

State of Colorado
Oil and Gas Conservation Commission



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

FOR OGCC USE ONLY
Received 12/10/14
REM 8803
Document 2313367

OGCC Employee:

Spill Complaint
 Inspection NOAV

Tracking No:

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 Operator Number: <u>100185</u>	Contact Name and Telephone: <u>Blake Ford</u>
Name of Operator: <u>ENCANA OIL & GAS (USA) INC</u>	No: <u>303-774-3980</u>
Address: <u>3601 Stagecoach Road North</u>	Fax: _____
City: <u>Longmont</u> State: <u>CO</u> Zip: <u>80504</u>	

API Number: _____	County: <u>Weld</u>
Facility Name: <u>Peppler Farms NWNE/Multi Well Pad</u>	Facility Number: <u>426234</u>
Well Name: <u>Peppler Farms NWNE/Multi Well Pad</u>	Well Number: _____
Location: (QtrQtr, Sec, Twp, Rng, Meridian): <u>NWNE SEC 4 TWP 3N RNG 68W 6 PM</u> Latitude: <u>40.26182</u> Longitude: <u>-105.00677</u>	

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.): cultivated, farming

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

Potential receptors (water wells within 1/4 mi, surface waters, etc.): See attached.

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>See attached.</u>	<u>Laboratory Analytical Results</u>
<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):
See spill/document number 400674098.

Describe how source is to be removed:
See attached.

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.:
See attached.

FORM
27
Rev 6/99

State of Colorado
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Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: Peppler Farms NWNE/Multi Well Pad
Facility Name & No: Peppler Farms NWNE/Multi Well Pad 426234

REMEDIATION WORKPLAN (Cont.)

Page 2

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: _____ Date Site Investigation Completed: _____ Date Remediation Plan Submitted: 11/14/2014
Remediation Start Date: _____ Anticipated Completion Date: _____ 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: Blake Ford Signed: *Blake Ford*
Title: Environmental Specialist Date: 11/14/2014

OGCC Approved: _____ Title: _____ Date: _____

NARRATIVE ATTACHMENT FORM 27 (SITE INVESTIGATION AND REMEDIATION WORKPLAN)

Peppler Farms NWNE/Multi Well Pad (Facility #426234)

Document Date – November 4, 2014

TECHNICAL CONDITIONS

Is location within a sensitive area (according to Rule 901e)?

The location is approximately 150 feet north of the Farmers Extension Canal, as well as approximately 380 feet east-northeast from New Ish Ditch.

Potential receptors (water wells within ¼ mi, surface waters, etc.):

According to the Colorado Division of Water Resources mapping service, there are two potential receptors within 1/4 mile of the Peppler Farms NWNE/Multi Well Pad site:

- A sensitive area evaluation was not completed on the Farmers Extension Canal observed approximately 150 feet south of the site, and the New Ish Ditch observed approximately 380 feet west-southwest from the site.

REMEDIATION WORKPLAN

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

See spill/document number 400674098.

Describe how source is to be removed:

Fluid recovery, pea gravel impacted by condensate, and soils under liner failures around dumpline risers.

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.:

Four grab samples (NWTANK, NETANK, SWTANK, & SETANK) were collected under the failed liner were and all but one (NWTANK) had COGCC soil exceedances. A soil and groundwater investigation will be completed to determine the horizontal and vertical extent of petroleum hydrocarbon impacts. Groundwater monitoring wells will be installed to determine if dissolved petroleum hydrocarbon impacts exceeding COGCC Table 910-1 regulatory limits are present beneath the site. Based on soil/groundwater impacts observed during initial assessment activities, soil impacts exceeding COGCC Table 910-1 regulatory limits will be addressed via in-situ or mechanical remediation. If dissolved phase petroleum impacts exceeding COGCC Table 910-1 regulatory limits exist at the site, air sparge technology and/or in-situ bioremediation will be utilized to address the impacts. In addition, groundwater will be monitored quarterly. See **Figure 1** for grab sample and proposed monitoring wells locations.



NARRATIVE ATTACHMENT

FORM 27 (SITE INVESTIGATION AND REMEDIATION WORKPLAN)

Peppler Farms NWNE/Multi Well Pad (Facility #426234)

Document Date – November 4, 2014

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

A soil and groundwater investigation will be completed to determine the horizontal and vertical extent of petroleum hydrocarbon impacts. Groundwater monitoring wells will be installed to determine if dissolved petroleum hydrocarbon impacts exceeding COGCC Table 910-1 regulatory limits are present beneath the site. Four groundwater monitoring wells (MW-01 through MW-04) will be installed to determine and define dissolved phase petroleum hydrocarbon impacts in the groundwater beneath the site. Additional groundwater monitoring wells may be required to define dissolved phase petroleum hydrocarbon impacts if necessary. Groundwater samples will be collected from the monitoring wells on a quarterly schedule. Groundwater will be analyzed for BTEX following EPA Method 8260B. The monitoring plan may be amended based on groundwater analytical results indicating COGCC Table 910-1 compliance in surrounding monitoring wells. See **Figure 1** for proposed monitoring wells locations.

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.

Reseeding is not necessary at this time. The environmental footprint will be assessed post site assessment/remediation activities to determine if reseeding is necessary.

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:

Four groundwater monitoring wells (MW-01 through MW-04) will be installed at the site. Groundwater will be sampled on a quarterly schedule. The monitoring plan may be amended based on groundwater analytical results indicating COGCC Table 910-1 compliance in surrounding monitoring wells.

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

Soil generated during site assessment/remediation activities will be segregated, contained in 55-gallon drums, and delivered to Encana's Wattenburg Yard for disposal pending laboratory analysis. Drums with soil containing BTEX and/or TPH concentrations exceeding COGCC Table 910-1 regulatory limits will be disposed of at an approved facility. Groundwater purged during quarterly groundwater sampling activities will be placed in the produced water tank onsite. All remaining soil and groundwater impacts will be treated in-situ, therefore no E&P waste will be disposed of.



LEGEND

- APPROXIMATE MONITORING WELL LOCATION
- APPROXIMATE COMMON FLOW LINE DITCH LOCATION
- - - APPROXIMATE GAS LINE LOCATION
- PROPOSED MONITORING WELL LOCATION

PARAMETERS

SAMPLE LOCATION
DATE
B = BENZENE (mg/kg)
T = TOLUENE (mg/kg)
E = ETHYLBENZENE (mg/kg)
X = TOTAL XYLENES (mg/kg)
G = TPH-GRO (mg/kg)
D = TPH-DRO (mg/kg)

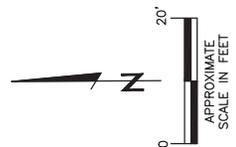
mg/kg = MILLIGRAMS PER KILOGRAM
 TPH = TOTAL PETROLEUM HYDROCARBON
 GRO = GROUPED RANGE ORGANICS
 DRO = DIESEL RANGE ORGANICS
 N/A = NOT AVAILABLE

NOTE: VALUES PRESENTED IN **BOLD** TYPEFACE EXCEED THE COGCC CONCENTRATION LEVELS PRESENTED IN TABLE 910-1.

COGCC = COLORADO OIL AND GAS CONSERVATION COMMISSION.

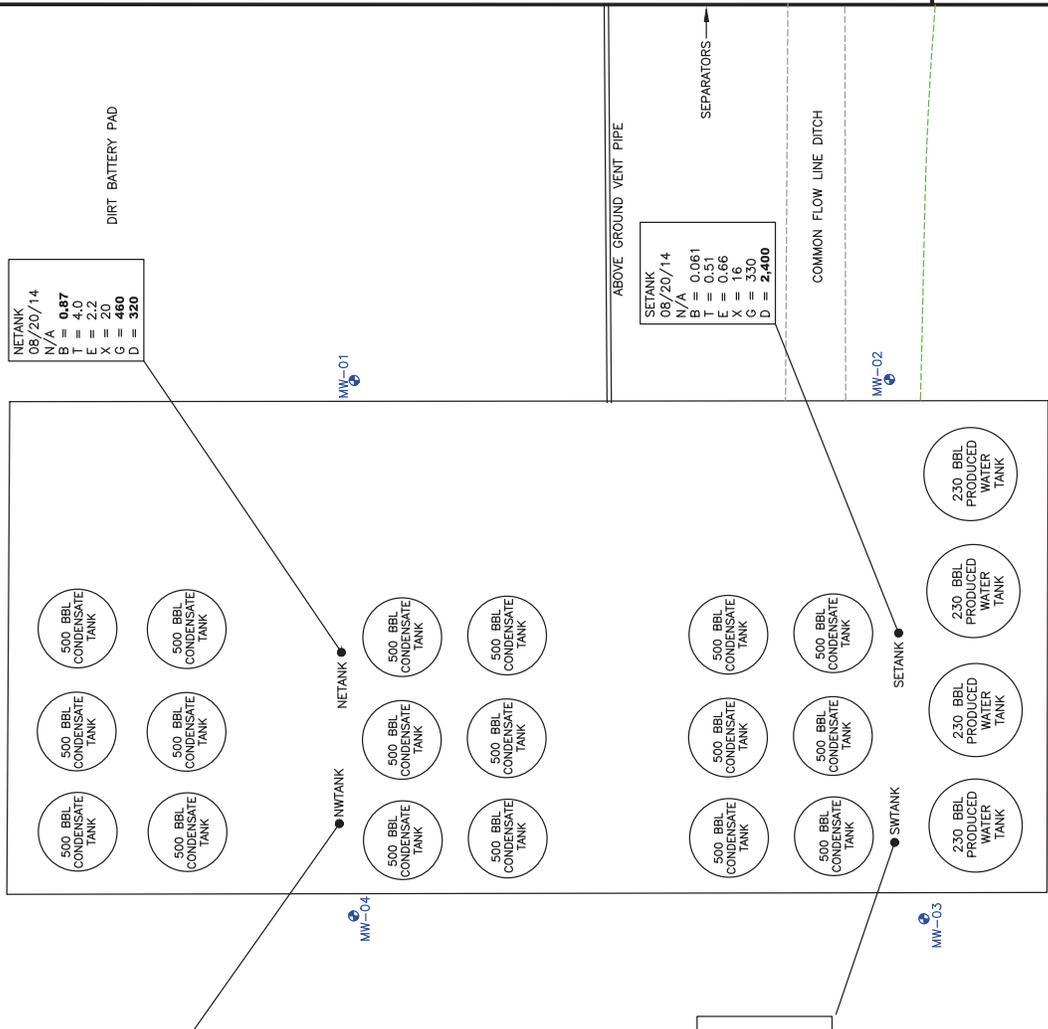
VALUES PRESENTED WITH A LESS THAN SYMBOL (<) INDICATE CONCENTRATIONS WERE NOT OBSERVED AT OR ABOVE THE LABORATORY REPORTING LIMIT.

NOTE: GRAB SOIL SAMPLES NWTANK, NETANK, SWTANK, AND SETANK WERE COLLECTED FROM BENEATH THE LINER.



SOIL SAMPLE LOCATION MAP
 PEPPER FIELDS WINE
 NW 1/4 NE 1/4 SEC.4 T3N R68W 6PM
 LAT./LONG.: 40.26182/-105.00677
 WELD, COLORADO

DATE:	10/15/14
FIG. NO.:	1
DRAWN BY:	DC



NETANK

08/20/14
N/A
B = 0.87
T = 4.0
E = 2.2
X = 20
G = 460
D = 320

SETANK

08/20/14
N/A
B = 0.061
T = 0.51
E = 0.66
X = 130
G = 2,400
D = 2,400

NWTANK

08/20/14
N/A
B = 0.026
T = <0.12
E = 0.90
X = 22
G = 22
D = 22

SWTANK

08/20/14
N/A
B = 0.13
T = <1.2
E = 0.64
X = 16
G = 320
D = 1,000

DIRT BATTERY PAD

SEPARATORS

COMMON FLOW LINE DITCH

DIRT BATTERY PAD

LANDSCAPING

NETANK
MW-01

NWTANK
MW-04

SWTANK
MW-03

SETANK
MW-02