

Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC		
Person(s) Conducting Field Inspection	Jennifer Belcastro	02/14/2013
	<i>Environmental Scientist</i>	
Site Information		
Location:	RGU 42-26-198	Time: 12:30
Type of Facility:	Proposed Well Pad	
Environmental Conditions	Cloudy, Cold, 18 inches of snow	
Temperature (°F)	26°	

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: There are two (2) USGS identified unnamed intermittent drainages and one (1) unnamed ephemeral drainage feature.

If yes, describe location relative to facility: One of the USGS identified unnamed intermittent drainages is located 602 feet to the east; the unnamed ephemeral drainage feature is located 392 feet to the west and the second USGS identified intermittent drainage is located 865 feet to the west 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. A potential release, if it were to migrate off the facility would flow northwest towards the unnamed ephemeral drainage feature.

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

☒ Moderate to surface water features ☒ Low to 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

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 section of this sensitive area determination, there are two USGS identified unnamed intermittent drainages. One is located 602 feet to the east and the second is located approximately 865 feet to the west of the proposed facility. The unnamed ephemeral drainage feature, identified during the site visit, is located approximately 392 feet to the west of the proposed facility. The facility as is proposed to be constructed limits the direction of a potential release to the northwestern and portions of the northeastern and southwestern sides. If a potential release were to migrate off the facility, flow would be to the northwest following the natural contours of the area directly towards the unnamed ephemeral drainage feature. It is not anticipated the USGS identified intermittent drainage to the west would be impacted by a potential release due to the fact it is separated from the facility by the unnamed ephemeral drainage. Although hydraulically connected, the distance a release would have to migrate, and the moderate to high infiltration rates of the underlying soil, would most likely prevent a release from reaching the confluence of the two drainages. Even if a potential release were to reach the confluence of the two drainages, the additional distance a release would have to migrate in order to reach any potential flowing surface water (Yellow Creek) which is also intermittent, would be greater than three (3) miles. The USGS identified intermittent drainage to the east of the proposed facility would not be impacted by a potential release due to the fact the facility is located far enough to the west that a small ridgeline separates the proposed facility from the drainage. During construction of the proposed facility, it is recommended that Best Management Practices (BMPs) be installed along the fill slope sides of the facility. These should be in the form of an earthen perimeter berm along the graded edge and diversion ditch along the toe of the fill slope sides of the facility. These 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 two records were revealed which would provide additional information pertaining to the depth to groundwater. The Natural Soda facility to the west of the proposed facility is an active solution mining operation. They have a network of monitoring wells to monitor water quality in the immediate vicinity of their facility and the proposed facility. The closest well is located 1,264 feet to the southwest of the proposed facility. The depth to groundwater is approximately 507 feet in competent bedrock. In addition the vegetative cover in the immediate vicinity of the facility, Piñon Juniper woodland and sage brush, does not suggest the presence of any shallow groundwater.

Based on the information collected during the site investigation and desktop review, the potential to impact actual surface water features has been deemed moderate. The highest potential for impacts is to the small unnamed ephemeral drainage located 392 feet to the west of the proposed facility. However, due to the fact the drainage is ephemeral, and it is not anticipated a potential release would reach the confluence of this drainage and the USGS identified drainage, the potential to impact any live flowing surface water would be deemed to be low. Based on the topographic setting of the location, the information obtained from the State Engineer's office, and the vegetative cover, the potential to impact groundwater would be deemed to be low as

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

Inspector Signature(s): Mark E. Mumby Date: 3/4/2013

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

Jennifer Belcastro Date: 02/14/2013

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