STATE OF COLORADO

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Fwd: 2019 AHR for King Coal

Simmons - DNR, Leigh <leigh.simmons@state.co.us> Fri, Dec 4, 2020 at 2:26 PM
To: "Zuber - DNR, Rob" <rob.zuber@state.co.us>
Cc: "Binns, Janet" <janet.binns@state.co.us>, Jason Musick <jason.musick@state.co.us>

Rob,

My memo is attached.

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COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

Interoffice Memorandum

December 4, 2020

From: Leigh Simmons
To: Rob Zuber

Subject: **King Coal Mine (Permit No. C-1981-035)**
AHR/Water Quality Parameter Suite Comments

You requested that I review a memo submitted by Resource Hydrogeologic Services (RHS) on behalf of GCC Energy (GCC) in relation to the 2019 Annual Hydrology Report review.

In the memo RHS proposes that the suite of water quality parameters monitored at groundwater, spring & seep, and surface water monitoring sites be reduced from a "baseline suite" to a "compliance suite". My review applies principally to groundwater monitoring.

For context, I also reviewed the 2019 AHR and CDPHE Regulation 41 – The Basic Standards for Groundwater (Reg. 41). My general comments are given below:

1. On page 4 of the AHR the text states "…it is important to note the red highlighted parameters, which were added to the pre-2016 compliance list as part of the one-year baseline period for these monitoring locations." In a 2016 review memo it was noted that the approved suite of water quality parameters in the Permit Application Packet (PAP) was inadequate, but that it was under revision at the time (with TR-20, -24 and/or -26). It is appropriate to ignore the pre-2016 list of parameters for the purposes of this discussion.

2. As has been stated in greater detail elsewhere (see DRMS Groundwater Monitoring and Protection Technical Bulletin), the Division does not have the authority to classify groundwater or to set standards for groundwater quality, however it does have the authority and the legal obligation to establish points of compliance at which those standards set by the Water Quality Control Commission (WQCC) must be met. With this in mind, the Division refers to tables 1–4 of Reg. 41 when establishing suites of parameters for groundwater monitoring. Currently GCC does not monitor all of the parameters in these tables.

3. In addition to site characterization, an important purpose of baseline water quality monitoring is to establish a baseline against which future impacts to water quality can be compared, and to allow the predictions made in the Probable Hydrologic Consequences section of the PAP to be verified. (I am not aware of other permitted sites where a "compliance suite" of water quality parameters has been established in addition to a "baseline suite", though I have not conducted extensive research)

4. In the memo RHS discusses five parameters specifically. Brief comments on each them are given below:

a. Silica (SiO_2) is not a parameter that appears in tables 1-4 of Reg. 41. The Division does not generally require silica in groundwater to be monitored, and does not have a standard to evaluate silica levels against.
b. Mercury (Hg) is a parameter of interest when assessing water quality; numerical standards have been established. The Division does not endorse or dispute here the prediction that GCCE will not mobilize mercury at the King Mine, but does not agree that this prediction justifies the termination of mercury monitoring.
c. Total Nitrogen as Nitrate-Nitrite is a parameter of interest when assessing water quality; numerical standards have been established. As the RHS memo states, it is useful when analyzing the possible causes of impacts to water quality. If future monitoring were to show changes in Nitrate-Nitrite in groundwater it might suggest surface water influence on groundwater and might help GCC to account for changes in other parameters. It would not be prudent to terminate the monitoring of this parameter.
d. Oil and Grease is a fundamental surface water quality parameter. Given that mining operations require the use of fuels and lubricants it would not be appropriate to terminate the monitoring of this parameter.
e. Uranium (U) is a parameter of interest when assessing water quality; numerical standards have been established. The Division accepts the assertion that uranium is not commonly associated with the hydrologic impacts of coal mining (uranium is not monitored at the West Elk, Colowyo or Foidel Creek Mines for example), however there is natural variation in uranium occurrence in coal, as well as in the potentially impacted surrounding bedrock. The Division could consider an application for the termination of uranium monitoring, if presented with supporting evidence in a technical revision.