

State of Colorado
Oil and Gas Conservation Commission

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#6908

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RECEIVED
3/1/2012

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 Employee:

Spill Complaint
Inspection NOAV

Tracking No:

OGCC Operator Number: _____

Name of Operator: _____

Address: _____

City: _____ State: _____ Zip: _____

Contact Name and Telephone: _____

No: _____

Fax: _____

API Number: _____

County: _____

Facility Name: _____

Facility Number: _____

Well Name: _____

Well Number: _____

Location: (QtrQtr, Sec, Twp, Rng, Meridian): _____ Latitude: _____ Longitude: _____

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): _____

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.): _____

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.): _____

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

Impacted Media (check): Extent of Impact: How Determined:

Soils _____ _____

Vegetation _____ _____

Groundwater _____ _____

Surface Water _____ _____

REMEDIALTION WORKPLAN

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

Describe how source is to be removed:

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.:



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

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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: 10/18/2011 Date Site Investigation Completed: 11/07/2011 Date Remediation Plan Submitted: _____
Remediation Start Date: 10/18/2011 Anticipated Completion Date: Fall, 2012 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: Karen LeBaron

Signed: _____

Title: Director

Date: 11/18/12

OGCC Approved: _____

Title: _____

For Chris Campbell
EPS NW Region

Date: 03/08/2012

Note:

Emcana has assumed responsibility
for the remediation/reclamation of these locations.

NARRATIVE ATTACHMENT FORM 27 (SITE INVESTIGATION AND REMEDIATION WORKPLAN)

Figure Four Ranch – Pit Closures

Document Date – 01/16/2012

This Form 27 (Site Investigation and Remediation Workplan) was prepared for the purpose of generating remediation project numbers for multiple pit closures on Puckett Land Company's (Puckett) Figure Four Ranch. The document includes a spreadsheet listing the pit locations with applicable facility and site-specific information. Also included is a topographic location map illustrating the locations covered by this form.

This multi-location submittal is intended to start the document trail for each identified location, and provide an overview of Encana's general approach to remediation of potential below-liner impacts identified during pit closure activities. Site-specific information related to pit dimensions, associated impacts, and remediation activities will be provided in the required Form 19 (Spill / Release Report), Notification of Completion, and Form 4 (Sundry Notice).

REMEDIATION WORKPLAN

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

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. All subsequent data gathered in support of this project will be submitted to the COGCC as required in a Form 19 (Spill/Release Report), Notification of Completion, or Form 4 (Sundry Notice), and will reference the COGCC assigned Remediation Project number.

The following activities have, or will be carried out in support of pit closure activities conducted in support of this project:

- 905.b(2) & 905.b(4) – All above-liner fluids and solids will be removed from the pit and will be reused or disposed of at a permitted disposal facility under manifest.
- 905.b(3) – Liners will be removed, and reused/recycled or disposed of at a permitted disposal facility under manifest.
- 905.b(4) – Representative samples will be collected from the pit bottom following removal of the pit liner and will be analyzed for compliance with COGCC Table 910-1.
 - Sample results will be provided to the COGCC in supplementary submission(s) for this remediation project.
- 905.c – In the event that levels of the constituents of concern found below the liner are in excess of Table 910-1 allowable concentrations and above background concentrations, a Form 19 (Spill/Release Report) will be submitted to document the failure of the pit liner and subsequent release of fluids.
 - If below-liner concentrations are above Table 910-1 allowable concentrations, but below background no Form 19 will be submitted. However, 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.

NARRATIVE ATTACHMENT FORM 27 (SITE INVESTIGATION AND REMEDIATION WORKPLAN)

Figure Four Ranch – Pit Closures

Document Date – 01/16/2012

Describe how source is to be removed:

Any impacted material identified below the liner would 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 liner would be documented and reported on a Form 19 (Spill/Release Report).

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-liner impacts are identified, a Form 19 would be prepared and submitted to the COGCC, and the following approaches to remediation would be utilized:

- In most cases impacted material would be removed and remediated onsite, and 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)
 - If cuttings are present on location, an effort will be made to utilize the below-grade capacity of the pit and dispose of the cuttings during the pit closure. Any disposal of cuttings in this fashion would be conducted in accordance with Rule 907 and demonstrated through sample collection and laboratory analysis carried out in accordance with Rule 910. Utilization of this disposal option would be identified in the Notification of Completion, and if necessary in a Form 4 (Sundry Notice)
- 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.

NARRATIVE ATTACHMENT FORM 27 (SITE INVESTIGATION AND REMEDIATION WORKPLAN)

Figure Four Ranch – Pit Closures

Document Date – 01/16/2012

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 pit occurs within the pad boundary for this location. During reclamation the backfilled pit may be part of the pad's working surface and/or covered by recontoured and reseeded slopes installed to meet reclamation objectives. Interim and final reclamation activities will be carried out in accordance with COGCC 1000 Series requirements, and will be documented accordingly.

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 a Form 19, if applicable, and/or in the Notification of Completion. A site diagram showing the location of collected samples will also be provided.

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.

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(s) of Completion, and if necessary, in the associated Sundry Notice(s). Documentation of offsite disposal of E&P waste generated during this project would be kept on record at Puckett Land Company's Office and would be available upon request.



Form 27 (Site Investigation Remediation Workplan)
Multi-Location Form Submittal
Site Specific Information

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED (p1)										TECHNICAL CONDITIONS (p1)				
Location Name	API Number:	County:	Facility Name:	Facility Number:	Well Name:	Well Number:	Location: (QtrQtr, Sec, Twp, Rng, Meridian):	Latitude:	Longitude:	Type of Waste Causing Impact:	Sensitive Area:	Adjacent land use:	Soil Type:	Potential Receptors: (water wells within 1/4 mi, surface waters, etc.)
499-12-67	316610 (Location ID)	Rio Blanco	W. Reserve Pit	TBD	FIGURE FOUR RANCH	499-12-67	SWSE, Sec12, T4S, R99W	39.712116	-108.448569	drilling fluid and cuttings	No, based on distance to surface water and depth to ground water.	rangeland	Starman-Vandamore complex, 5 to 40 percent slopes	According to the COGCC Online Mapping Service, there is 1 surface water receptor, and no well within 1/4 mile of this location.
499-12-67	316610 (Location ID)	Rio Blanco	E. Reserve Pit	TBD	FIGURE FOUR RANCH	499-12-67	SWSE, Sec12, T4S, R99W	39.711193	-108.448098	drilling fluid and cuttings	No, based on distance to surface water and depth to ground water.	rangeland	Starman-Vandamore complex, 5 to 40 percent slopes	According to the COGCC Online Mapping Service, there is 1 surface water receptor, and no well within 1/4 mile of this location.
499-12-74	316652 (Location ID)	Rio Blanco	N. Reserve Pit	TBD	FIGURE FOUR RANCH	499-12-74	SENE, Sec12, T4S, R99W	39.717299	-108.444762	drilling fluid and cuttings	No, based on distance to surface water and depth to ground water.	rangeland	Starman-Vandamore complex, 5 to 40 percent slopes	According to the COGCC Online Mapping Service, there is 1 surface water receptor, and 1 monitoring well within 1/4 mile of this location.
499-12-74	316652 (Location ID)	Rio Blanco	S. Reserve Pit	TBD	FIGURE FOUR RANCH	499-12-74	SENE, Sec12, T4S, R99W	39.717014	-108.445018	drilling fluid and cuttings	No, based on distance to surface water and depth to ground water.	rangeland	Starman-Vandamore complex, 5 to 40 percent slopes	According to the COGCC Online Mapping Service, there is 1 surface water receptor, and 1 monitoring well within 1/4 mile of this location.
499-14-67	316608 (Location ID)	Rio Blanco	W. Reserve Pit	TBD	FIGURE FOUR RANCH	499-14-67	SWSE, Sec14, T4S, R99W	39.697067	-108.469432	drilling fluid and cuttings	No, based on distance to surface water and depth to ground water.	rangeland	Irigul-Parachute complex, 5 to 30 percent slopes	According to the COGCC Online Mapping Service, there is 1 surface water receptor, and 1 monitoring well within 1/4 mile of this location.
499-14-67	316608 (Location ID)	Rio Blanco	E. Reserve Pit	TBD	FIGURE FOUR RANCH	499-14-67	SWSE, Sec14, T4S, R99W	39.697147	-108.46895	drilling fluid and cuttings	No, based on distance to surface water and depth to ground water.	rangeland	Irigul-Parachute complex, 5 to 30 percent slopes	According to the COGCC Online Mapping Service, there is 1 surface water receptor, and 1 monitoring well within 1/4 mile of this location.
499-14-27	316656 (Location ID)	Rio Blanco	SW. Reserve Pit	TBD	FIGURE FOUR RANCH	499-14-27	SWSW, Sec14, T4S, R99W	39.697567	-108.477186	drilling fluid and cuttings	No, based on distance to surface water and depth to ground water.	rangeland	Irigul-Parachute complex, 5 to 30 percent slopes	According to the COGCC Online Mapping Service, there are no surface water receptors, and 1 monitoring well within 1/4 mile of this location.
499-14-27	316656 (Location ID)	Rio Blanco	NE. Reserve Pit	TBD	FIGURE FOUR RANCH	499-14-27	SWSW, Sec14, T4S, R99W	39.697743	-108.467935	drilling fluid and cuttings	No, based on distance to surface water and depth to ground water.	rangeland	Irigul-Parachute complex, 5 to 30 percent slopes	According to the COGCC Online Mapping Service, there are no surface water receptors, and 1 monitoring well within 1/4 mile of this location.
499-14-22	316684 (Location ID)	Rio Blanco	N. Reserve Pit	TBD	FIGURE FOUR RANCH	499-14-22	NWNW, Sec4, T4S, R99W	39.70579	-108.476671	drilling fluid and cuttings	No, based on distance to surface water and depth to ground water.	rangeland	Irigul-Parachute complex, 5 to 30 percent slopes	According to the COGCC Online Mapping Service, there are no surface water receptors, and 1 monitoring well within 1/4 mile of this location.
499-14-22	316684 (Location ID)	Rio Blanco	S. Reserve Pit	TBD	FIGURE FOUR RANCH	499-14-22	NWNW, Sec4, T4S, R99W	39.705464	-108.476732	drilling fluid and cuttings	No, based on distance to surface water and depth to ground water.	rangeland	Irigul-Parachute complex, 5 to 30 percent slopes	According to the COGCC Online Mapping Service, there are no surface water receptors, and 1 monitoring well within 1/4 mile of this location.

Figure Four Ranch

Rio Blanco County, Colorado
Revised: January 12, 2012

**PUCKETT LAND
COMPANY**

0 2,250 4,500 Feet
1 inch = 3,000 feet

- Site Boundary
- Access Road
- Township Boundary
- Surface Ownership
 - Private (clear)
 - BLM (transparent)
 - CDOW (transparent)

