

Sensitive Area Determination Checklist

WPX Energy Rocky Mountain, LLC		
Person(s) Conducting Field Inspection	Jennifer Belcastro <i>Environmental Scientist</i>	01/29/13
Site Information		
Location:	RMV 108-4	Time: 1430
Type of Facility:	Existing Well Pad	
Environmental Conditions	Cloudy; frozen ground conditions with 2 feet of snow	
Temperature (°F)	22°	

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: Spruce Creek a USGS identified intermittent drainage and two (2) USGS identified unnamed intermittent drainages

If yes, describe location relative to facility: One (1) USGS identified unnamed intermittent drainage is adjacent to the northwest side, one (1) USGS identified unnamed intermittent drainage is located 257 feet to the southeast, and Spruce Creek is located 1,115 feet to the southeast 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 away from the existing facility flow would be to the northeast following the natural 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 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?

Yes No

If yes, List the pit type(s): Cuttings and fluids will be managed on the surface.

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 is one (1) unnamed USGS identified drainage located adjacent to northwest side and one (1) unnamed USGS identified drainage located 257 feet to the southeast of the existing facility. The facility, as it is proposed to be expanded, limits the direction of a potential release to the northeastern and a portion of the southeastern sides of the facility. If a release were to migrate off the facility, flow would be primarily to the northeast following the natural contours of the area. Therefore, flow would tend to be parallel to both drainages. In addition, the flat lying area to the northeast of the facility has a fairly substantial vegetative cover and the soils within the area have moderate to high infiltration rates further reducing the potential to impact the drainages. However, both could potentially be impacted in the event of a large release. It is not anticipated Spruce Creek would be impacted by a potential release due to the fact a ridgeline separates it from the existing facility. When the facility is expanded, a portion of the drainage which is adjacent to the current layout will be covered by the expansion. Therefore, during the site visit, both drainages were closely inspected to determine if there was evidence of periodic flow. Based on the field observations, it was noted that both drainages have a vegetated bottoms including several woody species indicating flow does not occur a vast majority of time, if at all, in the immediate vicinity of the facility. In order to further reduce potential impacts to both drainages, Best Management Practices (BMPs) should be installed, during facility expansion, in the form of an earthen perimeter berm around the graded edge of the facility along the fills slope sides. A diversion ditch should also be constructed along the toe of the fill slope sides of the facility which would be the entire northeastern side and portions of the northwestern and southeastern sides. All installed BMPs should be monitored and maintained to ensure site containment in the event of a release.

The State Engineer's Office and USGS records were reviewed and it was revealed that there are two permitted domestic water wells within a quarter mile of the facility. The depth to groundwater in both is in excess of 90 feet. In addition, the vegetative cover in the immediate vicinity of the facility does not suggest the presence of any shallow groundwater.

Based on the information collected during the site visit and desk top review, the potential to impact actual surface water features has been deemed to be moderate. The potential to impact any live flowing surface water has been deemed low. By COGCC decision the close proximity of the two drainages would classify the facility as being in a sensitive area. However, as noted above, both drainages exhibit ephemeral characteristics in the immediate vicinity of the facility. All fluids and cuttings will be managed on the surface thus reducing the potential for impacts to groundwater over a long period of time such as a leaking pit. With the potential to impact live flowing surface water and groundwater as being deemed low, the facility can be designated as being in a non-sensitive area.

Inspector Signature(s): Mark E. Mumby Date: 5/15/2013

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HRL Compliance Solutions, Inc.

Jennifer Belcastro Date: 01/31/2013

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