

Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)		
Person(s) Conducting Field Inspection	Alexander Nees <i>Environmental Scientist</i>	7-23-13
Site Information		
Location:	RG 13-13-298	Time: 11:00 AM
Type of Facility:	Proposed well pad	
Environmental Conditions	Clear, sunny, intermittent light breeze, dry soil	
Temperature (°F)	84	

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 unnamed USGS identified intermittent drainage, and one unmanned non-USGS identified ephemeral drainage.

If yes, describe location relative to facility: The unnamed USGS identified intermittent drainage is located 775 feet to the west and the unnamed ephemeral drainage is located approximately 1,201 feet to the southeast 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. The proposed facility is located on a ridgeline. Therefore if a potential release were to migrate off the facility, flow would be to the east northeast and northwest following the natural contours of the area.

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

If yes, List the pit type(s): Cuttings trench on west side of pad.

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 Engineer's Office.

7. Is the potential to impact ground water from the facility in the event of a release high or low?

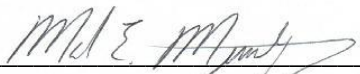
High Low

Additional Comments:


As stated in the surface water section of this sensitive area determination, there is one unnamed USGS identified intermittent drainage and one unnamed non-USGS identified ephemeral drainage located within ¼ mile of the proposed facility. The facility, as it is currently proposed to be constructed, limits the direction of a potential release to the northern and eastern sides and a small portion of the western side. If a potential release were to migrate off the northern and eastern sides, a majority of flow would be to the east following the natural contours of the area. If a potential release were to migrate off the northwestern corner or the small portion of the western side, flow would be to the west northwest following the natural contours of the area. During facility construction, it is recommend that Best Management Practices (BMPs) be installed in the form of an earthen perimeter berm along the graded edge of any fill slope sides. If feasible, a diversion ditch should be constructed along the toe of any fill slope sides as well. All BMPs should be monitored and maintained to ensure site containment in the event of a potential release.

The State Engineer's Office and USGS records were reviewed and no records were revealed which would provide any additional information pertaining to the depth to groundwater. The topography and vegetation would not suggest the presence of shallow groundwater. The proposed facility is generally located on an upland ridge which separates the above mentioned drainages. Vegetation in the immediate vicinity is uniformly typical of arid uplands in the area (a mixture of juniper woodlands and sagebrush meadows). There are no indications of seeps, springs, or hydrophytic vegetation in the area, not only on the proposed facility but also in the adjacent drainages. There are no adjacent uplands to provide infiltration zones for subsurface flow. In addition, both drainages are approximately 100 feet lower in elevation than the proposed facility. Therefore it could be assumed that the depth to groundwater, if present, would be in excess of 100 feet.

Based on the information collected during the site visit and desktop review, the greatest potential for impacts would be to the non-USGS identified ephemeral drainage located to the southeast of the proposed facility. A potential release, if it were to migrate off the northern or eastern side of the facility, would flow down a fairly steep hillside and could potentially reach the drainage feature. However it would have to be a fairly large release in order to impact the drainage feature due to the vegetative cover, the distance a release would have to migrate, and the moderate to high infiltration rates of the Redcreek-Rentsac complex soils. Even if a release were to impact the drainage feature, it is not anticipated it would reach any flowing perennial waters due to the distance a release would have to migrate and the high infiltration rates of the channel bottom soils. If a potential release were to migrate off the northwestern corner or the small portion of the western side, it is not anticipated that the USGS identified intermittent drainage to the west would be impacted due to the factors noted above. With the low potential for impacts to groundwater, actual surface water features, and any flowing perennial surface water being deemed as low, the facility can be designated as being in a non-sensitive area.

Inspector Signature(s):  Date: 3/27/2014

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

 Date: 7/25/2014

Alexander Nees, *Environmental Scientist*
HRL Compliance Solutions, Inc.