

A file search of the Colorado Inventory of Cultural Resources by the Colorado Historical Society revealed that no cultural properties in the proposed impact area. These results are presented in Exhibit 7, Archeologic Information.

The intensive field investigations recorded no significant cultural resources. The only phenomena of cultural origins observed in the area was a stock pond, located in the drainage bottom immediately north of the highway (Figure 2, Regional Map Showing Locations of Project Area). This feature consists of an earthen dam piled in a curvilinear shape across the width of the drainage. A small pond (now dry) is impounded behind this embankment. It is considered to be of fairly recent age.

No significant cultural resources were observed on the PPA. Though the likelihood of cultural resources being found in this area is greater than for the RDA, that possibility was negated by deposits of underground development waste.

No cultural resources were recorded in the proposed project area. Consequently, no further archaeological work is considered to be necessary in those localities and clearance is recommended.

During 2011 a Cultural Resource Inventory was performed on the proposed RDA#1 expansion area and the associated RDA#1 geotechnical investigation area. One site was recorded. The site is not within the area of proposed disturbance. The report is located in Exhibit 7.

A Permit Revision (PR-5) was filed for mining the Blue Coal Seam north of the Purgatoire River. A study of the geologic structure of the area and the mine plan was completed to determine if subsidence from mining would affect the land surface. Based on multiple pillar stability analyses conducted using the ACPS program, the proposed pillar layout provides a pillar stability factor of 2.0 as recommended by NIOSH for long term stability. Given the categorization of long-term stable pillars, it is highly unlikely that development mining at the New Elk Mine will initiate surface settlement as a pillar stability factor of 2.0 provides long term stability to the immediate and main roof (Newman 2022). As a result, NECC has not completed an intensive cultural resource survey of the PR-5 area.

A Technical Revision (TR-76) was filed for adding a new haul road on the railroad bed from the mine east to the intersection of the CP&W entrance road to the State Wildlife Area. A cultural resource survey was conducted and is included in Exhibit 7. No new cultural resources were identified in the area of potential disturbance for the road.

2.04.5 General Description of Geology and Hydrology

2.04.5 (1a, b and c)

A thorough description of the geology and hydrology, including surface and groundwater systems, water quality and water quantity within the proposed permit area and region are contained within the following sections of 2.04.6 and 2.04.7. All pertinent information on the geology and hydrology, as set forth by the regulations, are made available to the Division.

Geologic and hydrologic maps of the mine plan area (**Map 5-Regional Geology, Map 6- Surface and Bedrock Geology (Refuse Area) and Map 8-Regional Hydrology**) present the baseline conditions in the permit area. Due to the proximity of the Golden Eagle and New Elk Mines to each other, historical baseline data for both mines have been considered in defining the geologic and hydrologic environments.

2.04.5 (2)

Approved hydrological modeling techniques have been utilized as part of this permit application and data used in modeling is made readily available within the document in 2.04.7. Coal seam correlations, cross-sections, structure maps, interburden maps, overburden maps and isopach maps were generated by the use of Carison's SurvCADD software which is commonly used in the coal mining industry.