Proposed Decision and Findings of Compliance for a Mining and Reclamation Permit

Elk Creek and Sanborn Creek Mines

Permit Number C-1981-022

Permit Revision No. 7

Colorado Division of Reclamation, Mining and Safety

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Introduction

This document is the decision package prepared by the Colorado Division of Reclamation, Mining and Safety (Division) for the Elk Creek and Sanborn Creek Mines (Permit C-1981-022). This document includes updated findings for all previous permitting actions in addition to: 1) the proposed decision to approve the Permit Revision No. 7 application; 2) a summary which includes a history of the review of the Permit Revision No. 7 application, a description of the environment affected by the operation and a description of the mining and reclamation plan; and 3) the written findings of compliance the Division has made as required by the Colorado Surface Coal Mining Reclamation Act. Detailed information concerning the findings of compliance can be found in the Regulations of the Colorado Mined Land Reclamation Board for Coal Mining.

The Division has received an application for a permit revision to conduct underground coal mining and reclamation operations at the aforementioned mine. Permit Revision #7 was submitted on May 29, 2012 to incorporate the Elk Creek Federal Coal Lease COC-70615 and to extend the mine plan into the lease area. The application was submitted by Oxbow Mining, LLC, the operator of the Elk Creek and Sanborn Creek Mines. The mine is located on federal and private lands within Delta and Gunnison Counties, Colorado. The legal description of the lands included within the permit area is:

Township 12 South, Range 90 West, 6th PM

Sec. 29: S½SW¼, SW¼SE¼
Sec. 30: S½S½
Sec. 31: All
Sec. 32: All

Township 12 South, Range 91 West, 6th PM

Sec. 25: S½S½
Sec. 26: S½S½
Sec. 27: SE¼SE¼
Sec. 34: Lots 8, 9, 15, 16, E½NE¼
Sec. 35: All
Sec. 36: All

Township 13 South, Range 89 West, 6th PM

Sec. 6: Lots 17, 21, 22
Sec. 7: Lots 1, 2, and 3 North of the Centerline of the River

Township 13 South, Range 90 West, 6th PM

Sec. 1: All
Sec. 2: All
Sec. 3: Lots 10, 11, 12, 13, 14, 15, 16, 17, 18, S½SW¼
Sec. 4: Lots 13, 14, 15, 16, S½S½
Sec. 5: All
Sec. 6: All
Sec. 7: All
Sec. 8: All North of the Centerline of the River and Town of Somerset
Sec. 9: All North of the Centerline of the River
Sec. 10: All North of the Centerline of the River
Sec. 11: Lots 1, 2, 3, 4, 5, 6, 7, 8,
Lot 9 North of the Centerline of the River,
NW¼SE¼ North of the Centerline of the River,
N½SW¼ North of the Centerline of the River,
NW¼SW¼ North of the Centerline of the River
Sec. 12: Lots 1, 2, 3, 4, 5, 6, 7, and 8 North of the Centerline of the River,
S½NW¼, SW¼NE¼, and
NW¼SW¼ North of the Centerline of the River
Sec. 17: NE¼NW¼, and NW¼NE¼, North of the Centerline of the River and the Town of Somerset

Township 13 South, Range 91 West, 6th PM

Sec. 1: All
Sec. 2: Lots 1, 2, 3, 4, S½NW¼ S½NE¼, SE¼, N½SW¼
Sec. 3: Lots 1, 2, 3, S½NE¼, N½SE¼
Sec. 11: E½NE¼
Sec. 12: All
Sec. 13: Lot 1, N½NE¼

The mine site is located north of the town of Somerset, Colorado. The North Fork of the Gunnison River is located south of the town of Somerset. The mine permit areas are located on the U.S. Geological Survey 7.5 minute Bowie and Somerset Quadrangle maps.

Proposed Decision

The Colorado Division of Reclamation, Mining and Safety proposes to approve the application Permit Revision No. 7. This decision is based on a finding that the operations will comply with all requirements of the Colorado State Program as found in the Colorado Surface Coal Mining Reclamation Act, C.R.S. 34-33-101, et seq., and the Regulations promulgated pursuant to the Act. If no request for a formal hearing is made within thirty (30) days of the first publication of the issuance of this proposed decision, then this decision becomes final. Upon submittal of acceptable surety by the applicant, the permit will be issued. The permit application, all supporting documentation and any stipulations or conditions will become a binding part of the permit.

There are no remaining stipulations carried over from previous permitting actions. The status of previous stipulations is summarized in the findings for Permit Renewal No. 4.

Summary

The Review Process

The Sanborn Creek and Elk Creek Mines, operated by Oxbow Mining, LLC (OMLLC), are located in Delta and Gunnison Counties, adjacent to the town of Somerset on State Highway 133.

The original permit under the Colorado Permanent Regulatory Program was issued to U.S. Steel Mining Company, Inc. on October 11, 1983. Kaiser Coal Corporation was operator on the property from 1986 to 1990. In 1990, under Succession of Operators No. 1 (SO-01) their permit was transferred to Somerset Mining Company and Somerset completed the permit renewal (RN-01) for another five-year permit term. That permit period initiated October 11, 1988 and expired October 11, 1993.

Permit Revision No. 1 (PR-01) was submitted to the Division on June 4, 1990 to open a new set of portals for the Sanborn Creek Mine accessing the C seam and subsequently ramping down to the B seam. This revision was approved on March 27, 1991. The permit area was increased by 962 acres to a total of 3737 acres, 1608 acres of which were private land and 2129 acres of which were federal land. Of the 962 acre increase in the permit area, 796 were private and 169 were federal.

Permit Revision No. 2 (PR-02) was submitted to the Division on April 13, 1992 to add the Sanborn East Federal Coal Tract to the mine plan. The Division approved the permit revision No. 2, with a stipulation, on September 25, 1992. OSM approval was received by the Division on March 19, 1993, and final approval of PR-02 was thereby issued. This revision increased the permit area by 1792 acres, including 70 acres of private land and 1722 acres of federal land. The total acreage of the permit area at this point was 5529 acres, 1678 acres of private land and 3851 acres of federal land.

The permit was transferred from Somerset Mining Company to Pacific Basin Resources on August 31, 1995, through Succession of Operator No. 2 (SO-02). At that time, the name of the mine was changed from the Somerset/Sanborn Creek Mine to the Sanborn Creek Mine (NC-01).

Permit Revision No. 3 (PR-03) was submitted to the Division on May 13, 1996. The operator requested, through this revision, to increase the permit area by 3,518 acres, to a total of 9,047 acres. Of the total permit acreage, 3,553 acres were private and 5,494 acres were federal. The increase in acreage was to incorporate the acquisition of the 160 acre Eastern Lease Modification, a 40 acre right-of-way and a permit boundary adjustment. Mining would continue in the B coal seam. PR-03 was approved on October 14, 1996, with stipulations numbers 21, 22 and 23 attached.

Succession of Operator No. 3 (SO-03) transferred the permit from Pacific Basin Resources to Oxbow Carbon & Minerals, Inc. This transfer was approved on February 20, 1997.

The permit was transferred from Oxbow Carbon & Minerals, Inc. to Oxbow Mining, Inc. on January 23, 1998 with Succession of Operator No. 4 (SO-04).

Oxbow Mining, Inc. submitted an application for permit renewal (RN-03) on March 13, 1998. The submittal was called complete by the Division on March 23, 1998, thereby securing the right of successive renewal for the Sanborn Creek Mine. The Division's adequacy review letter was dated July 30, 1999. Because the operator chose to rewrite and reorganize the entire Sanborn Creek Mine permit application, it was decided to separate the permit application reorganization effort from the permit renewal process. Since the permit renewal adequacy questions were more pertinent to the reorganization, rather than to the permit renewal itself, the OMI responses to the permit renewal adequacy review questions were submitted in a new Permit Revision No. 4. RN-03 was approved on September 25, 2000.

Permit Revision No. 4 (PR-04) was submitted September 5, 2000, and called complete September 15, 2000. DMG issued the decision on January 9, 2002. Because of computer problems with the Department of the Interior, the final AVS check was not accomplished until January 16, 2002. During the review of PR-04, the Division conducted a complete bond inspection of the mine and recalculated the reclamation bond liability at $3,117,145.00.

On September 19, 2001, Oxbow Mining, Inc., initiated the process of transferring the coal permit from that entity to Oxbow Elk Creek, LLC, and then to Oxbow Mining, LLC (OMLLC). This transfer of permit (SO-05) received approval on October 22, 2001. No comments were received, and the transfer became effective November 20, 2001.

OMLLC submitted an application for Permit Revision No. 5 (PR-05), received by the Division on February 15, 2003, to revise the Elk Creek Mine longwall plan and add a 160-acre lease modification to accommodate a reorientation of the longwall panels. The area of the lease modification was within the approved permit area. The application was initially found incomplete because the package did not contain information on the possible effects of subsidence on groundwater and surface water hydrology. Additional information was submitted and the application was called complete on August 1, 2002. Upon the submission of a revised D-seam subsidence report for the amended longwall orientation, PR-05 was approved on January 20, 2003. The federal mine plan approval was signed June 23, 2003 for mining in the D-seam.

OMLLC submitted an application for permit renewal (RN-04) on February 21, 2003. The submittal was called complete by the Division on March 3, 2003, thereby securing the right of successive renewal for the Sanborn Creek Mine. A preliminary adequacy letter was sent to Oxbow Mining LLC on March 10, 2003. Oxbow submitted materials to satisfy stipulations 25 and 34. A complete bond inspection was performed and the bond liability was confirmed as $3,117,045.00. RN-04 was approved on October 3, 2003.

On January 11, 2008, the Division notified Oxbow Mining, LLC of the impending permit renewal (RN-05) and the need to file a complete application by April 14, 2008. OMLLC

subsequently submitted an application for permit renewal, which was received by the Division on March 20, 2008. On March 24, 2008, the Division determined the application to be Complete for purposes of filing, and mailed Completeness letters to various federal, state and local agencies. The public notice announcing the completeness of the permit renewal application was published in the Delta County Independent for four consecutive weeks beginning March 26 and ending April 16, 2008. No comments were received by the Division concerning the renewal. The Applicant Violator System (AVS) was queried for any non-compliance issues relating to OMLLC. On December 16, 2008, the AVS gave an "issue" recommendation.

On July 28, 2011, OMLLC submitted an application for Permit Revision No. 6 (PR-6), which was deemed complete on August 8, 2011. A preliminary adequacy letter was sent to OMLLC on October 7, 2011. In the PR-6 application, OMLLC proposed mining in Federal Coal Lease Modification COC-61357 Tract 5 and the new Elk Creek East Federal coal lease COC-70615 although Oxbow did not have approval for either lease area. Because of delays in obtaining the Elk Creek East lease, OMLLC withdrew mining in that area from the PR-6 application. However, the permit boundary was increased by 2,247.4 acres which incorporated the lands within both proposed lease areas.

The Grand Mesa, Uncompahgre, and Gunnison (GMUG) prepared an Environmental Assessment (EA) of the lease modification to COC-61357 Tract 5 (USFS EA 2011) pursuant to the National Environmental Policy Act to analyze surface impacts related to the coal lease modification and came to a finding of No Significant Impact. On August 3, 2011, the GMUG prepared a Record of Decision Record providing consent to the BLM lease modification.

Wild Earth Guardians filed a Notice of Appeal (NOA) to the USFS decision on September 26, 2011. On November 7, 2011, a USFS Appeal Deciding Officer supported the Forest Supervisor's decision and approved the lease modification. OMLLC received the modified lease and right of entry from the BLM on May 7, 2012.

OMLLC submitted an application for Permit Revision No. 7 (PR-7) on May 29, 2012 which was deemed complete on June 6, 2012. In PR-7, OMLCC proposed to incorporate the Elk Creek East coal lease COC-70615 and mining in the new lease area. BLM issued the lease on July 1, 2012. PR-7 does not propose any changes to the permit boundary. The land area which includes Federal Coal Lease COC-70615 was incorporated into the permit during PR-6 in anticipation of its approval. Notice of PR-7 was published in the Delta County Independent on June 13, 20, 27 and July 4, 2012. No public comments were received on the proposed revision. A September 7, 2012 letter from the State Historic Preservation Officer made a finding of no historic properties affected for the proposed revision.

Description of the Environment

The surface land within the permit area is 15,676.51 acres of which 5,551 acres are privately-owned land and 10,125.51 acres are federally owned lands (USFS and BLM). The coal reserve owners include Oxbow Mining, LLC, other private entities and the U.S. Bureau of Land

Management.

Surface facilities are located in the Elk Creek, Bear Creek, Hubbard Creek and Sanborn Creek drainages on the north side of the North Fork of the Gunnison River. Mining areas include workings under the Hubbard, Elk, Bear Creek and Coal Gulch drainages. Proposed workings in the Sanborn Creek East Tract have undermined A, B, C and Hoopla Gulches, Bardine Canyon, Hawk's Nest Creek and an unnamed tributary of Thompson Creek. Hubbard Creek is a perennial tributary of the North Fork and provides both domestic and agricultural supplies of water. Bear Creek, Elk Creek and Sanborn Creek are intermittent streams. Coal Gulch, the unnamed drainage, A, B and C Gulches, Hawk's Nest Creek, Hoopla Gulch, Bardine Canyon and Thompson Creek are all ephemeral drainages that flow to the North Fork.

The North Fork River Basin contains a developed water supply providing agricultural water to the fruit growing region of the North Fork Valley. The North Fork River enters the main stem of the Gunnison River approximately 30 miles southwest of the Somerset Mine. The drainage basin of the North Fork is mountainous, bounded to the west by the Raggeds, the Ruby Range, to the east by the Huntsman Ridge, to the South by the West Elk Mountains, and to the North by Grand Mesa. Elevations in the basin range from 13,058 feet atop Mt. Owen in the Ruby Range, to 5,100 feet at the confluence of the North Fork with the Gunnison River. The town of Somerset, Colorado, immediately adjacent to the Somerset Mine site, is at an elevation of 6,045 feet.

Ground reconnaissance during 1978, 1979 and 1980 identified Elk No. 1 Spring as the only location with ground water surfacing within the original Somerset permit area, and this had a flow rate of less than one gallon per minute. It is concluded that there is no large ground water reservoir in the area.

Western Slope Carbon identified and monitored 11 springs within or adjacent to the Sanborn East Tract. Monitoring records are available from 1983 through 1987. Somerset Mining Company, now Oxbow Mining, LLC, resumed monitoring these springs in July 1992. Springs 1 through 6 are located along the north boundary of the Sanborn East Tract in the northern portion of Section 2. Springs 7 through 11 are located along the southern boundary of the new tract. The locations of the springs are shown on Map 2.04-M5.

With Permit Revision No. 5 (PR-05), Oxbow Mining LLC undertook a new survey of surface water resources in the Elk Creek Mine tract. While there are no adjudicated water resources in that tract, the USFS and USBLM requested that OMLLC inventory the resources. Resources identified were added to Map 2.04-M5.

The topography of the region is characterized by steep canyons cut by the North Fork of the Gunnison River and its tributaries, with several remnant alluvial terraces above the valley of the North Fork. Proceeding downstream below Somerset, Colorado, the canyon widens. At Paonia, Colorado, the canyon has given way to a broad alluvial plain with interspersed remnant alluvial terraces. The coal to be mined is located in the Somerset Coal Field. The strata exposed in the

Somerset Coal Field consist of the Mancos Shale and the coal-bearing Mesaverde Formation of Upper Cretaceous Age, and of the Ohio Creek Conglomerate, the Wasatch Formation and the Quartz Monzonite Porphyry of Early Tertiary Age. Coal is mined from the Mesaverde Formation, a 2,500 foot thick sequence of sedimentary strata overlain by the Ohio Creek Conglomerate and underlain by the Mancos Shale. The strata in the Sanborn Creek and Elk Creek Mines permit area dip three to five degrees north-northeast within the permit area, but varies locally.

The Mesaverde Formation contains a number of coal-bearing members. The Somerset Mine mined coal from the B-2 seam of the lower coal bearing (Bowie) member of the Mesaverde Formation. The Sanborn Creek and Sanborn Creek East additions mined the B and C seams of this member. The Elk Creek mine ramps down to the D-seam and will mine that level. The Lower Coal member ranges from 260 to 350 feet thick in the Somerset Coal Field and bears three minable coal seams. This member consists of interbedded and lenticular sandstones, siltstones and coals, and is overlain by massive sandstone 25 to 225 feet thick which lies directly on the C seam and marks the bottom of the upper coal member.

Three categories of potential aquifers exist in the general area: alluvial deposits associated with the North Fork of the Gunnison River and its tributaries, the Rollins Sandstone, and lenticular discontinuous sandstones of the Upper Mesaverde Formation.

The largest alluvial aquifers are associated with the North Fork of the Gunnison River. Smaller, more isolated alluvial aquifers are associated with several tributaries of the North Fork.

The Rollins Sandstone is the only known sandstone with sufficient porosity and lateral extent to be considered a regional bedrock aquifer. The only wells in the region which are completed in this aquifer are located near the Hawk's Nest Mine along the North Fork.

Localized perched bedrock aquifers exist in the discontinuous, lenticular, fine-grained sandstones of the Upper Mesaverde Formation. The amount of ground water in these sandstones is controlled by faulting and fracturing of the strata (secondary porosity) and the topography of the recharge area. No known wells are completed in the sandstones of the Upper Mesaverde Formation above the mine workings.

The valley in which the towns of Paonia and Somerset are situated is semi-arid, with annual precipitation averaging about 15 inches per year. Mean annual precipitation increases with elevation, reaching over 40 inches per year near the summit of Mt. Owen. The May to September precipitation is five inches for the lowlands and 13 inches for the mountain peaks. This indicates that snowfall patterns play an important part in determining the hydrologic conditions of the area. Temperature extremes at Paonia have ranged from –28^{o}F in January to 100^{o}F during July and August. The average annual temperature is approximately 49^{o}F. Snowfall averages 58 inches per year.

The general area in which the Elk Creek / Sanborn Creek Mines are located is characterized by

steeply sloping mountains covered either with tall shrub vegetation dominated by oakbrush and serviceberry, or stands of pinyon and juniper trees. Drainages in the area are lined with riparian vegetation communities along the stream banks. Some of the more level areas have been cleared and support limited livestock grazing; however, for the most part, the surrounding land is undeveloped and is used primarily as wildlife habitat. Recreational activities such as big game hunting, trapping, fishing, and off-road driving also occur in the general area.

The Elk Creek portal facilities are approximately a half mile up the Elk Creek canyon from the town of Somerset and are located at the contact of the alluvium of the North Fork and steep upland sedimentary formations.

Sanborn Creek Tract portal facilities were just east of Sanborn Creek or approximately one mile east of the town of Somerset. Oxbow Mining LLC began the reclamation of these facilities in the summer of 2003.

Description of the Operations and Reclamation Plan

The Somerset Mine, now the Elk Creek and Sanborn Creek Mines, has been in operation since 1902. Operations have evolved from the earlier hand method of mining, to continuous mining methods, and, finally, to longwall mining.

The conventional room and pillar mining system used continuous miners, shuttle cars, conveyors and/or rail cars. All coal was transported to the surface using rail cars. Approximately 12 to 14 feet of the B seam were mined in the development and retreat cycle. Annual production in the mine was approximately 900,000 tons per year.

Once at the surface, the rail cars dumped the coal at the dump station where it was conveyed to the tipple. The coal was crushed at the tipple then conveyed to the coal storage silo. The silo, a cylindrical cement structure, straddles the Denver and Rio Grande Western Railroad track and was used to load unit trains.

The Sanborn Creek addition to the Somerset Mine, now the Sanborn Creek and Elk Creek Mines, is located approximately one mile east of the town of Somerset. Initially, this part of the mine was developed and mined using conventional room and pillar techniques with the same conventional equipment as previously discussed, except that conveyors were used in place of rail cars. Annual production of this part of the mine was projected to be about 750,000 tons per year. Upon opening the portals, coal was first trucked to the tipple at the Elk Creek yard. A conveyor system was built while developing the first part of the Sanborn Creek addition. The conveyor system was used instead of haul trucks to convey coal from the Sanborn Creek portals to the tipple at the Elk Creek yard.

The Sanborn Creek East Tract and the East Tract modification are located adjacent to the original Sanborn Creek addition on the eastern boundary and is an underground continuation of the Sanborn workings. No additional surface disturbance was required. Method of operations

and production rate projections remained the same.

With the approval of Technical Revision No. 24 on February 15, 1995, the coal production level at the mine was increased to 1.3 million tons per year. The production level at the loadout was increased to 1.6 million tons per year. The mine plan was also changed to accommodate the increase in production. Continuous mining was still the mining method used.

With the approval of Technical Revision No. 29 on July 15, 1997, Oxbow Mining, Inc started the longwall mining method. The anticipated annual coal production was increased from 1.3 million tons per year to 4 million tons per year. To handle this increase in production, this revision also approved Oxbow Mining's plans to improve the coal handling facilities, increase the coal stockpile size, construct a new coal waste disposal site, move existing or build new support facilities and modify the train loadout for the new production rate.

The West Valley Fill coal refuse area was permitted through Technical Revision No. 29 for use when the East Yard waste pile was filled to capacity. The operator began using the West Valley Fill coal refuse area during the third quarter of 2000. TR-43 approved the new II West Coal Refuse Facility in October 2003.

On January 26, 1999, Oxbow Mining evacuated the Sanborn Creek Mine due to elevated levels of carbon monoxide. The concern was that the elevated levels may have indicated a mine fire. The Mine Safety and Health Administration (MSHA) and the DMG were notified. Emergency measures were taken to seal the mine openings. Two days after the sealing of the mine openings, there was an explosion in the mine, presumably due to a buildup of methane. MSHA directed Oxbow Mining to drill emergency boreholes into the mine, for water injection and for gas monitoring. In February of 1999, Oxbow Mining pumped about 88 acre-feet of water from the North Fork of the Gunnison River, through one of the emergency boreholes, into the Sanborn Creek Mine in the longwall area where the spontaneous combustion event was suspected of being located.

In April of 1999, Oxbow Mining concluded that additional inflow was coming into the mine and might flood the longwall equipment. The source of the additional inflow was not known but the approximate rate of inflow was about 200 gpm. With Division approval through Technical Revision No. 34, Oxbow pumped out mine water into the North Fork of the Gunnison at a rate of about 2000 gpm. The pumping occurred from July 1999 to the first week of October 1999. The operator decided to dewater only half of the longwall panel in question and stabilize the water level in the mine thereafter. The longwall restarted operations at the beginning of November 1999.

In anticipation of the mining out of the Sanborn Creek Mine B seam reserves, Oxbow Mining, Inc. submitted, on November 6, 1998, a revision to begin construction of the new Elk Creek Mine. Technical Revision No. 32 sought Division approval to construct the new portals and their associated surface facilities, and to begin mining of private coal at this new mine. The construction proposed in TR-32 increased the disturbed area by 23.7 acres north of the main

Sanborn Creek Mine facilities, along the west side of Elk Creek. TR-32 was approved in July 2000.

In TR-32, Oxbow Mining proposed to construct two temporary fills over Elk Creek. Fill material was placed within the channel of Elk Creek and the creek flow was diverted through two nine-foot diameter culverts buried by the two fills. Oxbow Mining submitted a geotechnical stability analysis demonstrating that the two fills in Elk Creek will be stable. For final reclamation of the Elk Creek Mine facilities, the two nine-foot culverts will be removed and the Elk Creek channel will be reconstructed in compliance with Rule 4.05.4.

These activities proposed in TR-32 required specific authorization by the Division in accordance with Rule 4.05.4(4), Stream Channel Diversions (Relocation of Streams) and Stream Channel Reconstruction, and Rule 4.05.18, Stream Buffer Zones. Therefore, the Division made the findings that the original stream channel will be reconstructed at the completion of mining, that the water quantity and quality from the stream section within 100 feet of the surface coal mining operations will not be adversely affected during and after mining, and that appropriate riparian vegetation will be reestablished.

Permit Revision 5 required a mine plan approval from the US Office of Surface Mining and Reclamation, to cover activities in the Elk Creek tract which was received on May 13, 2003. This Elk Creek operation ramps down from the floor of the Elk Creek Canyon into the D-seam. Development mining had already been approved at the time of the permit revision; longwall mining into the Elk Creek tract was approved by the revision and by the federal mine plan approval.

Mining ceased on the Sanborn Creek Mine in the spring of 2003. Oxbow Mining LLC began immediately to reclaim the Sanborn Creek facilities. The conveyer was dismantled and removed in the summer of 2003, the portals were sealed and regraded, and the Sanborn Creek fan shaft was backfilled.

Since the most recent Renewal Findings Document was published (RN-05 on February 9, 2009), twenty four revisions have been approved, itemized as follows:

<u>Eleven Technical Revisions (TRs)</u>

- TR-63, approved June 15, 2009 added gob vent boreholes, drill pads and associated light use roads.
- TR-64, approved March 19, 2010, added 3 gob vent boreholes, drill pads and associated light use roads.
- TR-65, approved June 17, 2010, added 33 gob vent boreholes, drill pads and associated light use roads.
- TR-66, approved March 12, 2010, modified the procedures for sealing gob vent boreholes.
- TR-67, approved April 28, 2010, allowed for 9 exploration boreholes for Federal Coal Lease

COC-61357.

- TR-68, approved April 28, 2010, allowed for a methane drainage borehole and electric driven methane exhauster system.
- TR-69, approved July 7, 2010, revised the mine plan.
- TR-70, pending, proposed a borehole to recover methane from the abandoned and sealed Sanborn Creek Mine workings.
- TR-71, approved August 29, 2011, modified the gob vent borehole plan.
- TR-72, pending, proposed to modify the gob vent borehole plan on surface managed by the USFS within the Springhouse Park IRA.
- TR-73, approved February 17, 2012, allowed the construction of a coal mine, methane fueled, electricity generator and relocation of an alluvial monitoring well.

Thirteen Minor Revisions (MRs)

- MR-88, approved May 13, 2009, modified the Bear Creek Fansite utility borehole sizes.
- MR-89, approved June 4, 2010, approved the addition of an air compressor building.
- MR-90, approved July 28, 2010, move one gob vent bore hole.
- MR-91, approve September 17, 2010, incorporate bore hole abandonment reports into the PAP.
- MR-92, approved September 21, 2010, provided for two angle bore holes at existing pads.
- MR-93, approved December 20, 2010, provided for four angle bore holes at existing pads.
- MR-94, approved January 4, 2011, incorporated bore hole abandonment reports and an as-built map for the Bear Creek Fansite.
- MR-95, approved March 22, 2011, provided for sixteen angle bore holes at existing pads.
- MR-96, approved June 1, 2011, provided for two angle bore holes at existing pads.
- MR-97, approved January 3, 2012, addition of ventilation fan at Bear Creek Fansite.
- MR-98, approved February 16, 2012, updated ownership and control information.
- MR-99, approved April 16, 2012, provided for four angle bore holes at existing pads.
- MR-100, approved June 25, 2012, incorporate COGCC well permit for methane fueled electricity generation plant into PAP.

As the mine has been in operation since 1902, much of the disturbed area associated with the mine was affected prior to the effective date of the Surface Mining Control and Reclamation Act of 1977 and the Colorado Surface Coal Mining Reclamation Act. Baseline environmental factors were not measured, and no topsoil was salvaged prior to previous disturbance. Disturbances which have been conducted since the effective date of the Act have been permitted and conducted in compliance with the Act and Regulations. These activities include the Hubbard Creek Ventilation Fan No. 2 facility, the methane degas wells, the Sanborn Creek Tract, the Elk Creek Facilities, the West Valley and II West Coal Refuse Facilities, and the new Bear Creek Fansite Facility. All other areas of disturbance at the mine occurred prior to the effective date of the Act.

All surfaces will be returned to the approximate original contour (AOC) with two exceptions.

The original Bear Creek and Hubbard Creek ventilation facilities will be backfilled only to the extent practical, given the fact that these small facilities areas are pre-existing and cut into steep slopes. Furthermore, requests are on file from the federal agencies who manage the surface in those areas to maintain them in their present condition – as gravel pad parking lots for users of the access. These requests are from the US Forest Service for the Upper Hubbard Creek area and from the US Bureau of Land Management for the Lower Hubbard Creek site.

A variance from AOC has been granted in accordance with the backfilling and grading provisions of the Regulations (see Section VII of this document). Permanent waste piles will be blended into the surrounding topography. The main mine access road will be left in place following mining in order to provide access to the Somerset Cemetery and Elk Creek. The power line access road and power line corridor will be reclaimed.

Following grading, all pre-law disturbed areas in the Elk Creek yard will have surface material sampled to determine if it will be suitable for direct revegetation. The Sanborn Creek Tract disturbance will be sampled in a similar fashion. If it is found that the surface material is not suitable, the area will be top-dressed with suitable materials obtained from excavation for reestablishment of the Elk Creek drainage from a borrow area near the backfilled Elk Creek access portals or from topsoil stockpiles. Suitable plant growth medium will be spread to a thickness of six inches. The area will then be seeded with the approved seed mixture and mulched at the rate of 4,000 pounds of straw per acre. Straw will be crimped along the contour.

Somerset Mining Company, now Oxbow Mining, LLC, conducted a detailed soil survey and vegetation survey of the areas to be affected by development of the Sanborn Creek portals, haul road and conveyor facilities. These surveys indicated that approximately 8,850 cubic yards of soil could be salvaged from these areas and that vegetation in the portal area and along the conveyor/haul road corridor was substantially the same as the surrounding vegetative types. Soil salvaged from these areas will be used for reclamation activities. However, soil on the Sanborn Creek disturbance will not necessarily be replaced to the same original thickness, as discussed in the Topsoil section below.

U.S. Steel conducted a vegetation survey of unaffected land adjacent to the surface-disturbed areas for the purpose of developing a reclamation plan for the surface-disturbed area. A native seed mix has been approved which is representative of the adjacent unaffected lands. The surface will be returned to rangeland and wildlife habitat which is the present status of adjacent lands and the pre-mining land use of the disturbed area.

In 2005, OMLLC commissioned two new Block Clearances for the Elk Creek and Sanborn Creek Mines: a Class III Cultural Resource Inventory and a Biological Project (wildlife and habitat survey for Threatened, Endangered and Sensitive Species and Management Indicator Species). These studies may be found in Exhibit 2.04-E7 (Vol. 8).

Findings of the
Colorado Division of Reclamation, Mining and Safety
for
Elk Creek and Sanborn Creek Mines

Explanation of Findings

Pursuant to Rule 2.07.6(2) of the Regulations of the Colorado Mined Land Reclamation Board for Coal Mining and the approved state program, the Division of Reclamation, Mining and Safety or the Mined Land Reclamation Board must make specific written findings prior to issuance of a permit, permit renewal or permit revision. These findings are based on information made available to the Division that demonstrates that the applicant will be able to operate in compliance with the Colorado Surface Coal Mining Reclamation Act and the Regulations promulgated pursuant to the Act.

The findings in the following sections required by Rule 2.07.6(2) are listed in accordance with that Rule. The findings and specific approvals required pursuant to Rule 2.07.6(2)(m) are listed in accordance with Rule 4 and are organized under subject or discipline subtitles.

This Findings Document has been updated for this permit revision. The following findings have been reevaluated and updated as necessary to reflect changes which will occur as a result of this permit renewal.

SECTION A

Findings Required by Rule 2.07.6(2).

1. The permit application is accurate and complete. All requirements of the Act and these rules have been complied with (2.07.6(2)(a)).

2. Based on information contained in the permit application and other information available to the Division, the Division finds that surface coal mining and reclamation can be feasibly accomplished at the Elk Creek and Sanborn Creek Mines (2.07.6(2)(b)).

3. The assessment of the probable cumulative impacts of all anticipated coal mining in the general area on the hydrologic balance as described in 2.05.6(3) has been made by the Division. This assessment, entitled "Cumulative Hydrologic Impact Study; North Fork of the Gunnison River," is available for inspection at the offices of the Division. The Division finds that the operations proposed under the application have been designed to prevent damage to the hydrologic balance outside the proposed permit area (2.07.6(2)(c)).

4. The Division finds that the permit area is, subject to valid rights existing as of August 3,

1977, not within:

a) An area designated unsuitable for surface coal mining operations (2.07.6(2)(d)(i)). Approximately 6.6 acres within the Sanborn East Tract are unsuitable for mining because they are within the 100-year flood plain of the North Fork of the Gunnison River (Unsuitability Criterion No. 16, verbal, Lynn Lewis, BLM, Montrose District Office, March 10, 1992). The 100-year flood plain is located south of old State Highway 133. The Sanborn Creek Tract mine plan is designed so the lateral extent of subsidence will extend no further south than the north edge of old State Highway 133. Therefore, the Sanborn Creek additions will not mine within 6.6 acres that have been classified as unsuitable for mining.

b) An area under study for designation as unsuitable for surface coal mining operations (2.07.6(2)(d)(ii));

c) The boundaries of the National Park System, the National Wildlife Refuge System, the National System of Trails, the National Wilderness Preservation System, the Wild and Scenic Rivers System including rivers under study for designation, and National Recreation Areas (2.07.6(2)(d)(iii)(A));

d) Three hundred feet of any public building, school, church, community or institutional building, or public park (2.07.6(2)(d)(iii)(B));

e) U.S. Steel (the original permittee) provided drawings showing the extent of mine workings at the date of August 3, 1977, that are subject to prior existing rights. Portions of the mine operations were within 300 feet of occupied dwellings and within 100 feet of a small cemetery in the town of Somerset. This portion of the affected area is subject to prior existing rights. Oxbow Mining LLC is therefore exempt from the requirements of Rule 2.03.7(3) to obtain waivers from the owners of the dwellings within 300 feet of the operations and Rule 2.07.6(2)(d)(iii)(c) within 100 feet of a cemetery.

f) The boundaries of any National Forest unless the required finding of compatibility has been made by the Secretary of the U.S. Department of Agriculture. A letter of compatibility was mailed to Somerset Mining Company, now Oxbow Mining, LLC, on April 19, 1990 (2.07.6(2)(d)(iii)(D)). The letter was signed by U.S. Forest Service District Ranger Steven L. Posey, who, by law, has been given the power to sign for the Secretary of the Department of Agriculture.

g) One hundred feet of the outside right-of-way line of any public road except where mine access or haul roads join such line, and excepting any roads for which the necessary approvals have been received, notices published, public hearing opportunities provided, and written findings made (2.07.6(2)(d)(iv)). The Sanborn Creek Tract permit area and Sanborn East Tract permit area are located within 100 feet

of State Highway 133. According to information contained in Permit Revision No. 1, and received from the public meeting held on March 21, 1991 in the town of Somerset (no public meeting was requested for Sanborn East Tract), the Division finds that:

1) the applicant has obtained the necessary approvals from the Colorado Department of Transportation, and

2) the interests of the public and affected landowners will be protected from the proposed mining operations.

h) Three hundred feet of an occupied dwelling unless a written waiver from the owner has been provided (2.07.6(2)(d)(v)). Occupied dwellings are within 300 feet of the operator's surface operations. Since the Somerset Mine was a pre-existing operation, waivers from the owners of these dwellings are not necessary. The operator proposes no additional activities within 300 feet of any known occupied dwelling.

5. On the basis of information submitted by Somerset Mining Company, now Oxbow Mining, LLC., in the form of two separate studies, one conducted by Centuries Research, Inc. and one by Grand River Institute, and a September 7, 2012 letter from the Colorado State Historic Preservation Officer, the Division finds that subject to valid existing rights as of August 3, l977, the mining operation will not adversely affect any publicly owned park or place listed on or eligible for listing in the National Register of Historic Places as determined by the State Historic Preservation Office (2.07.6(2)(e)(i)).

6. For this surface mining operation, private mineral estate has not been severed from private surface estate; therefore, the documentation specified by Rule 2.03.6(2) is not required (2.07.6(2)(f)).

7. On the basis of evidence submitted by the applicant and received from other state and federal agencies as a result of the Section 34-33-114(3) compliance review required by the Colorado Surface Coal Mining Reclamation Act, the Division finds that Oxbow Mining, LLC does not own or control any operations which are currently in violation of any law, rule, or regulation of the United States, or any State law, rule, or regulation, or any provision of the Surface Mining Control and Reclamation Act or the Colorado Surface Coal Mining Reclamation Act (2.07.6(2)(g)(i)).

8. Oxbow Mining, LLC does not control and has not controlled mining operations with a demonstrated pattern of willful violations of the Act of such nature, duration, and with such resulting irreparable damage to the environment as to indicate an intent not to comply with the provisions of the Act (2.07.6(2)(h)).

9. The Division finds that surface coal mining and reclamation operations to be performed under this permit will not be inconsistent with other such operations anticipated to be performed in areas adjacent to the permit area (2.07.6(2)(i)).

10. The Division currently holds an approved Corporate Surety Bond No. 1069009 in the amount of $4,871,606.00, which is greater than the current bond liability estimate at the time of the revision.

    That total bond amount reflects the Division's projection of reclamation costs for maximum disturbance anticipates occurring during the proposed permit term.

11. The Division has made a negative determination for the presence of prime farmland within the permit area. The decision was based on a letter from the USDA Soil Conservation Service that demonstrates that no prime farmland mapping units are found within the permit area (2.07.6(2)(k)).

12. The Division has made a negative determination for the existence of alluvial valley floors within the permit area. This determination is based on information provided by the applicant which demonstrates that none of the land within the permit area has been historically used as cropland (2.07.6(2)(k) and 2.06.8(3)(c)).

13. The Division hereby approves the post-mining land use of the operation. It was determined that Undeveloped Land meets the requirements of Rule 4.16 for the permit area (2.07.6(2)(1)).

14. Specific approvals have been granted or are proposed. These approvals are addressed in the following section, Section B (2.07.6(2)(m)).

15. The Division finds that the activities proposed by the applicant would not affect the continued existence of endangered or threatened species or result in the destruction or adverse modification of their critical habitats (2.07.6(2)(n)).

16. As of this time the operator is current in the payment of reclamation fees required by 30 CFR Chapter VII, subchapter R (2.07.6(2)(O)).

SECTION B

The following findings and specific approvals are required by Rule 4:

I. Roads - Rule 4.03

A. Haul Roads

1. The Division has approved the retention of the haul road leading to the town of Somerset's cemetery and water supply since it is compatible with the approved post-mining land use, and a request for its retention was submitted by the

landowner (4.03.1(1))f)(i)).

2. The Division has approved the location of a portion of the haul road in the channel of an intermittent stream (Sanborn Creek) as depicted on Map No. 2.05-M1 (4.03.1(2)(b)).

3. The Division has approved the location of a portion of the Elk Creek Haul Road in the channel of Elk Creek, an ephemeral stream, as depicted on Map No. 2.05-M1 (4.03.1(2)(b)).

B. Access Roads

1. The Division has approved the location of a portion of the access road to the lower Hubbard Creek facilities in the channel of a perennial stream as depicted on Map No. 17, Section 2.05 of the permit application (4.03.2(2)(b)). This road was constructed prior to 1977, and the culvert and associated fill across Hubbard Creek will be removed upon cessation of mining (see p. 2.05-53 and Exhibit 2.05-E5.)

C. Light Use Roads

1. The Division has approved the location of a portion of the Bear Creek Fansite Light Use Road in the channel of Bear Creek, an ephemeral stream, as depicted on Drawing No. 2.05-E1-BCA2 (4.03.3(2)(b)).

II. Support Facilities - Rule 4.04

A. Construction of support facilities for the Sanborn Creek Tract resulted in the relocation of a section of railroad track adjacent to the permit area. Upon receipt of written approval from the railroad owner, the Division approved this activity. (4.04(6)).

III. Hydrologic Balance - Rule 4.05

A. Water Quality Standards and Effluent Limitations

1. The Division has approved small area exemptions from use of sediment ponds due to the limited size of certain areas and due to the fact that ponds and treatment facilities are not necessary for the drainage from these areas to meet the effluent limitations of Rule 4.05.2 and applicable State and Federal water quality standards for receiving streams, and also due to the fact that no mixing of surface drainage with a discharge from underground workings will occur. The small areas to be exempted are detailed in Exhibit 2.05-3 (vol. 10). The

lower Hubbard Creek small area exemption can be found on drawing #8-3351R in Exhibit 2.05-1 (Vol. 9). The Bear Creek Fansite small area exemptions can be found on Drawing No. 2.05-E1-BCA-2 (Vol. 9).

B. Diversions and Conveyance of Overland Flow

1. Specific drainage control plans are presented on pages 2.05-34 to 38. Ditch locations are shown on Map 2.05-M4 (sheets 1 through 6, Vol. 3).

C. Stream Channel Diversions

1. The Division has approved the diversion of an intermittent stream (Elk Creek). This decision is based on a finding that the proposed diversion meets the requirements of 4.05.l8 and 4.05.4, applicable local, State, and Federal statutes and regulations and that the diversion is designed to safeguard public safety and to minimize adverse impacts to the hydrologic balance (4.05.4(1) and (4)). Specifically, the following findings were made:

   (a) The stream channel will be reconstructed in accordance with the requirements of Rule 4.05.4 (4).

   (b) During and after mining, the water quantity and quality from the stream section within 100 feet of the surface coal mining operations shall not be adversely affected.

   (c) The reclamation plan provides for the reestablishment of appropriate riparian vegetation.

2. The Division has approved the diversion of an intermittent stream (Bear Creek). This decision is based on a finding that the proposed diversion meets the requirements of 4.05.18 and 4.05.4; applicable local, State and Federal statutes and regulations; and that the diversion is designed to safeguard public safety and to minimize adverse impacts to the hydrologic balance [4.05.4(1) and (4)]. Specifically, the following findings were made:

   (a) The stream channel will be reconstructed in accordance with the requirements of Rule 4.05.4.

   (b) During and after mining, the water quantity and quality from the stream section within 100 feet of the surface coal mining operations shall not be adversely affected.

   (c) The reclamation plan provides for the reestablishment of appropriate Mountain Shrubland vegetation.

D. Sedimentation Ponds

1. Disturbed areas in the main facilities area and yard are treated by two sediment ponds, Ponds A and B. Pond C controls sediment from the approved West Valley Coal Refuse Facility. Pond D treats runoff from the disturbed areas developed up the Elk Creek Canyon for the Elk Creek Mine. Pond E controls sediment from the approved II West Coal Refuse Facility. The Hubbard Creek Pond controls sediment from the Upper Hubbard Creek facilities area, and the East Yard Pond controls sediment from the east yard of the Elk Creek facilities yard. One additional pond was approved for treatment of underground discharge from the Sanborn Creek portals and will be retained for use with the water treatment plant for the town of Somerset. Specific plans are found within section 6 of Exhibit 2.05-E3, volume 10 of the permit document. All ponds are designed in compliance with Rule 4.05.6.

E. Acid-forming and Toxic-forming Spoil

1. There is no evidence of acid- or toxic-forming material at this site.

F. Impoundments

Refer to Section D, Sedimentation Ponds, above.

G. Surface and Ground Water Monitoring

1. The applicant will conduct monitoring of ground water in a manner approved by the Division. The ground water monitoring plan is specified on Page 2.04-41of the permit document (4.05.l3(l)).

2. The applicant will conduct monitoring of surface water in a manner approved by the Division. The monitoring plan was submitted under 2.05.6(3)(b)(iv) and as specified on page 2.05-46iii of the permit document (4.05.l3(2)).

I. Discharge of Water into an Underground Mine

1. Discharge of water to underground workings will not occur.

J. Stream Buffer Zones

1. The Division has approved surface and underground mining activities within l00 feet or through perennial streams. This decision was based on a finding that on Hubbard Creek the original stream channel will be restored, water quality and quantity shall not be adversely affected, and appropriate riparian

vegetation will be reestablished. On the North Fork of the Gunnison, the decision was based on the fact that the original stream channel would not be affected and water quality and quantity would not be adversely affected. The buffer zone variance was granted for the areas located at the stream crossing and pre-law bench area at the lower Hubbard Creek site and the topsoil stockpile at the upper Hubbard Creek site. The buffer zone variances on the North Fork of the Gunnison are located at the alluvial well and leach fields just above and below the town of Somerset (4.05.l8(l)).

2. The Division has approved surface and underground mining operations within and through Elk Creek, an intermittent stream. The Division made the findings that: 1) the stream channel will be reconstructed in accordance with the requirements of Rule 4.05.4(4), 2) during and after mining, the water quantity and quality from the stream section within 100 feet of the surface coal mining operations shall not be adversely affected, and 3) the reclamation plan provides for the reestablishment of appropriate riparian vegetation.

3. The Division has also approved surface and underground mining operations within and through Bear Creek, an ephemeral stream. The Division made the findings that: 1) the stream channel will be reconstructed in accordance with the requirements of Rule 4.05.4; 2) during and after mining, the water quantity and quality from the stream section within 100 feet of the surface coal mining operations shall not be adversely affected; and 3) the reclamation plan provides for the reestablishment of appropriate riparian vegetation.

K. Probable Hydrologic Consequences of Mining (2.05.6(3)(b)(iii))

This section reviews the Probable Hydrologic Consequences (PHC) of mining at the Somerset Mine, Sanborn Creek, and Elk Creek Mine locations. The review includes the probable consequences which will result from the three mines. The Cumulative Hydrologic Impact Study (CHIS) for the North Fork of the Gunnison River contains a detailed analysis of the cumulative impacts of all currently permitted mine activities within the North Fork of the Gunnison River drainage basin. The CHIS document is available for review at the Division office. This PHC is based upon information contained within Permit No. C-81-022 (Somerset Mine, Sanborn Creek Mine, and Elk Creek Mine) and upon the analyses contained within the CHIS for the North Fork Gunnison River. The PHC separately addresses potential effects on groundwater and surface water.

Effects on Groundwater

Mining of the Elk Creek Mine will have some impact the groundwater regime within the immediate area of the proposed operation, but, as with the Somerset and Sanborn Creek Mines, the impact will not cause material damage to the ground

water regime.

Though the Sanborn Creek operation mined both the B and C seams that had been mined before at the old Somerset Mine, the Sanborn Creek Mine was not connected to the old workings and was protected by a 100-foot buffer. The old Somerset mine is thought to be flooded and that buffer was apparently successful in protecting the newer operation from inundation from the old workings. The 100-foot buffer was maintained by advance drilling to find the location of the old workings.

Mine water inflow into the Sanborn Creek workings is estimated to be 425 gpm or less. The old Somerset Mine had an inflow rate of 0.15667 gpm/acre for the 1,500 acres of development in the mine that was below the level of the North Fork River. Projecting this rate to the 2,600 acres of the Sanborn Tracts yields an inflow of 407 gpm. The operator has rounded this figure to 425 gpm in the permit document. It is not known at the time of this findings document what the source of the mine inflow water was during the spontaneous combustion problem in 1999. The operator has also projected an additional 235 gpm discharge from the old Somerset Mine, which might reach the North Fork via the alluvial system. This is considered to be extremely unlikely; however, the projection is used in the CHIS to allow for absolute worst-case prediction. The following are potential sources for inflow:

1. The North Fork of the Gunnison River is 750 feet to the south and 100 feet above the proposed B-seam workings and 40 feet above the C-seam workings. Groundwater is expected to travel down dip from the river through the coal and overburden into the mine workings. Because of the low permeability of the coal and overburden, calculations have shown that these flows should be minor. The flows can be expected to occur with a considerable lag time. There will be a comparable diminution of flow in the North Fork but mine pumpage will return this amount to the river, minus that used in the mine. The cone of depression from dewatering of the strata will only extend to the boundary of the North Fork and will not adversely impact any wells.

2. The potential exists that the mine may encounter water inflow from faults and fractures. No particular faults have been identified. The largest fault that the old Somerset Mine encountered had a sustained inflow of 120 gpm, which contributed 50 percent of the total inflow.

3. The Sanborn Creek workings undermined portions of two abandoned mines - the Oliver Mine and the Hawk's Nest Mine. The Oliver Mine was mined in the 1930's and is thought to be flooded. An exposure of the workings adjacent to the old county road formerly discharged water at a rate of a few gallons per minute. About 90 percent of the workings of this mine lay downdip of the discharge point.

The Hawk's Nest Mine lies north of the Oliver Mine and is stratigraphically higher than the Oliver D seam. Hawk's Nest mined in both the E and F seams. The workings of this mine are probably not flooded, as indicated by measurements in an old drill hole. Also, during operation of the Hawk's Nest Mine, there was very little inflow.

Because potential exists for subsidence to cause fracturing of the interburden between the B seam and the flooded workings of the Oliver Mine, Oxbow Mining, LLC limited extraction in the Sanborn Creek Tracts under those areas known to be flooded.

4. In the now-abandoned Hawk's Nest Mine several drill holes were drilled down from the active mine into lower seams. It is believed that these holes are not sealed and could provide a conduit for water to flow into the Sanborn Creek mine; however, as reported in the PHC, there was no evidence of flooding of the mine at the time of this renewal.

Mine inflow, except that used in the mining process, will be treated and discharged to the North Fork. The discharge will meet NPDES standards, but it is expected that the discharge will have an elevated TDS for which there are no discharge standards. From recent water quality analyses, TDS values of 3,200 mg/l for the discharge can be expected. During the emergency mine water discharge of the Sanborn Creek Mine in 1999, water quality analyses of the discharge water showed TDS ranging from a low of 2668 mg/l to a high of 4785 mg/l.

Post-mining impacts are expected to be small. The Sanborn Creek mine is expected to slowly flood to the level of the river, which is below the elevation of the portal. Discharge from the portal is unlikely. The water quality of the flooded workings is anticipated to be the same as that of the old Somerset Mine. After mine closure, the proposed Sanborn Creek area is not expected to contribute additional dissolved solids to the river.

The Elk Creek Mine, based on data from other mines in the vicinity, should not experience problems with inflow or eventual discharge from the portal. Inflows experienced in the vicinity include 115 gpm in the B seam at Oxbow, 15 gpm in the C seam at Oxbow, and very little water at all in the D-seam in Bowie I and II, with inflows of approximately 10 gpm. These inflow totals led to the conclusion that there is little likelihood of eventual discharge from the portals.

In October 2004, the Division approved TR-47, which proposed to transfer mine sump water from the D-Seam to the underlying abandoned C seam workings at a rate of up to 3 million gallons per year via a surface borehole located in the upper Elk Creek facilities. A description of the operation is found on Page 2.05-96b.

A similar mine water transfer operation was proposed for the Hubbard Creek Fansite facility, and approved under TR-51 in September 2005. With this operation, D-Seam water may be transferred to the B-Seam workings.

Effects on Surface Water

The areas of surface disturbance at the Somerset Mine are protected by sediment control systems including diversion and containment ditches, sediment ponds, and other alternate sediment control features such as rock, vegetation and straw filters. All point source discharges are regulated under the National Pollution Discharge Elimination System (NPDES). Specific details regarding the sediment and drainage control systems are found in the Sanborn Creek Mine Permit, pages 2.05-34 through 38 and Map 2.05-M4 (sheets 1 through 6).

Drainage from disturbed areas can contribute additional suspended solids to offsite stream systems; however, the above referenced sediment control systems will effectively control sediment yield to offsite areas. Other applicable effluent limitations will also be met, as required by the NPDES permit. There is no evidence of acid-forming or toxic-producing materials.

The operation will result in slightly increased total dissolved solids levels in the North Fork of the Gunnison River. The sources are the discharge from the underground workings of the Elk Creek Tract, and drainage from waste piles located at the site. The previously documented discharges from the Somerset Mine no longer exist since mining and mine dewatering activities have ceased and the old portals have been permanently sealed. Specific anticipated water quality impacts are discussed within the Cumulative Hydrologic Impact Study for the North Fork of the Gunnison River. It has been found that the Elk Creek Mine operation will not cause significant salinity increase in the North Fork of the Gunnison River.

The mine will not adversely impact flooding processes or stream flows in the North Fork of the Gunnison River. Mining operations are not expected to decrease flows in any of the ephemeral or intermittent drainages to be undermined. The operation will not adversely impact downstream water users.

The operator will use about 36.4 acre-feet per year for underground and above-ground dust suppression at the production rate of 6 million tons/year. This water will be drawn from an existing surface water right of 1300 acre-feet per year on the North Fork of the Gunnison River. More detailed information is available in the CHIS for the North Fork of the Gunnison River.

IV. Topsoil

1. The Division has determined that selected overburden materials may be used for, or

as a supplement to, topsoil. The resulting soil should be equal to or better than the available fill material. This determination will be based on physical and chemical analyses and field-site trials approved by the Division (4.06.2(4)(a)). Oxbow Mining, LLC has agreed to remove and/or bury coal and coaly material on the pre-law Elk Creek yard area. Since topsoil is not available, the resulting surface material will be tested to determine if it is suitable as plant growth medium. If it is not, it will be covered by at least six inches of suitable plant growth medium or topsoil salvaged from development of the present coal mine waste pile area or the Sanborn Creek facilities areas. The areas stripped of topsoil for emplacement of the Sanborn Creek facilities will be regraded following mining, tested and treated with topsoil in a similar fashion. All stockpiled topsoil will be used in reclamation. None will be left stockpiled upon final reclamation. The topsoil stockpiled at the upper Hubbard Creek area will be used to partially cover pre-law waste piles that exist at the lower Hubbard Creek area. The upper Hubbard Creek bench will be retained as an approved USFS parking lot. Stipulation No. 25 addressed the need for an accurate, current assessment of topsoil balance across the mine site. This stipulation was satisfied by the Minor Revision 67, approved May 14, 2003.

V. Sealing of Drilled Holes and Underground Openings

1. The Division will require that each hole, well or other underground opening be capped, sealed, backfilled, or otherwise properly managed (4.07.3). This commitment is contained in the permit on pages 2.05-20, 49 and 67.

VI. Coal Mine Waste Banks

1. The Division has approved plans for use, construction and maintenance of three coal mine waste disposal areas: the East Yard area, the West Valley Coal Refuse Facility, and the II West Coal Refuse Facility (4.10.1 (1)). The East Yard waste pile is in the process of reclamation; the West Valley site has very little capacity remaining. The II West site was approved since the previous permit renewal, and is receiving coal mine waste from the Elk Creek Mine.

2. The applicant has submitted a plan for disposal, at the approved disposal areas within the permit boundary, of mine waste materials generated by activities outside the permit boundary. These materials include waste piles at other mines. The applicant has demonstrated that disposal of such materials will not adversely affect water quality or flow, vegetation, public health, or stability of the disposal area based on hydrologic, geotechnical, physical, and chemical analyses. Therefore, the Division has approved disposal of these materials (4.10.1(2)).

3. The disposal areas will be inspected quarterly by a qualified professional specialist under the direction of the professional engineer, experienced in construction of similar earth and waste structures. Inspection by this person has been approved by

the Division as appropriate (4.10.2(1)).

4. An alternative subdrainage system for the east yard coal mine waste area has been approved. The Division finds that such an alternative will ensure the applicable static factor of safety, stability of the fill, and protection of the surface and ground water (4.10.3(5)).

VII. Backfilling and Grading

1. The Division has approved a variance from meeting approximate original contour for reclaimed areas located at the lower Hubbard Creek area and at the Bear Creek facilities area (both areas are pre-law disturbance). The Division has approved a modification in the general grading requirements of 4.14.2 since sufficient spoil will not be available (4.14.2(1)).

VIII. Revegetation

1. Previously the Division had approved the use of introduced species in the reclamation seed mix. The seed mix was revised in TR-27 to include all native species. TR-40 revised the seed mix again to provide for additional forbs and woody plants to enhance overall stand diversity. Cicer milkvetch (a non-native species) was added to the mix and the grass component was modified by a reduction in overall seeding rate and increased diversity. Specific exceptions were made for some small disturbed areas on US Forest Service land.

2. The Division has approved the use of mulching with straw at the rate of 4,000 pounds per acre crimped in on slopes less than 3H:1V. On steeper slopes, hydromulch or straw held down with netting will be used as a means to meet soil stabilization requirements (4.15.4).

3. Methods to measure herbaceous cover and production are discussed in Appendix H of the permit application. The methods follow those suggested in the DMG Bond Release Guideline, 1995. The Division has granted Oxbow Mining's request for the elimination of the woody stem density standard for the reclamation of the mine site. The Division has approved these techniques (4.15.7(1)).

4. Species diversity will be determined successful for bond release areas greater than 10 acres when at least four perennial species have a relative cover between 3% and 60%. Of the four species at least one will be a forb or shrub, and applicable perennial grasses will be cool-season species. Species diversity for areas less than 10 acres will be determined successful when at least three perennial species will have a relative cover between 1% and 60%. Of the three species, at least one will be a forb or shrub, and applicable grasses will be cool-season species.

5. Comparisons between reclaimed and undisturbed areas, in order to demonstrate that the success criteria of 4.15.8, 4.15.9, or 4.15.10 have been met, will be based on the following:

    1) Comparison of cover and production on most revegetated areas with reference areas established during the baseline vegetation study.

    2) Standards for the small riparian community at the lower Hubbard Creek site which include 44.3 percent cover and 1,784 pounds per acre. The diversity standard for the riparian community will be as follows: The plant community shall contain a minimum of one cool-season, sod forming grass and three cool-season bunch grasses with each species having a minimum of five percent cover.

    The Division has approved these comparisons and standards.

6. The Division proposes to approve of the reference areas, which the applicant has selected based on the requirements of Rule 4.15.7(3).

7. The reference areas will be utilized to determine revegetation success in a manner which the Division finds acceptable 4.15.7(4)).

IX. Protection of Fish, Wildlife and Related Environmental Values

1. Fish and wildlife habitat is a planned post-mining land use. The applicant has selected appropriate plant species and distributions to benefit fish and wildlife (4.18(4)(i)).

X. Subsidence Control

The permit area includes three different mines which have been active through the term of the permit to date: the Somerset Mine, the Sanborn Creek Mine, and the Elk Creek Mine. These underlie different areas and, therefore, have had separate requirements for subsidence monitoring and control.

The applicant used a subsidence control plan in accordance with Rule 2.05.6(6) and committed to adopt all measures in order to reduce the likelihood of subsidence and prevent material damage to Hubbard Creek, which was undermined by the Somerset Mine. The Division approved the plan (4.20.1(2) and 4.20.3(1)). There were no structures within the area affected by the Sanborn Creek Tract subsidence. However, there are several landslide features above the proposed underground workings and Oxbow Mining, LLC committed to monitor these features. To date, no impacts have been noted.

The applicant conducted a subsidence monitoring program during the period the Sanborn Creek Mine has been active, in accordance with Rule 2.05.6(6)(c), designed to determine the commencement and magnitude of subsidence movements. The results of the monitoring program were submitted to the Division annually. The monitoring program was designed to extend for a time, beyond cessation of mining in any area, consistent with the need for verification of the subsidence prediction.

For the Elk Creek Mine, the applicant conducted an inventory of "all structures and renewable resource lands which exist within the proposed permit and adjacent area" as required by Rule 2.05.6(6)(a). The determination was that no such structures or features exist within the area to be undermined by the Elk Creek activity. Therefore, no further action was required. The operator, though, submitted a subsidence evaluation for the area, which can be found in Volume 12 of the permit, Exhibit 2.05-E8.

In response to a stipulation on the federal coal lease, the operator will conduct a detailed survey in two parts – the spring and fall of 2003 - for previously unidentified water resources. If any such resources are identified and could be impacted by subsidence, the operator will submit a plan for replacement to the US Bureau of Land Management and/or the US Forest Service.

XI. Operations on Alluvial Valley Floors

1. The Division has determined that an alluvial valley floor exists in an adjacent area. Therefore, the following findings are in order for the alluvial valley floor that is located on the North Fork of the Gunnison River downstream from the mine site.

   The Division finds that activities proposed by the applicant will not interrupt, discontinue, or preclude farming on the alluvial valley floors that are irrigated or naturally sub-irrigated (4.24.3(1)).

   The proposed activities will not materially damage the quantity or quality of water in the surface or ground water system described above (4.24.3(3) and 2.06.8(5)(a)(ii)).

   Coal mining and reclamation operations will be conducted to preserve the essential hydrologic functions of alluvial valley floors outside the permit area throughout the mining and reclamation process (4.24.2).