STATE OF COLORADO

Simmons - DNR, Leigh <leigh.simmons@state.co.us>

Request for Leigh's help with GW review

Simmons - DNR, Leigh <leigh.simmons@state.co.us> Thu, Feb 17, 2022 at 5:15 PM
To: "Binns - DNR, Janet" <janet.binns@state.co.us>
Cc: Travis - Marshall - DNR <travis.marshall@state.co.us>, Jason Musick <jason.musick@state.co.us>

Janet,

Please find my memo attached.
I hope I've addressed the issues you and the operator were concerned about, but if not please let me know and I will expand on the points I've made in the memo.

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Environmental Protection Specialist

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Department of Natural Resources

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On Wed, Dec 22, 2021 at 11:54 AM Binns - DNR, Janet <janet.binns@state.co.us> wrote:
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COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

Interoffice Memorandum

February 17, 2022

From: Leigh Simmons
To: Janet Binns

Subject: **New Horizon North Mine (Permit No. C-2010-089)**
RN-2

As you requested, I reviewed the material submitted with the RN-2 application pertaining to groundwater monitoring and standards. I also reviewed the groundwater portions of the currently approved permit application packet (PAP) and the 2021 Annual Hydrology Report.

No changes to the groundwater portions of the PAP have been proposed with RN-2.

The currently approved PAP describes the groundwater monitoring program on Page 4 of Section 2.05.6(3). Further details of the monitoring plan are given in Appendix 2.05.6(3)-3. Locations of the monitoring points are shown on Map 2.04.7-1; the map also shows the locations of other permitted wells.

The groundwater monitoring network at New Horizon North (NHN) comprises three clusters of three wells. Each cluster contains a monitoring well in the underburden, the Dakota coal aquifer and the overburden. The clusters are located so as to provide monitoring up- and down-gradient of NHN mine workings. GW-N56, 57 and 58 have been identified as groundwater Points of Compliance (POC).

	Upgradient	Downgradient	POC
Underburden	GW-N50	GW-N53	GW-N56
Coal	GW-N51	GW-N54	GW-N57
Overburden	GW-N52	GW-N55	GW-N58

Generalized details of the well completions are given in Appendix 2.04.7-1, together with baseline monitoring data from GW-N50 through 55 (which was initiated in October 2008).

Completion diagrams and baseline data for the POC wells, GW-N56 through 58, were added to Appendix 2.04.7-1. Monitoring of these wells began in August, 2012.

The 2021 Annual Hydrology Report presents graphs showing a complete time series of several water quality parameters from the 9 wells in an easy-to-read format. There seem to be some errors in the AHR

narrative (confusion between underburden and overburden, for example). The AHR does not present water elevation data, which may be helpful when trying to explain specific trends.

Comments:

1. There are no adequacy issues related to groundwater monitoring that should delay the approval of RN-2.

2. The PAP has clearly established groundwater points of compliance where impacts to groundwater quality will be assessed.

3. Groundwater in the area has not been classified by the Colorado Water Quality Control Commission (it is not listed in REGULATION NO. 42 - SITE-SPECIFIC WATER QUALITY CLASSIFICATIONS AND STANDARDS FOR GROUNDWATER), so the applicable standard at the POC wells is the Interim Narrative Standard (INS) from REGULATION NO. 41 - THE BASIC STANDARDS FOR GROUNDWATER.

4. Although baseline data prior to 1994 does not exist, the groundwater monitoring plan established at the mine is such that it is appropriate to use more recent data from the site when applying the INS (as opposed to relying on table values from Reg. 41).

5. It is premature for the Division to consider terminating the groundwater monitoring program at this point, so a final evaluation of impacts to groundwater cannot yet be made. If the operator wants to establish numerical parameter values to be used when applying the INS at the POC wells in the future, I would encourage them to submit a Technical Revision with suggested values and a rationale. From my reading of section 2.05.2 of the PAP it appears that monitoring of GW-N56, 57 and 58 preceded the mining of any coal at the site, although I would ask for further clarification on the precise times of the different stages of disturbance.