

## Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)		
<b>Person(s) Conducting Field Inspection</b>	Alexander Nees <i>Environmental Scientist</i>	7/25/2015
<b>Site Information</b>		
Location:	PA 24-6	Time: 1000
Type of Facility:	Proposed Well Pad	
<b>Environmental Conditions</b>	Sunny; warm, dry soil conditions	
Temperature (°F)	25°	

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: One (1) unnamed USGS identified intermittent drainage

If yes, describe location relative to facility: The unnamed USGS identified intermittent drainage is located 684 feet to the west of the proposed facility. However, the drainage feature was field verified to no longer exist due to land modifications in the immediate vicinity of the proposed 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

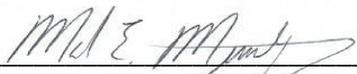
1. Will the proposed/new or existing facility have any pits which will contain hydrocarbons and chlorides or other E&P wastes?  
 Yes       No, all fluids will be managed on the surface  
 If yes, List the pit type(s):
  
2. Is the site of the proposed facility underlain by an unconfined aquifer or recharge 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 is one (1) unnamed USGS identified intermittent drainage located within ¼ mile of the proposed facility. However, as determined during the site visit, this drainage feature no longer exists due to manmade modifications to the land surface in the immediate vicinity of the proposed facility. The facility, as it is currently proposed, limits the direction of a potential release to primarily the southeastern and a small portion of the southwestern sides. If a potential release were to migrate off the facility, flow would be to the southeast where it would tend to congregate in a fairly large bar ditch located on the north side of the existing roadway which parallels the southern edge of the proposed facility. The bar ditch was inspected and there is one(1) culvert located near the southwestern side of the proposed facility which directs storm water runoff run under the existing roadway into another low lying area north of the railroad tracks. During construction, it is recommended Best Management Practices (BMPs) be installed in the form of an earthen perimeter berm along the graded edge and, if feasible, a diversion ditch along the toe of all fill slope sides of the facility. This in conjunction with the existing bar ditch would aid in total site containment in the event of a release. To further safeguard against any potential migration of fluids under the access road consideration should be given in regards to blocking off the culvert located near the southwestern side of the facility during periods on non-precipitation. Any device utilized to prevent flow through the culvert should be removable to allow for storm water flow during periods of moderate to heavy precipitation. All installed BMPs should be monitored and maintained to ensure site containment in the event of a release.

The State Engineer's Office and USGS records were reviewed and two records were revealed which would provide additional information pertaining to the depth to groundwater. There are two domestic water wells located to the east and west and constructed in the same geological setting as the proposed facility. The depth to water in both wells is greater than 50 feet. With fluid management being conducted on the surface, it is not anticipated there would be any groundwater impacts from a potential release due to the fact the release would tend to spread out over a large area and would be relatively short in duration thus preventing any fluids from reaching and potentially impacting groundwater. Cuttings from the facility will be managed in a cuttings trench located on the adjacent frac pad (PA 23-6). Care should be taken to ensure no other materials other than cuttings are placed into the trench to lessen any potential impacts to groundwater.

Based on the information collected during the site visit and desk top review, the potential to impact surface water features, actual flowing surface water, and groundwater has been deemed low. However, the proposed facility is located within the external buffer zone of the Parachute Battlement Mesa Surface Water Supply Area (SWSA). As per COGCC rule 317b oil and gas facilities and operations located within a SWSA are considered sensitive. Therefore, by rule, the facility should be designated as being in a sensitive area.

Inspector Signature(s):  Date: 8/23/2013

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

 Date: 7/25/2013

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