

Sensitive Area Determination Checklist

TEP Rocky Mountain, LLC		
Person(s) Conducting Field Inspection	Non Conducted	
Site Information		
Location:	TR 24-21-597	Time:
Type of Facility:	Existing Well Pad Expansion	
Environmental Conditions		
Temperature (°F)		

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: Short Gulch, a spring fed intermittent/perennial stream tributary to Doe Gulch; one (1) non USGS identified ephemeral drainage

If yes, describe location relative to facility: Short Gulch is located 1,139 feet to the west and the unnamed non USGS identified ephemeral drainage is located adjacent to the southeastern corner of the 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. If a potential release were to migrate off the southeastern corner, flow would be directly into the unnamed ephemeral drainage.

3. Is the potential to impact surface water 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 cuttings 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 $\leq 1.0 \times 10^{-7}$ 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, Short Gulch is an intermittent/perennial drainage located 1,139 feet west of the facility and the unnamed non-USGS identified ephemeral drainage is located adjacent to the southeastern corner of the facility. The facility, as it is currently proposed to be expanded, limits flow direction of a potential release to the southeastern and northwestern corners of the facility. If a potential release were to migrate of the facility on the southeastern corner flow would be directly into the unnamed non-USGS identified drainage. If a potential release were to migrate of the northwestern corner of the facility, flow would migrate down a heavily vegetated hillside and infiltrate into the underlying soils which have a moderate to high infiltration rate in this area. During facility expansion it is highly recommended that Best Management Practices BMP's be installed along the graded edge of any fill slope sides, especially the northwestern and southeastern corners. If feasible, a diversion ditch should be constructed along the toe of any fill slope sides as well, especially on the northwestern and southern corners. All installed BMP's should be monitored and maintained to ensure site containment in the event of a potential release.

The State Engineers 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, service berry, oak brush, and sage brush does not suggest the presence of shallow groundwater. The conductor pipe logs were also reviewed and no groundwater was noted above 60 feet. Therefore it could be assumed that the depth to groundwater in the immediate vicinity of the facility is in excess of 60 feet. There is one documented spring located just outside the ¼ mile buffer zone to the northwest. It is the spring that feeds the perennial section of short Gulch. The spring is located approximately 110 feet below the present facility elevation which would support the above noted depth to groundwater being in excess of 60 feet.

Based on the information collected during this desktop review, the greatest potential for impacts would be to the non-USGS identified ephemeral drainage located adjacent to the southeastern corner of the facility. If a potential release were to migrate off the southeastern corner, flow would be directly into the unnamed ephemeral drainage. From this point flow would migrate approximately 800 feet down the fairly steep gradient channel gradient to a point where it becomes nonexistent in a low lying area south of the facility. From here flow would dissipate and infiltrate into the underlying soils due to the fact it would spread out over the large relatively flat lying area. Therefore, it is not anticipated that an overland release would impact Short Gulch due to the factors mentioned above. Although the potential for impacts to actual surface water features has been deemed as high, the potential to impact actual flowing surface water (the perennial section of Short Gulch) would be deemed to be low due to the conditions noted above. In addition, with cuttings and fluids both being managed on the surface, the potential to impact groundwater is substantially reduced. With the potential from impact to groundwater and actual



flowing surface being deemed as low, the facility can be designated as being in a non-sensitive area.

Inspector Signature(s): Mark E. Mumby Date: 11/12/2013

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