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

#8444

FOR OGCC USE ONLY

RECEIVED 5/23/2014

OGCC Employee:

[X] Spill [ ] Complaint
[ ] Inspection [ ] NOAV

Tracking No: 2148452

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): Rice Sensitive Area Determination

OGCC Operator Number: 10352
Name of Operator: CM Production, LLC
Address: 600 17th Street, #2800 South
City: Denver State: CO Zip: 80202

Contact Name and Telephone:
Mr. John Teff
No: 303.534.0199
Fax: 303.479.1318

API Number: 05-075-07216 County: Logan
Facility Name: Rice Production Facility Facility Number: 116281
Well Name: Rice #2 Well Number:
Location: (QtrQtr, Sec, Twp, Rng, Meridian): SW NW 33 12N 54W Latitude: 40.973494 Longitude: -103.418794

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): Produced Water Pits

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.): Rangeland and Wildlife Habitat

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Badland, Mitchell - Keota loams (Unit #70)

Potential receptors (water wells within 1/4 mi, surface waters, etc.): No permitted water wells within one mile of the site.

An unnamed intermittent drainage is located to the east of the site. The drainage does not connect to live waters.

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

Impacted Media (check):	Extent of Impact:	How Determined:
[✓] Soils	Badger burrowed into south berm	Visual
[ ] Vegetation		
[ ] Groundwater		
[ ] Surface Water		

REMEDIATION WORKPLAN

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

CM Production performed initial repairs on the south berm to stop the produced water spill that resulted from a badger burrow in the south earthen berm of the south produced water pit. The repairs were made to the exterior of the berm using a small excavator.

Describe how source is to be removed:

N/A The produced water spill impacted a limited area of approximately 4 feet by 8 feet. CM Production scraped up the impacted soils and placed them on the berm.

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.:

CM Production proposes to excavate a shallow ditch on the south side at the base of the produced water pit berm exterior and will use an excavtor to repair the burrow from the inside of the south produced water pit. Any produced water that spills over the top of the earthen berm will be contained within the ditch and will be removed using a vacuum truck.

Submit Page 2 with Page 1

FORM 27 Rev 6/99

Page 2

State of Colorado
Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801, Denver, Colorado 80203
(303)894-2100 Fax:(303)894-2109

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.):

Groundwater was not impacted. The produced water impacted surface soils on the south side of the south produced water pit. CM Production removed the impacted soils from the produced water spill and placed them on the south berm.

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.

A trench will be excavated at the base of the south pit to contain any produced water that escapes the south pit during the long term repairs made with the excavator. A vacuum truck will remove any produced water from the trench. CM Production proposes adding some soil amendments and using a native grass seed mixture to restore the area south of the south produced water pit. The work is contingent upon approval by the Castle Canyon Grazing Association (surface owner) prior to conducting the work.

Historic produced water spills are alleged to have occurred at the site. Reclamation may involve slowly flushing the soils with fresh water and capturing the water in a trench down slope and removing the water with a vacuum truck. There is concern with this remedy due to the erodibility of these soils. Alternatively, CM Production may use soil amendments such as Epsom salt and crushed agricultural limestone and dolomite to address the sodium adsorption ratio (SAR), and could add top soil and manure to adjust the electrical conductivity (EC).

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:

Further site investigation is not required for this release, but is required for alleged historic produced water spills. The COGCC inspection noted a lack of vegetation in this area that will need to be assessed for SAR, EC, and pH. This may be performed using a combination of field methods and laboratory analyses.

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

The impacted soils from the produced water spill were placed on the earthen berm of the south produced water pit. The area south of the south pit was noted in the 01/14/2014 COGCC inspection as lacking vegetation. The berm repairs will disturb this area further. A test seed bed may be prepared in this area to assess how to best reclaim other areas. Any reclamation plan will require the approval of the Castle Canyon Grazing Association (surface owner).

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 04/01/2014 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: James Hix as Agent for CM Production, LLC Signed: James Hix as Agent for CM Production, LLC

Title: Senior Geologist - Olsson Associates Date: 05/23/2014

OGCC Approved: John Noto Digitally signed by John Noto DN: cn=John Noto, o=COGCC, ou, email=john.noto@state.co.us, c=US Date: 2014.05.23 15:03:37 -06'00' Title: _____ Date: _____