

Sensitive Area Determination Checklist

Williams Production RMT Company – Valley		
Person(s) conducting inspection	Ashlee Lane	04/21/10
Site Information		
Location:	GV 80-4	Time: 1030
Type of Facility:	Existing Well Pad	
Environmental Conditions	Clear and Calm	
Temperature (°F)	60°	

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: two irrigation ditches, unnamed ephemeral drainage.

If yes, describe location relative to facility: One irrigation ditch is located approximately 20 feet from the southwest corner of the facility and runs along the entire west side of the facility then branches and flows to the northeast, the second irrigation ditch is approximately 1/8 mile south west of the facility. The unnamed ephemeral drainage is 355 feet to the northeast of the location.

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. Flow off the facility to the northeast, northwest, and southwest.

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

High during spring, summer and fall when irrigation may be occurring in the adjacent fields.

Low during the winter months or when no irrigation is taking place.

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 (Cuttings Trench), Emergency Flare 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 5(a) of this section.*)

No (*If no, follow instructions provided in 5(b) of this section.*)

- (a) If yes, could a potential release from the proposed facility reach groundwater?

Yes No

If yes, explain: The well pad resides on top of a mesa south of the Colorado River. The known depth to ground water is 130 feet for a domestic water well located 923 feet to the southwest of the facility. This area may have some shallow groundwater present due to the irrigated fields.

- (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.

(iii) Drill a soil boring to determine depth to groundwater or

(iv) Model hydro geologic conditions to determine if the potential to impact groundwater is high or low.

7. Is the potential to impact ground water from the facility in the event of a release high or low?

- High If shallow groundwater is present
- Low for the deeper domestic sources

Additional Comments:

As stated in the surface water section of this determination, the potential to impact surface water may be high due to flowing irrigation water (diverted from Battlement Creek) adjacent to the facility during certain times of the year. Water from these irrigation ditches eventually lead to the Colorado River. Battlement Creek is classified as source water for public use in both Parachute and Battlement Mesa. The location of this well pad falls into the COGCC Rule 317B Public Water System Protection Buffer Zone and therefore would be classified as being in a sensitive area. In addition, the unnamed ephemeral drainage lies within 500 feet of the facility which, by COGCC decision, would classify the facility as being in a sensitive area.

A containment berm is currently located on the northwest and southwest sides of the existing facility. These Best Management Practices (BMPs) should be monitored and maintained during drilling and completion activities to ensure site containment in the event of a potential release. If a potential release were to migrate off of the facility, flow would be primarily to the northwest into the field and potentially into the irrigation ditches. Consideration should be given to additional BMPs in the form of a diversion ditch around the northwest and southwest sides of the facility to prevent the potential of a release from reaching the irrigation ditches. The irrigation ditch that flows along the northwest side of the facility leads to the unnamed ephemeral drainage 355 feet to the northeast of the facility and other unnamed drainages to the north. These drainages lead directly to the Colorado River 3,500 feet to the north.

In the groundwater section, it was stated that the potential to reach shallow groundwater, if present, was high. This is due to the fact the facility lies near the northern edge of a relatively large portion of the mesa that is irrigated. There are known seeps which are present along the terrace slope north and northwest of the facility, which most likely are due to the influence of irrigation water. If a release were to migrate off the pad, it could potentially impact shallow groundwater which could eventually flow out of any seeps present and affect the vegetation in the vicinity of the seep and, if sufficient flow is present, impact the Colorado River. Leakage from the drilling pit could also have the potential to impact shallow groundwater as well.

As stated in the groundwater section the potential to impact the deeper domestic groundwater sources is low due to the depth of that water source (>90 feet).

If adequate BMPs are maintained and installed on the northwest and southwestern edges of the facility potential impacts to surface water and shallow groundwater could be substantially reduced. Consideration might also be given to lining the pit to mitigate any potential impacts to shallow groundwater if present. Care should also be taken to ensure cuttings are the only material placed into the cuttings trench.

