

December 27, 2023

Mr. Leigh Simmons
Colorado Department of Natural Resources
Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203
August 16, 2021

Re: West Elk Mine (Permit No. C-1980-007)
Technical Revision No. 152, (TR-152)
Initial Adequacy Review

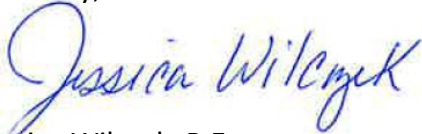
Dear Mr. Simmons,

Mountain Coal Company, LLC (MCC), Permit No. C-1980-007, submits this letter and attachment in response to your adequacy letter dated December 12, 2023, regarding MCC's TR-152 application for the West Elk Mine.

MCC has included with this response a revision of the table that was included on page two of the SL-16 application. Sites that were not reclaimed have been removed from the table.

Please contact me with any other questions or concerns.

Sincerely,



Jessica Wilczek, P.E.
Manager of Engineering and Environmental Affairs

Rules 2.05.2 & 2.05.3 Operation Plan

1. Please update Section 2.05.2 of the Permit Application Packet (PAP) with a detailed description of the mining method proposed with TR-152. Please include a reference in the text to the Agapito study (which should be included as an Exhibit in the PAP).

A detail description of retreat mining has been added as well as a reference to Exhibit 84, which is the Geotechnical Assessment For The Purpose Of Pillar Extraction Between 2 And 30 Crosscuts In Sunset South Mains completed by Agapito and dated December 27, 2023.

2. Please review and update the discussion of Recovery Rates and Recoverable Reserves in Sections 2.05.2 and 2.05.3.

Sections 2.05.2 and 2.05.3 have been updated.

3. Please update Tables 28, 29 and 32, to reflect the current Mine Plan. (In your response to items 2 and 3, please ensure that the increase in coal production associated with the mining method proposed with TR-152 is discussed explicitly. Although it may not seem to be directly related to TR-152, a discussion of the adverse mining conditions in panels SS-1 through SS-4, and the subsequent reduced production compared to what had been anticipated and approved, will be helpful for reviewers)

Tables 28, 29 and 32 have been updated, as well as a discussion on the adverse mining conditions in Sunset South and how that effected projected production numbers.

Rule 2.05.6(6) Subsidence Survey, Subsidence Monitoring, and Subsidence Control Plan

4. Section 2.05.6(6) of the PAP contains a thorough discussion of subsidence at the West Elk Mine. Please review and update as necessary all of Section 2.05.6(6), with particular attention to the text on and following Page 2.05-120, where subsidence and subsidence-

like features over development workings are discussed. The currently approved text refers to Exhibit 60E, Appendix A, for a minimum depth of cover over development workings. An expansion of this analysis would be appropriate with TR-152 (since the mining method proposed is neither longwall mining, which has been extensively discussed, nor traditional room-and-pillar mining). In the text, either directly or by reference to an exhibit, please provide a commitment to a depth-of-cover range outside of which pillar extraction would not be considered. (Items 5 and 6 are taken from Zach Trujillo's review of the Agapito study. His full review memo is included as appendix to this letter).

Section 2.05.6(6) of the PAP has been updated to include references to Exhibit 84.

5. Two different in-situ coal strength values were used in the Agapito study. An in-situ coal strength of 900 psi was used in the empirical modeling while a value of 1,180 psi was used in the numerical modeling. Please provide the Division with additional rationale on why two different in-situ coal strength parameters were used in the modeling process.

900 PSI is the standard coal strength for the empirical coal pillar strength calculations. The numerical modeling uses 1180 PSI which comes from a back analysis of the conditions at West Elk using LaModel. These numbers are not a like by like comparison, it is not appropriate to use the strength from the back analysis in the pillar strength calculations because it is not possible to get an intact strength on coal due to the amount of cleating present in coal. Using 900 PSI for the empirical pillar calculations is a conservative assumption and is standard practice.

6. It was observed within the LaModel results that one section along the route of the life-of-mine roadway appears to show SF range of 0 – 0.5 along adjacent pillars which would indicate failure (see Figure 1 of the attached memo). Please ensure the pillar extraction design maintains the integrity and safety of the proposed life-of-mine roadway or provide additional clarification regarding the modeling results for this section of the Sunset Mains South.



Jessica Wilczek, P.E.
Manager of Engineering and Environmental Affairs
Main: (970) 929-2308
jwilczek@archrsc.com

Following a submittal to MSHA the amount of mining has been reduced. The Agapito report and modelling has been updated to show this and addresses the above issue. The updated report is included with this submittal.

Mountain Coal Company, L.L.C.
A subsidiary of Arch Resources, Inc.
West Elk Mine
5174 Highway 133
Somerset, CO 81434
(970) 929-2200
archrsc.com