

# State of Colorado Oil and Gas Conservation Commission

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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: BERRY PETROLEUM COMPANY LLC	Operator No: 10091	<b>Phone Numbers</b>
Address: 5201 TRUXTUN AVENUE #100		Phone: (970) 285-5207
City: BAKERSFIELD	State: CA	Zip: 90339
Contact Person: Don Wilbourn	Email: dwilbourn@bry.com	Mobile: (970) 210-6693

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 15535

Initial Form 27 Document #: 402377242

#### 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: 474500	API #:	County Name: GARFIELD
Facility Name: Long Ridge J15	Latitude: 39.609861	Longitude: -108.038222	
** correct Lat/Long if needed: Latitude:		Longitude:	
QtrQtr: NW/SE	Sec: 15	Twp: 5S	Range: 95W
		Meridian: 6	Sensitive Area? Yes

#### SITE CONDITIONS

General soil type - USCS Classifications ML

Most Sensitive Adjacent Land Use grazing

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:

- |  |  |  |
|--|--|--|
| <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 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	177 cu yds	Calculation of excavated soil

## INITIAL ACTION SUMMARY

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

Excavated to dry soil and no smell or visable sighns of condensate. Excavated floor to bedrock.

## 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 ):

7 discrete samples were taken. Location of samples are on spill report. Analytical report attached.

### Proposed Groundwater Sampling

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

Should groundwater be encountered within the proposed drilling depth a sample will be taken for analysis to determine compliance with Table 910-1 standards.

### 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 ):

Berry has successfully identified the lateral extent of the contamination within the excavated area, however the vertical extent has not yet been identified. At COGCC's request Berry is planning to core/drill to determine vertical extent and any impacts to groundwater, if any. Berry's plans to utilize a waterwell drilling/coring rig to determine the vertical extent of the contamination. The rig will be mobilized to the southern end of the excavated area allowing for the borehole to initiate within the established lateral extent of the contamination plume. Berry will core the first 30 feet and drill the remaining depth to a total depth of 250' or contact with groundwater, whichever is shallower. Berry personnel and Dave Nicholson with Nicholson Geosolutions will be on site during drilling to visibly inspect cores and drill cuttings for signs of contamination. Additionally, representative samples will be sent to the lab for analysis. Should groundwater be encountered a water sample w

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 7

Number of soil samples exceeding 910-1 4

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

Approximate areal extent (square feet) 600

### NA / ND

-- Highest concentration of TPH (mg/kg) 9372.1

-- Highest concentration of SAR 37.8

BTEX > 910-1 Yes

Vertical Extent > 910-1 (in feet) 8

### 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) 7.63

-- Highest concentration of Toluene (µg/l) 119

-- Highest concentration of Ethylbenzene (µg/l) 14.5

-- Highest concentration of Xylene (µg/l) 188

NA 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?

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# 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.

Material was excavated and moved to adjoining location. Material was stockpiled on pit liner and will be spread out on location for landfarming operations.

## 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.

Material will be spread on location and landfarmed until 910 standards are met. Plans to spread material and start landfarming will proceed as soon as approval is granted. An estimated 3 month time frame for soil to pass standards is expected.

## Soil Remediation Summary

☐ In Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )

\_\_\_\_\_ Chemical oxidation

\_\_\_\_\_ Air sparge / Soil vapor extraction

\_\_\_\_\_ Natural Attenuation

\_\_\_\_\_ Other \_\_\_\_\_

☒ Ex Situ

No \_\_\_\_\_ Excavate and offsite disposal

\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_

\_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_

Yes \_\_\_\_\_ Excavate and onsite remediation

Yes \_\_\_\_\_ Land Treatment

No \_\_\_\_\_ Bioremediation (or enhanced bioremediation)

No \_\_\_\_\_ Chemical oxidation

Yes \_\_\_\_\_ Other \_\_\_\_\_ Landfarm \_\_\_\_\_

## 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 \_\_\_\_\_

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? \_\_\_\_\_

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 \_\_\_\_\_

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.

Berry plans to landfarm the contaminated soil at the adjacent J15 wellpad. Once the landfarmed material meets the 910-1 standards Berry will return this material to the excavated locatoin to serve as fill. The returned material will then be covered with topsoil and graded to match the surrounding contours of the pipeline right-of-way. The graded top soil will then be covered with an approved seed mixture and reclaimed to its previous condition.

Is the described reclamation complete? No \_\_\_\_\_

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? Yes \_\_\_\_\_

## IMPLEMENTATION SCHEDULE

### PRIOR DATES

Date of Surface Owner notification/consultation, if required. 03/30/2020

Actual Spill or Release date, if known. 03/30/2020

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 03/30/2020

Date of commencement of Site Investigation. 03/30/2020

Date of completion of Site Investigation. 04/01/2020

### REMEDIAL ACTION DATES

Date of commencement of Remediation. 04/01/2020

Date of completion of Remediation. \_\_\_\_\_

### SITE RECLAMATION DATES

Date of commencement of Reclamation. \_\_\_\_\_

Date of completion of Reclamation. \_\_\_\_\_

### OPERATOR COMMENT

Berry has successfully identified the the lateral extent of the contamination within the excavated area, however the vertical extent has not yet been identified. At COGCC's request Berry is planning to core/drill to determine vertical extent and any impacts to groundwater, if any. Berry's plans to utilize a waterwell drilling/coring rig to determine the vertical extent of the contamination. The rig will be mobilized to the southern end of the excavated area allowing for the borehole to initiate within the established lateral extent of the contamination plume. Berry will core the first 30 feet and drill the remaining depth to a total depth of 250' or contact with groundwater, whichever is shallower. Berry personnel and Dave Nicholson with Nicholson Geosolutions will be on site during drilling to visibly inspect cores and drill cuttings for signs of contamination. Additionally, representative samples will be sent to the lab for analysis. Should groundwater be encountered a water sample will be collected by Dave Nicholson and sent to a certified lab for analysis.

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

Signed: Jon Armstrong

Title: EH&S Representative, Sr.

Submit Date: \_\_\_\_\_

Email: jarmstrong@bry.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: 15535

### COA Type

### Description

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### 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

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Total Attach: 0 Files

### General Comments

### User Group

### Comment

### Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)