

State of Colorado
Oil and Gas Conservation Commission



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#7365

FOR OGCC USE ONLY

RECEIVED
10/9/2012

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): Pit Closure

OGCC Operator Number: <u>96850</u>	Contact Name and Telephone: <u>Karolina Blaney</u>
Name of Operator: <u>WPX Energy Rocky Mountain LLC</u>	No: <u>970-683-2295</u>
Address: <u>1058 County Road 215</u>	Fax: <u>970-285-9573</u>
City: <u>Parachute</u> State: <u>CO</u> Zip: <u>81635</u>	

API Number: _____	County: <u>Garfield</u>
Facility Name: <u>PA 41-31 CCF</u>	Facility Number: <u>414570</u>
Well Name: <u>PA 41-31</u>	Well Number: <u>N/A</u>
Location: (QtrQtr, Sec, Twp, Rng, Meridian): <u>SESE, Sec 31, T6S, R95W, 6th PM</u> Latitude: <u>39.476986</u> Longitude: <u>-108.034985</u>	

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): Produced Water

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.): Rangeland, Non-Crop Land

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Nilhill Channery Loam, 1 to 6 percent slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): A dry un-named tributary to the Colorado River lies approximately 680 feet to the northeast

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>Extents of impacts are estimated at 8" to 1'</u>	<u>Visual observations and field screening equipment (petroflag and PID)</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 attached and refer to COGCC Document #01175818 for details.

Describe how source is to be removed:
See attached and refer to COGCC Document #01175818 for details.

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 and refer to COGCC Document #01175818 for details.



(New) Location ID # 430401

Tracking Number: _____
Name of Operator: W P X
OGCC Operator No: _____
Received Date: _____
Well Name & No: PA 31-41 Frac Pit
Facility Name & No: Pit Facility ID # 44570

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REMEDIATION WORKPLAN (Cont.)

OGCC Employee: _____

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

See attached and refer to COGCC Document #01175818 for details.

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 and refer to COGCC Document #01175818 for details.

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 and refer to COGCC Document #01175818 for details.

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

See attached and refer to COGCC Document #01175818 for details.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: September 2012 Date Site Investigation Completed: September 2012 Date Remediation Plan Submitted: TBD
Remediation Start Date: TBD Anticipated Completion Date: TBD 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: Karolina Blaney Signed: Karolina Blaney
Title: Environmental Specialist Date: October 9, 2012

OGCC Approved: Title: FOR Chris Canfield Date: 10/11/2012
EPS NW Region

Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)		
Person(s) Conducting Field Inspection	None	10/4/2012
Site Information		
Location:	PA 41-31 (Suicide Frac Pit)	Time:
Type of Facility:	Special Purpose Pit	
Environmental Conditions	N/A	
Temperature (°F)		

Has the proposed, new or existing location been designated as a sensitive area?

Yes No

SURFACE WATER

1. Are there any surface water features or SWSAs adjacent to or within ¼ mile of the proposed/new or existing facility?

Yes No

If yes, list type of surface water feature(s), i.e. rivers, creeks, streams, seeps, springs, wetlands: There are three USGS identified unnamed intermittent drainages.

If yes, describe location relative to facility: One of the intermittent drainages is located approximately 440 feet to the southwest; the other two are located approximately 420 and 765 feet to the northeast of the existing facility.

2. Could a potential release from the facility reach surface water features?

Yes No

If yes, describe the pathway a release from the facility would likely follow to determine if the potential to impact surface water is high or low.

3. Is the potential to impact surface water from a facility release high or low?

High Low

GROUNDWATER

1. Will the proposed/new or existing facility have any pits which will contain hydrocarbons and chlorides or other E&P wastes?
 Yes No
 If yes, List the pit type(s): Special Purpose Pit.

2. Is the site of the proposed facility underlain by an unconfined aquifer or recharge zone?
 Yes No

3. Is the hydraulic conductivity of the underlying soil or geologic material $\leq 1.0 \times 10^{-7}$ cm/sec?
 Yes No

4. Is the proposed facility located within 1/8 mile of a domestic water well or 1/4 mile of a public water supply well which would use the same aquifer?
 Yes No

5. Is the proposed facility located within a 100 year floodplain?
 Yes (*Sensitive Area*) No (*If no, proceed to question #6.*)

6. Is the depth to groundwater known?
 Yes (*If yes, follow instructions provided in 6(a) of this section.*)
 No (*If no, follow instructions provided in 6(b) of this section.*)
 - (a) If yes, could a potential release from the proposed facility reach groundwater?
 Yes No
 If yes, explain:

 - (b) If no:
 - (i) Evaluate surrounding soils, topography, and vegetation which may suggest the presence of shallow groundwater.
 - (ii) Gather information from surrounding well data in order to determine a depth to groundwater, i.e. State Engineers Office.

7. Is the potential to impact ground water from the facility in the event of a release high or low?
 High Low

FORM 27 ATTACHMENT:

Describe initial Action taken:

- The pit walls and floor were inspected for evidence of impact via field screening and visual observation. Grab samples were collected, as appropriate, to demonstrate diligence and thoroughness of investigation activities performed as directed in Rule 905.b.(1). In addition, all field screening activities and results were documented and compiled into a summary report, table and/or map to be provided with the Site Closure Plan.
- Confirmation samples, Rule 905.b.(4), were collected and submitted for lab analysis and verification to confirm compliance with Rule 910 and Table 910-1 (reference to specific analytes is provided below) relative to the aforementioned field screen activity.
- Sub-liner sample analytes will include considerations identified by Rule 910 and all contaminants of concern for soils from Table 910-1 excluding boron (see attached analyte list in Table 1 of Annex A; A visual assessment was performed throughout the entire investigation process and will be adequately documented (e.g. field notes, observations, photographs, etc.) by qualified personnel.

Describe how source is to be removed:

- All pit contents were evacuated and managed in accordance with all applicable local, state [i.e. Rule 905.b.(2)] and federal regulations. If disposal is required, the relevant media will be disposed of at an approved facility.
- The synthetic liner was disposed of at an approved facility as a solid waste and in accordance with Rule 905.b.(3).

Below are the notifications taken when impacted areas were discovered;

- Notification to the COGCC was made on 9/6/2012 via Form 19.
- Notification and consultation with the affected surface owner was made on 8/29/2012.
- The impacted area will be:
 - excavated in which field screen instruments will guide the excavation and laboratory confirmation samples collected to demonstrate compliance with Table 910-1 of the COGCC 900-series rule; and
 - placed within a bermed containment cell and blended with clean native soil from the surrounding pad.
- The source - special purpose pit - will be closed and reclaimed in accordance with the COGCC 900 and 1000 series rules, respectively.

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, in-situ bioremediation, burning of oily vegetation, etc.:

Impacts were observed on the western half of the pit bottom and side walls. Below are the steps taken to manage the impacted soils;

Rem # _____
COGCC # _____

- All areas determined to be impacted/contaminated were excavated and managed in accordance with all applicable rules and regulations regarding solid waste including applicable portion of COGCC Rule 907.
- Field screen equipment was used to guide the excavation to ensure compliance with Table 910-1 of the COGCC 900 series rule.
- The excavated material was placed within a bermed containment cell to be blended with clean native soil from the surrounding pad:

If groundwater has been impacted, describe proposed monitoring plan:

No impacts have been observed to date or any other indication that would suggest there has been an event that would result in impact to the surrounding environment.

Describe reclamation plan:

- The pit will be reclaimed to the present grade of the location or to the approximate original contour of the landscape and consistent with the 1000-series Rule.
- Seeding of the disturbed area will be performed in accordance with its' intended use. The seed mix will be prescribed by the landowner.
- There are no known noxious weeds in the immediate area of the disturbance. A noxious weed survey is performed annually of the South Rulison field which includes this location.
- As a preventative measure, WPX Energy seeds all disturbed areas as soon as practicable with temporary or sterile annual seed mixes to:
 - provide soil stability, and
 - serve as a nurse or cover crop for desired species; derived from the natural seed bank and/or the applied seed mix.
- Bare ground treatment is a common practice by WPX Energy and any identified noxious weed species will be spot treated for immediate eradication and prevention of encroachment and dispersal.
- A plat of the location is attached for topographic and geographic reference.

Attach samples and analytical results taken to verify remediation of impacts. Show location of samples on an onsite schematic or drawing. Is further site investigation required?:

- Final documentation of investigation and closure activities shall be submitted to the Division within thirty (30) days after conclusion of any and all remediation and reclamation activity and in accordance with all applicable sections and subsections of Rule 909.

Final disposition of E&P waste:

- Excavated soil will be blended on-site with clean native soil until concentrations within the soils meet constituents outlined in COGCC Table 910-1.

- If blending is unsuccessful, disposal will occur at an approved treatment, storage or disposal facility (TSD) which may include, but is not limited to, the following facilities:
 - the ECDC Environmental LLC (East Carbon, UT);
- Any soils requiring treatment that, once treated, fall below the allowable concentrations and levels provided in Table 910-1 will be recycled and reused to backfill the production pit.

ANNEX A:

Confirmatory Analyte List for Potential Contaminants of Concern in Soil:

Table 1 – Sample collection, handling and analysis summary

Analyte Class	Analysis	Method	COGCC Table 910-1 Standard	Holding Time	Container	
Organics	TVPH (GRO)	SW8015 mod	500 mg/kg	14 days	4 oz. wide mouth jar	
	TEPH (DRO)					
	Benzene	SW8021	0.17 mg/kg	14 days	4 oz. wide mouth jar	
	Toluene		85 mg/kg			
	Ethylbenzene		100 mg/kg			
	Xylenes (total)		175 mg/kg			
	Acenaphthene		1,000 mg/kg			
	Anthracene	SW8270	0.22 mg/kg	14 days	4 oz. wide mouth jar	
	Benzo (A) anthracene					
	Benzo (B) flouranthene					
	Benzo (K) fluoranthene					
	Benzo (A) pyrene					0.022 mg/kg
	Chrysene					22 mg/kg
	Dibenzo (A,H) anthracene					0.022 mg/kg
	Fluoranthene					1,000 mg/kg
	Fluorne					0.22 mg/kg
	Indeno (1,2,3,C,D) pyrene					
	Naphthalene	23 mg/kg				
	Pyrene	1,000 mg/kg				
	Inorganics	Electrical Conductivity	USDA Hdbk	<4 mmhos/cm or 2x background	28 days	4 oz. wide mouth jar
Sodium Adsorption Rate		USDA Hdbk 60 Method 20B or 3A	<12	180 days	1 gal. ziplock bag	
pH		SW9045	6-9	< 24 hrs.	2 oz. wide mouth jar	

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Table 1 Cont'd - Sample collection, handling and analysis summary

Analyte Class	Analysis	Method	COGCC Table 910-1 Standard	Holding Time	Container
Total Metals*	Arsenic	SW 6010, 6020, 7470	0.39 mg/kg	28 days for Hg & 180 days for remaining	4 oz. wide mouth jar
	Barium		15,000 mg/kg		
	Cadmium		70 mg/kg		
	Chromium (III)		120,000 mg/kg		
	Chromium (IV)		23 mg/kg		
	Copper		3,100 mg/kg		
	Lead (inorganic)		400 mg/kg		
	Mercury		23 mg/kg		
	Nickel (soluble salts)		1,600 mg/kg		
	Selenium		390 mg/kg		
	Silver		390 mg/kg		
	Chloride		15,000 mg/kg		

General note: Preservation standards for organics and inorganics in soil are < 4°C as per EAL protocol. Of the above sample methods and procedures, none require a preservative to preserve sample integrity.

Note(): Boron (hot water soluble) has been excluded from this analyte list as no crops (citrus or nuts) or other vegetation which may be sensitive to boron are known or are expected to be encountered. Should the Director or COGCC EPS decide to, at his discretion, require a Boron analysis the above analyte list will be modified to reflect that change and requirement, at that point in time.*

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