



## INTEROFFICE MEMORANDUM

TO: Leigh Simmons

FROM: Clayton Wein

DATE: 1/26/2021

**SUBJECT: West Elk Mine TR-149 Subsidence Evaluation for Development Mining in the South Prong Creek/Sunset Trails Area Review**

Hi Leigh,

As requested, I have reviewed the West Elk Mine's TR-149 Application with regard to the sections addressing subsidence from development mining of the South Prong Creek and the Subsidence Control Plan. After review of the submitted materials I have the following comments:

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

#### **Rule 2.05.6(6)(b) –**

1. The proposed revised text states that the worst possible impacts from subsidence from development mining are included in Appendix A of Exhibit 60E. The appendix discusses that the worst possible effects from a chimney type failure over the development roadways was calculated to be between 50 and 60 feet. The appendix assumes that the upper 50 feet of overburden is saturated in the area of perennial streams. The 50 foot thickness was then added to the calculated 50 to 60 foot zone of potential chimney failure. Thus the recommendation of a minimum overburden thickness of 110 feet was created for areas of development mining under perennial streams. Proposed text in Exhibit 55B contains data specific to South Prong Creek and the predicted effects of subsidence specifically on the stream channel. The pre mining slope of the channel was approximately 18.1%. Subsidence of the channel is predicted to decrease the slope over subsided areas by a maximum of 3.7%. Areas upstream from subsided lands will have predicted maximum increase in slope of 1.5%. The maximum predicted changes in the stream channel will not result in the stream having any flat slopes or negative slopes along the channel. Figures 27A and 27B of Exhibit 55B illustrate these calculations using data from Table 3 of Exhibit 55B.

#### **Rule 2.05.6(6)(f) –**

2. TR-149 proposes revised text to section 14, Subsidence Control Plan, of Exhibit 60E.



The proposed text, 14.3 is specific for incorporating development mining activities into the Subsidence Control Plan. The text points the reader to the new Appendix A for specific details of the data for the subsidence control of development mining. Appendix A is a technical memo that includes calculations and schematics used to develop the worst possible case of subsidence of a perennial stream over development mining activities.

3. Rule 2.05.6(6)(f)(i) - The proposed revised text contains a description in Exhibit 60E, Appendix A, of the physical conditions, seam thickness, and lithology that affect the likelihood or extent of subsidence and subsidence-related damage that is predicted to occur over development mining areas.
4. Rule 2.05.6(6)(f)(ii)(B) – The proposed Appendix A contains the location and the extent of the area in which planned subsidence mining methods will be used, including South Prong Creek (in the Sunset Trails Area) where measures will be taken to prevent or minimize subsidence and subsidence related damage. Appendix A recommends that the West Elk Mine only use development mining methods when the overburden thickness is at least 110 feet.

#### **Rule 4.20.1 – Subsidence Control General Requirements**

5. Rule 4.20.1(1) – TR-149 proposed materials includes information for Underground mining activities in the South Prong Creek Area that are planned to prevent subsidence from causing material damage to the surface, to the extent technologically feasible, so as to maintain the value and reasonable foreseeable use of surface lands.
6. Rule 4.20.1(2) – Materials submitted with TR-149 comply with all provisions of the subsidence control plan in accordance with Rule 2.05.6(6).
7. Rule 4.20.1(3) – With the proposed materials provided with TR-149, the operator has submitted a detailed plan of the underground workings. The plan included maps and descriptions in Exhibits 55B and 60E of significant features of the underground mine, including the size, configuration, and approximate location of pillars and entries, extraction ratios, measures to prevent or minimize subsidence and related damage, areas of full extraction, and other information requested by the Division for good cause shown.

Sincerely,  
Clayton