

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

OGCC Operator Number: 69175 Name of Operator: Petroleum Development Corporation Address: 1775 Sherman Street, Suite 3000 City: Denver State: CO Zip: 80203		Contact Name and Telephone Name: Randall Ferguson No: (303) 860-5800 Fax: (303) 860-5838	
API/Facility No: 05-123-20292 Facility Name: Avery 10B, 13, 23-10, 24-10D Well Name: Avery Location (QtrQtr, Sec, Twp, Rng, Meridian): SWSW Sec 10 T6N R65W 6th PM		County: Weld Facility Number: Well Number: 10B Latitude: Longitude:	

TECHNICAL CONDITIONS

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

Site Conditions: Is location within a sensitive area (according to Rule 901e)? ☒ Y ☐ N If yes, attach evaluation. Groundwater <20 feet below ground surface.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Agriculture/Livestock

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

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Surface water is located 1,110' southeast of the site; a building is located 285' east of the site; a water well is located 900' southwest of the site; and depth to groundwater is 10' below ground surface (bgs).

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	30' N-S x 20' E-W x 12' bgs	Laboratory analysis and field screening of soil samples
<input type="checkbox"/> Vegetation		
<input checked="" type="checkbox"/> Groundwater	See attached data	Laboratory analysis of groundwater samples
<input type="checkbox"/> Surface water		

REMEDIALATION WORKPLAN

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

A Form 19 was submitted on August 27, 2010 (Spill #2521008).

Describe how source is to be removed:

During a routine site check, a pumper observed oil on the ground near the oil dump line riser. Subsequent investigation determined a leak in the oil dump line was observed to have released approximately 11 barrels of condensate to the subsurface. Once the dump line was removed, impacted soil above COGCC Table 910-1 Concentration Levels was excavated. Soil samples were collected from the sidewalls of the excavation and were submitted for analysis of BTEX and GRO by EPA Method 8260B, and DRO by EPA Modified Method 8015. Laboratory results indicated BTEX, GRO, and DRO concentrations are in compliance with COGCC Table 910-1 Concentration Levels. Impacted water was recovered from the excavation by a vacuum truck and transported to a licensed disposal facility. Groundwater samples were collected from the base of the excavation and from two potholes downgradient of the excavation and were submitted for analysis of BTEX by EPA Method 8260B. A topographic map and a site map are provided as Figures 1 and 2. Soil and groundwater analytical results are provided in Tables 1 and 2. The laboratory analytical reports are included as an attachment.

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.:

Approx. 160 cubic yards of soil exceeding COGCC Table 910-1 Concentration Levels was transported to the Waste Management landfill in Ault, CO for disposal. Additionally, 669 barrels of groundwater exceeding CDPHE WQCC Reg. 41 standards was recovered and disposed of at a licensed facility.

FORM
27State of Colorado
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Page 2

REMEDIAL WORKPLAN (CONT.)

OGCC Embryo

Tracking Number: _____
Name of Operator: Petroleum Development Corporation
OGCC Operator No: 69175
Received Date: _____
Well Name & No: Avery 10B
Facility Name & No.: Avery 10B, 13, 23-10, 24-10D

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

Groundwater samples were collected from the base of the excavation on August 12 and 20, September 17, 23, and 30, and October 14, 2010 and were submitted for analysis of BTEX by EPA Method 8260B. Groundwater samples were also collected from two potholes downgradient of the excavation on August 31, 2010 and were submitted for analysis of BTEX. Between each sampling event, PDC utilized a vacuum truck to recover impacted groundwater from the excavation. Lab results indicated the benzene and xylenes concentrations in the groundwater sample from the August 12, 2010 sampling event exceeded the CDPHE WQCC Reg. 41 standards. Lab results for the groundwater samples collected from the excavation indicated subsequent sampling events on August 20, September 17, September 23, and September 30, 2010 exceeded the Reg. 41 standard for benzene. Lab results for the final groundwater sample collected from the excavation on October 14, 2010 indicated non-detectable BTEX levels. Lab results of the groundwater samples collected from the two downgradient potholes on August 31, 2010 also indicated non-detectable BTEX levels and demonstrated that there was no downgradient migration of BTEX constituents.

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 site was restored to pre-release grade. PDC's production facility remains at the site.

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:

Lab results indicate BTEX, GRO, and DRO concentrations in soil are in compliance with COGCC Table 910-1 Concentration Levels. Lab results also indicate the BTEX concentrations in groundwater are in compliance with CDPHE WQCC Reg. 41 standards. Based on the laboratory analytical results, PDC is requesting a No Further Action determination for this site.

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

Approx. 160 cubic yards of soil exceeding COGCC Table 910-1 Concentration Levels was transported to the Waste Management landfill in Ault, CO for disposal. Additionally, 669 barrels of groundwater exceeding CDPHE WQCC Reg. 41 standards was recovered and disposed of at a licensed facility.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began:	<u>8/12/2010</u>	Date Site Investigation Completed:	<u>10/14/2010</u>	Remediation Plan Submitted:	<u>11/18/2010</u>
Remediation Start Date:	<u>8/12/2010</u>	Anticipated Completion Date:	<u>-</u>	Actual Completion Date:	<u>10/14/2010</u>

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: Randall Ferguson Title: Environmental Supervisor Date: 11/18/2010

OGCC Approved: Nancy Gruenewald Johnson Title: Analyst EPS Date: 11/26/2010