

Sensitive Area Determination Checklist

TEP Rocky Mountain, LLC		
Person(s) Conducting Field Inspection	Mark Mumby	9/19/2018
Site Information		
Location:	SG 11-22	Time:
Type of Facility:	Proposed Well Pad	
Environmental Conditions	Clear	
Temperature (°F)	~56	

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: There are three (3) unnamed USGS identified intermittent drainages and seven (7) unnamed ephemeral drainage features which were identified on the revised hydrology map and site visit.

If yes, describe location relative to facility: The three (3) unnamed USGS identified intermittent drainages are located approximately 927 feet to the east northeast, 262 and 750 feet to the west of the proposed facility. Two (2) of the unnamed ephemeral drainage features are located 146 feet to the northeast and the other two (2) are located 125 feet to the west of the proposed facility. The remaining three (3) ephemeral drainage features are located under and adjacent to the proposed facility on the southern edge of disturbance.

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. See additional comments section.

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

High to actual surface water features Moderate 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): Drilling Pit on the northwest side

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 are three (3) unnamed USGS identified intermittent drainages and seven (7) unnamed ephemeral drainage features located within a ¼ mile of the proposed facility. The facility, as it is currently proposed, will limit the direction of a potential release to a portion of the southeastern side. If a potential release were to migrate off the facility on these sides, flow would be to the southeast directly into the two of the unnamed ephemeral drainages adjacent to the facility. Therefore, during facility construction, it is imperative that Best Management Practices (BMP's) be installed in the form of an earthen perimeter berm on all fill slope sides. If feasible, a diversion ditch should be constructed along the fill slope sides as well to ensure total site containment in the event of a potential release. All BMPs should be monitored and maintained to ensure containment of a potential release on site.

The State Engineers Office and USGS records were reviewed and there are no permitted water wells in the immediate vicinity of the proposed facility. The closest permitted water well is located approximately 6,701 feet (1.3 miles) to the southeast and would not provide accurate information on the depth to groundwater. Based on observations made during the site visit and aerial photography review, the vegetation in the immediate vicinity of the proposed facility is dominated by juniper, sage, and bunch grasses and does not suggest the presence of shallow groundwater. There was no visual evidence of any springs or seeps. In addition, the proposed facility is located on a relatively wide ridgeline near the base of the Roan Plateau where the depth to bedrock (Wasatch or L. Green River Formations) is quite shallow. Therefore, based on the topographic setting of the proposed facility it could be assumed that the depth to groundwater, if present, would be in excess of 150 feet if not greater.

Based on the information collected during the site visit and desktop review, the potential to impact groundwater has been deemed as low. However the potential to impact some of the surface water features noted above would be deemed to be high. It is not anticipated that the two USGS identified intermittent drainages and two ephemeral drainage features to the west would be impacted by a potential release as they would be isolated from the facility by a natural topographic high. It is not anticipated that the upper reaches of the two unnamed ephemeral drainages located to the northeast would be impacted by a potential release due to the fact the base of the edge of disturbance, on the fill slope side, will not be higher than the top of the ridgeline separating these drainage features from the two ephemeral drainages adjacent to the proposed facility. There is also a low risk for impacts to the ephemeral drainage feature located adjacent to the southwestern edge of disturbance. Once the facility is constructed, and with stormwater BMP's in place there will be no pathway for fluids from a potential release to impact this drainage feature. Any drain lines utilized to drain the pad can be blocked or placed up on the facility surface during drilling and completion operations.

The greatest potential for impacts would be to the two ephemeral drainage features located adjacent to the southeastern edge of disturbance and the unnamed USGS identified drainage located to the east southeast of the proposed facility. Although stringent BMP's are slated to be installed; a potential release, if it were to migrate off the facility, could impact these drainage features. A potential release would have to be fairly large in order to impact the USGS identified intermittent drainage due to the distance a release would have to migrate in the ephemeral drainages to reach it. If however a potential release was large enough to reach and enter this drainage during periods of intermittent flow, impacts could potentially reach the Colorado River as the drainage feature has direct hydraulic connection to the river. However, the severity of potential impacts to the Colorado River is not known but could be fairly low due to the distance to the river and the fact the drainage flows into another intermittent drainage feature, south of the interstate prior to entering the Colorado River.

With the high potential for impacts to surface water features and potentially the Colorado River during periods of intermittent flow, the proposed facility should be designated as being in a sensitive area.

Inspector Signature(s):  Date: 9/20/2018

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