

State of Colorado  
Oil and Gas Conservation Commission

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



FOR OGCC USE ONLY

**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): \_\_\_\_\_

**GENERAL INFORMATION**

|                                                              |                               |                                   |                       |
|--------------------------------------------------------------|-------------------------------|-----------------------------------|-----------------------|
| <b>OGCC Operator Number:</b> 69175                           |                               | <b>Contact Name and Telephone</b> |                       |
| Name of Operator: PDC Energy, Inc.                           |                               | Name: Randall Ferguson            |                       |
| Address: 1775 Sherman Street, Suite 3000                     |                               | No: (303) 860-5800                |                       |
| City: Denver State: CO Zip: 80203                            |                               | Fax: (303) 831-3904               |                       |
| API/Facility No: 05-123-20104                                | County: Weld                  |                                   |                       |
| Facility Name: Edwards 33, 43-9                              | Facility Number: 331536       |                                   |                       |
| Well Name: Edwards 33, 43-9                                  | Well Number: Edwards 33, 43-9 |                                   |                       |
| Location (QtrQtr, Sec, Twp, Rng, Meridian): NWSE S9 T5N R67W |                               | Latitude: 40.41212                | Longitude: -104.88889 |

**TECHNICAL CONDITIONS**

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

Site Conditions: Is location within a sensitive area (according to Rule 901e)?  Y  N If yes, attach evaluation. \*\* Please see 'Potential Receptors' section below.

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

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Colby loam, 1 to 3 percent slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Surface water is located approximately 700 feet and an occupied building is located 1,185 feet from the site. The nearest water well is 500 feet west of the site and is the only water well located within a 1/4-mile radius. Depth to shallow groundwater is unknown.

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

|                                           |                                            |                              |
|-------------------------------------------|--------------------------------------------|------------------------------|
| Impacted Media (check):                   | Extent of Impact:                          | How Determined:              |
| <input checked="" type="checkbox"/> Soils | Refer to the attached Figure 1 and Table 1 | Excavation and soil sampling |
| <input type="checkbox"/> Vegetation       | _____                                      | _____                        |
| <input type="checkbox"/> Groundwater      | _____                                      | _____                        |
| <input type="checkbox"/> Surface water    | _____                                      | _____                        |

**REMEDIATION WORKPLAN**

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

On July 30, 2015, a dump line release was discovered at the Edwards 33, 43-9 production facility. Initial excavation activities were summarized in an Initial Form 19 submitted on July 31, 2015 (Document # 400877827) and in a Supplemental Form 19 submitted on August 7, 2015 (Document # 400879453).

Describe how source is to be removed:

Excavation and chemical soil treatment activities were completed between July 31 and August 24, 2015. Approximately 410 cubic yards of impacted material were removed and transported to the Waste Management Facility in Ault, Colorado for disposal under PDC waste manifests. In addition, approximately 800 cubic yards of impacted material were chemically treated using hydrogen peroxide. A complete summary of excavation, remediation, and sampling activities is provided in Section 1 of the attached Remediation Work Plan.

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.:

Based on the analytical data collected during initial remediation and sampling activities, soil impacts above regulatory standards remain between 21 feet and 32 feet bgs. As such, excavation and chemical treatment activities will be conducted to address remaining petroleum hydrocarbon impacts in soil. Impacted material will be excavated and chemically treated on-site using hydrogen peroxide. A summary of proposed remediation, implementation, and sampling activities is described in Sections 3 and 4 of the attached Remediation Work Plan.

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REMEDIATION WORKPLAN (CONT.)

OGCC Employee: \_\_\_\_\_

Tracking Number: \_\_\_\_\_ Name of Operator: PDC Energy, Inc. OGCC Operator No: 69175 Received Date: \_\_\_\_\_ Well Name & No: Edwards 33, 43-9 Facility Name & No.: Edwards 33, 43-9

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.): Groundwater was not encountered during excavation and remediation activities. Should groundwater impacted above regulatory standards be encountered during future excavation activities, PDC will submit a subsequent report summarizing the proposed monitoring plan and remediation strategy.

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. Native backfill consisting of treated material will be placed in maximum 2-foot lifts using an excavator and compactor at the base of the excavation to an approximate depth between 5-10 feet bgs. Clean fill material will be placed from the surface to between 5-10 feet bgs. In the adjacent agricultural field, topsoil will be placed from 0 to 3 feet bgs. The excavation will be completely backfilled to ground surface and re-contoured to match pre-existing surface conditions. A detailed summary of the reclamation plan in accordance with COGCC Series 100 standards is provided in Section 3.4 of the attached Remediation Work Plan.

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? [X] Y [ ] N If yes, describe: Based on the analytical data collected during initial remediation and sampling activities, soil impacts above regulatory standards remain between 21 feet and 32 feet bgs. In addition, the vertical extent of remaining soil impacts within the excavation area has not been defined. Proposed investigation and sampling activities are summarized in Section 3 of the attached Remediation Work Plan.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.): Soil removed during initial excavation activities was disposed of at the Waste Management Facility in Ault, Colorado under PDC waste manifests. Remaining impacted material will be treated on-site and reused for backfill material.

IMPLEMENTATION SCHEDULE

Table with implementation schedule details: Date Site Investigation Began: 7/30/2015, Date Site Investigation Completed: NA, Remediation Plan Submitted: \_\_\_\_\_, Remediation Start Date: 8/10/2015, Anticipated Completion Date: 12/1/2015, Actual Completion Date: TBD

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

Print Name: Randall Ferguson

Signed: \_\_\_\_\_ Title: EHS Senior Compliance Specialist Date: \_\_\_\_\_

OGCC Approved: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_