

State of Colorado  
Oil and Gas Conservation Commission

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FOR OGCC USE ONLY

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PROJ # 7 239

doc# 2230201

**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: 2224259

**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: 90950		Contact Name and Telephone	
Name of Operator: Petroleum Development Corporation (Unioil)		Name: Brandon Bruns	
Address: 1775 Sherman Street, Suite 3000		No: (303) 860-5800	
City: Denver State: CO Zip: 80203		Fax: (303) 860-5838	
API/Facility No: 05-069-06179	County: Weld		
Facility Name: Ryan 14, 23-25U, 25BU/Scott 24-25/MVS 1	Facility Number: 05-069-06179		
Well Name: Ryan 14, 23-25U, 25BU/Scott 24-25/MVS 1	Well Number: Ryan 14, 23-25U, 25BU/Scott 24-25/MVS 1		
Location (QtrQtr, Sec, Twp, Rng, Meridian): SESW 25 T5N R68W 6th PM	Latitude: 40.36646	Longitude: -104.95854	

**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.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Oil and gas production, livestock grazing, and cultivated

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Medium grained sand with some silts

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Intermittent surface water area is located approximately 1,600' southeast of the Tank Battery. Depth to shallowest groundwater is approximately 7 ft 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	Form 19 submitted on April 25, 2012	Excavation, geoprobing, and soil sampling
<input type="checkbox"/> Vegetation		
<input checked="" type="checkbox"/> Groundwater	Form 19 submitted on April 25, 2012	Groundwater sampling
<input type="checkbox"/> Surface water		

**REMEDIATION WORKPLAN**

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

A Form 19 was submitted on April 25, 2012, COGCC assigned Spill Tracking #2224295 to the incident. An aerial map of the site is included on Figure 1.

Describe how source is to be removed:

The source area was previously excavated and impacted material was transported and disposed of as described in the Form 19 submitted on April 25, 2012.

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.:

PDC plans to perform enhanced fluid recovery (EFR) and air sparging at the Site monitoring well locations to address residual hydrocarbon impacts in groundwater. The well locations are illustrated on Figure 2. The EFR and air sparge events will take place twice a month over a six month period during which, PDC will conduct quarterly groundwater sampling events at the well locations to evaluate dissolved phase petroleum hydrocarbon concentrations. Subsequent to four quarters of groundwater monitoring, should groundwater samples indicate that hydrocarbon impacts degrade to below the COGCC Table 910-1 limits, PDC will submit a request for Site closure. If groundwater concentrations remain above COGCC standards, additional remediation options may be evaluated.



Tracking Number: 2224295
Name of Operator: Petroleum Development Corporation (Unio
OGCC Operator No: 90950
Received Date:
Well Name & No: Ryan 14, 23-25U, 25BU/Scott 24-25/MVS
Facility Name & No.: Ryan 14, 23-25U, 25BU/Scott 24-25/MVS

REMEDIATION WORKPLAN (CONT.)

OGCC Employee

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):
Groundwater was impacted at the Site. As described in the April 25, 2012 Form 19, five (5) groundwater monitoring wells were installed at the Site. During the EFR and air sparging time period, the monitoring wells will be sampled quarterly to assess reduction in dissolved phase petroleum hydrocarbon concentrations using USEPA Method 8260B (BTEX and Napthalene).

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 area where the excavation is located is used as an equipment access area to the tank battery location and consists of road base. The excavation has been backfilled and compacted with clean material and the ground surface was contoured to match pre-existing conditions.

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 [x] N If yes, describe:
No further Site investigation is required at this time. The excavation extents, test pit locations, soil sample and groundwater sample locations, and the monitoring well locations are illustrated on Figure 2. Groundwater analytical results are summarized in Table 1 and soil analytical results are summarized in Table 2.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):
Waste was disposed of at the Waste Management Facility in Ault, CO.

IMPLEMENTATION SCHEDULE

Table with 4 columns: Date Site Investigation Began, Date Site Investigation Completed, Remediation Plan Submitted, Remediation Start Date, Anticipated Completion Date, Actual Completion Date. Values include 3/26/2012, 4/13/2012, NA, 5/15/2012, TBD.

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

Print Name: Brandon Bruns

Signed: [Signature] Title: EHS Professional Date: 8/3/12

OGCC Approved: ACE for John Axelsson Title: EPS NE Area Date: 8/21/2012

Delineate impacts to soil north and east of the tank battery.
Delineate impacts to groundwater in all directions.