

Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)		
Person(s) Conducting Field Inspection	Jake Forsman	04/16/2013
	<i>Environmental Scientist</i>	
Site Information		
Location:	GM 11-28	Time: 1:30
Type of Facility:	Proposed Well Pad	
Environmental Conditions	Rain and snow showers; saturated soil conditions	
Temperature (°F)	44°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: Two (2) USGS identified intermittent drainages.

If yes, describe location relative to facility: One USGS identified intermittent drainage is located 220 feet northwest of the proposed facility; the second USGS identified intermittent drainage is located 203 feet 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. If a potential release were to migrate off the facility flow would be directly towards both the USGS identified drainages to the northwest and southeast of the proposed facility.

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

☒ High to actual surface water features ☒ Low to actual live 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; Cuttings and fluids will be managed on the surface
 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.

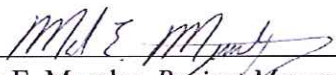
7. Is the potential to impact ground water from the facility in the event of a release high or low?
☐ High ☒ Low


Additional Comments:

As stated in the surface water section of this sensitive area determination, there are two (2) USGS identified intermittent drainages located to the northeast and southeast of the proposed facility. The facility, as it is currently proposed, limits the direction of a potential release to portions of the northwest and southeast sides as well as the southwestern side. If a potential release were to migrate of the northwestern and southeastern sides, flow would be directly towards the unnamed drainages on either side. Therefore, during facility construction, it is recommended that Best Management Practices (BMPs) be installed on the along the fill slope sides. This would include portions of the northwestern and southeastern sides and the entire southwestern side. The installed BMPs should be in the form of an earthen perimeter berm along the graded edge of the fill slope sides. If feasible, a diversion ditch should be constructed adjacent the toe of the fill slopes sides along the above mentioned sides. All installed 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 information was revealed which would provide additional information pertaining to the depth of groundwater. The topographic setting (ridgeline) and the vegetative cover in the immediate vicinity of the proposed facility (rabbit brush, greasewood, and sagebrush) does not suggest the presence of shallow groundwater.

Based on the information collected during the field investigation and desktop review, the potential to impact groundwater would be deemed to be very low. The greatest potential for impacts is to the two (2) unnamed intermittent drainages located to the northeast and southeast of the proposed facility. By COGCC decision, the close proximity of the two (2) drainages (<500 feet) would classify the proposed facility as being in a sensitive area. During the site visit it was determined both drainages do exhibit characteristics of periodic flow. However, based on the regional topography it appears a majority of flow, when it does occur, is ephemeral in nature and only occurs during moderate to heavy precipitation events. In addition, due to man-made modifications to the land surface (County road 215), both drainages are no longer hydraulically connected to any live flowing surface water features. Waters from the drainage on the southeastern side would tend to congregate in a very large low lying area just to the northeast of County Road 215. The same scenario would also apply to waters which may flow in the drainage to the northwest of the proposed facility. Therefore, with the potential to impact groundwater and actual live flowing surface water being deemed low, the proposed facility can be designated as being in a non-sensitive area.

Inspector Signature(s):  Date: 7/2/2013
Mark E. Mumby, *Project Manager/RPG*
HRL Compliance Solutions, Inc.

 Date: 4/17/2013
Jacob Forsman, *Environmental Scientist*
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