

Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)		
Person(s) Conducting Field Inspection	Finn Whiting	04/10/14
	<i>Geologist</i>	
Site Information		
Location:	GM 246-1	Time: 1220
Type of Facility:	Existing Well Pad w/Proposed Cuttings Trench	
Environmental Conditions	Sunny, NE Wind, Dry ground conditions.	
Temperature (°F)	60 °F	

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: Three (3) unnamed USGS identified intermittent drainages.

If yes, describe location relative to facility: One (1) unnamed USGS identified intermittent drainage is located 211 to the northeast, one (1) unnamed USGS identified intermittent drainage is located 265 feet to the southwest, and one (1) unnamed USGS identified intermittent drainage is located 1,175' southeast 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 of the southwestern side of the facility, flow would be to the southwest following the natural topography of the area and directly into the unnamed USGS identified intermittent drainage located 265 feet to the southwest.

3. Is the potential to impact surface water 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 ¼ mile of the existing facility. The facility, as it is currently constructed and proposed to be expanded, will limit the direction of a potential release to a portion of the southwestern side. If a potential release were to migrate off of the facility on the southwestern side flow would be directly towards and into the unnamed USGS identified intermittent drainage 265 feet to the southwest. During the facility expansion, Best Management Practices (BMPs) should be installed in the form of an earthen perimeter berm along the southwestern side with an elevated facility entrance to prevent migration of any fluids down the access road. All newly 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 no records were revealed which would provide any additional information in regards to the depth to groundwater. The facility is constructed in the Wasatch Formation and the depth to unweathered bedrock is very shallow. The general topography slopes gently to the south southwest and is dominated by typical xeric vegetation; juniper, sage brush, and bunch grasses with no occurrences of hydrophytic vegetation which would suggest the presence of shallow groundwater. Based on the topographical and geologic setting of the facility, the depth to groundwater would likely be in excess of 100 feet. In addition, both drainages exhibit characteristics of ephemeral flow from precipitation events and do not appear to have any connection to more permanent sources of groundwater.

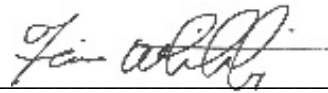
Based on the information collected during the site visit and desktop review, the greatest potential for impacts would be to the unnamed intermittent drainage located 265 feet to the southwest of the existing facility. As noted above, if a potential release were to migrate off the facility on the southwestern side flow would be directly towards the drainage feature. However it is not anticipated a release would migrate any great distance down channel due to the high infiltration rates of the channel bottom soils. In addition, the drainage exhibits ephemeral characteristics such as a vegetated bottom and no ordinary high water mark indicating it does not flow a vast majority of the time. It is not anticipated that the drainage located 211 feet to the northeast would be impacted by a potential release as it will be isolated from the facility by the soils stockpile from the excavated cuttings trench. It should also be noted that the proposed cuttings trench will only contain cuttings which have been treated with drying agents prior to placement in the trench. Therefore the potential for a liquids release off the facility is extremely low. However the cuttings trench should be monitored closely to ensure no other materials, especially liquids, are placed into the trench.

Although the potential for impacts to surface water features is high, the potential to impact actual flowing surface water would be deemed low due to infrequent flow in the drainages. With the

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

Inspector Signature(s):  Date: 4/18/2014

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

 Date: 04/10/2014

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