

# 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: CHEVRON USA INC	Operator No: 16700	<b>Phone Numbers</b>
Address: 100 CHEVRON ROAD		Phone: (925) 842-4249
City: RANGELY State: CO Zip: 81648		Mobile: (925) 493-9858
Contact Person: Shelby Lathrop	Email: SLathrop@chevron.com	

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: 5248 Initial Form 27 Document #: 2521415

#### 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: PIT	Facility ID: 111762	API #: _____	County Name: GARFIELD
Facility Name: FEDERAL 27-11	Latitude: 39.421414	Longitude: -108.977252	
** correct Lat/Long if needed: Latitude: _____		Longitude: _____	
QtrQtr: SESW	Sec: 27	Twp: 7S	Range: 104W Meridian: 6 Sensitive Area? No

#### SITE CONDITIONS

General soil type - USCS Classifications ML Most Sensitive Adjacent Land Use NON CROP LAND

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

WEST SALT CREEK.

# 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	GROUNDWATER	Approx. 300'x100' (L/W)	MONITOR WELLS
Yes	SOILS	Approx. 360'x245'x65' (L/W/D)	SOIL BORINGS

## INITIAL ACTION SUMMARY

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

2008-2012•Initiated Federal 27-11 pit closure in 2008. Excavation extent (45 ft wide, 45 ft long, and 18 ft deep). Addressed vadose zone impacts to a depth of 18 ft below ground surface (bgs), based on COGCC Table 910 Allowable Concentrations (Criteria). Soils above Criteria were left in place below 18 ft bgs.

- Define the horizontal and vertical limits of hydrocarbon concentrations above Criteria. Assess potential impacts to groundwater and surface water. 2010 - Installed four monitor wells (MW-1 through MW-4) and advanced three boreholes (SB-1 through SB-3). 2011 – Installed three monitor wells (MW-5 through MW-7) off well pad.
- Comparison of soil data to Criteria. TPH, benzene, toluene, and xylenes exceed criteria. Soil has been defined to MW-1, SB-2, and SB-3. Soil samples collected from vadose zone at MW-2, -3, -4, -6 and SB-1 below Criteria. Impacts observed at depths greater than 40 feet bgs represent the upper smear zone. Soil above Criteria has been delineated.
- Groundwater samples collected semi-annually 2010-2012. Benzene, toluene, and ethylbenzene are the only COPCs to exceed Criteria. Remaining COPCs less than Criteria. Max benzene concentrations found at MW-1, -2, and -3. LNAPL observed at MW-2 (less than 0.05 ft. in thickness). Impacts in groundwater are above Criteria and extend to MW-6, but do not extend to well MW-7. Groundwater plume has been delineated.
- Dissolved-phase benzene plume has remained relatively stable. MW-4 is showing decreasing concentrations, although other wells remain constant. Reducing conditions are likely present. Negative ORP values within the plume. Geochemical data indicate reduction of Fe3+. Biodegradation processes are occurring and are expected to continue to reduce benzene concentrations further.

2013-2016•Semi-annual groundwater monitoring and sampling and MNA.

2017-2020•Semi-annual groundwater monitoring and sampling, MNA, and Mobile Multi-Phase Extraction (MMPE). MMPE events have been successful at reducing LNAPL.

## 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 ):

### Proposed Groundwater Sampling

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

•Conduct the 2020 semi-annual groundwater monitoring and sampling events in Second and Third Quarter 2020 with laboratory analysis to include BTEX, TDS, chloride, and sulfate. During one of the semi-annual groundwater monitoring and sampling events, additional laboratory analysis to include the MNA parameters nitrate, ferrous iron, and methane.

### 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 ):

•Conduct semi-annual Mobile Multi-Phase Extraction (MMPE) events at MW-2, MW-3, and MW-6 in Second and Third Quarter 2020.

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 0  
Number of soil samples exceeding 910-1             
Was the areal and vertical extent of soil contamination delineated?             
Approximate areal extent (square feet)           

### NA / ND

           Highest concentration of TPH (mg/kg)             
           Highest concentration of SAR             
           BTEX > 910-1             
           Vertical Extent > 910-1 (in feet)           

### Groundwater

Number of groundwater samples collected 7  
Was extent of groundwater contaminated delineated? Yes  
Depth to groundwater (below ground surface, in feet) 65`  
Number of groundwater monitoring wells installed 0  
Number of groundwater samples exceeding 910-1 5

--            Highest concentration of Benzene (µg/l) 21000  
--            Highest concentration of Toluene (µg/l) 1400  
--            Highest concentration of Ethylbenzene (µg/l) 2400  
--            Highest concentration of Xylene (µg/l) 4600  
--            Highest concentration of Methane (mg/l) 0.053

### 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) 0      Volume of liquid waste (barrels) 1

☒ Is further site investigation required?

The following recommendations for 2021 are based on data gathered during the 2020 semi-annual groundwater monitoring and sampling events, MMPE events, as well as historical Site data:  
•Conduct the 2021 semi-annual groundwater monitoring and sampling events in Second and Third Quarter 2021 with laboratory analysis to include BTEX, TDS, chloride, and sulfate. During one of the semi-annual groundwater monitoring and sampling events, additional laboratory analysis to include the MNA parameters nitrate, ferrous iron, and methane.  
•Conduct two MMPE events at MW-2, MW-3, and MW-6 in Second and Third Quarter 2021.

# 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.

Monitored natural attenuation (MNA) and semi-annual Mobile Multi-Phase Extraction (MMPE) events at MW-2, MW-3, and MW-6 in Second and Third Quarter 2021.

## **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.

Conduct semi-annual Mobile Multi-Phase Extraction (MMPE) events at MW-2, MW-3, and MW-6 in Second and Third Quarter 2021.

## **Soil Remediation Summary**

☒ In Situ

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

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

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

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

Yes \_\_\_\_\_ Other \_\_\_\_\_ Mobile Multi-Phase Extraction (MMPE)

☐ 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

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

Yes \_\_\_\_\_ Other \_\_\_\_\_ Mobile Multi-Phase Extraction

## **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.

•Conduct the 2021 semi-annual groundwater monitoring and sampling events in Second and Third Quarter 2021 with laboratory analysis to include BTEX, TDS, chloride, and sulfate. During one of the semi-annual groundwater monitoring and sampling events, additional laboratory analysis to include the MNA parameters nitrate, ferrous iron, and methane.

## REMEDIATION PROGRESS UPDATE

### PERIODIC REPORTING

**Frequency:** ☐ Quarterly ☐ Semi-Annually ☒ Annually ☐ Other \_\_\_\_\_

**Report Type:** ☒ Groundwater Monitoring ☐ Land Treatment Progress Report ☐ O&M Report

☒ Other Mobile Multi-Phase Extraction (MMPE) \_\_\_\_\_

### WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? No \_\_\_\_\_

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.

Reclamation will completed following remediation of this area.

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. \_\_\_\_\_

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

### **SITE INVESTIGATION DATES**

Date of Initial Actions described in Site Investigation Plan (start date). 01/01/2008

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

Date of completion of Site Investigation. \_\_\_\_\_

### **REMEDIAL ACTION DATES**

Date of commencement of Remediation. 01/01/2008

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

### **SITE RECLAMATION DATES**

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

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

### **OPERATOR COMMENT**

Attention: Mr. John Heil  
West Environmental Protection Specialist  
Colorado Oil and Gas Conservation Commission  
Department of Natural Resources  
818 Taughenbaugh Blvd, Suite 103, Rifle, CO 81650  
Phone 303.894.2100, ext. 5692  
John.heil@state.co.us

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

Signed: Christopher Beall

Title: Associate Geologist

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

Email: Christopher.Beall@stantec.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: 5248

### **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**

402647115	REMEDIATION PROGRESS REPORT
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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)