

**State of Colorado  
Oil and Gas Conservation Commission**

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Document Number:

401827150

Receive Date:

11/05/2018

Report taken by:

RICK ALLISON

## 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: <u>NOBLE ENERGY INC</u>	Operator No: <u>100322</u>	<b>Phone Numbers</b>
Address: <u>1001 NOBLE ENERGY WAY</u>		Phone: <u>(970) 3045014</u>
City: <u>HOUSTON</u> State: <u>TX</u> Zip: <u>77070</u>		Mobile: <u>(970) 2034238</u>
Contact Person: <u>Howard Aamold</u>	Email: <u>howard.aamold@nblenergy.com</u>	

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 11953 Initial Form 27 Document #: 401794483

#### 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 checked="" 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 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

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

Facility Type: <u>LOCATION</u>	Facility ID: <u>306461</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>COCKROFT USX A-66N64W 11NWNE</u>	Latitude: <u>40.506740</u>	Longitude: <u>-104.514530</u>	
	** correct Lat/Long if needed: Latitude: <u>40.507734</u>	Longitude: <u>-104.510280</u>	
QtrQtr: <u>NWNE</u> Sec: <u>11</u> Twp: <u>6N</u> Range: <u>64W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			
Facility Type: <u>LOCATION</u>	Facility ID: <u>310232</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>70 RANCHUSX BB-65N63W 35NENW</u>	Latitude: <u>40.360960</u>	Longitude: <u>-104.406180</u>	
	** correct Lat/Long if needed: Latitude: <u>40.360682</u>	Longitude: <u>-104.406768</u>	
QtrQtr: <u>NENW</u> Sec: <u>35</u> Twp: <u>5N</u> Range: <u>63W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			
Facility Type: <u>LOCATION</u>	Facility ID: <u>413553</u>	API #: _____	County Name: <u>WELD</u>
Facility Name: <u>KOHLHOFF USX AB 21-06P</u>	Latitude: <u>40.560430</u>	Longitude: <u>-104.556880</u>	
	** correct Lat/Long if needed: Latitude: <u>40.558793</u>	Longitude: <u>-104.553105</u>	
QtrQtr: <u>SENW</u> Sec: <u>21</u> Twp: <u>7N</u> Range: <u>64W</u> Meridian: <u>6</u> Sensitive Area? <u>Yes</u>			

Facility Type: LOCATION		Facility ID: 413554	API #:	County Name: WELD	
Facility Name: KOHLHOFF USX AB 21-05P		Latitude: 40.560200	Longitude: -104.561850		
		** correct Lat/Long if needed: Latitude: 40.560498	Longitude: -104.563676		
QtrQtr: SWNW	Sec: 21	Twp: 7N	Range: 64W	Meridian: 6	Sensitive Area? Yes

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Facility Type: LOCATION		Facility ID: 420620	API #:	County Name: WELD	
Facility Name: FEIT E 23-99HZ TANK		Latitude: 40.474290	Longitude: -104.639150		
		** correct Lat/Long if needed: Latitude: 40.474338	Longitude: -104.639028		
QtrQtr: SWNW	Sec: 23	Twp: 6N	Range: 65W	Meridian: 6	Sensitive Area? Yes

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Facility Type: LOCATION		Facility ID: 457004	API #:	County Name: WELD	
Facility Name: HOWARD A-66N64W 27NESE		Latitude: 40.455280	Longitude: -104.529550		
		** correct Lat/Long if needed: Latitude: 40.454053	Longitude: -104.527220		
QtrQtr: NESE	Sec: 27	Twp: 6N	Range: 64W	Meridian: 6	Sensitive Area? Yes

**SITE CONDITIONS**

General soil type - USCS Classifications SW  
 Most Sensitive Adjacent Land Use Various

Is domestic water well within 1/4 mile? Yes  
 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**

Various

# 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 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
No	GROUNDWATER	NA	Laboratory Analytical
No	SOILS	NA	Laboratory 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.

Produced water vessel sampling per COGCC Rule 905b.

## 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 and analyzed for TPH-DRO, TPH-GRO, BTEX, Naphthalene, SAR, EC, and pH. See attachments for sample locations.

### Proposed Groundwater Sampling

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

Groundwater samples were collected and analyzed for BTEX.

### 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 11  
Number of soil samples exceeding 910-1 0  
Was the areal and vertical extent of soil contamination delineated? No  
Approximate areal extent (square feet) 0

### NA / ND

ND Highest concentration of TPH (mg/kg) \_\_\_\_\_  
-- Highest concentration of SAR 0.418  
BTEX > 910-1 No  
Vertical Extent > 910-1 (in feet) 0

### Groundwater

Number of groundwater samples collected 3  
Was extent of groundwater contaminated delineated? No  
Depth to groundwater (below ground surface, in feet) 6'  
Number of groundwater monitoring wells installed 0  
Number of groundwater samples exceeding 910-1 0

ND Highest concentration of Benzene (µg/l) \_\_\_\_\_  
ND Highest concentration of Toluene (µg/l) \_\_\_\_\_  
ND Highest concentration of Ethylbenzene (µg/l) \_\_\_\_\_  
ND Highest concentration of Xylene (µg/l) \_\_\_\_\_  
ND 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

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.

20bbbls of ground water was removed from excavation and disposed of at Republic Services.

## **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.

Between August 14,2018 and August 30,2018 six locations were sampled to investigate for potential impacts subsequent to a produced water vessel removal, in accordance with COGCC Rule 905b. All samples collected were below COGCC Table 910-1 standards.

## **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 # \_\_\_\_\_
- \_\_\_\_\_ Excavate and onsite remediation
- \_\_\_\_\_ Land Treatment
- \_\_\_\_\_ Bioremediation (or enhanced bioremediation)
- \_\_\_\_\_ Chemical oxidation
- \_\_\_\_\_ Other \_\_\_\_\_

## **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 Produced water vessel removal. \_\_\_\_\_

### 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:

20bbbls of ground water was removed from excavation and disposed of at Republic Services.

Volume of E&P Waste (solid) in cubic yards \_\_\_\_\_ 0

E&P waste (solid) description \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: \_\_\_\_\_

Volume of E&P Waste (liquid) in barrels \_\_\_\_\_ 20

E&P waste (liquid) description Ground water \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: Republic Services \_\_\_\_\_

## REMEDIATION COMPLETION REPORT

### REMEDIATION COMPLETION SUMMARY

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

Do all soils meet Table 910-1 standards? Yes \_\_\_\_\_

Does the previous reply indicate consideration of background concentrations? No \_\_\_\_\_

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? 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.

Reclamation will be in accordance with COGCC 1000 series rules.

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? \_\_\_\_\_

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. \_\_\_\_\_

Actual Spill or Release date, if known. \_\_\_\_\_

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 08/14/2018

Date of commencement of Site Investigation. \_\_\_\_\_

Date of completion of Site Investigation. 08/30/2018

### REMEDIAL ACTION DATES

Date of commencement of Remediation. \_\_\_\_\_

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

### SITE RECLAMATION DATES

Date of commencement of Reclamation. 08/14/2018

Date of completion of Reclamation. 08/30/2018

### 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: Howard Aamold \_\_\_\_\_

Title: Environmental Coordinator \_\_\_\_\_

Submit Date: 11/05/2018 \_\_\_\_\_

Email: howard.aamold@nblenergy.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: RICK ALLISON \_\_\_\_\_

Date: 11/09/2018 \_\_\_\_\_

Remediation Project Number: 11953 \_\_\_\_\_

### COA Type

### Description

	Based on the information presented, it appears that no further action is necessary at this time and the COGCC approves the closure request. However, should future conditions at the site indicate contaminant concentrations in soils exceeding COGCC standards or if groundwater is found to be impacted, then further investigation and/or remediation activities may be required. In addition, the surface area disturbed by the remediation activity shall be reclaimed in accordance with the 1000 Series Reclamation Rules.
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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

401827150	FORM 27-SUPPLEMENTAL-SUBMITTED
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Total Attach: 1 Files

### General Comments

#### User Group

#### Comment

#### Comment Date

		Stamp Upon Approval
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Total: 0 comment(s)