

2.04 APPLICATION FOR PERMIT FOR SURFACE OR UNDERGROUND MINING ACTIVITIES

2.04.1 Objective

The following is a complete description of the environmental resources at and proximate to West Elk Mine.

2.04.2 Responsibilities

MCC is providing information required under this section to illustrate and describe the environmental resources that may be affected by West Elk Mine.

2.04.3 General Requirements: Site Description and Land Use Information

General Description: West Elk Mine Permit and Adjacent Area

West Elk Mine permit area is located primarily on the western edge of Gunnison County, with some extension into Delta County, Colorado, near the unincorporated town of Somerset. The main mine site lies along the western flank of the West Elk Mountains within the drainage basin of the North Fork of the Gunnison River. Average annual precipitation ranges from approximately 25 mm (10 inches) along the North Fork of the Gunnison River and the lower portion of Minnesota Creek to as much as 60 mm (24 inches) on the flanks of Mount Gunnison. The majority of the precipitation falls as snow during the winter months, while the sparse summer precipitation consists of isolated thunderstorms. The majority of the area is covered with tall (1-3 m) shrub vegetation, consisting primarily of Gambel oak (*Quercus gambelii*) and Saskatoon serviceberry (*Amelanchier alnifolia*).

The area is currently used for grazing and forage by domestic livestock (cattle and sheep), and wildlife (deer and elk). Recreational activities such as big game hunting also occur here. The former Elk Creek, Somerset and Bear Mines are located just northwest of West Elk Mine.

The West Elk Mine permit area is drained by the North Fork of the Gunnison River, which is part of the Colorado River drainage basin. The northern one-third of the permit area is drained by ephemeral streams directly into the North Fork of the Gunnison River, while Minnesota Creek serves as the main water course for the remainder of the area.

Slopes range from 0 to 90 percent on the permit area. Elevations on the property range from about 5,900 feet in the vicinity of Somerset in the valley of the North Fork to about 9,200 feet in the extreme southeast corner of the coal lease area on the flanks of Mount Gunnison. However, most of the coal lease areas are between 7,000 and 8,700 feet in elevation. Major topographic expressions in the area are: to the south (Mt. Lamborn - 11,396 feet, Coal Mountain - 11,695 feet, and the Chain Mountains - approximately 10,000 feet); to the southeast (Mount Gunnison - 12,719 feet and the West Elk Mountains - approximately 10,000 to 13,000 feet); and to the west (Jumbo Mountain - approximately 8,200 feet). West Flatiron (approximately 8,500 feet) is the major topographic expression in the center of the Box Canyon lease tract. The Sunset Trail lease area is near the base of Mount Gunnison and varies in elevation up to 8,700 feet.

Pre-Mining Environmental Resources/Condition, Capability and Productivity

Lands within the West Elk Mine permit area are managed by the U.S. Department of Interior - Bureau of Land Management (BLM); the U.S. Department of Agriculture - Forest Service (USFS); MCC; and the private landowners identified in Exhibit 3. Public lands managed by the BLM fall within the Uncompahgre Basin Resource Area. Forest system lands managed by the USFS are located within the Gunnison National Forest. Use of private lands in unincorporated Gunnison County is regulated by Gunnison County. BLM manages the public lands according to Resource Management Plans (RMP) prepared under the BLM Federal Land Policy and Management Act (FLPMA). Information regarding the existing pre-mining environmental and land uses on these public lands is derived from the RMPs prepared for the Uncompahgre Basin Resource Area and the Gunnison National Forest. The USFS manages the forest system lands in the area according to the Grand Mesa Uncompahgre & Gunnison (GMUG) Land and Resource Management Plan (1983, as revised), prepared in accordance with the NFMA. Information on the pre-mining land uses on private lands is derived from information provided by landowners or long-time residents of the area. Map 67 depicts the pre-mining surface land uses of the permit and adjacent areas.

Uncompahgre Basin Resource Area

Within the West Elk Mine permit area, the BLM manages approximately 182 acres of public land located in Section 11 and 12, T13S, R90W. These lands fall within Management Unit 7, which accounts for four (4) percent of the total land area of the Uncompahgre Basin Planning Area. The existing pre-mining environmental resources identified as important by the BLM in this area are coal and wildlife habitat (BLM, 1989). The relatively small size of the area within this tract and its proximity to existing transportation facilities (State Highway 133, and the Union Pacific Railroad), the North Fork of the Gunnison River, and existing mines, limit the number and variety of land uses for the tract. The BLM has not developed or provided a discussion of the capability of the land to support a variety of uses, recognizing that livestock grazing and mining have been the dominant historical uses of the area since European settlement of the North Fork Valley. Productivity of the land has not been quantified by BLM since the primary use is mining. Wildlife habitat is minimal in this area of the management unit, and there is no crucial deer and elk winter range in this area.

The BLM has specified the management of this area in the RMP (BLM, 1989):

"The management unit will be managed for both existing and potential coal development. Development of existing coal leases will continue, and unleased federal coal will be identified as acceptable for further coal leasing consideration with a minimum of multiple-use restrictions. Activities and land uses that are consistent with maintaining existing coal operations and the potential for coal development will be permitted."

Other acceptable land uses in this management unit are oil and gas leasing and development, forestry, utility corridors, and off-road vehicle use.

Gunnison National Forest

Within the West Elk Mine permit area, the USFS manages approximately 6,217 acres of public land located in T13S and T14S, R90W, 6th P.M. All USFS lands are within the Gunnison National Forest. These lands fall within Management Areas 5A and 6B. Management Area 5A is generally located south and west of Minnesota Creek and north of an imaginary line connecting Mount Lamborn and Beaver Reservoir within the Gunnison National Forest. Management Area 6B is roughly bounded on the southwest by Minnesota Creek, on the south by Gunnison Creek, on the east by Coal Creek, and the north by the Forest boundary. The topography of the area is steep with vegetation communities ranging from sage-grass to oakbrush and Douglas fir forests. Given the rugged topography, relative inaccessibility and predominantly undisturbed vegetation communities, the historic land uses of the area have been limited to livestock grazing, wildlife habitat, and dispersed recreational activities (hunting, trapping, horseback riding, and some off-road vehicle use). The USFS has not developed or provided a discussion of the capability of the land to support a variety of uses, recognizing that the historic land uses have been limited to those identified.

The management emphasis for Management Area 5A (identified as wildlife habitat on Map 67) is to optimize winter range for big game, including deer, elk, pronghorns, bighorn sheep, and mountain goats (USFS 1991). It is noted that it is unlikely that pronghorns, bighorn sheep, or mountain goats would be found in the specific lands within the West Elk Mine permit area. Grazing in this management unit favors big game, with a goal of maintaining vegetation in mid-seral or better range condition. Emphasis is placed on maintaining shrub species with varied age structure. Livestock use is to be limited to avoid competition with big game species. Dispersed recreation is to be managed to limit winter use to very low or low densities.

The existing pre-mining management prescription for Management Area 6B (identified as rangeland on Map 67) is livestock grazing (USFS, 1991). A description of the management prescription states in part;

"The area is managed for livestock grazing. Range condition is maintained through use of forage improvement practices, livestock management, and regulation of other resource activities. Conflicts between livestock and wildlife are resolved in favor of livestock."

There are also riparian areas identified in Exhibit 32B. These are Management Areas 9A, which correspond to riparian area management. Resource use will be managed to protect and maintain the riparian area. Vegetation treatment will enhance plant and animal diversity. Primitive, semi-primitive, non-motorized, semi-primitive motorized, roaded natural and rural recreation opportunities can be provided. Compatible land uses include dispersed recreational activities, and wildlife habitat.

Land capability and productivity is assessed in terms of providing adequate forage for the livestock grazed on the management area as a whole. The capability guideline is to maintain capability at 60 percent of potential, and to allocate no more than 80 percent of available forage to livestock, leaving the remainder for big game populations.

The only USFS grazing allotment within the permit area is the Dry Fork C&H allotment. This allotment covers portions of Sections 20, 21, 22, 26, 27, 28, and 29 within the permit area. The Dry Fork allotment covers 31,849 acres with 15,124 acres considered suitable for grazing. Since 1988, the USFS has prescribed a two herd, eight pasture modified rest/deferred rotation grazing system. The prescription calls for 607 cow/calves to typically be grazed between June 16 and October 15, for a total of 2,428 animal unit months.

Based on the draft soil survey for the Gunnison National Forest (USFS, unpublished), productivity of the area for livestock and big game ranges widely depending on the type of soil, topography, and vegetation present. Annual production varied from 250 to 3,000 pounds per acre of air-dry understory vegetation on the Gunnison National Forest lands.

Private Lands

Private lands within the West Elk Mine permit area are either owned by or leased to MCC. Pre-mining land uses on these lands included cattle grazing, wildlife habitat, and dispersed recreational activities (hunting, trapping, off-road vehicle use). These uses are consistent with adjacent public lands.

Owners of these lands have not specifically quantified the capability or productivity of their lands based on the land uses identified above. Productivity and capability of these private lands should be expected to be comparable with analogous lands on the adjacent Gunnison National Forest. Annual production of between 250 to 3,000 pounds per acre of air-dry understory vegetation could be expected, based on the soil type, vegetation communities, and topography.

On all areas affected, MCC proposes to reclaim the areas to capability and productivity consistent with the identified land uses of rangeland and wildlife habitat. This is accomplished through successful revegetation, as outlined in the reclamation plan in Section 2.05.4.

Previous Mining: West Elk Permit and Adjacent Areas

The North Fork of the Gunnison River has been a coal mining district since at least 1902 when operations at the Somerset Mine began. The mine was sold and ceased operation on December 31, 1985. The facilities of the Somerset Mine were reopened in 1991 with the development of the Sanborn Creek Mine to the east of the town of Somerset. The Hawk's Nest Mines, just east of the West Elk Mine, opened in 1912 and ceased operation in January of 1983. Bowie Resources Limited, formerly Cyprus Coal Company, Inc. and Colorado Westmoreland Inc., operated the Bowie Mine No. 1 (formerly the Orchard Valley Mine), just north of Paonia, as well as the Bowie No. 2 Mine that idled operations in 2015. The east portals opened in 1976 and the west portals in 1987. In addition, several small mines have operated for varying periods of time including the Bowie, Clark, Converse, Edwards, Oliver, Farmers, and more recently the Blue Ribbon Mine. Except for the Blue Ribbon Mine, none of these mines operated for long. The Blue Ribbon Mine ceased operation in 1984.

Since 1935, Bear Coal Company operated coal mines near West Elk Mine's permit area. From 1935 until 1982, the Bear No.1 and No.2 Mines operated in the C Seam of the Mesaverde Formation.

This seam lies approximately 400 feet below the F Seam in the same geographical area as the West Elk Mine. Consequently, the Bear No. 1 and No. 2 Mine workings partly underlie the northernmost West Elk Mine workings. Map 5 shows the Bear No. 1 and No.2 mine workings that lie entirely on leases held by MCC. The Bear No. 1 and No. 2 Mines were room and pillar type mines. Because the Bear Coal Company began mining the C Seam 45 years before MCC obtained its leases, it was allowed to mine the C Seam under an assignment of operating rights from MCC. However, Bear Coal Company's operations were limited by provisions to not preclude subsequent recovery of the multiple seams above the current workings.

Bear Coal Company also operated the Bear No. 3 Mine. This mine was opened in 1982 next to West Elk Mine and closed in 1996. The Bear No. 3 surface facilities were located on property owned by MCC and leased to Bear Coal Company. The Bear No. 3 Mine mined in the B Seam underlying the C Seam works mentioned above. This coal was partly within leases assigned to the Bear Coal Company by MCC. The Bear No. 3 Mine has been closed, the mine openings sealed, and associated surface facilities and disturbance removed and reclaimed.

Oxbow Mining Company, LLC completed mining of the Sanborn Creek Mine and operated the adjacent Elk Creek Mine until 2013. The Sanborn Creek Mine portals were east of the former Somerset Mine's surface facilities and the Elk Creek portals were located north of the surface facilities.

Local Land Use Classification

Gunnison County

Regulation of land uses and development in unincorporated Gunnison County is administered by the Gunnison County Board of County Commissioners through the Planning Office and its staff. Gunnison County is a non-zoned county with respect to land uses. In Gunnison County agriculture and rural residential (one residential unit per 35 acres) are designated as "use-by-right". Any other land use must be approved through a land use change contained in a specific land use resolution approved by the Gunnison County Planning Commission and Board of County Commissioners. Impacts, compatibility, and compliance with land use policies are evaluated on an individual basis for each land use change requested by a property owner (Schmalz, 1995; Williams, 1994).

Currently, MCC has an approved land use change within Land Use Resolution No. 38, Series 1981 (and subsequent amendments) approved by the Gunnison County Board of County Commissioners. The land use change allows for the development and operation of West Elk Mine. In order to address normal mine surface disturbance and development activities while minimizing county reviews and approvals that may duplicate the CDRMS permitting process, Gunnison County and local coal operators have reached agreement on limited exemptions from the County planning process. For existing coal operations within an area designated as the North Fork Valley Energy Resources Special Area, County planning review and approvals are minimal for surface disturbance and development activities associated with the existing mines.

Land Uses Within and Adjacent to West Elk Mine

Map 67 depicts the land uses within and adjacent to the West Elk Mine permit area. Land uses identified on Map 67 use the categories established in Rule 1.04 and may not exactly correspond to the land uses described by the land management agencies or property owners responsible for management and/or use of individual properties.

BLM managed lands north and northeast of West Elk Mine are predominantly managed for coal extraction and wildlife habitat (outside mining areas). These land uses are identified as commercial and wildlife habitat on the map, and correspond to Management Area 7.

BLM lands north of the Gunnison National Forest boundary and west of the private lands running northwest-southeast through the permit area are contained in Management Unit 2. As with the adjacent Gunnison National Forest lands, management focuses on maintenance and improvement of winter range for deer, elk, pronghorn, and bighorn sheep populations. All other uses are permitted, provided they do not degrade winter range capability.

Gunnison National Forest lands within and adjacent to the mine fall into three land use categories; rangeland, wildlife habitat, and recreation. Rangelands managed for livestock grazing (Management Area 6B) are found east of Minnesota Creek and north of Gunnison Creek to the forest boundary. Recreation lands are found southeast of Gunnison Creek within the West Elk Wilderness Area and are managed to enhance and emphasize "primitive recreation opportunities requiring a high degree of isolation" (USFS, 1991). In the forest area southwest of Minnesota Creek, the USFS has designated the area wildlife habitat, and prescribed the management emphasis on maintaining winter range for ungulate wildlife.

Interspersed with BLM and Gunnison National Forest lands on the western flank of the permit area are many private land holdings. The predominant use of the private lands is for range and livestock grazing. Several limited agricultural areas are found along Minnesota Creek and to the southwest of Lion Mesa. To the northwest and north of the permit area, land uses are mixed and include residential/commercial (within the town of Somerset and adjacent areas), commercial/mining (Sanborn Creek Mine, Bear Mine), and rangeland (predominantly north of the North Fork of the Gunnison River).

Surrounding Area Land Uses: Gunnison and Delta Counties

Urban land accounts for less than one percent of Gunnison County and approximately two percent in Delta County (SCS, 1973). Aside from the small, unincorporated town of Somerset, which is located in Gunnison County on the northern edge of the study area, the urban lands closest to the permit area are the towns of Paonia and Hotchkiss, both in Delta County. They are located approximately 9 and 17 air miles respectively, southwest of Somerset on the North Fork of the Gunnison River.

While agriculture is of limited areal importance in Gunnison County as a whole, it is of greater importance in Delta County, especially in the central portion. Only 5.4 percent of the lands in the North Fork Sub-basin of the Gunnison River Basin is used for crops (Economic Research

Service, et al, 1962); however, agriculture is an important factor in the economics of the region. In 1964, 45.6 percent of the land in Delta County and 10.3 percent of the land in Gunnison County were in farmlands. In Delta County in 1964, 24 percent of the farmland was irrigated and 60.6 percent of that land had crops harvested from it. Irrigated croplands extend up the valley of the North Fork of the Gunnison River in Delta County to the confluence of Hubbard Creek and the North Fork of the Gunnison River. In Gunnison County in 1964, 23.4 percent of the farmland was irrigated and 66.6 percent of that land had crops harvested from it.

2.04.4 Cultural and Historical Resource Information

Significant Cultural and Historic Resources

There are no known cultural and historic resources within the West Elk Mine permit area listed or eligible for listing on the National Register of Historic Places. There are no known significant archaeological sites existing on any areas proposed or likely to be affected by coal mine development, extraction or subsidence over the life of the mine in this area.

The USFS has required on-the-ground cultural and historic investigations for areas of surface disturbance at the mine where potential or actual impact to cultural or historic resources could occur. The results of these investigations have identified or located very few cultural and historic resources (Spath 1995, Exhibit 10C).

As part of the cultural and historic investigations required by the U.S. Forest Service, file searches have been conducted through the Colorado Office of Archaeology and Historic Preservation (OAHP). The file searches identified several cultural resource investigations that have included portions of the legal sections containing the permit area. The only documented cultural resources in the vicinity of the West Elk Mine permit area are the Hawk's Nest Coal Mine, the Oliver Mine, the Gallob Mine in Sylvester Gulch, and a prehistoric artifact scatter and two prehistoric isolated finds near Minnesota Creek in Sections 33 and 34, T13S, R90W. (Spath 1995, WCRM 1994, Exhibit 10C).

Cultural and historic resource investigators have concluded that pre-European use of the immediate mine area was probably limited by steep topography, narrow drainage channels, thick vegetative cover, and unpredictable water sources. These factors combined to limit pre-contact area usage to small, transient hunting groups. These factors would also explain the relative paucity of pre-European sites and artifacts identified in the area.

Historic use of the area has been largely limited to livestock grazing and recreation. Historical resources that have been identified in the general area include stock camps, irrigation ditches, and split-rail fences. None of these resources have been recommended as eligible for listing on the National Register of Historic Places.

Recommendations of cultural and historic resource investigators are limited to pedestrian surveys of likely camp areas located within flat or gently sloping areas within areas to be affected by West Elk Mine operations. A qualified archaeologist will survey these areas if surface disturbance is proposed by MCC.

Field Investigations

Archaeological reconnaissance of the West Elk Mine study area has been conducted to assess the extent and nature of any cultural resources contained within areas of potential impact from development related to West Elk Mine. Field studies, and associated laboratory operations and report preparation were completed by professional archaeological teams as documented in Exhibits 10, 10A, 10B, 10C, 10D, 10E and 10F. An archaeological reconnaissance was conducted for the Refuse Pile Expansion (RPE) area in September 1995, as documented in the RPE exhibit (Exhibit 70). Field investigations of the Sunset Trail exploration area were conducted by ERO (ERO) Resources Corporation during 2012 with no resources located. Additional block clearance surveys of the lands that overlie proposed E seam longwall panels SS1 through SS4 were conducted by ERO during July 2018. The findings of that investigation as well as the B seam MVBs investigation are documented in Exhibit 10F.

Areas previously investigated included the main mine surface facilities area, areas immediately adjacent to the surface facilities area, the Sylvester Gulch Facilities Area, Sylvester Gulch Road, potential waste rock disposal sites, the Lone Pine ventilation facilities area, the RPE area, Mine Ventilation Borehole (MVB) pads (formerly called methane drainage wells), and the access routes to all surface facilities, MVBs, and exploration sites. More recent cultural resource investigations include field studies within and in proximity to the South-of-Divide and Sunset Trail lease areas and B Seam MVBs areas that included portions of the permit area and were conducted for exploration and assessment of the coal deposits (Spath 1995a, 1995b, 1996, 1997, 1998, 1999a, and 1999b and Susan Chandler, Alpine Archaeological Associates, 2007, etc.) These inventories covered blocks and linear corridors for exploratory drill holes, access corridors, and seismic corridors. The inventories were completed prior to potential ground disturbance by these exploration activities or drilling activities. A professional archaeologist completed field studies and report preparation. Maps 7, 7A, and 7B illustrate the areas surveyed. Exhibit 10 series of exhibits includes illustrations of the Sylvester Gulch facilities areas surveyed. A summary listing of the cultural resource investigations completed within the West Elk Mine permit area and previously documented cultural resources is provided in the Exhibit 10 series of exhibits.

Literature Search

The National Register of Historic Places and the Colorado State Register of Historic Properties were checked for listed sites in the vicinity of the permit area. No listed sites were found. The archaeological sites and surveys files of the OAHF were reviewed for previous surveys and previously documented sites within or near the permit area. As previously noted, the files search listed 17 cultural resource investigations that included portions of the legal sections containing the permit area. The identified investigations are listed in Exhibit 10 series. Several of the more recent investigations were for activities associated with the current mine permit area. The files search also listed one previously documented prehistoric site and two prehistoric isolated finds in the permit area. The cultural resources are not recommended as potentially eligible for listing on the National Register of Historic Places or the Colorado State Register of Historic Properties. Therefore, there are no known sites that are listed on or eligible for the National Register of Historic Places in the permit area.

Archaeological Clearance

Reports of archaeological surveys for the permit area have been forwarded to the USFS, Gunnison National Forest, and to the OAHP for their review and clearance. To date, no agencies have determined that preservation or mitigation efforts are warranted for any identified cultural resources in the permit area. If the OAHP determines that preservation or mitigation efforts are required at any identified cultural resource site, MCC will comply with the requirements. Should cultural or archaeological resources be discovered during surface disturbing project activities, MCC will stop work until the State Historical Preservation Officer can provide consultation.

**PAGE
INTENTIONALLY
LEFT BLANK**

**PAGE
INTENTIONALLY
LEFT BLANK**