

Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC (WPX)		
Person(s) Conducting Field Inspection	Alex Nees, <i>Env. Scientist</i>	Finn Whiting, <i>Geologist</i>
	05-30-13	
Site Information		
Location:	GM 34-14	Time: 12:00PM
Type of Facility:	Proposed well pad expansion	
Environmental Conditions	Sunny, scattered clouds, light breeze, light rain previous evening	
Temperature (°F)	69	

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 unnamed USGS Identified Intermittent drainages both of which are tributary to the Colorado River.

If yes, describe location relative to facility: One unnamed intermittent drainage is located adjacent to the existing facility on the southwestern side; the second unnamed intermittent drainage is located approximately 977 feet to the east northeast 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 southwestern corner of the facility, flow would migrate directly into the unnamed intermittent drainage to the southwest.

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): Cuttings will be placed in a cuttings management area just to the northwest of the pad.

Is the site of the proposed facility underlain by an unconfined aquifer or recharge zone?

☐ Yes ☒ No

2. Is the hydraulic conductivity of the underlying soil or geologic material $\leq 1.0 \times 10^{-7}$ cm/sec?

☒ Yes ☐ No

3. 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

4. Is the proposed facility located within a 100 year floodplain?

☐ Yes (*Sensitive Area*) ☒ No (*If no, proceed to question #6.*)

5. 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.

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

☐ High ☒ Low

Additional Comments:

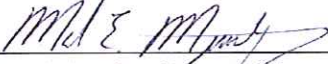
As stated in the surface water section of this sensitive area determination, there are two (2) unnamed USGS identified intermittent drainages. The first is located adjacent to the facility, as it is current constructed, on the southwestern side. The second unnamed USGS identified intermittent drainage is located approximately 977 feet to the northeast of the existing facility. The facility, as it is proposed to be expanded, will limit the direction of a potential release to the southwestern corner. If a potential release were to migrate off the southwestern corner, flow would be directly into the unnamed intermittent drainage. It is not anticipated the unnamed intermittent drainage to the northeast would be impacted by a potential release due to the fact a substantial ridgeline separates the facility from the drainage.


During facility expansion, it is recommended Best Management Practices (BMPs) be installed along the graded edge of the fill slope sides in the form of an earthen perimeter berm. Based on the topographical setting of the facility, it does not appear a diversion ditch could be constructed along the toe of the fill slope sides. However, if deemed feasible, one should be constructed to ensure site containment in the event of a potential release. Due to the substantial cut and fill that will be required during facility expansion, a portion of the unnamed intermittent drainage which was adjacent to the original facility layout will be covered. Rather than trying to divert flow around the expanded facility, consideration should be given in regards to installing an engineered culvert which would direct flow from the unnamed drainage underneath the expanded area. The inlet and outlet should extend a short distance from the edge of disturbance, especially on the outlet side, to allow for the installation of Bmps to further reduce impacts to the drainage from a potential release.

The State engineers Office and USGS records were reviewed and no records were revealed which would provide additional information pertaining to the depth to groundwater in the immediate vicinity of the facility. The vegetative cover in the immediate vicinity of the facility, consisting of sage brush, greasewood, snakeweed and bunch grasses, does not suggest the presence of shallow groundwater.

Based on the information collected during the field investigation and desktop review the potential to impact groundwater has been deemed to be low. The greatest potential for impacts is to the unnamed intermittent drainage which the proposed expansion will cover. Although the drainage exhibits more ephemeral characteristics in the immediate vicinity of the facility, it does exhibit evidence of periodic flow most likely during the spring snowmelt and seasonal precipitation events such as thunderstorms or brief periods of prolonged precipitation. During the site investigation, it was revealed that flow, when it occurs, is unimpeded the entire distance to the Colorado River. Therefore, if a potential release were to impact the drainage during periods of flow, there would be a high potential for impacts to the Colorado River. With the high

potential for impacts to surface water features and the Colorado River the facility should be designated as being in a sensitive area.

Inspector Signature(s):  Date: 5/30/2013
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HRL Compliance Solutions, Inc.

 Date: 5/30/2013
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HRL Compliance Solutions, Inc.