Sensitive Area Determination Checklist

TEP Rocky Mountain, LLC			
Person(s) Conducting Field Inspection	Jacob Forsman		
Site Information			
Location:	TR 23-22-597	Time: 9:00AM	
Type of Facility:	Proposed Well Pad		
Environmental Conditions	Sunny Conditions		
Temperature (°F)	65		

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:
   If yes, describe location relative to facility: One unnamed USGS identified Intermittent drainage flows directly through 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 tend to migrate south southwest and enter the unnamed intermittent drainage south of the proposed facility.

3. Is the potential to impact surface water from a facility release high or low?
   ☒ High when actual flow is occurring ☒ Low during periods of no flow

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 along the northwestern side of the facility.

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 intermittent drainage directly beneath the proposed facility. The facility, as it is currently proposed to be constructed, will limit the direction of a potential release to the southern side. If a potential release were to migrate off the southern side, flow would be to the southwest directly towards the unnamed drainage. During facility construction, Best Management Practices (BMP's) should be installed in the form of an earthen perimeter berm on the fill slope sides especially on the southern side. If feasible, a diversion ditch should be constructed at the base of the fill slope sides as well. All the newly installed (BMP's) 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 that would provide additional information pertaining to the depth to groundwater. The vegetative cover, in the immediate vicinity of the facility, consists of service berry, oak brush, and, sage brush and does not suggest the presence of shallow groundwater. However, there are two (2) springs which daylight just outside the ¼ mile buffer. They are approximately 90 feet lower in elevation than that of the proposed facility. It is unclear whether the water from the springs is from actual bedrock or the alluvial valley sediments. If flow is from the bedrock then it could be assumed that the depth to groundwater would be in excess of 70 feet. If not, then the depth to groundwater could be potentially less than 40 feet. Therefore the potential to impact groundwater would be deemed as moderate to high.

In addition, as noted in the groundwater section of this SAD, a cuttings trench will be constructed on the northwestern side of the facility. It should be noted that the facility resides in the Uinta Formation which tends to be fractured both horizontally and vertically. This can result in fluid migration in the subsurface over large distances. Therefore the cuttings trench should be closely monitored to ensure no materials (especially fluids) other than cuttings are placed in the trench to eliminate any potential impacts to groundwater.

Based on the information collected during the site visit and desktop review, the potential for impacts to surface water features would be deemed as high. As noted in the surface water section of this SAD, the USGS identified intermittent drainage lies directly below the proposed facility footprint. Although the drainage feature does exhibit more ephemeral characteristics, in the immediate vicinity of the proposed facility, it could potentially have some flow especially during the spring snow melt. In order to accommodate any drainage a culvert will be installed beneath the proposed facility to allow for any drainage to occur on the upstream side. As noted above, if BMP's are carefully installed on the southern side to ensure site containment in the event of a potential release, the chances for impacts to the drainage would be substantially reduced. There is also some uncertainly on the depth to groundwater. With the potential for impacts to surface water features and actual flowing surface water during certain times of the year being deemed as high and by COGCC rule (less than 500 feet) classify the facility as being in a sensitive area.

With uncertainly in regards to the depth of groundwater the potential for impacts to groundwater would be deemed high as well. Therefore with the potential for impacts to both surface water and groundwater being deemed as high and by COGCC rule the facility should be classified as being in a sensitive area.

Inspector Signature(s): _____ Date: 7/28/2017

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

_____ Date: 7/27/2017

Jacob Forsman, *Environmental Scientist*
HRL Compliance Solutions, Inc.