

## Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)		
<b>Person(s) Conducting Field Inspection</b>	Finn Whiting	04/24/2014
	<i>Geologist</i>	
<b>Site Information</b>		
Location:	GM 13-33 Pad	Time: 0930
Type of Facility:	Existing Facility w/Proposed Expansion	
<b>Environmental Conditions</b>	Sunny, S Wind, Dry ground conditions.	
Temperature (°F)	45 °F	

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

☐ Yes      ☒ No

### **SURFACE WATER**

- 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: Three (3) unnamed USGS identified intermittent drainages.

If yes, describe location relative to facility:

One (1) unnamed USGS identified intermittent drainage is located 302 feet to the northwest, One (1) unnamed USGS identified intermittent drainage is located 450' to the southeast, and one (1) unnamed USGS identified intermittent drainage is located 1,215' southeast of the existing facility.

- 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.

A potential release, if it were to migrate off the northeastern side of the facility, would follow natural topography down a steep slope directly into the unnamed USGS identified intermittent drainage located 260 feet northwest. If a potential release were to migrate off the southeastern side of the facility, flow would follow the natural topography down a steep slope directly into the unnamed USGS identified intermittent drainage located 450 feet southeast of the existing pad center.

3. Is the potential to impact surface water features from a facility release high or low?
- ☒ High to actual surface water features      ☒ Low to actual flowing surface water.

## 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): Cuttings Trench
  
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:**

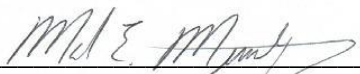
As stated in the surface water portion of this sensitive area determination, there are three (3) unnamed USGS identified intermittent drainages located within a ¼ mile of the existing facility. The facility as it is currently constructed and proposed to be expanded, lies atop an elevated ridgeline which will limit the direction of a potential release to the northern and northeastern sides and a small portion of the southeastern side (pad entrance). If a potential release were to migrate off the facility on these sides, flow would be directly towards the unnamed USGS identified intermittent drainages located 260 feet to the northwest or the unnamed USGS identified intermittent drainage 450' southeast. It is not anticipated that the unnamed USGS identified intermittent drainage located 1,215 feet to southeast would be impacted by a potential release as it is separated from the facility by another ridgeline.

During facility expansion, Best Management Practices (BMPs) should be installed in the form of an earthen perimeter berm on all fill slope sides of the facility, especially the northern and northeastern sides. It is also recommended that an elevated pad entrance be constructed to prevent flow from migrating off the southeastern side. If feasible, a diversion ditch should be constructed along the toe of the fill slope sides as well. All installed BMPs should be monitored and maintained to ensure site containment in the event of a potential release.

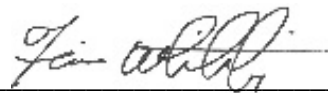
The State Engineers Office and USGS records were reviewed and revealed no water wells are located within a ¼ mile of the proposed facility. The closest water well (permit number 26069) is located 2,428 feet northeast of the existing facility. The depth to groundwater is noted to be 44 feet. The well is located adjacent to Parachute Creek and is approximately 250 feet lower in elevation. The vegetation in the immediate vicinity of the facility is dominated by typical upland xeric species and does not suggest the presence of shallow groundwater. There are no occurrences of hydrophytic species in the drainages which indicates infrequent flow. No seeps or springs were identified during the site visit. Therefore it could be assumed that the depth to groundwater, if present, would be greater than 100 feet.

Based on the information collected during the site visit and desktop review, the potential to impact groundwater has been deemed as low. The greatest potential for impacts is to the two drainages in close proximity to the northern and southeastern sides of the proposed facility expansion. If a potential release were to migrate off the facility on the above mentioned sides and was not be contained by any installed BMP's, flow would be directly into one of the two drainages. Although both are tributary to Parachute Creek, it is not anticipated Parachute Creek would be impacted by a potential release due to the distance a release would have to migrate in order to reach Parachute Creek (>1/2 mile) and the fact both drainages exhibit ephemeral characteristics in the immediate vicinity of the facility such as no ordinary high water mark and vegetated bottoms indicating flow does not occur a majority of the time; In addition, both drainages are diverted through a series of rock check dams, roadside bar ditches, and culverts once they reach the valley floor which would significantly slow and potentially mitigate a

potential release. Although the potential for impacts to surface water features would be deemed as high, the potential for impacts to actual flowing surface water and groundwater would be deemed as low. Therefore, the facility can be designated as being in a non-sensitive area.

Inspector Signature(s):  Date: 5/9/2014

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

 Date: 04/24/2014

Finn Whiting, *Geologist*  
HRL Compliance Solutions, Inc.