Sensitive Area Determination Checklist

Williams Production RMT Company			
Person(s) Conducting Field Inspection	Ashlee Lane *Biologist*	10/6/10	
Site Information			
Location:	BCU 24-30-198	Time: 1200	
Type of Facility:	Proposed Well Pad		
Environmental Conditions	Clear and calm		
Temperature (°F)	80°		

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 USGS identified unnamed intermittent drainages tributary to Barcus Creek.

   If yes, describe location relative to facility: The first USGS identified unnamed intermittent drainage is located 728 feet to the west and the second USGS identified intermittent drainage is located 749 feet to the east of 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 flow to the east or west following the natural topographical contours of the area.

3. Is the potential to impact surface water from a facility release high or low?
   ☒ Moderate to actual surface water features ☒ Low to any 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.

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 there are two USGS indentified unnamed intermittent drainages located to the east and west of the proposed facility. The facility, as it is currently proposed, would limit flow direction primarily to the east and west. Any flow off the north and south sides would tend to flow to the east and west as well depending on which side of the ridge axis flow were to occur. Both unnamed intermittent drainages to the east and west could potentially be impacted by a release off the proposed facility due to the relative close proximity of the facility, the lack of a thick vegetative cover, and the relative steepness of the hillside above the drainages. Although identified on the USGS topographic maps as intermittent; both drainages exhibit ephemeral characteristics in the immediate vicinity of the proposed facility. The lack of a well defined ordinary high water mark (OHMW) and a vegetated bottom suggests that flow does not occur in either drainage a majority of the time. When constructed, Best Management Practices (BMP's) should be installed along the entire perimeter of the facility in the form of a perimeter berm on the facility itself and a diversion ditch along any fill slopes of the facility, especially on the north, west, and east sides. These should be monitored and maintained to ensure site containment. With the installation of the recommended BMP's, the potential to impact the above noted drainages would be considerably lower.

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, Piñon Juniper woodland and sage brush does not suggest the presence of shallow groundwater. The facility resides in the Uintah formation, which like the Green River Formation, tends to be fractured both vertically and horizontally which allows fluids to migrate in the subsurface over large distances. Based on the topographical setting of the facility, it is not anticipated that an overland release would impact groundwater due to the short duration time involved and the fact it would spread out over a large area. The greatest potential for impact to groundwater, if present, would be from a release that occurred over a longer period of time such as a leaking pit. However to lessen any potential to impact groundwater, it would be highly recommended that the pit be lined in accordance to COGCC criteria and tested prior to placement of any materials into it.

Based on the information collected during the site investigation and desktop review, the potential to impact actual surface water features has been deemed to be moderate. However the potential to impact any live surface water (Barcus Creek if flowing) is deemed to be low due to the distance a potential release would have to migrate (~1.75 miles) to impact this drainage. Based on the topographical setting of the proposed facility the potential to impact ground water has been deemed low as well. Therefore the facility can be designated as being in a non-sensitive area.

Inspector Signature(s): _____ Date: 10/16/2010

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

_____ Date: 10/11/2010

Ashlee Lane, *Biologist*
HRL Compliance Solutions, Inc.