

Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)		
Person(s) Conducting Field Inspection	Finn Whiting Geologist	10.16.13
Site Information		
Location:	East Parachute Tank Farm	Time: 0945
Type of Facility:	Proposed Storage Facility	
Environmental Conditions	Clear Skies, Sunny, Dry ground conditions	
Temperature (°F)	60°	

Has the proposed, new or existing location been designated as a sensitive area?

☐ Yes ☒ No

SURFACE WATER

- 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) unnamed USGS identified intermittent drainage and two (2) unnamed USGS identified man-made catchment basins.

If yes, describe location relative to facility: The unnamed USGS identified intermittent drainage is located 241feet to the east and the two (2) USGS identified catchment basins are located 317feet and 826 feet respectively south of the proposed facility.

- 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 pad, would migrate to the east directly towards into the unnamed USGS identified intermittent drainage to the east.

- Is the potential to impact surface water features 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):
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 is one (1) unnamed USGS identified intermittent drainage and two (2) unnamed USGS identified catchment basins within a 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 southeastern side. If a potential release were to migrate off of the facility on the southeastern side flow would be to the southeast following the natural topography of the area directly towards the unnamed USGS identified intermittent drainage. During facility construction, it is recommended that Best Management Practices (BMPs) be installed along the graded edge of southeastern side and a portion of the southwestern side in the form of an earthen perimeter berm. A water bar should also be installed at the entrance to the facility to prevent any potential fluid migration off the facility from that point. Due to the close proximity of the proposed facility to the existing access road, construction of a diversion ditch along the toe of the fill slope sides will most likely not be feasible. All installed BMPs should be monitored and maintained to ensure site containment in the event of a potential release.

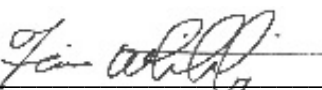
The State Engineer's Office and USGS records were reviewed and no records were revealed which would indicate a depth to ground water in close proximity to the proposed facility. The topography of the area is sloping to the south and is dominated by typical upland xeric vegetation (sage brush, oak brush, juniper & bunch grasses) which would not suggest the presence of shallow groundwater in the immediate vicinity of the proposed facility. There are two permitted wells outside the ¼ mile buffer zone constructed in a similar geologic setting. The depth to groundwater in a well constructed 2,221 feet to the northwest has a depth to groundwater at approximately 143 feet with a very poor yield. A well drilled to 105 feet located 3,694 feet to the west was dry. Therefore it could be assumed that groundwater, if present, in the immediate vicinity of the proposed facility would be in excess of 100 feet.

Based on the information collected during the site visit and desktop review, the greatest potential for impacts from a potential release would be to the USGS identified intermittent drainage located 241 feet to the east of the proposed facility. By COGCC decision the close proximity of the drainage to the facility would classify the facility as being in a sensitive area. However, if a potential release were to impact this drainage, flow would migrate approximately 930 feet south where it would enter and be contained within the USGS identified catchment basins. The catchment basins do have an engineered outlet, which when full, does direct water down the former drainage channel and under I-70. During the site visit, the former channel below the catchment basin was assessed and it was determined that due to the lack of an ordinary high water mark and heavily vegetated bottom flow has not occurred for an extended period of time. Even if flow were to migrate into this channel it would migrate out onto a flat lying area south of old Highway 6 & 24 and infiltrate into the underlying soils. Any further migration to the south in this flat lying area would be prevented by the existing railroad tracks.

Based on the topographical setting of the proposed facility the potential to impact groundwater has been deemed to be low. Although the potential to impact actual surface water features has been deemed to be high, the potential to impact any actual flowing surface water (Colorado River) would be deemed to be low due to the man-made modifications to the land surface. With the potential for impacts to groundwater and actual flowing surface water being deemed as low, the proposed facility can be designated as being on a non-sensitive area.

Inspector Signature(s):  Date: 10/19/2013

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

Inspector Signature(s):  Date: 10/17/2013

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