Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)			
Person(s) Conducting Field Inspection		Ashlee Lane Biologist	03/07/13
Site Information			
Location:	GM 32-4		Time: 1300
Type of Facility:	Existing Well Pad		
Environmental Conditions	Clear skies; slight breeze; cool; melting conditions		
Temperature (°F)	61°		

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 unnamed intermittent drainage and Riley Gulch, a USGS identified intermittent drainage.

   If yes, describe location relative to facility: The unnamed intermittent drainage is located approximately 92 feet to the east and Riley Gulch is located 210 feet to the southeast 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 tend to flow south southeast directly towards Riley Gulch.

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

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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 $\leq 1.0x10^{-7}$ 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 section of this sensitive area determination, there is one (1) USGS identified unnamed intermittent drainage located 92 feet to east which is tributary to Riley gulch. Riley Gulch, a USGS identified intermittent drainage, is located approximately 141 feet to the south southeast of the facility. The facility, as it is currently proposed to be expanded, limits the direction of a potential release to the southeastern and northeastern sides of the facility. If a potential release were to migrate off the facility flow would be to the east southeast directly towards the unnamed intermittent drainage and Riley Gulch. During pad expansion, it would be recommended that Best Management Practices (BMPs) be installed in the form of an earthen perimeter berm along the entire southern and southeastern sides and the northeastern side along the graded edges. A drive over berm would also be recommended to prevent potential flow from migrating down the access road on both the southwestern and northeastern sides of the facility. If feasible, a diversion ditch should be constructed along the fill slope edge of the same sides. The unnamed intermittent drainage to the east of the facility flows under the access road through a culvert prior to draining into Riley Gulch. Consideration should be given in regards to having a device capable of preventing flow though the culvert on the north side of the access road to prevent fluid migration through the culvert in the event of a potential release from the northeastern side of the facility. All installed 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 no records were revealed that would provide additional information pertaining to the depth to groundwater. The vegetative cover in the immediate vicinity of the facility does not indicate the presence of shallow groundwater. In addition, the pad is constructed primarily in bedrock with very little soil cover and consists primarily of shale making the possibility of shallow groundwater unlikely.

Based on the information collected during the site visit and desktop review, the potential to impact surface water features and actual flowing surface water, if present, would deemed to be high. In addition, by COGCC decision, the close proximity of the unnamed intermittent drainage and Riley Gulch (<500 feet) would classify the facility as being in a sensitive area. Based on the topographic setting of the facility the potential to impact groundwater would be deemed low. This potential is further mitigated due to the fact all cuttings and fluids will be managed on the surface and there will be no pits on the facility thus eliminating the potential for impacts from a release over a longer period of time such as a leaking pit. Based on the close proximity of the intermittent drainage and Riley Gulch, the potential for impacts to both drainages from a potential release are high as stated above. With this high potential for impacts to surface water features and by COGCC decision, the facility should be classified as being in sensitive area.

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Inspector Signature(s): _____ Date: 3/9/2013

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

_____ Date: 3/7/2013

Ashlee Lane, *Biologist*
HRL Compliance Solutions, Inc.