

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
Document 2142727
Received 4/8/2015
REM 8998

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: 4/8/2015

OGCC Approved: _____ Title: _____ Date: _____

Form 15

FORM

15

Rev 6/99

State of Colorado

Oil and Gas Conservation Commission

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COGCC

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

FORM SUBMITTED FOR:

☐ Pit Report☒ Pit Permit

	Oper	OGCC
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		

OGCC Operator Number: 96850

Name of Operator: WILLIAMS PRODUCTION RMT CO.

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

City: DENVER State: CO Zip: 80202

Contact Name and Telephone:

GREG DAVIS

No: 303-606-4071

Fax: 303-629-8285

API Number (of associated well): TR 22-34 05-045-10052 OGCC Facility ID (of other associated facility):

Pit Location (QtrQtr, Sec, Twp, Rng, Meridian): NWSW SECTION 34-T5S-R97W

Latitude: 39° 34' 16.23" Longitude: 108° 15' 59.41" County: GARFIELD

Pit Use: ☒ Production ☐ Drilling (Attach mud program) ☐ Special Purpose (Describe Use): TR 22-34Pit Type: ☒ Lines ☐ Unlined Surface Discharge Permit: ☐ Yes ☒ NoOffsite disposal of pit contents: ☐ Injection ☐ Commercial Pit/Facility Name: Pit/Facility No:

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.

Distance (in feet) to nearest surface water: APRX 200 ground water: NONE water wells: NONE

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 ☐ CRPNon-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: 15 Soil Complex/Series No: 56, 63 SEE ATTACHED FORM 2A

Soils Series Name: Horizon thickness (in inches): A: ; B: ; C:

Soils Series Name: 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' Width: 50' Depth: 6'

Calculated pit volume (bbls): 3990 Daily inflow rate (bbls/day): 14 bbls/day

Daily disposal rates (attach calculations): Evaporation: 3.9 bbls/day Percolation: 220 bbls/day

Type of liner material: POLY Thickness: 12 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: GREG DAVIS

Signed: Greg Davis

Title: SUPERVISOR PERMITS

Date: 9/3/04

OGCC Approved: [Signature]

Title: EPS

Date: 9/13/04

CONDITIONS OF APPROVAL, IF ANY:

FACILITY NUMBER: 273640

274717



01485697

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.

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 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		
	Dibenzo(A,H)anthracene		22 mg/kg
	Fluoranthene		0.022 mg/kg
	Fluorne		1,000 mg/kg
	Indeno(1,2,3,C,D)pyrene		0.22 mg/kg
	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.*

Form 15

Form 27 Attachment

Sensitive Area Determination

Hydrology Map

Sensitive Area Determination

Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)		
Person(s) Conducting Field Inspection	None Conducted	
Site Information		
Location:	TR 22-34-597	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: Doe Creek a USGS identified spring fed perennial drainage.

If yes, describe location relative to facility: Doe Creek is located 300 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 southeastern side of the facility flow would be directly towards Doe Creek.

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: See additional comments section

 - (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; Doe Creek, a USGS identified spring fed perennial creek, is located within ¼ mile of existing facility. The facility as it is currently constructed, limits the direction of a potential release to the southeastern side. If a potential release were to migrate off the facility on the southeastern side, flow would follow the natural contours of the area directly towards Doe Creek. Based on the aerial photography review, Adequate Best Management Practices (BMP's) don't appear to be installed in the form of an earthen perimeter berm along the graded edge of all fill slope sides and the facility is devoid of a diversion ditch along the toe of the fill slope sides as well. This would allow unimpeded flow towards Doe Creek.

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 8,397 feet to the southeast with a noted depth to groundwater of 26 feet. The well is located in a different flow regime and would not provide an accurate representation of the depth to groundwater in the immediate vicinity of the existing facility. Based on 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. However, the topographic setting of the facility is on a fairly steep hillside approximately 61 feet higher than Doe Creek. Therefore it could be assumed that the depth to groundwater in the immediate vicinity of the existing facility could be approximately 61 feet.

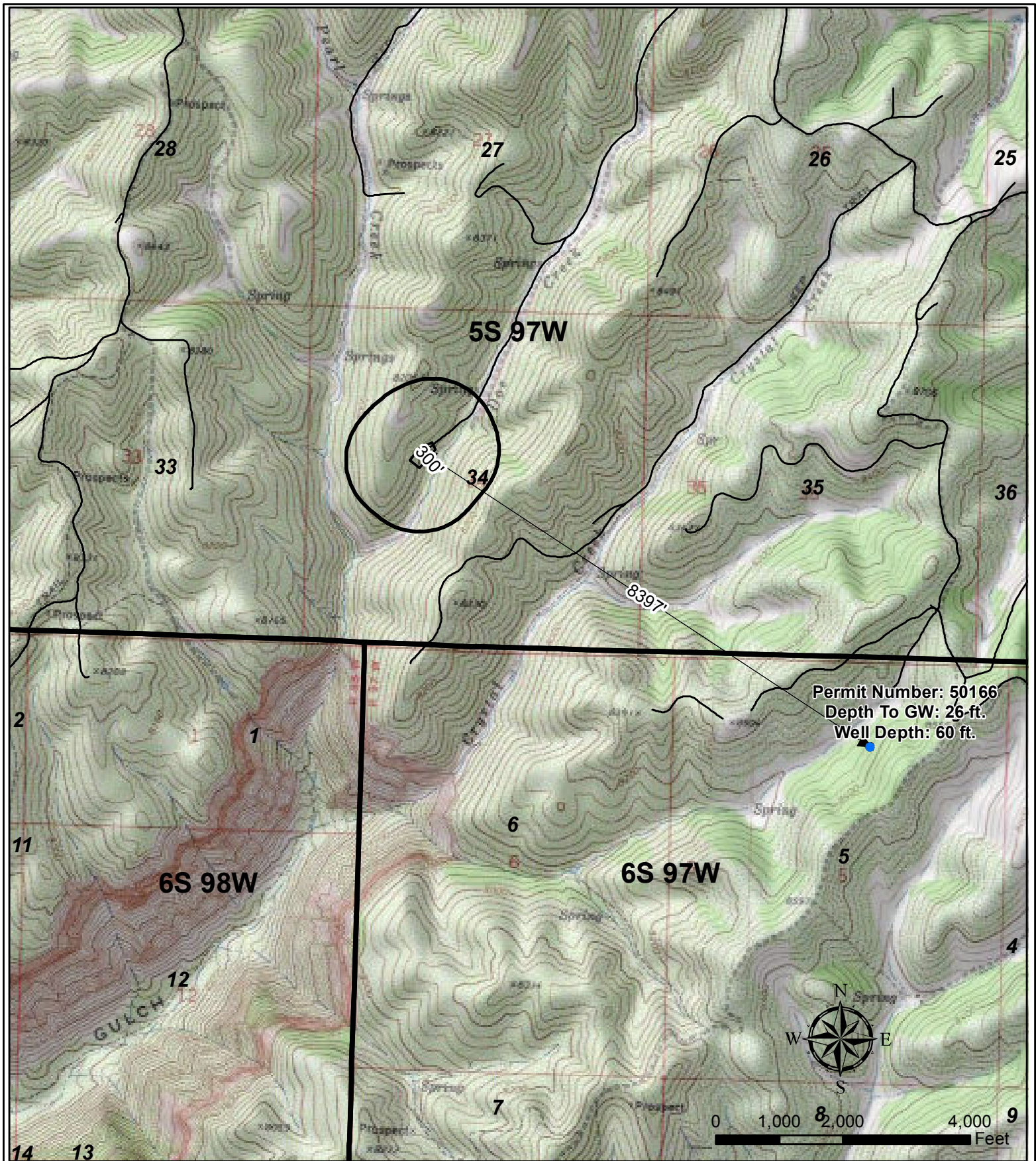
Based on the information collected during this desktop review, the potential for impacts to the Doe Creek would be deemed to be high mainly due to the close proximity of the creek to the facility. In addition, Doe Creek is perennial, has a well-defined channel, and indication of actual surface flow. Therefore, if a potential release was to migrate off the facility on the southeastern side it would not have to migrate any great distance to impact the perennial waters of Doe Creek. In addition, by COGCC rule, Doe Creek is less than 500 feet from the facility which would classify it as being in a sensitive area.

It should also be noted that; 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. Therefore the greatest potential for impacts to groundwater would be from a release which occurred over a longer period of time such as a leaking pit. With the close proximity of the pit to Doe Creek and the fact the elevation difference from the bottom of the pit to Doe Creek is less than 61 feet, the potential for impacts to groundwater would be deemed to be high due to the above noted geologic conditions. With the potential for impacts to both surface water and groundwater being deemed as high, and by COGCC rule, the facility should be designated as being in a sensitive area.

Inspector Signature(s):  Date: 4/7/2015

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

Hydrology Map



Legend

- Water Well
- Pad
- Existing Road
- 1000' Buffer (from edge of pad)

WPX Energy Rocky Mountain, LLC

TR 22-34-597 Hydrology Map

T5S R97W, Section 34

