

August 27, 2018

Mr. David Kubeczko  
Oil & Gas Location Assessment Specialist  
Colorado Oil & Gas Conservation Commission  
796 Megan Avenue, Suite 201  
Rifle, Colorado 81650

**RE: Proposed Groundwater Monitoring Well Placement  
URSA Operating Company LLC BMC A Pad**

Dear Mr. Kubeczko,

Monitoring wells will be required as a Conditions of Approval (COA) per Garfield County and Colorado Oil and Gas Conservation Commission (COGCC) for the BMC A pad. We have a proposed monitoring well placement plan based on geological information in the area and from experience with the nearby BMC B pad. The BMC B pad has three monitoring wells and two additional soil borings providing a lot of information on the groundwater in this area. Garfield County and the COGCC requested that one upgradient and two downgradient wells be installed to monitor the ground water quality.

The 5 (five) drilling locations in the area (two soil borings and three monitoring wells on the BMC B pad) have provided ample information to allow a professional determination of ground water flow direction. Ursa and HRL Compliance Solutions (HRL) believe the proposed monitoring well locations will adequately represent the water quality for this location.

Based on currently available data and past experience drilling in river gravel deposits URSA would propose the following;

- The upgradient monitoring well (MW01) will be installed near the west corner of the well pad as depicted in Figure 1. It will be drilled to the top of the river gravel and penetrate the gravel to a depth of ten (10) feet. The well will be screened with a screen length long enough to accommodate the seasonal fluctuations in the water table. This well is not directly in the upgradient flow due to the large elevation change directly to the south of the location making installation of a MW south of the pad impossible. Putting the MW on top of the bluff would also not be possible due to a large transmission power easement directly atop the bluff.
- The first downgradient monitoring well will be installed just to the north of the middle of the pad (MW02 - Figure 1). As with the upgradient well, the downgradient well will be drilled to the top of the river gravels and then penetrate the gravel to a depth of ten (10) feet. The well will be screened with a screen length long enough to accommodate the seasonal fluctuations in the water table.
- The second downgradient monitoring well (MW03) will be installed off the center of the northwest corner of the well pad (see Figure 1). As with the other two wells, this well will be



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drilled to the top of the river gravels and then penetrate the gravel for a depth of ten (10) feet. The well will be screened with a screen length long enough to accommodate the seasonal fluctuations in the water table.

With these initial wells, it is the professional option of HRL that an accurate direction of groundwater flow can be determined from these three wells. If the water level data would indicate the need for an additional well(s), a progressive approach can be implemented based off the data from the newly installed wells to:

1. Ensure the number of additional wells that may be needed is accurate and;
2. The placement of these wells will provide for timely detection of potential contaminants that may affect the Battlement Mesa Public water supply.

If you have any questions or need additional information please contact us.

Sincerely;

URSA Operating Company, LLC

Dwayne Knudson  
Environmental Manager

Cc: Cari Mascioli, Ursa Operating Company LLC

Attachments: Proposed Monitoring Well Location Map



