

State of Colorado
Oil and Gas Conservation Commission

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Document Number:

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Receive Date:

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

Report taken by:

OPERATOR INFORMATION

Name of Operator: HIGHPOINT OPERATING CORPORATION	Operator No: 10071	Phone Numbers
Address: 555 17TH ST STE 3700		Phone: (303) 312-8718
City: DENVER	State: CO	Zip: 80202
Contact Person: Rusty Frishmuth	Email: rfrishmuth@hpres.com	Mobile: (303) 518-2290

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 15314 Initial Form 27 Document #: 402334266

PURPOSE INFORMATION

- 901.e. Sensitive Area Determination
- 909.c.(1), Rule 905: Pit or PW vessel closure
- 909.c.(2), Rule 906: Spill/Release Remediation
- 909.c.(3), Rule 907.e.: Land treatment of oily waste
- 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure
- 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
- Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b.
- Rule 909.e.(2)B.: Closure of remediation project
- Rule 906.c.: Director request
- Other

SITE INFORMATION

Multiple Facilities (in accordance with Rule 909.c.)

Facility Type: PIT	Facility ID: 258028	API #: _____	County Name: WELD
Facility Name: COLORADO ENERGY FEDERAL 1A		Latitude: 40.839654	Longitude: -104.525868
** correct Lat/Long if needed: Latitude: _____ Longitude: _____			
QtrQtr: NENE	Sec: 15	Twp: 10N	Range: 64W Meridian: 6 Sensitive Area? Yes
Facility Type: PIT	Facility ID: 258029	API #: _____	County Name: WELD
Facility Name: COLORADO ENERGY FEDERAL 2A		Latitude: 40.839363	Longitude: -104.526055
** correct Lat/Long if needed: Latitude: _____ Longitude: _____			
QtrQtr: NENE	Sec: 15	Twp: 10N	Range: 64W Meridian: 6 Sensitive Area? Yes
Facility Type: PIT	Facility ID: 258030	API #: _____	County Name: WELD
Facility Name: COLORADO ENERGY FEDERAL 14-1		Latitude: 40.839902	Longitude: -104.525800
** correct Lat/Long if needed: Latitude: _____ Longitude: _____			
QtrQtr: NENE	Sec: 15	Twp: 10N	Range: 64W Meridian: 6 Sensitive Area? Yes

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? No

Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

Livestock (cattle)

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- | | | |
|--|--|---|
| <input type="checkbox"/> E&P Waste | <input checked="" type="checkbox"/> Other E&P Waste | <input checked="" type="checkbox"/> Non-E&P Waste |
| <input type="checkbox"/> Produced Water | <input type="checkbox"/> Workover Fluids | Pit liner and fencing |
| <input 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 checked="" 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	EC, pH, and SAR	soil samples

INITIAL ACTION SUMMARY

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

The three pits were abandoned. The liner, netting, and fencing from the Colorado Energy Federal 14-1 pit were removed and disposed of at a solid waste facility. The pits were drained and removed liquids were disposed of at a licensed commercial disposal well. Following removal of the liner and the liquids, soil sampling was conducted on June 2, 2020. Each side wall was screened for VOC concentration using a PID detector and was observed for potential petroleum hydrocarbon impact such as staining and/or odor. One grab soil sample (per pit) was collected from the sidewall exhibiting the highest VOC concentration and/or greatest evidence of potential hydrocarbon impact and one grab soil sample was collected from beneath the low point of each pit. Six samples were collected around the perimeter of the three pits from beneath the berm from ground surface to 18 inches below ground surface. Additionally, three surficial background samples were collected from adjacent native soils. Samples were collected per USEPA methods and strict chain-of-custody standards were followed. The pit sidewall and floor soil samples were submitted to an accredited lab for analysis of benzene, toluene, ethylbenzene, and xylene (BTEX), total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) by USEPA 8260C, and TPH-diesel range organics (DRO) by USEPA Method 8015C. The floor samples, pit berm samples, and background samples were submitted for analysis of pH by USEPA Method 9045D, specific conductance (EC) by USEPA Method 9050A, and sodium adsorption ratio (SAR) by USDA Agricultural Handbook 60 method (20B). Groundwater was not observed.

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):

The northern pit floor sample SS02@6' exceeded the COGCC Table 910-1 standard for pH at 9.02. The middle pit floor sample SS04@3' and eastern pit berm sample PB02@0-18", exceeded the COGCC Table 910-1 standard for EC at 5.28 mmhos/cm and 8.48 mmhos/cm, respectively. The southern pit sample SS06@7' exceeded the COGCC Table 910-1 standards for EC, SAR, and pH at 6.27 mmhos/cm, 20.3, and 9.02, respectively. The remaining soil analytical results were compliant with applicable the COGCC Table 910-1 concentration levels. The laboratory analytical results summary table, soil sample location and results figure, and laboratory analytical report are attached.

On October 10, 2020, two additional soil samples SS07@0-18" and SS08@0-18" were collected east of PB02@0-18" to ensure lateral delineation of EC impacts to the east. The samples were analyzed for EC and results were compliant with the COGCC Table 910-1 standard. A results summary table and figure are attached.

Proposed Groundwater Sampling

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

No groundwater was observed at the site.

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 14

Number of soil samples exceeding 910-1 4

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet) 9700

NA / ND

ND Highest concentration of TPH (mg/kg) _____

-- Highest concentration of SAR 20.3

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 6

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?

Three background samples were collected approximately 100 feet to 150 feet west, north, and east of the pits from areas unimpacted by oil and gas activities.

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.

Pit contents and liner material was removed and disposed at a licensed waste facility (Waste Management N Co Landfill).

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 May 19, 2020, LTE conducted a drone survey to document site conditions prior to reclamation activities. In addition to collecting aerial images, ground elevation control points were surveyed using a GPS unit with sub-centimeter precision and the data was used to generate a digital elevation model (DEM) of the site. Drone Deploy software was used to process the DEM, compare the pit's geometries to the surrounding native ground elevation (i.e. inferred final grade following recontouring of the pits during reclamation), and calculate approximate volumes of material with inorganic exceedances located in the top 3 feet of native ground elevation.

Based on this analysis, the volume of the southern pit bottom below 3 feet of natural grade is approximately 318 cubic yards. The approximate soil volume of impact to 3' below natural grade in the vicinity of SS04@3' is 81 cubic yards. The approximate soil volume of impact to 3 feet below natural grade in the vicinity of PB02@0-18" is 115 cubic yards. Thus, the southern pit capacity below 3 feet of natural grade is sufficient for burial of the inorganic impact identified by SS04@3' and PB02@0-18"

On October 20, 2020, HPR excavated the areas with inorganic impacts to at least 3 feet below final grade. The excavated material was placed in the bottom of the southern pit such it is at least 3 feet below the surrounding natural grade. During excavation activities, a WSP technician confirmed the depths of excavation and burial by surveying relative elevations with a Spectra LL300N self-leveling laser.

A figure showing the excavation areas and burial area is attached.

Soil Remediation Summary

In Situ

_____ Bioremediation (or enhanced bioremediation)

_____ Chemical oxidation

_____ Air sparge / Soil vapor extraction

_____ Natural Attenuation

_____ Other _____

Ex Situ

_____ Excavate and offsite disposal

If Yes: Estimated Volume (Cubic Yards) _____

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 _____ Onsite burial >3 ft below final grade

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.

REMEDATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: Quarterly Semi-Annually Annually Other Submittal of Remedial Action and Closure Report

Report Type: Groundwater Monitoring Land Treatment Progress Report O&M Report
 Other Pit closure, site investigation results, and Remedial Action Plan

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:

N/A

Volume of E&P Waste (solid) in cubic yards 210

E&P waste (solid) description Soils exceeding pH, EC, or SAR standards

COGCC Disposal Facility ID #, if applicable: _____

Non-COGCC Disposal Facility: N/A

Volume of E&P Waste (liquid) in barrels 120

E&P waste (liquid) description pit contents - produced water and rain water

COGCC Disposal Facility ID #, if applicable: 159354

Non-COGCC Disposal Facility: _____

REMEDATION COMPLETION REPORT

REMEDATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? Yes

Do all soils meet Table 910-1 standards? No

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? Yes

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 pit area has been recontoured to match surrounding grade and capped with topsoil and soil amendments. Site will be reseeded as soon as weather allows.

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 approve the seed mix? Yes

If NO, does the seed mix comply with local soil conservation district recommendations? Yes

IMPLEMENTATION SCHEDULE

PRIOR DATES

Date of Surface Owner notification/consultation, if required. _____

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 04/01/2020

Date of commencement of Site Investigation. 06/02/2020

Date of completion of Site Investigation. 06/02/2020

REMEDIAL ACTION DATES

Date of commencement of Remediation. 10/01/2020

Date of completion of Remediation. 10/30/2020

SITE RECLAMATION DATES

Date of commencement of Reclamation. 10/30/2020

Date of completion of Reclamation. 12/15/2020

OPERATOR COMMENT

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

Signed: Rusty Frishmuth

Title: Environmental Coordinator

Submit Date: _____

Email: rfrishmuth@hpres.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: 15314

COA Type

Description

<u>COA Type</u>	<u>Description</u>

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

402531062	SITE MAP
402531064	SOIL SAMPLE LOCATION MAP
402531067	ANALYTICAL RESULTS
402531068	ANALYTICAL RESULTS

Total Attach: 4 Files

General Comments

User Group

Comment

Comment Date

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)