

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: <u>Petroleum Development Corporation</u> Address: <u>1775 Sherman Street, Suite 3000</u> City: <u>Denver</u> State: <u>CO</u> Zip: <u>80203</u>		Contact Name and Telephone Name: <u>Randall Ferguson</u> No: <u>(303) 860-5800</u> Fax: <u>(303) 860-5838</u>	
API/Facility No: <u>05-123-11646</u> County: <u>Weld</u> Facility Name: <u>Bunting #1</u> Facility Number: _____ Well Name: <u>Bunting</u> Well Number: <u>1</u> Location (Qtr/Tr, Sec, Twp, Rng, Meridian): <u>SESE Sec 27 T5N R65W 6th PM</u> Latitude: _____ Longitude: _____			

TECHNICAL CONDITIONS

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

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

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

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Aquolls and Aquepts, flooded

Potential receptors (water wells within 1/4 mi, surface waters, etc.): A water well located 625' southwest; Surface water is located 330' southeast of the site.

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	<u>24' N-S x 21' E-W x 4' below ground surface</u>	<u>Laboratory analysis and field screening of soil samples</u>
<input type="checkbox"/> Vegetation	_____	_____
<input checked="" type="checkbox"/> Groundwater	<u>See attached data</u>	<u>Laboratory analysis of groundwater samples</u>
<input type="checkbox"/> Surface water	_____	_____

REMEDIATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):
Form 19 provided on 9/20/2007 (Spill #1881329). Form 27 provided on 2/26/2008 (Remediation #4181).

Describe how source is to be removed:
During a routine tank battery upgrade, historic petroleum hydrocarbon impacted soil was encountered. Once the produced water tank was removed, impacted soil above the COGCC standards was excavated during August 2007. Soil samples were collected from the sidewalls of the excavation and submitted for analysis of TPH by EPA Modified Method 8015. Laboratory results indicated TPH (C6-C36) concentrations at the excavation perimeter were in compliance with the COGCC sensitive area standard of 1,000 mg/kg (Table 910-1 prior 4/1/09). A groundwater sample was collected from the open excavation and submitted for analysis of BTEX by EPA Method 8260B. Laboratory results indicated benzene and total xylenes concentrations exceeded the CDPHE Water Quality Control Commission Regulation 41 (Reg. 41) standards. Before backfilling the excavation, a bioremediation and spill control product was applied to the exposed groundwater and exposed smear zone soils. A topographic site location map and site map are provided as Figures 1 and 2. Soil and groundwater analytical results are summarized in Tables 1 and 2.

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.:
A total of 75 cubic yards of impacted soil above the COGCC sensitive area standard of 1,000 mg/kg (Table 910-1 prior to 4/1/09) was transported to the Waste Management Landfill in Ault, CO for disposal.



REMEDIATION WORKPLAN (CONT.)

Tracking Number: _____
 Name of Operator: Petroleum Development Corporation
 OGCC Operator No: 69175
 Received Date: _____
 Well Name & No: Bunting # 1
 Facility Name & No.: Bunting # 1

OGCC Employee: _____

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):
 Monitoring wells MW01 through MW03 were installed in September 2007. To define the downgradient extent of groundwater impact, additional monitoring wells MW04 through MW06 were later installed in 2008. Each of the wells were sampled on a quarterly basis from October 2007 through April 2010. Groundwater samples were submitted for laboratory analysis of BTEX by EPA Method 8260B. Laboratory analytical results have indicated four consecutive quarters of BTEX concentrations below WQCC Reg. 41 standards.

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 its 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:
 Laboratory analytical results have indicated four consecutive quarters of BTEX concentrations in groundwater below WQCC Reg. 41 standards. Laboratory analytical results indicate the former groundwater impacts have been remediated. 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.):
 A total of 75 cubic yards of impacted soil above the COGCC sensitive area standard of 1,000 mg/kg (Table 910-1 prior to 4/1/09) was transported to the Waste Management Landfill in Ault, CO for disposal.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: <u>8/27/07</u>	Date Site Investigation Completed: <u>4/2/10</u>	Remediation Plan Submitted: <u>8/2/10</u>
Remediation Start Date: <u>8/27/07</u>	Anticipated Completion Date: <u>12/31/2008</u>	Actual Completion Date: <u>4/2/10</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: 8/2/10

OGCC Approved: _____ Title: _____ Date: _____