

Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)		
Person(s) Conducting Field Inspection	Alexander Nees <i>Environmental Scientist</i>	5-17-13
Site Information		
Location:	RGU 33-25-198	Time: 11:45am
Type of Facility:	Proposed well pad	
Environmental Conditions	Mostly cloudy, breezy, dry soil	
Temperature (°F)	68	

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) USGS identified intermittent drainage (Horse Draw) and one (1) non-USGS ephemeral drainage tributary to Horse Draw which was identified during the site visit.

If yes, describe location relative to facility: Horse Draw is located 352 feet to the east and the non-USGS identified ephemeral drainage is located approximately 360 feet to the south southwest 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. If a potential release were to migrate off the facility flow would be to the south or east towards both identified drainage features.

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

Moderate 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 on the west side of the 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 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) USGS identified unnamed intermittent drainage (Horse Draw) and one (1) non-USGS identified ephemeral drainage in fairly close proximity to the proposed facility. Horse Draw is located 352 feet to the east and the non-USGS identified ephemeral drainage, tributary to Horse Draw, is located approximately 360 feet to the south southwest of the proposed facility. The facility, as it is proposed to be constructed, limits the direction of a potential release to the eastern side and portions of the southern and western sides. If a potential release were to migrate off the eastern and southern fill slope sides, flow would be towards Horse Draw. Potential flow off the western side would tend to migrate to the non-USGS identified ephemeral drainage. During facility construction, it is recommended Best Management Practices (BMPs) be installed in the form of an earthen perimeter berm along the graded edge of all fill slope sides. In addition, a diversion ditch should be constructed (if feasible) 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 it was revealed that there are no permitted wells within the ¼ mile radius which would provide any additional information in regards to the depth to groundwater. The vegetative cover (Piñon juniper woodland, sagebrush, and scattered serviceberry) does not suggest the presence of any shallow groundwater. In addition, the topography and geologic conditions which would be the lack of any adjacent uplands to provide any groundwater recharge would suggest shallow groundwater is not present in the immediate vicinity of the proposed facility.

Based on the information collected during the site investigation and desktop review, the greatest potential for impacts would be to Horse Draw located to the east of the proposed facility. A potential release, if it were to migrate off the fill slope sides on the eastern side, would tend to flow towards horse Draw. A potential release, if it were to migrate of the fill slope portion of the western side, would tend to flow towards the non-USGS identified ephemeral drainage which is located to the south southwest. However, it is not anticipated flow would reach Horse Draw due to the relatively flat gradient, the distance a release would have to migrate to impact Horse Draw, and the fact a release would tend to infiltrate into the channel bottom soils which exhibit a fairly high infiltration rate. In addition, observations from the site visit indicates Horse Draw exhibits ephemeral characteristics in the immediate vicinity of the facility such as a lack of any high ordinary water mark, debris and vegetation in the channel bottom would suggest flow does not occur a vast majority of the time. Even if a potential release were to impact Horse Draw, it is not anticipated that any flowing surface water (Piceance Creek) would be impacted by a potential release. This is due to the distance (> 2.5 miles) a potential release would have to migrate in order to reach and potentially impact Piceance Creek, the relatively flat gradient, and the high infiltration rates of the channel bottom soils would prevent a release from migrating any great distance. While the potential to impact actual surface water features being deemed as moderate,

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: 10/2/2013

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

 Date: 5/17/2013

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