

## Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)		
<b>Person(s) Conducting Field Inspection</b>	Finn Whiting	
	Geologist	
<b>Site Information</b>		
Location:	RU 14-6	Time: 1:35
Type of Facility:	Existing well pad/w proposed expansion	
<b>Environmental Conditions</b>	Sunny, dry ground conditions.	
Temperature (°F)	80	

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: Four (4) unnamed USGS identified intermittent drainages two of which are tributary to Beaver Creek.

If yes, describe location relative to facility: Two (2) of the unnamed USGS identified intermittent drainages are located 260 feet and 742feet to the north; one (1) unnamed USGS identified intermittent drainage is located 401 feet to the south, and one(1) USGS identified intermittent drainage is located 997 feet to the west 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. A potential release, if it were to migrate off the facility, could flow to the north, towards the USGS identified intermittent drainage located 260 feet north of the facility or flow southwest, towards the USGS identified intermittent drainage located 401 feet to the of the facility.

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

☒ High to actual surface water features      ☒ Moderate 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):
  
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

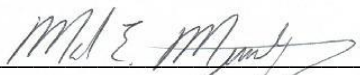
**Additional Comments:**

As stated in the surface water portion of this sensitive area determination, there are four (4) unnamed USGS identified intermittent drainages located within a ¼ mile of the proposed facility expansion. The facility, as it is currently constructed and proposed to be expanded, limits the direction of a potential release to the northern, and the southern sides. If a potential release were to migrate off facility on the southern side, flow would be to the southwest down a gently sloping hillside towards the USGS identified intermittent drainage 401 feet to the south. If a potential release were to migrate off the north side, flow would be to the northwest down a moderately steep hillside towards the USGS identified intermittent drainage located 260 feet to the north northeast. During facility expansion, Best Management Practices (BMP's) should be installed in the form of an earthen perimeter berm on all fill slope sides of the pad with a raised pad entrance. A diversion ditch, if feasible, should be constructed along the toe of the fill slope sides as well. All BMPs should be monitored and maintained to ensure containment of a potential release on site.


The State Engineers Office and USGS records were reviewed and no records were revealed which would provide additional information on the depth to groundwater. Two water wells have been permitted but were never drilled or completed. The vegetation in the immediate vicinity of the facility is dominated by sage, juniper, oak brush and bunch grasses typical of the mesic uplands does not suggest the presents of shallow groundwater. Furthermore, there were no springs or seeps identified in the immediate vicinity of the facility. Therefore, based on the vegetative cover and topography, it could be assumed that the depth to groundwater is at least 40 feet, if not greater, in the immediate vicinity of the existing facility.

Based on the information collected during the site visit and desktop review, the potential to impact groundwater has been deemed as being low. The greatest potential for impacts is to the unnamed USGS identified intermittent drainage located 260 feet to the north and the USGS identified intermittent drainage located 401 feet to the south of the facility. Both these drainage features are tributary to the two larger intermittent drainages located 742 feet to the north and 997 feet to the west of the existing facility. If a potential release were to impact the drainage feature located 260 feet to the north it is not anticipated would impact the larger drainage as it is very poorly defined and even nonexistent in some areas. In addition, a majority of any fluids released, on the north side, would tend to infiltrate into the heavily vegetated hillside and remnant channel bottom soils before reaching the drainage feature 742 feet to the north. If a release were large enough to reach the drainage feature located 401 feet to the south and reached the larger intermittent drainage feature located 997 feet to the west during periods of flow, Beaver Creek could be potentially impacted as this drainage feature is tributary to Beaver Creek. It should be noted that with the moderate potential for impacts to the above noted drainage during periods of flow, an Emergency Response Control Valve has been installed just after the access road turn off to redirect flow and prevent it from reaching Beaver Creek in the event this drainage feature was impacted.

Although the potential for impacts to the drainage feature is low during periods of no flow, there is a moderate potential for impacts during periods of flow (spring runoff) if a very large release were to occur. By COGCC decision, the close proximity of two of the four noted drainage features (<500 feet) would classify the facility as being in a sensitive area. In addition, the facility is located within the external buffer zone of the Beaver Creek SWSA and by rule (317b), would classify the facility as being in a sensitive area. Therefore with the moderate potential for impacts to surface water features during periods of flow and by COGCC decision and by rule, the facility should be classified as being in a sensitive area.

Inspector Signature(s):  Date: 8/21/2014

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

Inspector Signature(s):  Date: 08/18/2014

Finn Whiting, *Geologist / Environmental Inspector*  
HRL Compliance Solutions, Inc.