

Sensitive Area Determination Checklist

Williams Production RMT Company		
Person(s) Conducting Field Inspection	Ashlee Lane Biologist	3/31/2011
Site Information		
Location:	SG 24-27	Time: 1210
Type of Facility:	Proposed Well Pad	
Environmental Conditions	Cloudy and Windy	
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: There is one unnamed USGS identified drainage; the Colorado River and the Colorado River Flood Plain.

If yes, describe location relative to facility: The USGS identified a drainage 215 feet to the North, but after site evaluation, it was confirmed that the drainage is not present. The Colorado River lies approximately 921 feet to the southeast, and the flood plain is located approximately 488 feet to the south/southeast.

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.

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

☐ High ☒ Low

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

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: If a large release were to infiltrate into the underlying soil it could potentially impact groundwater as the depth to groundwater is becoming higher in closer proximity to the Colorado River. See additional comments section for additional details.

- (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:

The SG 24-27 is a proposed well pad located in the South Grand Valley Field. The topographical contour indicates a gradual slope to the south, southeast with a 1-6% (percent) slope. USGS topographic maps indicate that an unnamed surface water drainage is present 215 feet to the north, extending laterally across the northern perimeter of the proposed facility to the east, eventually entering the Colorado River approximately 950 feet to the east. By COGCC decision this would classify the facility as being in a sensitive area. However, the site investigation concluded that the drainage no longer exists due to modifications of the land surface in the immediate vicinity.

The Colorado River is located approximately 921 feet to the southeast as well as the 100 year flood plain boundary which is identified as being approximately 488 feet to the south, southeast.

The facility, as it is currently proposed, should include Best Management Practices (BMPs) in the form of earthen perimeter berms, diversion ditches, and catchment basins. It would be recommended that these BMPs be installed around the western, southern, and eastern boundaries of the proposed facility to ensure site containment in the event of a release.

The State Engineers office and USGS records were reviewed and it was revealed that are two permitted water within ¼ mile of the proposed facility. Depth to groundwater in the two wells is 45 and 18 feet. There is also a gravel pit located to the south of the proposed facility where groundwater is present in the bottom of the pit which is most likely the top of bedrock. Due to the close proximity of the proposed facility to the 100 year floodplain and the gravel pit it is possible that a release, if it were to migrate off site, could infiltrate the underlying soil, consisting of a silty clay loam, and impact groundwater. This in turn could lead to potential impacts to both the gravel pit and the Colorado River. It would also be recommended that the drilling pit be lined to mitigate the longer term potential of fluids migrating into the subsurface which could potentially impact groundwater and the above mentioned locals. If the pit is to remain unlined, then the only contents that should be placed into it would be cuttings from the drilling operation. No completions fluids or spoils should be placed into the pit.

Based on the information collected during the site visit and desktop review; the potential to impact surface water features would be deemed low. The greatest potential for impacts would be to shallow groundwater due to the close proximity of the 100 floodplain, gravel pit and the Colorado River. With the high potential for impacts to groundwater the facility should be designated as being in a sensitive area.

Inspector Signature(s): Mark E. Mumby Date: 7/6/2011

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