excavation activities were conducted to remove impacted soil. Confirmation soil samples were collected from the base and sidewalls of the excavation and submitted for laboratory analysis of constituents identified in COGCC Table 910-1. Approximately 440 cubic yards of impacted soil were transported to Greenleaf Environmental Services in De Beque, Colorado for offsite disposal. Copies of the waste disposal manifests were previously submitted with COGCC Document 402143100. The excavation area and soil sample locations are depicted on the attached Figure 2. Laboratory analytical reports are attached and summarized in Table 1.

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 borings will be advanced at the site using a drill rig equipped with direct push technology. Soil borings will be logged by a geologist and soil samples will be field screened for volatile organic compounds. Up to two soil samples will be submitted from each boring: the soil sample that appears to be the most impacted based on field screening techniques and a vertical clearance sample. Preliminary soil samples collected from the impacted area indicate concentrations of TPH and arsenic exceeding COGCC Table 910 concentration levels. Based on this data, Vanguard is requesting a reduced laboratory analysis of TPH GRO/DRO and BTEX. See below for discussion on background arsenic. Proposed soil boring locations are depicted on Figure 2.

Proposed Groundwater Sampling

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

During excavation activities, water was encountered at approximately 26 feet below ground surface. If groundwater is encountered during assessment activities, grab samples will be collected and submitted for laboratory analysis of constituents identified in COGCC Table 910-1.

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):

In order to address the arsenic exceedances exhibited in the subsurface at the site, Vanguard is requesting consideration of COGCC Table 910-1 Concentration Levels for arsenic under guidelines set forth under FAQ 31. Arsenic concentrations in the samples mentioned above are within 18% of those observed in background samples collected as a baseline from an unused production pit at the nearby GGU Miller 11D (COGCC Location ID 335427) pad located approximately 1,200 feet south of this release. Laboratory analytical results for this background sampling are attached.

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected 8
Number of soil samples exceeding 910-1 3
Was the areal and vertical extent of soil contamination delineated? No
Approximate areal extent (square feet) 900

NA / ND

-- Highest concentration of TPH (mg/kg) 2230
-- Highest concentration of SAR 1.5
BTEX > 910-1 No
Vertical Extent > 910-1 (in feet) 26

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

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Excavation activities removed approximately 440 cubic yards of hydrocarbon impacted soil. The soil was transported to Greenleaf Environmental Services in De Beque, Colorado for offsite 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.

Vanguard mixed 400 lbs. of chemically oxidized granular activated carbon into the excavation at the water level prior to backfilling to remediate potential dissolved phase hydrocarbons.

Remediation strategies will be evaluated following the completion of the activities detailed in the Site Investigation Plan.

Soil Remediation Summary

In Situ

Ex Situ

_____ Bioremediation (or enhanced bioremediation)

Yes _____ Excavate and offsite disposal

_____ Chemical oxidation

If Yes: Estimated Volume (Cubic Yards) _____ 440

_____ Air sparge / Soil vapor extraction

Name of Licensed Disposal Facility or COGCC Facility ID # _____ 159998

_____ Natural Attenuation

_____ Excavate and onsite remediation

_____ Other _____

_____ Land Treatment

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Other _____

Groundwater Remediation Summary

Bioremediation (or enhanced bioremediation)

Yes _____ 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.

If laboratory analytical results indicate impacts to groundwater, a monitoring plan will be outlined in a Supplemental Form 27.

REMEDATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: Quarterly Semi-Annually Annually Other _____

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:

NA

Volume of E&P Waste (solid) in cubic yards _____ 440

E&P waste (solid) description hydrocarbon impacted soil

COGCC Disposal Facility ID #, if applicable: _____ 159998

Non-COGCC Disposal Facility: _____

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

E&P waste (liquid) description _____

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: _____

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.

All disturbances will be returned to preexisting conditions.

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. 07/22/2019

Actual Spill or Release date, if known. 07/22/2019

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 07/24/2019

Date of commencement of Site Investigation. 08/29/2019

Date of completion of Site Investigation. _____

REMEDIAL ACTION DATES

Date of commencement of Remediation. _____

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

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

Signed: ` Chris McKisson _____

Title: Env. Scientist

Submit Date: ` 08/26/2019 _____

Email: cmckisson@ltenv.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: Steven Arauza _____

Date: 08/27/2019

Remediation Project Number: 14050

COA Type**Description**

	<p>Under Proposed Soil Sampling, operator requests a reduced analyte suite of TPH GRO/DRO and BTEX. Operator also requests consideration of relief from Table 910-1 standards for arsenic based on background concentrations per FAQ 31 and pH per FAQ 32. Based on the information provided in this report and its attachments, the COGCC concurs with the operator's request for the reduced analyte suite.</p> <p>Operator shall analyze soil samples for TPH and BTEX.</p>
	<p>Under Proposed Groundwater Sampling, Operator states that: "During excavation activities, water was encountered at approximately 26 feet below ground surface. If groundwater is encountered during assessment activities, grab samples will be collected and submitted for laboratory analysis of constituents identified in COGCC Table 910-1."</p> <p>At a minimum, Operator shall collect one groundwater sample from the proposed soil boring located in the center of the excavation area, per Rule 910.b.(4), for analyses of constituents identified in COGCC Table 910-1.</p>
	<p>Operator shall submit soil boring logs along with complete sampling documentation via Supplemental eForm 27.</p>
	<p>Submit Supplemental eForm 19 to request closure of Spill/Release ID #466240. Supplemental report shall comply with outstanding COAs, indicate that work is proceeding under an approved eForm 27, and shall reference the Remediation Project number assigned upon approval of this report</p>

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**

402149004	FORM 27-INITIAL-SUBMITTED
402149522	MAP
402149526	SITE MAP
402149527	ANALYTICAL RESULTS
402149531	ANALYTICAL RESULTS
402154765	ANALYTICAL RESULTS
402156256	ANALYTICAL RESULTS

Total Attach: 7 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
Environmental	<p>Spill report doc #402143100 indicates that groundwater was encountered at the base of the existing excavation but that water was not sampled prior to backfill.</p> <p>Per Rule 910.b.(4).A. Operators shall collect and analyze representative samples of groundwater (i) where ground water contamination is suspected or known to exceed the concentrations in Table 910-1; (ii) where impacted soils are in contact with ground water; or (iii) where impacts to soils extend down to the high water table.</p>	08/27/2019

Total: 1 comment(s)