

State of Colorado
Oil and Gas Conservation Commission



#8042

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RECEIVED
10/22/2013

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

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.

OGCC Employee:
 Spill Complaint
 Inspection NOAV
Tracking No:

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

Spill or Release Plug & Abandon Central Facility Closure Site/Facility Closure Other (describe): Earthen Pit (w/fiberglass tank) Closure

OGCC Operator Number: 100185
Name of Operator: EnCana Oil and Gas (USA), Inc.
Address: 143 Diamond Ave
City: Parachute State: CO Zip: 81635
Contact Name and Telephone:
Charles Jensen
No: 970-285-2735
Fax: 970-285-2705

API Number: 05-103-08009 County: Rio Blanco
Facility Name: Cathedral Federal Unit Facility Number: 315161
Well Name: _____ Well Number: _____
Location: (QtrQtr, Sec, Twp, Rng, Meridian): NWSE 32 2S 101W, 6th Latitude: 39.8302 Longitude: -108.751359

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): Produced Water
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
Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Rentsac-Moyerson Rock outcrop cmlx, 5 to 65 % Slopes
Potential receptors (water wells within 1/4 mi, surface waters, etc.): an unnamed intermittent stream 1,500 feet to the north

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

| Impacted Media (check): | Extent of Impact: | How Determined: |
|--|---|-------------------|
| <input type="checkbox"/> Soils | <u>Unknown-Earthen pit (w/fiberglass tank).</u> | <u>Site Visit</u> |
| <input type="checkbox"/> Vegetation | _____ | _____ |
| <input type="checkbox"/> Groundwater | _____ | _____ |
| <input type="checkbox"/> Surface Water | _____ | _____ |

REMEDIALTION WORKPLAN

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

see attached

Describe how source is to be removed:

see attached

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.:

see attached



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

Page 2
REMEDIATION WORKPLAN (Cont.)

OGCC Employee: _____

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

see attached

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.

see attached

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:

see attached

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

see attached

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: October 2013 Date Site Investigation Completed: October 2013 Date Remediation Plan Submitted: 10/22/2013
Remediation Start Date: October 2013 Anticipated Completion Date: October 2013 Actual Completion Date: October 2013

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

Print Name: Charles Jensen Signed: *Charles Jensen*
Title: Environmental Field Coordinator Date: 10/22/2013

OGCC Approved: _____ Title: _____ Date: _____

NARRATIVE ATTACHMENT

FORM 27 (SITE INVESTIGATION AND REMEDIATION WORKPLAN)

Earthen Pit Closure (Cathedral Federal 32-1)
Document Date – 10/22/2013

TECHNICAL CONDITIONS

Is location within a sensitive area (according to Rule 901e)?

Based on the distance to surface water this location is not found in a sensitive area.

Potential receptors (water wells within ¼ mi, surface waters, etc.):

According to the COGCC GIS OnLine mapping service, there is an unnamed intermittent stream 1,500 feet to the north, but no monitoring wells or permitted water wells within ¼ mile of the well pad.

REMEDIATION WORKPLAN

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

This Form 27 is being submitted to initiate the document trail for closure of the historical earthen pit (with fiberglass tank) on Encana's 32-1 well pad. "Earthen pits" were installed historically as containment for well blow down liquids and consist of a 6 to 8 foot diameter berm around a 3 to 5 foot hole. The earthen pit will be replaced with an above ground storage tank set in a lined secondary containment. A topographic location map is included with this submittal. All activities conducted in support of this pit closure project will be carried out in accordance with COGCC Rules 905, 907, and 909 for conducting a site investigation in support of pit closures.

The following discussion was prepared to present general procedures for Encana's approach to pit closures and any associated remediation and documentation. This form is being submitted prior to the initiation of pit closure activities on this location. All subsequent data gathered in support of this project will be submitted to the COGCC in a Form 4 (Sundry Notice), and will reference the COGCC assigned Remediation Project number.

With approval of this Form 27, and in compliance with COGCC rules governing the closure of pits, Encana will initiate the pit closure project with the following activities:

- 905.b(2) & 905.b(4) – All fluids and/or solids will be removed from the pit and will be reused or disposed of at a permitted disposal facility or Encana owned injection well.
- 905.b(4) – Discrete representative samples will be collected from below the earthen pit following removal of historic earthen pit, and will be analyzed for compliance with COGCC Table 910-1.
 - One full suite (Table 910-1) discrete sample will be collected from the soil directly below the earthen pit. Additional discrete samples will be collected from the pit bottom, and if necessary pit walls, and analyzed for the organic constituents listed



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in Table 910-1. The number of additional samples collected will be adequate to represent the size and/or impacts present below the earthen pit.

- Sample results will be provided to the COGCC in supplementary submission(s) for this remediation project.
- 905.c – A Form 4 (Sundry Notice) will be submitted to document the onsite disposal of material in excess of the allowable concentrations identified in Table 910-1 or remediation on location.

Describe how source is to be removed:

Any impacted material identified below the earthen pit will be evaluated upon discovery and depending upon severity would be removed using heavy equipment and remediated onsite, or disposed of offsite at a permitted disposal facility. The effectiveness of excavation efforts and removal of impacts will be verified through sample collection and laboratory analysis conducted in accordance with COGCC Rule 910, and to reflect the procedures described above. These activities would be described in the Notification of Completion for this remediation project.

Any impacts identified below the earthen pit would be documented and reported on a Form 4 following successful remediation of impacts.

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.:

In the event that below pit impacts are identified, the following approaches to remediation would be utilized:

- In most cases impacted material would be removed and remediated onsite through blending and natural attenuation, and then returned to the excavation upon successful remediation of impacts. Complete removal of impacted materials and successful remediation of impacts will be demonstrated through sample collection and laboratory analysis.
 - Occasionally due to operational considerations the pit may need to be closed after impacted material has been removed. Excavated material would then need to be remediated and disposed of independently of the pit closure, and any onsite disposal of that material would be carried out in accordance with COGCC Rule 907 and documented on a Form 4 (Sundry Notice)

NARRATIVE ATTACHMENT

FORM 27 (SITE INVESTIGATION AND REMEDIATION WORKPLAN)

Earthen Pit Closure (Cathedral Federal 32-1)
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- In the event that groundwater contamination is identified, or the depth of contamination makes removal of impacted material through conventional excavation impractical, the vertical and lateral extent of contamination would be determined by a third party contractor and an appropriate insitu remediation and monitoring plan would be developed and submitted to the COGCC for prior approval.

All remediation activities are verified with sample collection and laboratory analysis, conducted in accordance with COGCC Rule 910, and when necessary under an approved monitoring plan and analytical suite. These activities would be described in the Notification of Completion for this remediation project.

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

In the event that impacts to groundwater are identified, a vertical and lateral extent would be determined by a third party contractor and an appropriate insitu remediation and monitoring plan would be prepared and submitted to the COGCC for prior approval.

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.

The footprint for the backfilled earthen pit occurs within the pad boundary for this producing well pad. The backfilled pit will become part of the pad's working surface.

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? If yes, describe:

The site investigation for this project will be carried out as described above. All analytical data collected in support of this remediation project will be provided to the COGCC in the Notification of Completion. A site diagram showing the location of collected samples will also be provided in the notification of completion.

In the event that groundwater contamination is identified, or the depth of contamination makes removal of impacted material through conventional excavation impractical, the vertical and lateral extent of contamination would be determined by a third party contractor and an appropriate insitu remediation and monitoring plan would be developed and submitted to the COGCC for prior approval.



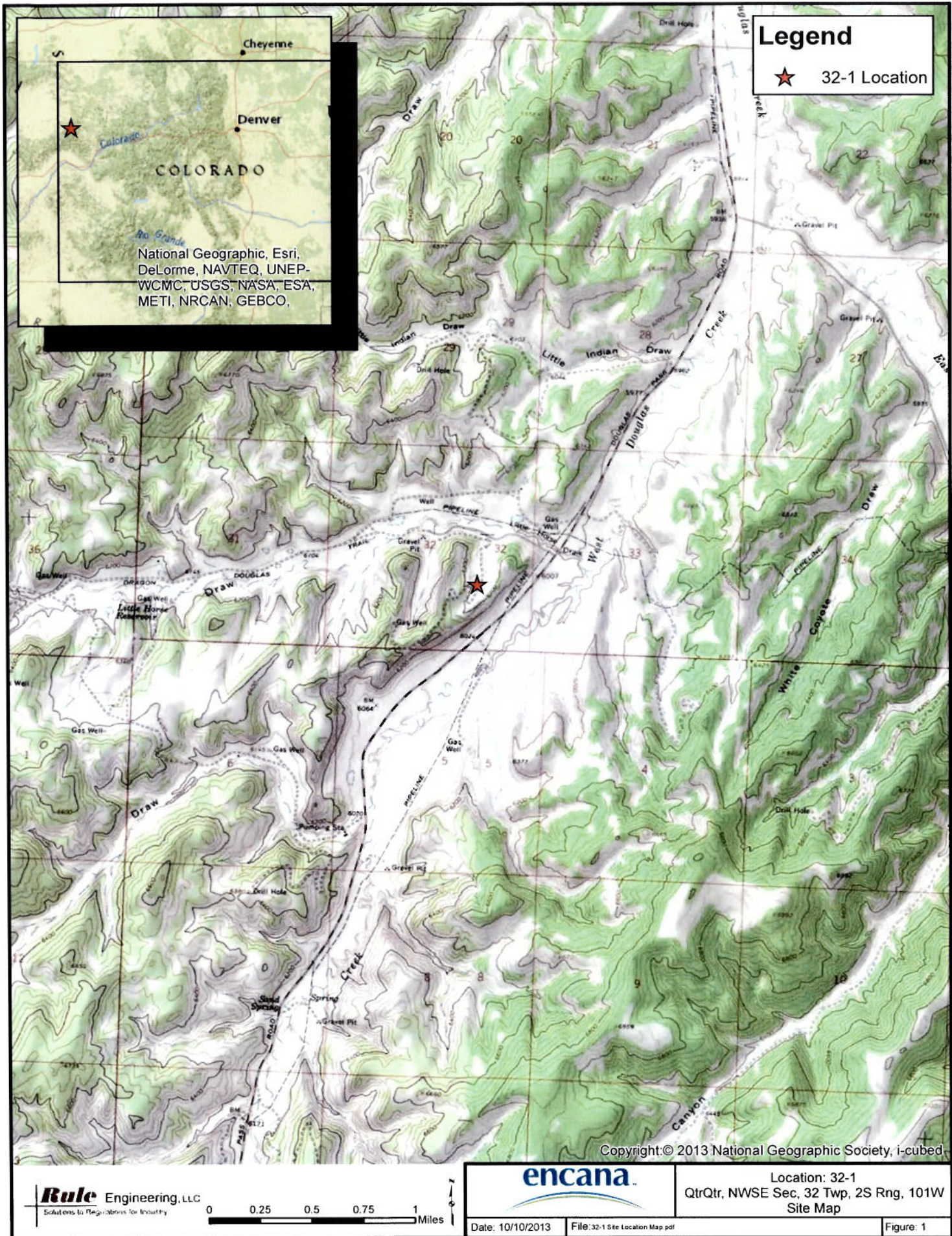
NARRATIVE ATTACHMENT FORM 27 (SITE INVESTIGATION AND REMEDIATION WORKPLAN)

Earthen Pit Closure (Cathedral Federal 32-1)
Document Date – 10/22/2013

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

Final onsite disposition of E&P waste would be detailed in the Notification of Completion, and if necessary in a Form 4 (Sundry Notice). Documentation of offsite disposal of E&P waste generated during this project would be kept on record at Encana's Parachute Field Office and would be available upon request.





Legend

★ 32-1 Location

Cheyenne

Denver

COLORADO

Colorado

Ro Grande

National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO,

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Rule Engineering, LLC
Solutions to Regulators for Industry



Location: 32-1
QtrQtr, NWSE Sec, 32 Twp, 2S Rng, 101W
Site Map

Date: 10/10/2013

File: 32-1 Site Location Map.pdf

Figure: 1