Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)			
Person(s) Conducting Field Inspection	Finn Whiting		06/11/14
	Geologist		
Site Information			
Location:	PA 24-32		Time: 2:15
Type of Facility:	Existing production facility w/Proposed Expansion		
Environmental Conditions	Overcast, dry ground conditions.		
Temperature (°F)	75		

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) unnamed USGS identified intermittent drainages.

   If yes, describe location relative to facility: One (1) unnamed USGS identified intermittent drainage is located 308 feet to the east and one (1) unnamed USGS identified intermittent drainage is located approximately 210 feet to the west of the existing 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 to the south southeast into the unnamed USGS identified intermittent drainage 308 feet to the east and/or the unnamed USGS identified intermittent drainage 210 feet to the west of the existing facility.

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

WPXENERGY

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 $\leq 1.0x10^{-7}$ 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 are two (2) unnamed USGS identified intermittent drainages located within a ¼ mile of the proposed facility expansion. The facility, as it is currently constructed and proposed to be expanded, limits the direction of a potential release to a portion of the eastern and western sides and the entire southern side. If a potential release were to migrate off the facility flow would be to the south southeast where it could potentially enter both drainage features. It should also be noted that the unnamed USGS identified intermittent drainage 210' west of the pad center will intersect the facility once it is expanded. Therefore consideration should be taken in regards to diverting flow around the facility further upstream. Previous site visits indicate some natural diversion has already taken place northeast of the facility. Consideration should be given during facility expansion to make this a more permanent diversion resulting in a greater distance a potential release would have to migrate in order to impact this drainage feature. During facility expansion, Best Management Practices (BMP's) should be installed in the form of an earthen perimeter berm along the graded edge on all fill slope sides with a raised pad entrance. A diversion ditch should also be constructed along the toe of the fill slope sides as well to further mitigate any potential flow from reaching the drainage features. All BMPs should be maintained and monitored to ensure containment of a potential release on site.

The State Engineers Office and USGS records were reviewed and revealed no water wells are located within a ¼ mile of the proposed facility. The closest water well (permit number 19058) is located 3,373' west of the existing facility. A depth to groundwater was noted to be 84'. The well is located in closer proximity to the Colorado River and is lower in elevation which suggests that the depth to groundwater in the immediate vicinity of the facility would be at least 84 feet if not greater. The vegetation surrounding the facility is dominated by sage and bunch grasses typical of the mesic uplands which does not suggest the presence of any shallow groundwater. Furthermore there were no springs or seeps identified in the immediate vicinity of the pad.

Based on the information collected during the site visit and desktop review, the potential to impact groundwater has been deemed as being low. The greatest risk for impacts is to the unnamed USGS identified intermittent drainage 250' east of the facility. It displays a well-defined channel with evidence of heavy and more frequent flow from the elevated topography to the north and is tributary to the Colorado River. If a potential release were to impact this drainage, it would migrate under I-70 through a culvert and flow would be unimpeded to the Colorado River. The drainage feature to the west also flows through a culvert under I-70. However, this drainage is poorly defined, heavily vegetated and exhibits characteristics of ephemeral flow only during very heavy precipitation events. In addition, once it exits south of the railroad tracks to the south it becomes very poorly defined and any fluids would tend to infiltrate into the channel bottom soils or the adjacent flat lying area before it could impact the Colorado River. It should also be noted that the facility itself and both drainages are located in the External Buffer Zone of the Parachute/Battle Mesa Surface Water supply Area. Therefore by

COGCC rule 317b, the facility would be classified as being in a sensitive area. With the high potential for impacts to the drainage feature to the east and potentially the Colorado River and by COGCC rule 317b, the facility should be designated as being in a sensitive area.

Inspector Signature(s): _____ Date: 6/19/2014

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

Inspector Signature(s): _____ Date: 06/11/2014

Finn Whiting, *Geologist / Environmental Inspector*
HRL Compliance Solutions, Inc.