



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

Interoffice Memorandum

December 7, 2022

From: Leigh Simmons
To: Brock Bowles

**Subject: New Elk Mine (Permit No. C-1981-012)
PR-6**

As you requested, I reviewed the Probable Hydrologic Consequences material submitted by New Elk Coal Company (NECC) with the PR-6 application and the initial adequacy review response. I have focused my comments on issues relating to Rule 2.05.6(3), and have referenced other rules as necessary.

PR-6 seeks to expand the permit area by 843.3 acres to the east, and to change the mine plan to allow for room and pillar mining in the Blue Seam. It does not propose new surface disturbance. The proposed mine plan calls for an extension of previously approved workings in the Blue seam. The total area of proposed new workings is around 290 acres (per Map 3). The plan specifies that the mining method will be room-and-pillar, with no secondary or retreat mining in the PR-6 area. In section 2.05.6(3), the applicant states that "subsidence is not anticipated".

The following items should be addressed in the adequacy correspondence:

Rule 2.04.7 Hydrology description

1. On proposed page 2.04-25a the applicant states:

There are a total of twelve potential springs and seeps sites identified within a one-mile buffer of the PR-6 permit boundary. Locations of these springs and seeps are shown on Map 8 and are summarized in Table 11a, Preliminary Spring/Seep Locations.

And later:

As part of the hydrology sampling the springs and seeps will be monitored as well as their locations confirmed. Parameters measured will included pH, flow, conductivity, and temperature. The results of this inventory will be presented in Table 12, Results of Field Spring and Seep Inventory.

Please update Tables 11a and 12.



Rule 2.05.6(3) Protection of hydrological balance

2. It is acknowledged in the introduction to the Probable Hydrologic Consequences (PHC) section of the currently approved PAP text that one of the factors that could impact the hydrologic balance of the area is subsidence. On page 2.05-71 the following text has been proposed to be added:

The mining method and extraction of coal will use room and pillar mining. For the Blue Seam, no secondary or retreat mining is planned and subsidence is not anticipated. Mining in the PR6 area will occur in only the Blue Seam. This area was previously included in the Golden Eagle permit area where mining occurred only in the Maxwell Seam and mining in this seam did not occur in the PR-6 area. As a result, there are no seams above or below the Blue Seam that may contribute to potential subsidence. Thus, impacts to surface water resources or groundwater wells in the area of mining should not occur but monitoring of these resources and subsidence will identify any effects of mining.

The assertion that the proposed Blue Seam mining will not cause subsidence has not been supported. Although it is accepted that the subsidence impacts of room and pillar mining without retreat mining will be less than with retreat mining, it cannot be true that there is no potential for subsidence under any circumstance.

The currently approved text mentions a minimum depth of cover of 450 feet over the Apache Seam, but does not discuss the depth of cover over the Blue Seam. Based on a review of the revised maps (Map 3 Blue Mine Plan, Map 6A Sheet 5 Blue Seam Depth of Cover, and Map 7 Coal Seam Cross Sections), it appears that the depth of cover above the Blue Seam could be quite shallow, particularly at the point where the proposed workings approach the Purgatoire River. For example, Map 7 shows a depth of cover of 91 feet at A-19, and 82 feet at NE-01-10.

The potential for subsidence associated with the updated mine plan should be thoroughly evaluated, as is required by Rule 2.05.6(6). It is likely that this will involve an engineering study similar to the 2011 Agapito study found in Exhibit 24. The results of this study should be referenced when evaluating the PHC.

The text should also be updated to mention unambiguously the minimum depth of cover to the Blue Seam workings.

3. Also on page 2.05-71, the currently approved PAP text contains a paragraph beginning:

Well records from CDWR indicate that there are 19 permitted wells in the Raton Formation within a one mile radius of the permit boundary...

The text goes on to refer to Exhibit 8(4), which contains a 2011 report produced by Whetstone Associates. No revisions to the currently approved text or to Exhibit 8(4) have been proposed.

The Whetstone report was produced to examine the probable hydrologic impacts of an earlier revision to the mine plan (room and pillar mining in the Allen and Apache seams to the south and east of the previously approved mine plan), and forms the basis of the currently approved analysis of the probable hydrologic consequences of mining.

Although the changes to the mine plan with PR-6 are less significant than those previously proposed with PR-5, they merit greater analysis than has been presented to the Division at this point.

A thorough analysis should be made of the Probable Hydrologic Consequences of the mine plan proposed with PR-6, as is required by Rule 2.05.6(3). It is likely that this will involve at least an addendum to the 2011 Whetstone study found in Exhibit 8(4). The PAP text should be updated with reference to the study.

4. A revised version of Map 8, Regional Hydrology, has been submitted. During the revision process the map frame was reduced, so that the western end of the permit area has been clipped off. Although the changes proposed with PR-6 are to the east of the current permit area, the information to the west should be retained.

Please revise Map 8 to restore the coverage of the area to the west.

5. The hydrologic monitoring plan is presented on pages 2.05-104 through -110 of the PAP. The currently approved plan was appropriate for the New Elk mine prior to PR-6, while the mine was inactive; it is not appropriate for an active mine, or for the mine plan proposed with PR-6.

Please review and update the hydrologic monitoring plan, in accordance with the performance standards given in Rule 4.05.13. Please also propose locations for Groundwater Points of Compliance as appropriate. It may be helpful to refer to the Division's Groundwater Monitoring and Protection Technical Bulletin for guidance; the technical bulletin is available from the DRMS website: <https://drms.colorado.gov/programs/coal-regulatory-program/coal-program-guidelines-and-technical-documents/technical>