Sensitive Area Determination Checklist

Williams Production RMT Company			
Person(s) Conducting Field Inspection		Jennifer Belcastro *Environmental Scientist*	08/08/11
Site Information			
Location:	GR 23-11 V		Time: 1345
Type of Facility:	Existing Well Pad		
Environmental Conditions	Sunny; dry ground conditions.		
Temperature (°F)	90°		

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 four USGS identified intermittent drainages and one unnamed ephemeral drainage feature.

   If yes, describe location relative to facility: Two USGS identified drainages are located northwest of the facility, one approximately 700 feet and the other 413 feet. The other two USGS identified drainages are located 362 feet and approximately 1200 feet southeast of the facility. The unnamed ephemeral drainage is located approximately 10 feet northwest of the existing 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 northwestern, northeastern, or southeastern sides of the facility flow would be towards the unnamed drainages.

3. Is the potential to impact surface water from a facility release high or low?
   ☒ High to actual surface water feature ☒ 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?
2. ☒ Yes ☐ No
   If yes, List the pit type(s): Drilling Pit

3. Is the site of the proposed facility underlain by an unconfined aquifer or recharge zone?
   ☐ Yes ☒ No

4. Is the hydraulic conductivity of the underlying soil or geologic material $\leq 1.0x10^{-7}$ cm/sec?
   ☒ Yes in unweathered bedrock ☒ No in the thin veneer of soil if present

5. 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

6. Is the proposed facility located within a 100 year floodplain?
   ☐ Yes (*Sensitive Area*) ☒ No (*If no, proceed to question #6.*)

7. 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.

8. 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 is one unnamed ephemeral drainage and four USGS identified intermittent drainages within one quarter mile of the existing facility. The facility, as it is currently constructed and planned to be expanded, limits flow directions of a potential release to the eastern and portions of the northwestern and southeastern sides. If a potential release were to migrate off the facility, flow would be directly towards the unnamed ephemeral drainage and USGS intermittent drainages to the northwest and southeast. All three drainage features are located within 500 feet of the facility which by COGCC decision would classify the facility as being in a sensitive area. However, the site visit revealed that all of the drainages features exhibit more ephemeral characteristics such as no ordinary high water mark and heavily vegetated bottoms including woody species of pinion and juniper. In addition, a potential release if it were to migrate into one of the above mentioned drainages, would have to flow a great distance (>4,500 feet) to impact any flowing surface water. The two USGS indentified drainages located 700 feet northwest and 1,200 feet to the southeast of the facility would not be impacted by any potential releases due to the fact they are separated from the facility by two pronounced ridgelines. There are currently very minimal Best management practices (BMPs) installed on the facility. It would be recommended that when the facility is expanded, BMPs in the form of an earthen perimeter berm be installed along any fill slope sides of the pad area. It would also be recommended that, if possible, a diversion ditch be installed along the bottom of the fill slope edges of the facility. These BMPs should be monitored and maintained to ensure site containment in the event of a release thus preventing flow from reaching the above mentioned drainage features.

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 in the immediate vicinity of the existing facility. The vegetative cover (pinion/juniper woodland) and the geologic setting of the facility do not indicate the presence of shallow groundwater. The nearest permitted water well is 4,605 feet northeast of the location, near Parachute Creek, at an elevation approximately 1000 feet lower than that of the existing facility. It has a depth to groundwater of 25 feet.

Based on the information collected during the site investigation and desk top review, the potential to impact actual surface water features has been deemed high. However the potential to impact any live flowing surface water has been deemed low as described above. The potential to impact groundwater has been deemed very low as well. Therefore the felicity can be designated as being in a non-sensitive area.

Inspector Signature(s): _____ Date: 08/08/2011

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

_____ Date: 08/08/2011

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