

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 3/10/2015
REM 8945
Document 2314209

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: _____	Contact Name and Telephone: _____
Name of Operator: _____	_____
Address: _____	No: _____
City: _____ State: _____ Zip: _____	Fax: _____
API Number: _____	County: _____
Facility Name: _____	Facility Number: _____
Well Name: _____	Well Number: _____
Location: (QtrQtr, Sec, Twp, Rng, Meridian): _____ Latitude: _____ Longitude: _____	

TECHNICAL CONDITIONS

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

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.): _____

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: _____

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

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):	Extent of Impact:	How Determined:
Soils	_____	_____
Vegetation	_____	_____
Groundwater	_____	_____
Surface Water	_____	_____

REMEDIALTION WORKPLAN

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

Describe how source is to be removed:

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.:



REMEDIATION WORKPLAN (Cont.)

OGCC Employee: _____

Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No: _____

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

See attached document.

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 document

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 document

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

See attached document

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: TBD Date Site Investigation Completed: TBD Date Remediation Plan Submitted: 11/26/2014
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: 3/9/2015

OGCC Approved: _____ Title: EPS Northwest Date: 3/10/2015

To be modified in the event of discovery of a
release

Form 15

FORM
15
Rev 6/99



01631120

State of Colorado

Oil and Gas Conservation Commission

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EARTHEN PIT REPORT/PERMIT

This form is to be used for both reporting and permitting pits. Rule 903 describes when a Permit with prior approval, or a Report within 30 days, is required for pits. Submit required attachments and forms.

Complete the
Attachment Checklist

Oper OGCC

FORM SUBMITTED FOR:

☐ Pit Report

☒ Pit Permit

OGCC Operator Number: 96850

Name of Operator: Williams Production RMT Co

Address: 1515 Arapahoe St., Tower 3, Suite 1000

City: Denver State: Co Zip: 80202

Contact Name and Telephone:

Lisa Dee

No: 303-260-4538

Fax: 303-629-8285

Detailed Site Plan	
Topo Map w/ Pit Location	
Water Analysis (Form 25)	
Source Wells (Form 26)	
Pit Design/Plan & Cross Sect	
Design Calculations	
Sensitive Area Determ.	
Mud Program	
Form 2A	

API Number (of associated well): 05-045-14226

OGCC Facility ID (of other associated facility): Applied For 290848

Pit Location (QtrQtr, Sec, Twp, Rng, Meridian): Chevron TR 42-2-698 pad (Tract 54 - NESE of Sect. 2: T6S-R98W)

324418

Latitude: N39.559874 NAD83

Longitude: W108.290643 NAD83

County: Garfield

Pit Use: ☒ Production ☐ Drilling (Attach mud program) ☐ Special Purpose (Describe Use):

Pit Type: ☒ Lined ☐ Unlined Surface Discharge Permit: ☐ Yes ☐ No

Offsite disposal of pit contents: ☐ Injection ☐ Commercial Pit/Facility Name: TR Pit/Facility No: 42-2-698

Attach Form 26 to identify Source Wells and Form 25 to provide Produced Water Analysis results.

Existing Site Conditions

Is the location in a "Sensitive Area?"

☒ Yes ☐ No

Attach data used for determination. ROW NTO

Distance (in feet) to nearest surface water: +/- 500' ground water: +/- 7000' water wells: +/- 6500'

LAND USE (or attach copy of Form 2A if previously submitted for associated well) Select one which best describes land use:

Crop Land: ☐ Irrigated ☐ Dry Land ☐ Improved Pasture ☐ Hay Meadow ☐ CRP

Non-Crop Land: ☒ Rangeland ☐ Timber ☐ Recreational ☐ Other (describe):

Subdivided: ☐ Industrial ☐ Commercial ☐ Residential

SOILS (or attach copy of Form 2A if previously submitted for associated well)

Soil map units from USNRCS survey: Sheet No: Website Data Soil Complex/Series No: 55

Soils Series Name: Parachute Irigul Complex Horizon thickness (in inches): A: 0-29" ; B: ; C:

Soils Series Name: See attached Form 2A Horizon thickness (in inches): A: ; B: ; C:

Attach detailed site plan and topo map with pit location.

Pit Design and Construction

Size of pit (feet): Length: 100' 150' Width: 50' 98' Depth: 15'

Calculated pit volume (bbls): 6,946 bbls 18,597 Daily inflow rate (bbls/day): 20

Daily disposal rates (attach calculations): Evaporation: 3.8 21.7 bbls/day Percolation: none bbls/day

Type of liner material: Ploy Thickness: 12mi 2x24 mil

Attach description of proposed design and construction (Include sketches and calculations).

Method of treatment of produced water prior to discharge into pit (separator, heater treater, other): Separator

Is pit fenced? ☒ Yes ☐ No Is pit netted? ☐ Yes ☒ No

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

Print Name: Lisa Dee

Signed:

Title: Regulatory Specialist

Date: 10/07/08

OGCC Approved:

Title: OGLA Supervisor

Date: 3/22/11

CONDITIONS OF APPROVAL, IF ANY:

FACILITY NUMBER: 414586

- PROVIDE AS BUILT CROSS SECTION & DESIGN PLAN TO COGCC
- COMPLY WITH REQUIREMENTS OF JUNE 12, 2008 ROW NTO.

JAK

Form 27 Attachment

FORM 27 ATTACHMENT:

Describe initial Action taken:

- At the location(s) of the pit which are the furthest downgradient, lowest in elevation and/or have the potential for pooling of liquid, field-screening will be performed and will utilize appropriate field equipment which may include, but is not limited to the following.
 - a PetroFlag unit,
 - a photoionization gas detector (PID),
 - or similar, for detection of volatile hydrocarbons, in the immediate area of the pit footprint.
- Confirmation sample(s), Rule 905.b.(4), will be 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.
- Other areas of the pit walls and floor will be inspected for evidence of impact via field screening and visual observation. Grab samples will be 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 will be documented and compiled into a summary report, table and/or map to be provided with the Site Closure Plan.
- Grab sample(s) will be submitted for laboratory analysis to confirm field screening activities. 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).
- A visual assessment will be 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:

The presence of impact has not been determined at this point. 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. However, should contamination be encountered the following actions will be taken:

- Any spill or release will be reported via a Form 19 and in accordance with Rule 906 and remediation shall be performed in accordance with requirements specified in Rules 909 and 910.
- Notification and consultation with the affected surface owner(s) shall be made with good faith effort and in accordance with Rule 906.c.
- Should a release be identified and attributed to the contents of the pit, 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 pending remediation and disposal as described below.
- All pit contents will be 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 the Parachute Centralized E&P Waste Management Facility (COGCC Location # 149015).

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.:

The presence of impact has not been determined at this point. 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. However, should contamination be encountered the following actions will be taken:

- Any area(s) determined to be impacted/contaminated will be excavated and managed in accordance with all applicable rules and regulations regarding solid waste including applicable portion of COGCC Rule 907.
- Field screen equipment will be used to guide the excavation to ensure compliance with Table 910-1 of the COGCC 900 series rule.
- The excavated material will be placed within a bermed containment cell pending an on-site landfarming/bioremediation,

If groundwater has been impacted, describe proposed monitoring plan:

- The presence of impact has not been determined at this point. 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. However, should it be observed or determined that groundwater impacts exist an appropriate site specific monitoring and remediation plan will be developed and submitted for COGCC approval.
- The anticipated depth to ground water is expected to be deeper than 60 feet (See attached Sensitive Area Determination for details).

Describe reclamation plan:

- The pit will be reclaimed in accordance with the COGCC 1000 Series Rules in addition to any SUA/COAs defined by the surface owner.
- The pit will be reclaimed to the present grade of the location or to the approximate original contour of the landscape
- Seeding of the disturbed area will be performed in accordance with its' intended use. The seed mix will be prescribed by the landowner.
- 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

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?:

- The presence of impact has not been determined at this point; therefore, the need for further site investigation has not been determined at this time.
- A determination of whether further site investigation is required and is pending field assessments and screening, which are to be confirmed by analytical results from an accredited - NELAP - laboratory.
- 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:

- If the stockpiled volume is small enough to manage on-site, there is available area on location, concentrations are within a reasonable range to be remediated in a timely manner and the identified contaminants are conducive to bioremediation, landfarming or in-situ remediation may occur as approved and in accordance with Rule 907.
- Should the aforementioned attributes do not exist or concentrations are not conducive to bioremediation then off-site disposal will be the final disposition of all impacted materials.
- If the latter option is taken, disposal will occur at an approved treatment, storage or disposal facility which may include, but is not limited to, the following facilities:
- Any soils requiring treatment that, once treated, fall below the allowable concentrations and levels provided in Table 910-1 may be recycled and reused at WPX facilities as fill material.

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
Organics	TVPH (GRO)	SW8015 mod	500 mg/kg
	TEPH (DRO)		
	Benzene	SW8021	0.17 mg/kg
	Toluene		85 mg/kg
	Ethylbenzene		100 mg/kg
	Xylenes (total)		175 mg/kg
	Acenaphthene	SW8270	1,000 mg/kg
	Anthracene		0.22 mg/kg
	Benzo(A)anthracene		
	Benzo(B)fluoranthene		
	Benzo(K)fluoranthene		0.022 mg/kg
	Benzo(A)pyrene		
	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
	Sodium Adsorption Rate	USDA Hdbk 60 Method 20B or 3A	<12
	pH	SW9045	6-9
Total Metals*	Arsenic	SW 6010, 6020, 7470	0.39 mg/kg
	Barium		15,000 mg/kg
	Cadmium		70 mg/kg
	Chromium (III)		120,000 mg/kg
	Chromium (VI)		23 mg/kg
	Copper		3,100 mg/kg
	Lead		400 mg/kg
	Mercury		23 mg/kg
	Nickel		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.*

Sensitive Area Determination

Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)		
Person(s) Conducting Field Inspection	None Conducted	
Site Information		
Location:	TR 41-2-698	Time: N/A
Type of Facility:	Existing Well Pad	
Environmental Conditions		
Temperature (°F)	N/A	

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: Two (2) unnamed USGS identified intermittent drainages.

If yes, describe location relative to facility: One (1) unnamed USGS identified intermittent drainage is located 640 feet to the southeast; and one (1) unnamed USGS identified intermittent drainage is located 1,029 feet to the south 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. If a potential release were to migrate off the eastern side of the facility flow would be directly towards the unnamed intermittent drainage to the east.

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 ☐
 If yes, List the pit type(s): Existing lined production 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

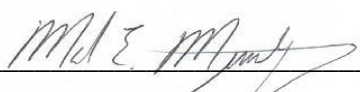
Additional Comments:

As stated in the surface water section of this sensitive area determination, there are two (2) unnamed USGS intermittent drainages located within ¼ mile of existing facility. The facility as it is currently constructed, limits the direction of a potential release to the eastern, western and southern sides. If a potential release were to migrate off the facility on any of these sides flow would follow the natural contours of the area onto heavily vegetated hillsides. Based on the aerial photography review, Best Management Practices (BMP's) appear to be installed in the form of an earthen perimeter berm along the graded edge of all fill slope sides and a diversion ditch is constructed along the toe of the fill slope sides as well. All the currently installed BMP's appear to be in adequate condition to ensure site containment in the event of a potential release.

The State Engineers Office and USGS records were reviewed and no records were revealed that would provide additional information pertaining to the depth to groundwater. The vegetative cover in the immediate vicinity of the facility does not suggest the presence of shallow groundwater. The closest permitted groundwater well is located 9,467 feet to the west southwest with a noted depth to groundwater of 46 feet. The well is located in the bottom of Buck Draw at an elevation greater than 1,500 below the existing facility. Based on the aerial photography review, there does not appear to be any vegetative cover which would indicate flowing springs or seeps in the immediate vicinity of the existing facility. In addition, the topographic setting of the facility is on a narrow ridgeline which is most likely devoid of any shallow groundwater. Therefore it could be assumed that the depth to groundwater in the immediate vicinity of the existing facility would be in excess of 100 feet if not greater.

Based on the information collected during this desktop review, the potential for impacts to the two (2) unnamed USGS identified intermittent drainages located to the east and south of the existing facility has been deemed to be low. Neither drainage has a defined channel or any indication of actual surface flow. Therefore, if a potential release were to migrate off the facility on the above mentioned sides it is not anticipated it would migrate any great distance due to the short duration of time involved, the heavy vegetation, and the moderate to high infiltration rates of the underlying soils.

The facility is constructed in the Uinta Formation and, like the Green River Formation, tends to be fractured both vertically and horizontally which allows fluids to migrate in the subsurface over large distances. As noted above, it is not anticipated an overland release would impact groundwater due to the short duration of time involved and the fact it would tend to migrate over a larger area and would tend infiltrate into the underlying soils. The greatest potential for impacts would be to groundwater from a release which occurred over a longer period of time such as a leaking pit. However, based on the topographical setting of the existing facility, as noted above, the potential for impacts to groundwater would be deemed to be low. With the potential for impacts to surface water and groundwater being deemed low, the facility can be designated as being in a non-sensitive area.

Inspector Signature(s):  Date: 2/19/2015

Mark E. Mumby, *Project Manager/RPG*
HRL Compliance Solutions, Inc.

Hydrology Map

