FORM
27
Rev 6/99

State of Colorado
Oil and Gas Conservation Commission

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

FOR OGCC USE ONLY

OGCC Employee:
☐ Spill ☐ Complaint
☐ Inspection ☐ NOAV
Tracking No:

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☐ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☐ Other (describe):

OGCC Operator Number: 16700
Name of Operator: Chevron USA, Inc.
Address: 760 Horizon Drive
City: Grand Junction State: CO Zip: 81506

Contact Name and Telephone:
Marcelo Barberis
No: Cell: 832.693.1679 Office: 713.372.0289
Fax: NA

API Number: N/A
County: Rio Blanco
Facility Name: Emergency Pit - Rangely Weber Station 47
Facility Number: 102571
Well Name: N/A
Well Number: N/A
Location: (QtrQtr, Sec, Twp, Rng, Meridian): SWSE 35 2N 102W
Latitude: 40.094781 Longitude: -108.811852

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): emergancy pressure relief from adjacent collection station

Site Conditions: Is location within a sensitive area (according to Rule 901e)? ☐ Y ☑ N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Dry land farming

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan:

Potential receptors (water wells within 1/4 mi, surface waters, etc.): No wells, White River approximately 900 ft N and 1200 ft W of pit.

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):	Extent of Impact:	How Determined:
☑ Soils	No wells, White River approximately 900 ft N and 1200 ft W of pit.	Lined Pit, Comparison to similar remediated pit
☐ Vegetation		
☐ Groundwater		
☐ Surface Water		

REMEDIATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

No initial action taken, this action is part of voluntary pit closure actions.

Describe how source is to be removed:

Excess liquid to be removed with a vacuum truck. All visually identified highly impacted material will be removed by excavating the material from the pit. Liner will be removed, cleaned, and disposed. If impacted material is observed under the liner during field screening, excavation will be performed to remove the impacted material. Confirmation samples from pit walls and bottom will be collected to ensure that the soil does not exceed COGCC regulatory requirements summarized in Table 910-1. Clean borrow material will be imported from an off-site source.All sample locations from the pit walls and bottom will be surveyed using a glogal positioning system (GPS) device. If impacted material is still present at a depth equal to the limits of safe excavation (approximately 20 feet bgs), COGGC will be notified for a possible site inspection and to discuss potential options for an alternative path forward.

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

Excess liquids removed by vacuum truck will be recycled at the Chevron-operated water treatment facility. Liner will be cleaned and disposed at municipal landfill. Highly impacted soil will be loaded and transported by truck to Chevron-operated landfarm in Rangely CO. In addition, the following COGCC conditions of approval will be followed:• 3-5 discrete samples should be taken from pit wall; with at least one from the true pit bottom, samples should be analyzed for table 910-1. Guidance for sample locations should be taken from rule 910.b(2)B • Final Reclamation should comply with 1004 rules. • Operator should provide notice to Environmental staff Kris Neidel via email (kris.neidel@state.co.us) or phone at 970-871-1963 upon mobilization at begin of work AND when location is ready for pit bottom confirmation samples. • Characterization samples shall be taken of fill material to be used as pit cover, the soil was referred to as "3 feet of clean import material" in initial form 27. • Final report should include aerial photograph depicting exact location of discrete pit wall and bottom samples • Work plan is approved; however additional information and remediation may be required during the course of investigation and remediation.• Notice should be give to COGCC if any groundwater is encountered during remediation. If groundwater is encountered, it will be managed in accordance with the attached addendum.

Submit Page 2 with Page 1

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Page 2

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Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No: _____

REMEDIATION WORKPLAN (Cont.)

OGCC Employee:

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

It is not anticipated that groundwater will be impacted. Any groundwater present will be managed in accordance with the attached addendum.

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. Use additional sheet for description if required.

All fencing, netting, and surrounding piping will be removed prior to impacted soil excavation. All material will be excavated to expose the liner. The liner will then be cleaned and disposed. Following impacted soil excavation, soil disposal, and confirmation sampling, the excavation will be backfilled and wheel compacted with clean imported soil and existing clean berm material. At least 3 feet of clean import material will be placed and compacted as a final backfill layer in the excavation. The area will be graded to match existing contours and drainage at the plant. A final layer of aggregate will be placed to match the existing adjacent material or the area will be re-seeded with a BLM seed mix. All storm water controls will be removed following final grading.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☐ Y ☐ N If yes, describe:

N/A

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

Proposed waste disposition will be at the Chevron-operated Landfarm in Rangely, CO or a local disposal facility.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: _____ Date Site Investigation Completed: _____ Date Remediation Plan Submitted: _____

Remediation Start Date: _____ Anticipated Completion Date: _____ Actual Completion Date: _____

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

Print Name: MARCELO BARBERIS Signed: _____

Title: CHEVRON ETIC PM Date: 11/08/16

OGCC Approved: _____ Title: _____ Date: _____

CS#47 Pit Closure
Chevron Rangely Field, Rangely Colorado
Form 27 Addendum

The following procedure has been developed as a contingency plan should groundwater be encountered during the closure activities for the emergency pit at Collection Station #47. This procedure was developed based on discussions with Chevron Environmental Management Company (CEMC) and Colorado oil and Gas Conservation Commission (COGCC) representatives during a call on November 4, 2016.

Due to the depth of the excavation necessary to remove all impacted material, it is anticipated that groundwater may be encountered at the CS#47 Pit. However if groundwater is not encountered, excavation will be continued to remove impacted material associated with the pit.

If groundwater is observed in the excavation at CS#47 and visually impacted material is observed in the pit, the following activities will be performed:

- Stop excavating and notify Kris Neidel (COGCC) (Office: 970-871-1963 or Cell: 970-846-5097) that groundwater has been encountered;
- Stage groundwater removal measures as needed to continue impacted source removal. Measures may include removal of groundwater with vacuum trucks, followed by additional measures, if necessary (frac tanks, pumps, collection trenches, and piping). Collected groundwater will be transported to the Chevron treatment facility for disposal;
- Minimize impacts to groundwater (segregate or relocate impacted soil within the excavation to minimize contact with groundwater);
- Remove impacted material to the extent possible and avoid generating more groundwater in the excavation;
- Collect confirmation soil samples from pit walls and bottom in accordance with the Form 27 requirements to be analyzed for COGCC Table 910-1 constituents;
- Collect a groundwater sample from the excavation (if possible) to be analyzed for BTEX.
- If visual impacts are observed, apply in-situ bioremediation agents such as oxygen releasing compound (ORC) to the visually impacted areas;
- Backfill the excavation after receiving COGCC approval to proceed; and
- Install a minimum of two 2-inch diameter groundwater monitoring wells adjacent to the pit excavation in order to determine the direction of groundwater flow and potential groundwater impacts adjacent to the pit (Figure 1).

Attachment:

- Figure 1 – Proposed Groundwater Monitoring Well Locations
- ORC Specification

Marcelo,

Please reference the Remediation Project number 9141 on future submittals and communication on this project.

This workplan is approved with the following COA's

- *If groundwater is encountered, it is not necessary to stop excavating, however, the Operator shall notify the COGCC.*
- *The Pit shall be closed in accordance to the 900 Series Rules, in particular Rule 905.b.(1).*
- *Monitoring wells shall be installed such that the screened interval intersects the groundwater table.*
- *The number of monitoring wells to be installed may not be limited to the two (2) proposed, but to determine the local groundwater flow and hydraulic gradient.*
- *Groundwater samples from monitoring wells and from fluids that accumulate in the pit, if any, shall be analyzed for Table 910-1 constituents.*
- *Workplan approved, however additional information or investigation may be required during the course of remediation.*

The submitted documents will be uploaded to the database.


Figure 1
Proposed MW Locations CS#47 Pit
Legend
Existing MW
Proposed
Proposed MW-1
Proposed MW-2
Existing MW
Google earth
© 2016 Google
N
100 ft

OXYGEN RELEASE COMPOUND

ORC Advanced® Technical Description

ORC Advanced® is an engineered, oxygen release compound designed specifically for enhanced, *in situ* aerobic bioremediation of petroleum hydrocarbons in groundwater and saturated soils. Upon contact with groundwater, this calcium oxyhydroxide-based material becomes hydrated producing a controlled release of molecular oxygen (17% by weight) for periods of up to 12 months on a single application.

Example of ORC Advanced

ORC Advanced decreases time to site closure and accelerates degradation rates up to 100 times faster than natural degradation rates. A single ORC Advanced application can support aerobic biodegradation for up to 12 months with minimal site disturbance, no permanent or emplaced above ground equipment, piping, tanks, power sources, etc are needed. There is no operation or maintenance required. ORC Advanced provides lower costs, greater efficiency and reliability compared to engineered mechanical systems, oxygen emitters and bubblers.

ORC Advanced provides remediation practitioners with a significantly faster and highly effective means of treating petroleum contaminated sites. Petroleum hydrocarbon contamination is often associated with retail petroleum service stations resulting from leaking underground storage tanks, piping and dispensers. As a result, ORC Advanced technology and applications have been tailored around the remediation needs of the retail petroleum industry and include: tank pit excavations, amending and mixing with backfill, direct-injection, bore-hole backfill, ORC Advanced Pellets for waterless and dustless application, combined ISCO and bioremediation applications, etc.

For a list of treatable contaminants with the use of ORC Advanced, view the Range of Treatable Contaminants Guide

Chemical Composition

- Calcium hydroxide oxide
- Calcium hydroxide
- Monopotassium phosphate
- Dipotassium phosphate

Properties

- Physical state: Solid
- Form: Powder
- Odor: Odorless
- Color: White to pale yellow
- pH: 12.5 (3% suspension/water)

OXYGEN RELEASE COMPOUND

ORC Advanced® Technical Description

Storage and Handling Guidelines

Storage
Store in a cool, dry place out of direct sunlight
Store in original tightly closed container
Store in a well-ventilated place
Do not store near combustible materials
Store away from incompatible materials
Provide appropriate exhaust ventilation in places where dust is formed

Handling
Minimize dust generation and accumulation
Keep away from heat
Routine housekeeping should be instituted to ensure that dust does not accumulate on surfaces
Observe good industrial hygiene practices
Take precaution to avoid mixing with combustibles
Keep away from clothing and other combustible materials
Avoid contact with water and moisture
Avoid contact with eyes, skin, and clothing
Avoid prolonged exposure
Wear appropriate personal protective equipment

Applications

- Slurry mixture direct-push injection through hollow rods or direct-placement into boreholes
- *In situ* or *ex situ* slurry mixture into contaminated backfill or contaminated soils in general
- Slurry mixture injections in conjunction with chemical oxidants like RegenOx or PersulfOx
- Filter sock applications in groundwater for highly localized treatment
- *Ex situ* biopiles

Health and Safety

Wash thoroughly after handling. Wear protective gloves, eye protection, and face protection. Please review the ORC Advanced Safety Data Sheet for additional storage, usage, and handling requirements.

REGENESIS®

www.regenesis.com
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