ARCH
WEST ELK

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Mountain Coal Company, LLC
A subsidiary of Arch Resources, Inc.
West Elk Mine
5174 Highway 133
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October 25, 2021

Mr. Leigh D. Simmons
Colorado Division of Reclamation, Mining and Safety
Office of Mined Land Reclamation
1313 Sherman Street, Room 215
Denver, Colorado 80203

Re: Adequacy letter for Minor Revision No. MR-456 Revised Road and MVB Pad Locations for Longwall Panels SS3 and SS4, as well as Portable Creek Crossing Bridges

Dear Mr. Simmons:

Mountain Coal Company, LLC (MCC) submits this response to the Adequacy letter dated October 21, 2021 requesting more information on the portable bridges as well as installation, transportation and removal of the bridges.

MCC budgeted to purchase two portable bridges. The proposed bridge(s) are prefabricated, temporary, portable hinged bridges. The majority of the bridge is fabricated from steel and the majority of the deck will be wooden with a small center portion of the deck being steel. The proposed bridge(s) would range between 12 and 14' wide and 20 to 40' long.

The bridge will be able to be hauled on a tilt deck winch truck, or alternatively skidded with and excavator or dozer. When the bridge is set, an excavator and/or dozer will be used to position the bridge across the crossing. Depending on the topography of the creek crossing, road base and/or rock will be used on each end to build a ramp onto and off the bridge. The alternative to this will be to dig a notch at each end of the bridge so to place the deck level with the existing ground surface. The same equipment and process will be used to remove the bridge and transported to future locations. Attached are pictures of example bridge installation, use and transport.

This information has been added to revised page 2.05.3 Page 30-31, attached

Sincerely,

Nicole Poulos

Nicki Poulos,

Environmental Engineer







Monitoring, Sampling, Drilling and Other Temporary Facilities or Operations

As needed on occasion, MCC will construct monitoring, sampling, drilling and/or other temporary facilities or operations, along with access to them, in order to supplement design or compliance data, as well as ventilation or other needs for the mine operations. As with all of MCC's permanent facilities and operations, these facilities will be constructed, operated and reclaimed in compliance with the Regulations of the CMLRB for Coal Mining, particularly Rule 2.05. All necessary clearances, such as cultural resource reviews by the State Historic Preservation Office, will also be provided.

Accesses to such facilities will typically be field-designed and constructed as described in the light-use road discussions above. No drainage alteration or relocation would typically be required for such construction. Temporary culverts would be used to provide access crossings, or low-flow fording or dry drainage crossings could be constructed in drainage areas of less than one square mile. These facilities will also be constructed more than 100' of a public road right-of-way (except where mine roads join these rights-of way). A temporary pipe was used to reroute the flow of South Prong Creek, in accordance with methods described in section 2.05.6(6)(f), when a 0.01 acre subsidence hole developed at the confluence of the North Fork of South Prong Creek and South Prong Creek on MCC's property. About 280' of temporary 6" PVC pipe was laid on the ground surface and a make-shift sump was constructed out of soils and tarps. The accumulated streamflows were then routed into the temporary diversion pipe until the streambed was repaired and reclaimed.

As stated in the "General Construction Procedures" discussions above, the "Hydrologic Protection During Construction" discussions below, and the "Reclamation Plan" discussions in section 2.05.4 of this permit document, the reclamation of all areas will be such that the areas will be stabilized, the hydrologic balance not impacted, topsoil salvaged, stored and replaced, and disturbed areas revegetated. The soils that are salvaged will be stockpiled in windrowed berms along the accesses and/or pads or stockpiled nearby. To reclaim these sites, the soils will be returned and compacted in most areas to the approximate original contours. Topsoil salvaged from the sites will be redistributed as evenly as possible over the recontoured areas and accesses. The soil surface will be scarified, if need be, and seeded with MCC's approved seed mixture per Table 37.

For soil and geotechnical borehole sampling, soil auger diameters are typically 10" and bedrock test holes are typically 4" in diameter. These boreholes will vary in depth, but are typically less than 50' deep. Ventilation boreholes, gas or water monitoring wells will also vary in diameter and depth. Specific information on the configurations of these facilities will be provided in subsequent revision applications that will be included in Exhibit 80 after approved. As further described in section 2.05.4(6) of this permit document, drill holes and other borings will be sealed, backfilled and reclaimed in accordance with Rule 2.05.4(2)(g). Soil and geotechnical boreholes are backfilled by returning rock cuttings and soil materials into the boreholes. Borehole and drill hole sealing is also aided by natural healing through soil bridging.

As stated in section 2.05.5 "Post Mining Land Uses", wildlife and livestock grazing will predominately be the post-mining land-use. As also discussed in that section, should these sites later be utilized as a coal refuse pile, the reclaimed area will also serve the same post-mining land use.

MCC may use prefabricated portable hinged bridges for temporary stream crossings. These bridges are fabricated from steel with a wood deck and center steel portion and are up to14' wide and 40' long. The bridges will typically be hauled on a tilt deck winch truck, or alternatively be skidded with an excavator or dozer. To set the bridge in place, an excavator and/or dozer will be used to position the bridge across the stream crossing. Depending on the topography of the creek crossing, road base and/or larger rock will be used on each end to build a ramp onto and off the bridge. An alternative would be to dig a notch at each end of the bridge so to place the deck level with the existing ground surface. The same equipment and processes will be used to remove the bridges and transport them to future locations.

Because most of these sites and accesses are located in remote areas and/or not on previously disturbed ground, alternative sediment control measures will be utilized, including best management practices such as straw bale dikes,

silt fence, natural vegetative debris, excelsior or straw waddles, and/or sediment traps. If a sediment pond is in the vicinity of the site, drainage could be routed to the pond.

(4) Ponds, Impoundments, and Diversions

During the course of construction and operation of the mine facilities at West Elk Mine, every effort is made to minimize water pollution. It is MCC's intent to discharge water from sediment ponds, Small Area Exemptions, and from the mine in compliance with all applicable effluent limitations. To fulfill this commitment, all surface drainage from the affected mine area is collected and treated prior to being discharged from the permit area. All surface runoff from undisturbed areas is directed away from the affected mine area through diversion channels. Maps 54, 54A, and 54B show the distribution of sediment control structures at West Elk Mine. Map 54 and Map 54A identify the sub-watershed drainage basins, tributary drainage basin information, and ditch/culvert layouts in conjunction with the main surface facilities area and Lone Pine Gulch, respectively. Maps 1E, 2E and 3E in Exhibit 66 identify the watersheds in the Sylvester Gulch Facilities Area. Map 54B shows the ditch and culvert locations in conjunction with the Sylvester Gulch Facilities Area. The following sections deal with each specific hydrologic protection measure.

Hydrologic Studies and Methodology

Studies have been completed to estimate the peak runoff and flood volume for storms having specific recurrence intervals for the West Elk Mine area. Exhibit 44 is the Merrick and Company report used in the design of the original sedimentation ponds MB-1 (converted to FW-2)), MB-2, and MB-3, and associated ditches and culverts. This report was submitted to the State Engineer for the approval of these three original sedimentation ponds, as well as freshwater pond FW-1. Approval was received on February 3, 1981, and is included in Exhibit 45. Exhibit 66 contains the current designs for ponds MB-3. The Exhibit 43 and Exhibit 44 designs are no longer valid for ponds MB-2 or MB-3. Exhibit 66 contains an as-built drawing that reflects the addition of a dike in pond MB-1 to create a north and south cell. However, the drawings included in Exhibit 43 do accurately reflect other structures associated with pond FW-2 (formerly pond MB-1) including the primary and emergency spillway designs. Exhibit 66 also contains the design information for SG-1 located at the Sylvester Gulch Facilities Area. See Exhibit 46 for the original design specifications and for the current designs for MB-4, Unit Train Loadout Sedimentation Pond. Pond MB-4 was relocated in 1998 from the east side of the train load-out to an area west of the load-out between two sets of train tracks. The relocated sediment pond is constructed of concrete and is preceded by an oil skimmer and a sediment trap. New sediment pond MB-5E replaces sediment ponds MB-1, MB-2R and MB-5. Design criteria for the original pond MB-5 are contained in Exhibit 47, and designs for the new pond MB-5E are located in Exhibit 47A and in Exhibit 66. Pond MB-1 was converted to Freshwater pond FW-2 and Ponds MB-2, MB-2R, MB-5 and MB-6 no longer exist. Design criteria for the Refuse Pile Expansion (RPE) pond, designated the "RPE" pond, are included in Exhibit 70.

Hydrologic Design of Runoff Ponds

Five stormwater sediment control structures are used as settling ponds for stormwater runoff from the mine site. These ponds have been designed according to CDRMS regulations (see Exhibits 43, 47, 66, and 70).

These ponds have been constructed to contain an estimated three years of sediment storage volume and a runoff storage volume resulting from the 10-year 24-hour rainfall event. Sediment will be excavated, allowing for additional storage, when sediment has reached the maximum storage capacity. Sediment volumes are estimated by a quarterly visual evaluation. The smaller ponds, MB-3 and MB-4, are usually dry during a portion of the year and sediment levels, relative to the primary discharge structure elevations, can be visually determined. The larger ponds usually contain water and visual evaluations are less accurate. These ponds, MB-5E, SG-1 and RPE ponds, will be surveyed at least every three years to determine the actual sediment levels.