



September 17, 2007

Received OSRV
September 17, 2007

Office of Standards, Regulations, and Variances
Mine Safety and Health Administration
1100 Wilson Boulevard, Room 2350
Arlington, VA 22209-3939

Re: Docket No. RIN 1219-AB52

To Whom it May Concern:

Oxbow Mining, LLC appreciates the opportunity to comment on the Emergency Temporary Standard (ETS) on Sealing of Abandoned Areas as published on May 22, 2007. Oxbow Mining, LLC owns and operates the Elk Creek Mine in Somerset, Colorado, an underground longwall operation opened in February 2002. Employing about 320 people, Elk Creek Mine's production rate is approximately 6.0 million tons annually.

The Elk Creek Mine utilizes progressive sealing to allow longwall gobs to be isolated and sealed individually. As a result, although longwall production at the mine began as recently as April 2003, the mine has installed a total of 457 seals at the time of this writing and continues to install seals at a rate of up to four seals per week. Currently, 122 of these seals successfully isolate completed longwall panel gobs from the active workings, while 22 others have been installed as part of the progressive sealing process for the active longwall panel. Obviously, with this prolific rate of seal construction Oxbow is well qualified to comment on the ETS, and herein expresses concerns with the ETS as written.

The ETS does not give adequate consideration to the sealing requirements of western United States coal mines, including the Elk Creek Mine. Western mines are predominantly longwall operations which, unlike most operations in the eastern United States, install seals on an almost continuous basis as the longwall retreats. This process of progressive sealing is utilized to reduce the potential for spontaneous combustion in the active gob and, upon completion of the panel, to isolate that gob from subsequent active gob areas. These seals, commonly referred to as "gob isolation seals", are necessary to ensure miner safety in mines that have a propensity for spontaneous combustion. There are serious issues with the ETS requirements for seal design, construction, certification, sampling, and inerting which affect most western underground coal mines.

Section 75.335(a)(1): The Elk Creek Mine has elected to install 50 PSI seals and monitor the gob areas. Since the public hearing in Denver on July 17, 2007 seals, MSHA has approved Minova seals similar to those installed throughout the Elk Creek Mine. MSHA has, however, used an overly conservative approach in approving the Minova Tekseal design. A well engineered design includes a

reasonable safety factor, but does not use a series of compounding conservative safety factors as is notable in the Minova design. A look at the historical development of the Minova Tekseal approval illustrates the point.

According to information from Minova, the original 200 PSI compressive strength Tekseal design was proven by full scale seal testing for a 20 PSI explosion at the Lake Lynn Laboratory. The original testing was a pass/fail test and did not involve any design theory whatsoever. Following the Sago and Darby disasters, MSHA mandated a scientific design only methodology for seal approval. Originally, the pumpable seal thickness was based on the plug formula with a shear strength of 18 PSI. When more accurate updated testing methods showed the shear strength to exceed 36 PSI, MSHA accepted this value, but added a safety factor of 2.0 to the formula which in effect negated the findings of Minova. Minova then developed the 400 PSI compressive strength seal to improve upon the original 200 PSI compressive strength design. Tri-axial strength testing showed the new shear strength to be about 110 PSI. Tri-axial strength testing results in higher PSI values than direct tests, but is regarded by many structural engineers as being more relevant. However, direct tests are more conservative and are therefore more acceptable to MSHA. Direct shear test results indicated a shear strength of 87 PSI. Apparently, MSHA accepted this value, but increased the factor of safety to 3.0. Further, MSHA requires seals be at least one half the height in thickness. In some cases, this introduces yet another conservative safety factor.

These compounded safety factors have resulted in excessively thick Tekseals. Given the frequency of seal installation for spontaneous combustion prevention, this over-design is significant. In addition to unnecessary material handling by our miners in supplying more bag mix, the additional time needed to pump the thicker seals requires miners to spend more time in stress burdened crosscuts behind the longwall face. Elk Creek Mine has seen an increase of about 200% in seal construction costs since the new seal designs have been required.

Section 75.335(b)(1) requires daily examinations and, if necessary, an alternative plan when seals ingas on a regular basis. However, seals can be ingassing without posing a safety risk when the pressure differential across the seal is small, the seal is in good condition, the leakage is minimal, and the gob remains inert. This leakage may not be sufficient to affect the inert nature of the gob behind the seal. In these cases, neither increased sampling or examinations, nor an alternative plan, are necessary. Section 75.335(b)(1) should be amended in the third sentence to begin: "If a seal is ingassing during the weekly examination, and the sample collected shows a change in the inertness of the gob atmosphere,..."

Section 75.335(b)(3): The concentrations for an inert atmosphere as defined include a safety factor to allow for inaccuracies in certain detection equipment. While this may be appropriate for hand held devices, it is unnecessary for gas chromatograph sampling. The regulation should provide for a tighter range when gas chromatograph samples are taken. The atmosphere should be considered inert when the oxygen concentration is less than 12.0%; the methane concentration is less than 5%; or, the methane concentration is greater than 15%. Given that methane concentrations of up to 4.5% have been allowed in bleeders without the need for an action plan, there is no need to require an action plan for concentrations in sealed areas as low as 3%.

Section 75.335(b)(4): The requirement for additional sampling should only be in effect when the oxygen concentration is greater than 12.0% and the methane concentration is greater than 5% but less than 15%.

Section 75.335(b)(4)(ii): Section 75.335(b)(4)(i) provides for an action plan in the protocol when a sealed area is non-inert. Otherwise, persons shall be withdrawn from the affected area. In the “Seal ETS Compliance Assistance Questions and Answers” dated June 11, 2007, it clearly states that “the mine operator must withdraw the miners from the affected area if the sealed atmosphere is in the explosive range.” This approach by MSHA treats a non-inert atmosphere as an imminent danger by requiring the withdrawal of miners. For an actual imminent danger to exist, in addition to an explosive atmosphere there must be an ignition source present with a *reasonable expectation* of the ignition source creating an explosion. Sealed areas contain no *likely* ignition sources, thus an imminent danger is not present and miners should not be required to withdraw. Further, as stated earlier, MSHA defines some inert atmospheres that are outside of the actual explosive range as explosive. No withdrawal should ever be required when the atmosphere is inert.

Section 75.335(c): The prohibition of welding, cutting, and soldering with an arc or flame within 150 feet of a seal is unreasonable and should be eliminated. With progressive sealing, the longwall face and associated equipment is frequently within 150 feet of the adjacent gob isolation seals. This occurs at the Elk Creek Mine when the seal line must be installed in the crosscut immediately adjacent to the tailgate entry due to localized ground conditions. Repairs to longwall equipment require the use of welding or cutting. The existing statutory provisions of Section 75.1106, along with the requirements of PPL P06-V-1, provide adequate protection for miners conducting welding and cutting on the longwall face. In addition, the significant quantity of air ventilating a longwall face is sufficient to prevent any tailgate gob isolation seal leakage from ever reaching the welding or cutting operations on the face.

Section 75.335(d): The requirement to install at least two sampling pipes in each seal is excessive and impractical. First, since sampling is not required at every seal in a set of seals, there is no logical reason to require tubes in all seals. Second, gob isolation seals are installed in crosscuts immediately behind the longwall face. It is therefore impossible to meet the requirement to extend one tube “into the center of the first connecting crosscut inby the seal” as that intersection will no longer exist once the longwall mines pass the crosscut where the seal must be installed. Installing sampling tubes “near” the intersection is not practical as crosscut conditions often quickly deteriorate on the gob side of the seal. Clearly, this requirement does not consider gob isolation sealing applications in western mines and Section 75.335(d) should be re-written to eliminate sampling tubes from gob isolation seals.

Section 75.336(b)(2): A professional engineer’s function is for the design of a seal, not oversight of the construction. Requiring a professional engineer to “conduct or have oversight of seal installation” is unnecessary and impractical, especially at mines utilizing gob isolation seals. A professional engineer would need to be on site prior to, during, and following the construction of every seal to insure that all parameters are met before certifying the seal. Some western mines utilizing progressive sealing install over 100 seals annually, with seals being installed on any shift on any day of the week as longwall retreat dictates. The number of seals and the timing of seal installation make this requirement impractical. Additionally, many mines do not have a professional engineer on staff. The certification of the seal construction per engineered design by a certified person supervising the construction and the countersigning of the seal installation by the mine foreman are the proper requirements for the certification of seal construction. Section 75.336(b)(2) should be eliminated.

Section 75.336(b)(3)(iii)(B): This section requires the operator to provide information for approval in the ventilation plan for safety precautions taken prior to seals achieving full design strength. NIOSH has recommended miners be withdrawn from the affected area until seals reach design strength and the gas mixture in the sealed areas reaches an inert status. MSHA concurs with this in its June 11, 2007 issuance of “Seal ETS Compliance Assistance Questions and Answers” by requiring withdrawal from the affected area. Accordingly, even if nitrogen is injected to accelerate getting the sealed atmosphere to inert status, there remains the issue of cure time on concrete, mortar, and/or lightweight cement. As stated above in comments to Section 75.335(b)(4)(ii), the sealed areas contain no likely ignition source. When an inert mixture is present, uncured seals do not present an imminent danger as there is no explosion potential. Therefore, the withdrawal of miners during the curing process is not required.

When longwall panels are sealed, a suspension of production for up to 28 days concrete curing time may be inevitable with this constraint. Considering the volume of longwall coal produced across the United States where progressive sealing is utilized, the halting of production mine-wide for multiple moves annually will have a substantial negative impact on our nation’s energy supply. Additionally, the economic burden placed on mine operations while mines are idled for extended periods will negatively affect the economic well-being of employees, suppliers, and entire communities.

Specifically, the Elk Creek Mine routinely completes two longwall moves annually. The mine layout is such that all working sections and the subsequent longwall panel are located inby the panel to be sealed. Requiring an idling of production inby a newly sealed panel and final setup for the subsequent panel will potentially require a layoff of employees during the seal curing time. This would adversely affect the income of all workers as the mine is twice idled for up to 28 days based on the concrete curing time needed to achieve the 28-day strength of the Tekseal material. At two moves per year, this could impact up to one-sixth of an individual’s annual income. In addition, idling production for two months a year would reduce production by as much as 1.2MM tons annually for the Elk Creek Mine, an economic impact that jeopardizes the economic viability of any mine.

Section 75.337(a)(1): Requiring the removal of all electrical cables from an area to be sealed is unnecessary and unrealistic. This has no basis in mining history, despite MSHA’s theory on the cause of the Sago Mine tragedy. The likelihood of an abandoned unenergized cable in a gob contributing to an explosion is implausible.

Section 75.337(a)(2): The removal of metallic roof and rib materials at a seal location is unsafe and should not be required. The Elk Creek Mine, like other western mines with higher seam thicknesses, have well established practices or roof control plans that require primary roof and rib support in the form of wire screen and bolts to adequately protect miners from the dangers of roof and/or rib sloughage. Removal of any of this protection not only exposes miners to potentially adverse ground conditions, but will likely reduce the integrity of the roof and ribs at the perimeter of the seal. (It is impractical to consider installing non-metallic mesh during development in anticipated seal locations as specific seal construction areas must be individually identified based on ground conditions existing after longwall mining.) The potential for serious injury is far greater in removing this support than the remote chance of an electrical current entering the gob through this grounded material. Unfortunately, there has already been at least one accident involving the removal of wire mesh at a seal location. Further, the exclusion of sampling tubes, water traps, and metal form ties from this requirement is inconsistent in that the regulation does allow certain electrical conductors to penetrate the seal. The rule does not address de-gas, inerting, or pre-sealing ventilation pipes that may be

needed to effectively control the gob atmosphere. It should also be noted that the Report of Investigation on the Sago Mine explosion stated that bolts and mesh “were well grounded at regular intervals to the roof of the sealed area, and therefore would not support a large voltage potential.” Section 75.337(a)(2) should be re-written to prohibit only those metallic items not required for ground support, installation of seals, and monitoring and/or control of the atmosphere behind the seals.

Section 75.337(c): While professional engineers can certify the design of a seal, and certified persons can directly supervise and certify the construction of a seal per the engineered design, senior mine management officials cannot “certify that the construction, installation, and materials used were in accordance with the approved ventilation plan” since they are not physically on site to determine this. This section should be re-worded to require a senior mine official to countersign the record required of the certified person directly supervising the construction.

In the preamble to the ETS, comments were solicited regarding replacement of existing seals. Replacing existing seals is often impractical due to access constraints. It can also be extremely unsafe with miners exposed to inert gob air mixing with fresh air, roof control problems brought on by increases in abutment pressures in the seal areas, and substantial hand carrying of seal construction materials to remote locations. Unless a seal is in disrepair, replacing of seals should be discouraged.

In closing, Oxbow Mining, LLC recognizes that operators, MSHA, and Congress intend our action to improve the safety of our nation’s miners. It is disturbing that congressional committees have directed derogatory comments at coal operators and MSHA. It is disturbing that Congress has enacted legislation without consulting those most knowledgeable about the industry – the operators and their own enforcement agency (MSHA) of nearly forty years. If Congress had done so, they might understand that all underground mines are not the same and that seals are installed for varying reasons. Eastern mines and western mines have very different requirements for seals and seal regulations must be such that they provide for the needs of both. Colorado alone has seven underground coal mines, of which five are consistently ranked in the top ten most productive mines in the United States. The mining conditions in these and other western mines differ greatly from those found in the east, and it is essential to the nation’s energy supply that promulgated seal regulations consider the variability of seal requirements across the coal industry.

Sincerely,



Robert L. Koch
Chief Engineer
Oxbow Mining, LLC