

WWE
MEMORANDUM

To: Jessica Wilczek, P.E.
Mountain Coal Company
Via Email

From: Wright Water Engineers, Inc.
Jonathan Kelly, P.E.

Date: November 3, 2023

Re: Hydrologic Consequences of Pillaring in the Sunset Mains South

Wright Water Engineers, Inc. (WWE) has evaluated the hydrologic consequences of pillaring in the Sunset Mains South. WWE had previously analyzed the subsidence associated with the longwall mining in the adjacent panels and found that the mining would not have adverse effects on the hydrology of the overlying stream channels. Our findings were documented in Exhibits 55B and 60E of the mine permit.

Agapito Associates modeled the projected subsidence resulting from the pillaring in the mains. Their results indicate that the maximum subsidence would be up to 3 feet, and this would be limited in areal extent. WWE imported the Agapito modeling results to analyze the potential impact on the stream channels in the vicinity of the pillaring activity.

Lick Creek and tributaries of South Prong are within the influence of the projected subsidence resulting from the pillaring activity. The maximum subsidence underlying the stream channels is limited to 1 foot. WWE evaluated the potential for the projected subsidence to impact the stream channels within these drainages and found that there should not be hydrologic impacts. These streams have previously been undermined by longwall mining that resulted in significantly larger subsidence without experiencing any change in flow characteristics. The steepness of the channel grades and the ability of the alluvial and colluvial materials to heal and/or seal following differential subsidence has resulted in no observable impacts to these streams. The small amount of projected subsidence resulting from the pillaring in the Sunset Mains South is not expected to adversely affect the hydrology of Lick Creek and South Prong drainages.

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