2.05.3 Operation Plan - Permit Area

(1) Production Methods and Equipment

The production methods and equipment in use at West Elk Mine are described above in Section 2.05.2.

(2) Operation Description

The coal seams mined and mine operations are also described above in Section 2.05.2

Manpower Requirements

Existing and projected manpower requirements are shown in Table 32 for the permit term. Projected manpower requirements are based on projected production levels to fulfill existing and anticipated contracted coal sales.

Table 32
Projected Production and Estimated Employment at West Elk Mine for the Permit Term

	Coal Production	Total Employment
Year	(millions of tons per year rounded)	(number of persons at year-end)
2018	3.0 - 6.0	250 - 350
2019	3.0 - 6.0	250 - 350
2020	3.0 - 6.0	250 - 350
2021	3.0 - 6.0	250 - 350
2022	3.0 - 6.0	250 - 350
2023	3.0 - 6.0	250 - 350

(3) Mine Facilities

West Elk Mine's major surface facilities are located about one (1) mile east of the town of Somerset, Colorado, and just south of State Highway 133. Access into the underground mine is primarily through the F Seam. The West Elk Mine's main portals are in the F Seam at an elevation of approximately 6,450 feet AMSL in a mountainside area of semi-consolidated slump debris. Additionally, access into the mine is provided through Shaft #1 in Sylvester Gulch. The location of the portals is shown on Maps 33 and 53. Sloped entries within the mine provide access from the F Seam down to the E and B Seams.

In all portal excavations, the material removed before reaching the F Seam is colluvium consisting of weathered debris, mainly sandstone blocks and clay. To assure stability in the main portal area, these colluvial materials were excavated and a concrete retaining wall was installed (Map 33). Logs of drill holes in the portal area are shown on the cross-sections shown in Exhibit 15.

The main surface facilities consist of sediment control structures, coal handling facilities, support facilities for mine operations, and other related facilities. Support facilities for mine operations include the offices, maintenance shops, warehouses, and bathhouse. Other related facilities include coal refuse disposal sites, equipment and material storage areas, and the mine ventilation fans. The

surface facilities in Sylvester Gulch include but are not limited to mine ventilation shafts and fans, a substation, powerlines, electric mine borehole, nitrogen supply and methane drainage facilities, rock dust storage, mine water and sediment ponds and control structures, compressed air and other support facilities. Sediment control structures and coal handling facilities are described below in Sections 2.05.3(4) and 2.05.3(7), respectively. Waste handling facilities are discussed in Sections 2.05.3(6), 2.05.3(8), and 2.05.3(9). The main support facilities for mine operation are described in this section.

General Construction Procedures

All work at West Elk Mine is conducted according to Federal and State water pollution laws, land reclamation statutes and regulations, and construction safety standards. Construction activities are planned and executed in a manner to protect the environment and minimize pollution and erosion. Three areas of primary concern during construction projects are safety, vegetation, and fires.

MCC conducts its operations in a way that minimizes the potential safety hazards for each construction project. It also assures that its employees, contractors, and subcontractors understand MCC's and applicable environmental, and health and safety policies before each construction project begins.

MCC's policy for woody plant removal is to keep removal to the absolute minimum. Under most circumstances, MCC refrains from cutting and removing timber and other woody plants outside the areas specified for construction. The only exceptions are for landscaping, erosion control, or fire prevention. When trees and other woody material are removed, they are shredded and used for mulch during revegetation or disposed of in an approved manner or area.

All cut and fill slopes are designed and based on the recommendations of the geotechnical engineer. In constructing slopes, MCC uses appropriate methods, such as benching, staggered benches, slope rounding, feather-back clearing lines, roughened surfaces, and special revegetation work, to minimize the overall impact.

MCC revegetates all those areas disturbed by mining activities as soon as practicable. The goal of the reclamation effort is to return the disturbed land to its original level of usefulness. Revegetation will establish permanent cover for erosion control.

During construction, every effort is made to prevent fires at all times. Fuels, lubricants, explosives, and other potentially flammable items are stored in a manner to prevent fires. No burning of brush, timber, or other waste materials is allowed without clearance from the proper authorities having jurisdiction over open burning. Finally, if a fire does occur, trained fire control teams drawn from personnel at the mine site are prepared and available to extinguish it.

Major Buildings and Structures

The majority of the surface facilities at West Elk Mine are clustered together near the mine portals (Map 53). Major surface facilities at the main mine site include the office and bathhouse building, warehouse, maintenance shop, three-sided warehouse, surface shop building, bulk fuel storage area,

bulk rock dust bin and compressor building, potable water treatment plant, wastewater treatment plant, coal stack tubes, crushing and screening facilities, and a coal preparation plant and associated coal handling facilites (see Section 2.05.3(7)). All of these facilities are on land owned by MCC. Expanded descriptions for some of these facilities are provided below. A few facilities are located in outlying areas, including the unit-train loadout (Map 53); facilities in Sylvester Gulch (Map 53B), which include ventilation shafts, the F Seam ventilation fan, mine dewatering and treatment facilities, substation; and other support facilities. Detailed descriptions of the Sylvester Gulch facilities are included in Exhibit 69.

Office and Bathhouse

MCC completed an office and bathhouse building in September 1992 (Map 53). This building is approximately 20,000 square feet and consists of two floors. The bathhouse facilities and operations offices occupy the lower floor. The engineering and administration offices occupy the upper floor. An as-built construction description is provided in Exhibit 68. A small skid-mounted shed was added at the foot-bridge entrance to the office building in 2020.

Warehouse

MCC expanded the warehouse facilities by converting the former maintenance shop to warehouse area, adding a third level mezzanine inside the existing building and constructing an office addition. The building is approximately 6,000 square feet on the ground level. Warehouse offices, purchasing offices, and material storage occupy the first floor. Additional material storage and offices are located on the second and third level mezzanines. An as-built construction description is provided in Exhibit 68.

Maintenance Shop

Construction of a maintenance shop was completed in June 1993. The 15,000 square foot shop consists of two levels. The ground floor includes six service bays, including a welding bay and a wash bay. The second level mezzanine, located in the back half of the building includes offices, a library, a lunch-room, and a locker room. An as-built construction description is provided in Exhibit 68.

Three-Sided Warehouse and Tire Storage Racks

In addition to the main warehouse, material storage is provided in the three-sided warehouse. This 4,400 square foot, open-front building contains five bays for materials storage. In addition, MCC constructed tire storage racks to the west of the warehouse building, adjacent to an existing bin wall. The racks are constructed of wood cribbing that will be open on all sides and covered by light gage roofing. As-built descriptions of these structures are provided in Exhibit 68.

Surface Shop Building

The surface shop building is used for maintenance of surface equipment. The 4,130 square foot building consists of two service bays, a line-up area and a covered area used for sand and gravel storage. A dozer service facility (approved per MR-229) is planned to be located adjacent to the

surface shop building but has not yet been built. It will be utilized to perform maintenance on the larges surface equipment. As-built descriptions of the surface shop facilities are provided in Exhibit 68.

Materials Storage Bench Building

Construction of the Materials Storage Bench Building was completed in March 1996. The building is utilized to store materials that will be used in the mine. The 3,900 square foot building has six bays. The as-built description is provided in Exhibit 68.

Bulk Fuel, Barrel, and Hydraulic Component Storage Areas

MCC stores bulk petroleum products within a covered, concrete bunker capable of containing approximately 31,000 gallons. Barrels containing petroleum products or waste materials are stored within a separate covered containment area of approximately 1,840 square feet located between the bulk fuel area and the Maintenance Shop. These storage areas are enclosed by three walls and a roof to reduce the accumulation of precipitation within the concrete bunkers. The material stored in this area includes products, recyclables, and hazardous wastes.

Petroleum products, as well as propane, are stored for ongoing operations and maintenance usage. Recyclables are collected and transported off-site and hazardous waste is also transported off-site. See the Spill Prevention, Control and Countermeasure Plan in Exhibit 8 for more detailed information regarding storage of these products. The bulk fuel storage area also includes a heated, enclosed storage bay for a total storage area of approximately 3,500 square feet. To the west of the heated, enclosed bay is the hydraulic components storage building. This 450 square foot, steel structure provides containment and cover for hydraulic components, motors, etc. being stored prior to return to vendors. Dimensions of buildings and tanks are provided in Exhibit 68.

Oil Separation Skimming System

The oil separation system consists of an oil skimming pit and an oil skimmer. The skimming pit is contained in the shop building and receives water from wash down bays and the shop. An oil skimmer pipe allows the floating oils to be directed to oil/water separators below the shop and near the silos. The remaining water is drained to the mine site sediment ponds and/or is pumped and hauled to an authorized disposal facility.

Bulk Rockdust Bin and Compressor Building

MCC utilizes a bulk rockdust storage and distribution system at West Elk Mine. The #1 bulk rock dust bin has a capacity of approximately 142 tons and contains the baghouse. Dust from #1 tank is transferred underground. Bulk Rock dust tank #2 has a capacity of approximately 150 tons and is used for additional storage only. The compressor, distribution tank and controls are contained in a 416 square foot building at the base of the bulk storage bin. An as-built construction description is provided in Exhibit 68.

Water Treatment Plant

A water treatment plant at the mine site provides potable water for the operation. The Culligan Multi-Tech 48 water treatment system can treat water at the rate of 62 gpm. Thus, maximum capacity is about 89,280 gallons of treated water per day. The water treatment plant is operated as required by state regulations and under the jurisdiction of the Colorado Department of Public Health and Environment (CDPHE). An as-built construction description of the building housing this system is provided in Exhibit 68. MCC has the capability to expand the water treatment plant, if needed. Capacity can be readily expanded by adding additional components should the need ever arise due to increased needs at the mine. Treated water is pumped to the 175,000 gallon potable water tank located west of the mine portals. A chlorine meter housed in a wooden shed aids in monitoring the chlorine levels in the treated water entering the mine's potable water distribution system.

Demand for water at the mine is expected to increase in the future. With the estimated maximum 8.2 million tons (plus) per year production at West Elk Mine, MCC conservatively estimates that as much as 300 acre feet per year but a likely maximum of 150 acre feet per year (based on 250 work days) of fresh water will be required. Prior to installation of the longwall, annual coal production was 600,000 tons per year. At this rate, water needs were about 65 acre-feet per year. The Annual Hydrology Reports submitted to the CDRMS each year contain specific data on the amount of water consumed annually at the mine since 1982.

Water used at West Elk Mine comes from adjudicated water rights owned by MCC. Table 33 summarizes MCC's rights. The rights are used according to Colorado Water Laws administered by the District No. 4 Water Commissioner. MCC also has available (for use or augmentation) non-tributary water rights and storage water rights (not shown in Table 33) for the water generated from the mine and stored in sumps maintained within the underground mine.

Table 33
Summary of Mountain Coal Company's Water Rights for the West Elk Mine

Source of Water	Water Rights
Mt. Gunnison Pipeline	**15.00 cubic feet per second**
Tony Bear Pipeline	**0.9 cubic feet per second**
Chipmunk Ditch	**1.0 cubic feet per second**
Walter Gallob Ditch	**0.75 cubic feet per second**
Sedimentation Ponds:	
MB-3	**0.23 acre-feet**
MB-5E	**19.59 acre-feet[1]**
Freshwater Ponds:	
FW-1	**9.98 acre-feet**
FW-2	**13.66 acre-feet[2]**
Mt. Gunnison Tunnel	**0.49 feet per second**

Notes: 1. The DWR approved an application filed in 08/09 to combine the adjudicated water storage rights of former ponds MB-1 and MB-2 into new pond MB-5E.

2. This 13.66 acre-feet includes 3.68 acre-feet from the former MB-1 storage right in this pond location and 9.98 acre-feet from the original FW-2 conditional storage right being perfected in the application above.

The water distribution system at West Elk Mine contains several major components. They include the raw water intake gallery and pumps, HDPE, cast or steel utility piping, freshwater storage ponds FW-1 and FW-2 (formerly sediment pond MB-1), potable water treatment plant, mine water pumps,

a 1.2 million gallon mine water storage tank, freshwater pumps, a 175,000 gallon potable water tank, and fire suppression systems. Freshwater pond FW-2 serves as a secondary storage pond that provides additional raw water storage volume that can be pumped to freshwater pond FW-1 and then into the potable water treatment and/or distribution systems.
Raw (untreated) water is pumped into the mine from freshwater pond FW-1 by pumps located in the water treatment plant. Water is used in the mine for dust suppression, supplying fire suppression systems and for the longwall shields hydraulic fluids.

Wastewater Treatment Plant

West Elk Mine has a package-type wastewater treatment plant to treat sewage from the mine's facilities. The plant has a capacity of 10,000 gallons per day. With an aeration basin and clarifier, the plant provides primary and secondary treatment. The wastewater treatment plant is operated under applicable state laws that govern wastewater treatment facilities, administered by the CDPHE.

In 1996, MCC expanded the wastewater plant to increase the throughput capacity to 20,000 gpd. The expansion included a 3,000-gallon flow equalization tank, an additional clarifier and a flocculent system. The clarifier is added to provide additional retention and clarification as a passive safeguard to plant operation. The flocculent system will be used as a secondary safeguard that may be operated to enhance solids settling in the primary clarifier. In 2012, MCC enclosed the polishing pond (that provides additional chlorine contact time) in a buried 1,500 gallon baffled septic tank.

Lone Pine Gulch Fan Site

The Lone Pine Gulch portals were situated approximately one (1) mile west of Somerset, Colorado, at an elevation of approximately 6,480 feet. The Lone Pine Fan Facility was constructed in 1995, accessing the B Seam, to serve West Elk Mine as the primary ventilation facility for the then completed Northwest Longwall Panels (Nos. 1-7); the Jumbo Mountain Longwall Panels (Nos. 8 and 9), and the Southern Longwall Panels (Nos. 12, 13, 13A). These 12 longwall panels were isolated underground from the active workings, using explosion resistant seals, and the entire area was abandoned. Watertight bulkheads were installed in each of the portals in 2001. The designs, portal profiles, and plan view of the bulkheads are shown on Drawing Nos. 42A–1, 42A-2, 42A-3 included in Exhibit 42A, in Volume 7 of the Permit Document. The Lone Pine fan facility area was reclaimed in 2002 and 2003 and achieved final Phase 3 bond release (per SL-06) in July 2015.

Sylvester Gulch (F-seam) Fan Site

One of the components of the mine ventilation program is the Sylvester Gulch Fan. This facility is located in Sylvester Gulch, approximately one-half mile south of the mine facilities area. Information concerning the design and operation of the fan is contained in Exhibit 42.

Sylvester Gulch Ventilation Shafts Site

In order to assure adequate mine ventilation for West Elk Mine's current and future mining areas, ventilation shafts (both with fans for ventilation air intake) were constructed. Construction of the site for these large diameter intake shafts began during spring of 1997 and shaft sinking began in the

fall of 1997. The ventilation fans and associated buildings, a nitrogen supply facility, mine ventilation air heaters, rock dust supply tank are also located on the Sylvester Gulch ventilation shafts bench. This ventilation facility is located approximately one half mile south of the Sylvester Gulch Fan (Map 53B). Information regarding the design, construction and operation of these ventilation facilities is contained in Exhibit 69.

A third ventilation shaft (Vent Shaft #3) was constructed during the summer and fall of 1997. Vent Shaft #3 is a 10-foot finished diameter shaft located approximately 400 feet east of the electric borehole site (Map 53B). Information regarding the design, construction, and operation of the ventilation facility is contained in Exhibit 69.

Sylvester Gulch Mine- Dewatering and Treatment Facilities

MCC designed and constructed mine dewatering and treatment facilities located within the Sylvester Gulch drainage. The system consists of one 18-inch cased borehole, one 16-inch borehole (completed as a 12-inch cased hole), and two 20-inch cased boreholes, completed during the summer of 1997 to access the operational sump in the northeast corner of the 10NE Tailgate of the B seam. Following the completion of ventilation seals on the 10NE and 11NE longwall panels, this area became the NE Panels Sealed Sump. MCC utilizes the sealed sump as a large volume mine-water storage area and pumps the water out of the mine through one of the boreholes to Sylvester Gulch. The smaller borehole serves as a recirculation loop to the sump and the two 20-inch cased boreholes serve as alternate recirculation boreholes and/or boreholes for water level indicators. Refer to the Probable Hydrologic Consequences section of the permit for additional discussion of the sumps.

The treatment facilities include a dewatering pump station and treatment building, an aeration pond, and a secondary settling pond. A detailed discussion of each facility is provided in Exhibit 69, *Sylvester Gulch Facilities Area.*

Temporary Bathhouse

Facilities necessary to house additional personnel for E Seam construction and development work were installed near Shaft #1 in Sylvester Gulch in late May 2005. These facilities were temporary in nature and designed to be removed when additional staffing is no longer required for E Seam development and construction needs.

All construction and installation work was performed within the existing disturbed areas at the Shafts #1 and #2 area in Sylvester Gulch. There were no changes made to any existing sediment controls, ditches or roads. Surfaces were restored to the existing compacted roadbase when excavations for conduits and piping were completed. All equipment and facilities were placed on the existing surfaces with no concrete foundations except for the two electrical transformers required for the facility. These required a single reinforced concrete slab on grade approximately 8 feet wide by 12 feet long. This slab will also be removed when additional staffing is no longer required.

Potable water was supplied using a 10,000 gallon surface tank and pressure pump system. This tank was filled with potable water from WEM's existing potable water treatment and storage system via truck haul to Sylvester Gulch.

Waste water from the facilities was stored in a plastic buried septic (closed) tank with an approximate capacity of 10,000 gallons. This tank will be periodically pumped and the waste water hauled to WEM's existing waste water treatment facility as needed.

Four modular bath/changing units and one modular office unit was placed at the site west of Shaft #1 on the same level as shown on MCC drawing S52SG005 and Map 54. Electrical distribution panels for the facilities were housed in a skid-mounted steel enclosure. Water supply equipment was housed in a second skid-mounted steel enclosure. Electrical service was supplied via conductors within buried conduits. Potable water piping and waste water piping was a combination of buried and surface piping.

Construction of the service infrastructure occurred in early May 2005. Completion of construction and installation of the modular units occurred in late May 2005 when the modular units were delivered. The facilities were completed the last week of May 2005 to meet MCC's needs for housing additional construction and development staffing.

Electrical Power

An overhead 115KV high voltage transmission line supplies power to the substation located in Sylvester Gulch. This feed line replaces the 46KV high voltage transmission line from Colorado Highway 133 to the substation located in Sylvester Gulch that was established in 1997. Distribution power lines connect the substation to the two ventilation shafts, the Sylvester Gulch F Seam fan, the electric borehole, mine dewatering pump station and the existing main mine facilities. The substation located within the main mine facilities was abandoned in 1998, due to landslide movement, and is discussed in a later section of this permit.

This electrical system meets the requirements of the National Electrical Safety Code, the National Electric Code (NEC), the National Fire Code, MSHA, and all applicable State or local codes. Grounding and ground-fault-protection systems have been built into the electrical distribution system according to Federal mine safety regulations. Raptor protection systems have also been built into the electrical distribution system. Circuit breakers, lightning-protectors, and ample switching points with the necessary transformers have been built into each substation. Branch-lines that lead out to various loads are protected with breakers to prevent trip out of the main breaker and shutdown of the entire operation if a fault occurs on a branch line. The protective breakers on the branch lines are coordinated with the exception that the mine fans that are connected to the main distribution line ahead of other breakers.

Communications

A pager-type mine telephone system connects all working sections to the mine office. The system uses the same surface corridors as the power distribution system where possible. It also has backup

battery powered pagers. Additionally, a two-way radio system is also used at West Elk Mine. This system is used on the surface and underground.

Materials Storage Areas

Because the mine site is steeply sloped, benches have been or will be constructed and several areas have been designated for the storage of materials and equipment. An access road loop was constructed to create an approximately 3 2/3-acre storage bench located east of the office building employee parking lot. An approximately 1/3-acre bench, referred to as the surface lay-down area, was constructed between sediment pond MB-1 and the fresh water pond. The upper and lower portal benches and the old Bear Mine site are also designated for the storage of materials and equipment. Other areas, including near the warehouse, maintenance shop, surface shop, materials storage bench building, water treatment plant and along mine site roadways, and the available surface of the Lower Refuse Pile may also be utilized as needed for materials and equipment storage.

Parking Facilities

Employee and visitor parking facilities are provided on the bench above the office/bathhouse building. Because the area available for parking is limited, MCC encourages employees to use a park-and-ride system and car-pool. Parking facilities are designed to use the available space as efficiently as possible.

Weather Station

MCC's weather station is located north of the intersection of the main mine haul/access road and the middle haul/access road. The weather station consists of a set of sensors mounted on a ten-meter tower, and a precipitation gauge with a wind-screen mounted near the ground. The weather station collects "real-time measurements" on a regular interval for wind speed, wind direction, air temperature, relative humidity, precipitation, and barometric pressure.

Mine Roads

Haul/Access Roads

No roads on the West Elk Mine site are specifically designated or utilized only as haul roads. A majority of the roads are considered haul and access roads. They are primarily used as access roads, but coal or coal mine waste are sometimes hauled across the roads. This classification includes the following roads:

Road Designation	**Road Location**
Silo Haul/Access Road	Between silos and the LRP
Middle Mine Haul/Access Road	Between breaker building and Main haul/access road

Upper Haul/Access Road	Between the intersection of the Middle Mine haul/access road and the Main haul access road and the Portal access road
Main Haul/Access Road	Between Highway 133 and the intersection of the Middle Mine haul/access road and the Main haul/access road
Refuse Pile Expansion (RPE) Haul/Access Road	Access from the Main haul/access road, across Sylvester Gulch and to RPE area.
Sylvester Gulch Haul/Access Road	Between main haul/access road and the ventilation shafts site

As coal or coal mine waste may be hauled on the above roads, all of the roads have been designed, constructed and certified as haul roads. These as-built certifications are provided in Exhibit 8A. There are three roads that are considered access roads only. They are the Three-Sided Building access road, the Portal access road, and the Materials Storage Bench access road. These roads have been certified as access roads as also provided in Exhibit 8A.

Vertical grades on the haul/access roads vary. The middle-mine haul/access road has an overall grade of 5.68 percent. This road is paved. The new silo haul/access road has a maximum grade of 10 percent and is gravel-surfaced. The Sylvester Gulch haul/access road has been designed to have an average grade of 7.6 percent with a maximum grade of 10 percent. This road is surfaced with 12 inches of compacted Class 6 road base.

The mine roads require relatively little surface maintenance. Holes and ruts are patched in the early stages with a cold mix of composition similar to the original road mix. In addition to pavement maintenance on roads, maintenance operations include shaping and sealing of shoulders, cutting back or chemically treating weed and bush growth, maintaining ditches and drains, removing litter, and repainting stripes. Snow and ice removal during the winter months are a roadway maintenance priority. Parking and side areas are similarly maintained for safe and efficient use.

Light-Use Roads

A gravel surfaced light-use road has been constructed around the southern perimeter of the lower stack tube (ST-4) coal storage pile and around the base of the lower refuse pile for occasional construction and maintenance equipment uses. Two short roads (approximately 150 ft. long) and associated pads have been constructed from existing mine site roads to provide access: for emergency repair and maintenance along the C-1 conveyor, to the water tank topsoil pile, to the switchgear buildings above the portals, and to the power-poles located along the west side of Sylvester Gulch Haul/Access road and north of the Sylvester Gulch F-Seam fan. When these roads and pads are no longer required for operations, the roads will be graded back to approximate original contour and reclaimed. The road between the ROM coal stockpile pad and the product coal stockpile has been designated as a light-use road. The overall grade of the road is 7.6 percent. The road is surfaced with asphalt or roadbase. An existing road in the Lone Pine Gulch area was widened and graveled as a light-use road to access the former Lone Pine Gulch fan site. This road was left in place at final reclamation to allow continued access for the landowners and lessees of the area and is consistent with the approved post-mining land uses of rangeland and wildlife habitat.

Light-use roads to the water tank and to the Sylvester Gulch high-voltage transmission line were constructed in the Spring of 1997. Other light-use roads for the Sylvester Gulch Facilities Area include the electric borehole road, the ventilation shaft #3 road, the degasification borehole road, and the powerline light-use road.

Light-use and low-volume roads are also used in association with mine ventilation boreholes (MVB) access for drilling and operations. These roads are typically 14 feet in running width with an average 25 feet construction width. The MVB pads and roads are generally reclaimed in the next construction season following the active life of the ventilation boreholes. Some light-use roads, such as those needed to access field data (e.g. soil sampling or geotechnical borehole) acquisition sites, will be field-designed and fit, utilizing earthwork contractors who are experienced in this locale in building light-use roads to minimize erosion and sedimentation. Following construction of such roads, as-built designs will be submitted to the CDRMS as a minor revision to certify that the light-use road was constructed per the light-use road standards of Rule 4.03.3. Field-designed roads as-built minor revisions will be included in Exhibit 80.

Existing roads constructed prior to the mine, which provide access to monitoring stations, and other existing site roads, not otherwise designated, will be utilized and maintained as light-use roads. Some existing public roads (e.g. USFS roads, etc.) are utilized for access to monitoring sites, etc. A Road Use Permit, with annual updates as necessary, was issued by the USFS, which authorizes these uses and any maintenance required. These existing roads will not be reconstructed if they do not meet light-use road design standards, unless a maintenance problem is identified, requiring a design revision. The pre-existing roads located outside the mine site will not be removed or restored to approximate original contour, as these roads were a part of the pre-mine site original contour.

Department of Highway Approvals

State Highway 133, completed with modifications in 1985, provides primary access to West Elk Mine. Map 53 shows where the mine's main haul/access road joins the highway east of the lower refuse pile. The old haul road now functions as an access road to the stack tubes and other mine facilities, but was designed and may occasionally be utilized for hauling coal or coal refuse.

During the initial permitting of West Elk Mine, State Highway 133 was located on the north side of the North Fork of the Gunnison River. The unit train loadout facility is sited within 100 feet of State Highway 133. In 1981 and early 1982, MCC went through the public process of obtaining approval from the Colorado Department of Transportation (CDOT) for siting of the unit train loadout. Subsequently, CDOT approved the siting of the loadout facilities and the CDMG granted the appropriate variance in accordance with Rule 2.07.6(2)(d)(iv).

In 1985, the CDOT relocated State Highway 133 to the south side of the North Fork of the Gunnison River adjacent to the surface facilities of the West Elk Mine. The mine's surface facilities had been constructed beginning in 1981 and were existing at the time of CDOT's relocation of State Highway 133. With the highway relocation, surface facilities were existing, and CDOT relocated the highway to within 100 feet of the facilities, however, the mine was not required to seek a variance for the facilities which are now within 100 feet of the highway.

Portions of the Lower Refuse Pile (LRP) are sited within 100 feet of the relocated State Highway 133. MCC applied to the CDOT for approval to conduct operations within 100 feet of State Highway 133. CDOT granted approval for operations within 100 feet of State Highway 133 on April 8, 1986.
In 1997, MCC constructed the Refuse Pile Expansion (RPE) area. The RPE and the associated north soil storage area are within 100 feet of the CDOT right-of-way. MCC received an approval letter from CDOT to locate operations within this area that is included in Exhibit 70, Appendix C.

Railroads

The West Elk Mine area is served by the Union Pacific Railroad Company (UP). A 6,000-foot long railroad siding and a small auxiliary siding, constructed within the right-of-way of the UP railroad, serves the loadout facility (owned and controlled by UP).

Access Control

Access to the West Elk Mine is controlled with electronic security gates at the silo pad entrance and the main mine site entrance off State Highway 133. To enter into the mine site, the gates are controlled by an electronic card reader. To exit the mine site, an electronic "exit loop" will activate the gates. A phone was installed at the main mine site gate for visitors. Locked manual gates control other entrances to the disturbed area (i.e. Lone Pine Gulch, the North Soil Storage Area, and the Refuse Pile Expansion). Security monitoring of the mine area occurs as necessary.

In addition to fences and security monitoring, signs are used to control access to the permit area and facilities within the area. Signs identifying the mine area are displayed at all points of access from public roads and highways. These signs show the name, business address, and telephone number of the Permittee and identification numbers of current mining and reclamation permits or other authorizations to operate. Although not required (see MR-366), permit boundary signs are present along the perimeter of the disturbed mine site where natural or constructed features do not provide boundary demarcations. Topsoil stockpiles, subsoil stockpiles, and the refuse area are clearly marked with material identification signs.

Soil Stockpiles

As West Elk Mine is an underground mine and most of the reclamation will not begin until the end of the life of the mine, it is necessary to have subsoil and topsoil stockpiles. The main topsoil pile is located to the south of the run-of-mine coal stack-pad and will be used for reclamation of the main mine facilities area. Some subsoil from the subsoil pile in Sylvester Gulch, (Live Subsoil Pile #1) as well as the topsoil from the stockpile at the North Soil Storage Area (NSSA), will be used for reclamation of the Lower Refuse Pile. MCC has also stockpiled topsoil from the Refuse Pile Expansion (RPE) area and the widening of the mine entrance at the NSSA on the north side of Highway 133.

Landslide Corrective Measures

In 1997 and 1998, MCC employed several corrective measures to stabilize the landslide at the main mine

facilities area, as surges of movement had been experienced in 1996 and 1997. The corrective measures included the installation of rock buttresses, stone columns, horizontal drains, pins (micro-piles), and the expansion of the roller compacted (RCC) buttress. These structures are described in detail, and their effectiveness in improving the stability of the facilities area is discussed in Exhibit 14C, *1998 Landslide Corrective Measures Report* by Barr Engineering/Harding Lawson Associates. The purpose of the corrective measures was to prevent catastrophic failure, which MCC was successful in doing. MCC will continue to evaluate the effectiveness of the corrective measures over time to evaluate their effectiveness for the long term (i.e. post-reclamation). MCC is collecting water level data and movement data from various piezometers, inclinometers, and survey mirrors around the mine site on a scheduled interval. Based on the data collected, MCC will reevaluate the slope stability analyses after spring runoff each year and where appropriate, update Exhibit 14C. The update will include an evaluation of the relative change in the factor of safety during the previous year and since the installation of the corrective measures in 1998. A revision including the updated information will be provided to the CDMG by July 30th of each year.

In the spring of 1999, MCC drilled two horizontal holes from the surface, at the abandoned main mine site substation, to intercept small sumps in the F-Seam to drain the water that accumulates in these sumps. The water that accumulates in these sumps is primarily surface water and near surface groundwater that infiltrates through the colluvium above the F-Seam and into the F-Seam workings. Once the water is in the sump, it then infiltrates through the F-Seam floor and into the unstable surface soils within the main mine site landslide. It is important that water sources to the surface soils be controlled in order to improve the local and global stability. These two holes are a test to determine if this method of draining the sumps is feasible. These sumps are located near the main F-Seam portals. They are not part of MCC's mine water handling system. These sumps have not been nor will be used to handle a large inflow event. The sumps are too small and if they overflow, they will flow into the belt and travel ways. Drain A will be drilled approximately 1,100 feet and into the floor of one of the main collection sumps. Drain B will be drilled approximately 1,400 feet, and into the bedrock fracture zone below the F-Seam sumps. If the holes are successful, MCC estimates that approximately 22 gpm will flow from the two holes and into pond MB-1. If the holes are successful, MCC will permit and construct additional drains that will remain upon final reclamation. In addition, MCC will update Exhibit 14C to include these drains and evaluate them for the final reclamation plan.

Mine Ventilation Boreholes and Degasification Borehole

Ventilating mine methane (one of the naturally-occurring gasses within the rock formations above the mined coal) through West Elk Mine's mine ventilation boreholes (MVBs) is an integral and required part of West Elk Mine's MSHA-approved mine air ventilation plan. The MVB pads are typically a half-acre or less in size and include an area for mud pits to accommodate drill cuttings that are about 10' x 20' x 10' deep. Access to the pads is provided by constructing light-use, low-volume roads as discussed above.

The MVBs are generally constructed as follows:

- Drill 19" hole, 20' or to bedrock, set 14" surface casing.
- Drill the intermediate 12.25" hole to a competent formation within 100-250 feet of the coal seam and case the hole with 9-5/8" casing and cement the annulus to the surface.
- Drill out the grout shoe with 8.75" bit and drill the remainder of the hole to within 25' of the coal seam and install 7" slotted casing in the hole to extend approximately 40' past the bottom of the 9-5/8" casing.
- Install wellhead

MVBs are operated by connecting a mobile, methane-fueled exhauster to the wellhead. Starting in 2020, mobile flaring units will be connected to the mobile exhausters to flare MVB emissions from active and/or sealed longwall panels. These units are typically moved with heavy-duty pickup trucks.

Some methane gas from the sealed mine sections is used to heat mine ventilation air at the Ventilation Shafts No. 1 & 2, in a system completed in 2003 and amended a few years later. A 10" diameter methane supply hole was drilled to the B seam to the south of Shaft 3. About 100' of buried 12" HDPE pipeline ties the borehole into the existing mine air heater line.

Fire Breaks

Fire Breaks are constructed West the Main Mine Site. The neighboring mine, Bear Mine, has historically had issues with underground fire that, more recently, has spread to surface fire. In order to protect the Main Mine Site location and land from fire danger MCC installed a fire break that consists of approximately 1.8 miles of road that is roughly 20-30 feet wide. The land disturbance for the Fire Breaks is not a mine facility and will not be used in the future for any activity associated with mining or reclamation. See Exhibit 83 for Fire Break location.

Figure 17: Fire Breaks- located in Exhibit 83

Access Road to Bear Mine Site

An access road to the inactive Bear Mine site is located East of MB-5E ponds and extends to the vent holes that have created a fire hazard to the immediate and surrounding areas. MCC is not liable to reclaim this road and the disturbance is not a mine facility and will not be used for any mining activity. See Exhibit 83 for construction, location and use details.

Figure 17a: Bear Mine Access Road- located in Exhibit 83

Deer Creek Shaft Facilities

In 2009 MCC constructed Deer Creek shaft. Location and layout design of the Deer Creek Shaft can be found on Map 53D. The shaft is used as a secondary escapeway from the mine as well as assisting in mine ventilation. See Exhibit 77 for further details.

Monument Dam Survey Station

The Monument Dam Survey Station is located on the hillside Northwest of the Dam on property owned by MCC. The station houses continuous survey equipment. The equipment is owned and operated by MCC. A 9ft security fence surrounds the pad where the station is located.

PAGES
2.05- 29
INTENTIONALLY LEFT BLANK