

CRS Report for Congress

Coal Mine Safety and Health

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Summary

Safety in the coal mining industry is much improved compared to the early decades of the twentieth century, a time when hundreds of miners could lose their lives in a single accident and more than 1,000 fatalities could occur in a single year. Fatal injuries associated with coal mine accidents fell almost continually between 1925 and 2005, when they reached an all-time low of 23. In 2006, however, the number of fatalities more than doubled to 47. Fatalities declined a year later to 33, which is comparable to levels achieved during the late 1990s.

Coal miners also suffer from occupationally caused diseases. Prime among them is black lung (coal workers' pneumoconiosis, CWP), which still claims about 1,000 fatalities annually. Improved dust control requirements have led to a decrease in the prevalence of CWP, but there is recent evidence of advanced cases among miners who began their careers after the stronger standards went into effect in the early 1970s. In addition, disagreement persists over the current respirable dust limits and the degree of compliance with them by mine operators.

In the wake of the January 2006 Sago Mine accident, the U.S. Department of Labor's Mine Safety and Health Administration (MSHA) was criticized for its slow pace of rulemaking earlier in the decade. MSHA standard-setting activity quickened starting later that year, however, after enactment in June of the Mine Improvement and New Emergency Response Act (MINER, P.L. 109-236). The MINER act emphasized factors thought to have played a role in the Sago disaster and imposed several rulemaking deadlines on MSHA. Although the agency has not met all of the act's deadlines, it has published the requisite final standards on emergency mine evacuation, civil penalties, rescue teams, and mine seals.

Some policymakers remain dissatisfied with MSHA's performance. These sentiments led to House passage, in January 2008, of the Supplemental Mine Improvement and New Emergency Response Act (S-MINER, H.R. 2768). It incorporates language from the Miner Health Enhancement Act (H.R. 2769), such as requiring MSHA to adopt as mandatory exposure limits the voluntary limits (to chemical hazards, for example) recommended by the National Institute for Occupational Safety and Health. S-MINER also requires MSHA to more closely review and monitor operator plans that include retreat mining, the practice used at Utah's Crandall Canyon Mine where six miners and three rescuers lost their lives in 2007. The President has said he will veto S-MINER as passed by the House.

Following the release of investigations by congressional committees and others into the Crandall Canyon Mine collapse, MSHA issued its accident report on July 24, 2008. It assessed a fine totaling \$1,636,664 on the mine operator for such violations as failing to revise and follow its roof control plan and failing to notify MSHA of coal bursts that preceded the deadly burst on August 6, 2007. MSHA also fined the engineering consulting firm that provided the operator with flawed analyses that resulted in an inadequate roof control plan. In early September 2008, MSHA announced that it has asked the U.S. attorney's office in Utah to consider filing criminal charges in connection with the Crandall Canyon Mine accident.

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Coal Mine Safety and Health

News accounts of miners losing their lives as a result of accidents at coal mines have appeared more often in recent years. The methane explosion in 2006 at West Virginia's Sago Mine, in which 12 trapped miners died, shined a bright light on working conditions at the nation's coal mines. The partial collapse in 2007 at Utah's Crandall Canyon Mine further drew attention to the plight of coal miners. These among other incidents during the current decade have prompted Congress to step up its legislative and oversight activities with respect to the safety and health of those who toil in the country's coal mines.

This report begins by reviewing the record of working conditions in the coal mining industry. It then describes the regulatory regime and recent funding of the U.S. Department of Labor's Mine Safety and Health Administration. The report closes with an analysis of current regulatory and legislative initiatives.

Working Conditions in the Coal Mining Industry

Safety

Safety in the coal mining industry is much improved compared to the early decades of the twentieth century, a period in which hundreds of miners could lose their lives in a single accident and more than 1,000 fatalities could occur in a single year. Fatalities associated with coal mine accidents fell almost steadily between 1925 and 2005, when they reached an all-time low of 23.¹

Nevertheless, coal mining remains one of the most dangerous employment sectors as measured by fatal work injuries. The fatality rate among persons employed in the private sector was 4.3 per 100,000 workers in 2006, the latest year for which data are available from the U.S. Bureau of Labor Statistics, compared to 49.5 fatalities per 100,000 workers in coal mining.² In terms of non-fatal accidents, mining does not diverge greatly from the all-industry average.³ In what follows, then, the concentration is on fatal accidents.

A variety of factors may have contributed to the long-term improvement in safety at the nation's coal mines (e.g., decreased employment, shift from underground

¹ Data available at [<http://www.msha.gov/stats/coalstats.asp>].

² The fatality rate in the goods-producing sector, of which mining is a part, was 8.3 per 100,000 persons employed in the sector in 2006. Revised data for 2006 from the BLS's National Census of Fatal Occupational Injuries.

³ BLS, *Workplace Injuries and Illnesses in 2006*, October 15, 2007.

to surface mining, and increased productivity). New machinery such as longwall systems not only reduced the total number of workers needed, but also did so at the most dangerous spots (e.g., the active cutting face). Other measures that likely have prevented many large-scale accidents include controlling coal dust, monitoring methane gas (which is both explosive and poisonous), adequately supporting roofs, and avoiding spark-producing equipment.⁴

It would be very difficult to determine conclusively how much of the progress in safety has been due to the activities of the Mine Safety and Health Administration (MSHA). Much of the industry might have voluntarily adopted the safety requirements in MSHA standards (regulations) without that inducement. And indeed, safety increased for a long time before Congress passed the Federal Mine Safety and Health Amendments Act of 1977 (P.L. 95-164) in which MSHA was established within the Department of Labor.⁵

Despite the progress that has been made in worker safety and their disagreement on the specific course of action to be followed,⁶ labor and management concur that there is still room for improvement — especially in light of incidents that occurred in the current decade. For example, the flooding of the Quecreek Mine in Pennsylvania in July 2002 raised questions about the accuracy of underground mine maps and their availability to operators of nearby mines. The Quecreek accident might have been avoided if the mine operator had access to the final map of a nearby abandoned mine that had since filled with water.

In January 2006, a methane explosion at West Virginia's Sago Mine, which was precipitated by lightning that penetrated underground, killed one miner initially. Twelve of the 16 miners who survived the explosion became trapped and succumbed ultimately to carbon monoxide from the ensuing fire. The episode raised a number of safety issues that were discussed at a hearing of the Senate Appropriations Subcommittee on Labor, Health and Human Services, Education, and Related Agencies in January 2006, including the possibility that different communication and tracking devices might have enabled the trapped miners to escape or find better refuge, or rescuers to reach them more quickly. In addition, emergency breathing apparatus issued to the miners were rated for only one hour and a number of the apparatus reportedly did not work well. There also was criticism of the fact that it took 11 hours from the explosion until rescuers entered the mine.⁷

⁴ For an overview of safety trends, see Ramani, Raja and Jan Mutmansky, "Mine Health and Safety at the Turn of the Millennium," *Mining Engineering*, September 1999.

⁵ In prior decades, Congress initiated and gradually expanded safety and health regulation of coal and other mining industries within the Department of the Interior.

⁶ The United Mine Workers (UMW) union wants MSHA to be more active. It asserts that there are not enough inspectors and that penalties (proposed and negotiated) are not large enough. In general, the UMW would make enforcement of standards the highest priority. The mining industry generally supports the current regulatory approach, but it urges that inspections be focused on mines with evident problems rather than on all mines as currently required by law.

⁷ Ironically, one of the "lessons learned" from a September 2001 accident at Alabama's Jim
(continued...)

Accidents at Sago and other coal mines in 2006 more than doubled the number of fatalities from the record low of 23 in 2005, to 47 in 2006, a level last reached in 1995. (See **Table 1**.) In 2007, however, fatal work injuries declined to 33 — a level comparable to those of the late 1990s. Through July 29, 2008, there have been 18 fatalities in the coal mining industry.

Table 1. Number of Fatalities and Fatal Injury Rate in the Coal Mining Industry, 1995-2007

Year	Number of Fatalities	Fatal Injury Rate (reported injuries per 200,000 hours worked)
1995	47	0.04
1996	39	0.03
1997	30	0.03
1998	29	0.03
1999	35	0.03
2000	38	0.04
2001	42	0.04
2002	27	0.03
2003	30	0.03
2004	28	0.03
2005	23	0.02
2006	47	0.04
2007	33	0.03
2008 (to 9/2)	19	not available

Source: U.S. Department of Labor, Mine Safety and Health Administration.

Despite the improvement in 2007, the collapse at Utah's Crandall Canyon Mine in August of that year — which resulted in deaths of six miners and three rescuers (including an MSHA inspector) and injuries sustained by six others — again highlighted the risks of working in the coal mining industry. Rescuers repeatedly sent messages on pager-like devices to the trapped miners, but it is unknown whether they ever were received. As mentioned in connection with the Sago tragedy, other technologies might have allowed communication with and location tracking of the miners.

⁷ (...continued)

Walter No. 5 mine appears to have led to the delay at Sago. Because most of the victims in the earlier accident were responding to a relatively small explosion when a larger one occurred, considerable time was taken to verify the state of the atmosphere in the Sago mine before rescue teams were sent in.

Health

Accidental injuries can be quantified much more reliably than the extent of occupationally caused disease. It is clear, though, that coal mining causes disability much more by way of long-latency disease than by traumatic injury. Prime among these diseases is black lung (coal workers' pneumoconiosis, CWP), which still claims some 1,000 fatalities per year despite being down by about half since 1990.⁸ Deaths tend to occur after a long progression, resulting in one year of life expectancy being lost on average for these cases. However, many years of impaired breathing and debilitating weakness often precede death, which may not be counted as a mining-related fatality because the ill miner dies from other immediate causes.

Improved dust control requirements have led to a decrease in the prevalence of CWP. Among miners with 20-24 years of work experience, for example, the proportion of examined miners who had positive x-rays decreased from 23.2% in the mid-1970s to 2.2% in the late 1990s.⁹ Interestingly, sharp drops in rates occurred at certain times: for workers with 25-29 years of mining experience, the rate fell from 20.2% in the 1987-1991 survey to 5.4% in the 1992-1996 survey; the former cohort began their careers around 1962, the latter around 1967. Under the Federal Coal Mine Health and Safety Act of 1969 (P.L. 91-173), commonly referred to as the Coal Act, tighter dust standards were phased in from 1970 to 1973.

During the current decade, however, the U.S. Department of Health and Human Services' Centers for Disease Control and Prevention (CDC) found advanced cases of CWP among underground miners younger than 50 to be particularly troubling because they were exposed to coal dust after the preventive measures in the Coal Act went into effect. The CDC suggested four explanations for the continuing development of advanced pneumoconiosis:

- 1) inadequacies in the mandated coal-mine dust regulations; 2) failure to comply with or adequately enforce those regulations; 3) lack of disease prevention innovations to accommodate changes in mining practices (e.g., thin-seam mining) brought about by depletion of richer coal reserves, and 4) missed opportunities by miners to be screened for early disease and take action to reduce dust exposure.¹⁰

⁸ U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, *Work-Related Lung Disease Surveillance Report 2002*, Section 2 (CWP and Related Exposures), DHHS (NIOSH) report no. 2003-111, May 2003.

⁹ *Ibid.*

¹⁰ "Advanced Pneumoconiosis Among Working Underground Coal Miners — Eastern Kentucky and Southwestern Virginia, 2006," *MMWR Weekly*, July 6, 2007.

The Regulatory Regime

MSHA is charged with overseeing the safety and health of those employed in coal and other mining industries. Its budget for FY2008 of about \$334 million is less than that of its sister agency, the Occupational Safety and Health Administration (OSHA), but OSHA is responsible for protecting many more workers: MSHA oversees a mining industry (including surface operations and all other minerals besides coal) of about 200,000 workers, while OSHA is responsible for most of the more than 100 million employees in the remainder of the workforce. Thus, while OSHA targets its inspections mostly on firms with the worst accident records in a few sectors, MSHA is able to cover its whole industry. Indeed, it is mandated to inspect each underground mine at least four times a year and each surface mine twice a year. Both agencies can assess financial penalties, but MSHA has direct authority to immediately shut down dangerous operations.

Standards

MSHA regulations, often referred to as standards, cover a wide range of equipment, procedures, certifications and training including methane monitoring, dust control, ventilation, noise, electrical equipment, diesel engines, explosives, fire protection, roof support, hoists and haulage, maps, communications and emergencies. See *Code of Federal Regulations*, Title 30, Chapter 1; coal mines are specifically addressed in Subchapter O.

Safety. In the wake of the Sago accident in January 2006, the agency was criticized for its slow pace of rulemaking, allegedly withdrawing 18 proposed standards that had been pending as of January 2001.¹¹ The Administration said in response that it was pursuing a revised agenda,¹² and being more frank by no longer listing long-term projects on which little progress had been made.

MSHA rulemaking activity started to quicken after enactment in June 2006 of the Mine Improvement and New Emergency Response Act (MINER, P.L. 109-236). In December 2006, for example, a final rule on emergency mine evacuation went into effect that reconciled MSHA's emergency temporary standard with the new law. The final regulation includes requirements for increased availability and storage of breathing devices (self-contained self-rescuers, SCSRs), installation and maintenance of escape guides (lifelines) in underground coal mines, and immediate notification of accidents at all mines. In March 2007 (as opposed to the MINER act's deadline of December 2006), MSHA issued another final rule; it raises the civil penalties for all mine safety and health violations including those specified in the MINER act.

¹¹ Joby Warrick, "Federal Mine Agency Considers New Rules to Improve Safety," *Washington Post*, January 31, 2006, p. A3.

¹² Standards proposed and adopted in the 2001-2005 period include methane testing (alternate means), emergency evacuations, belt entries as air intakes, and training shaft and slope construction workers.

In addition, MSHA announced in late January 2008 its first approval of a wireless communications system. In order for an underground mine operator's plan to be approved, the MINER act imposed a deadline (June 2009) for their adoption of "post accident communication between underground and surface personnel via a wireless two-way medium." During a hearing held by the Subcommittee on Employment and Workplace Safety of the Senate Health, Education, Labor, and Pensions (HELP) Committee on June 19, 2008, the Associate Director for Mining and Construction at the National Institute for Occupational Safety and Health (NIOSH), Jeffrey Kohler, and the MSHA Administrator, Robert Stickler, gave somewhat equivocal responses to questions about whether this deadline would be met. According to MSHA's website,

As of September 2, 2008, MSHA is processing 38 approval applications for communications and tracking technology.... [MSHA is] currently working with...NIOSH to develop industry guidance for MINER Act compliant communications and tracking systems. This guidance will be published by the end of 2008.

The act also set a deadline (December 2007) for MSHA to promulgate new requirements that mine operators must meet concerning rescue teams. In February 2008, MSHA issued a final rule that among other things mandates the number of hours of training for mine rescue team members. Two months later, MSHA published another final rule; this one, on sealing of abandoned areas in underground coal mines. (The MINER act had required MSHA to finalize, by December 2007, a standard for mine seals and increase from 20 pounds per square inch (psi) the horizontal static pressure that a seal could withstand.)

Health. On the matter of preventing black lung and silicosis, MSHA is expressly required by its authorizing statute to enforce a dust control standard. The (mandatory) permissible exposure limit (PEL) to respirable dust currently set by regulation is 2 milligrams per cubic meter. NIOSH developed a (voluntary) recommended exposure limit (REL) for coal mine dust of 1 milligram per cubic meter and for silica dust of 0.05 milligrams per cubic meter.¹³

Besides the limit itself, controversy continues about how dust concentrations are measured in mines, and how MSHA monitors operators' plans and performance. After MSHA proposed new regulations in 2000 (superceded by revised proposals in March 2003), it suspended work on a final rule in June 2003 to obtain information on personal dust monitors (PDMs) that NIOSH was testing. PDMs are a new technology that can give personalized, real-time readings of dust concentration and help resolve longstanding disputes about how air samples are to be handled. In May 2007, NIOSH's Jeffrey Kohler testified at a hearing of the Subcommittee on Employment and Workplace Safety of the HELP Committee that the institute's research showed miners equipped with PDMs were able to greatly reduce respirable dust exposure based on having real-time dosimetry. The firm that now has the rights

¹³ U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, *Criteria for a Recommended Standard: Occupational Exposure to Respirable Coal Mine Dust*, DHHS (NIOSH) publication no. 95-106, September 1995.

to the PDM informed NIOSH that it could have the devices available within four to six months after rulemaking is completed.¹⁴

Enforcement

Crandall Canyon. After the HELP Committee released *Report on the August 6, 2007 Disaster At Crandall Canyon Mine* and DOL's Office of Inspector General published *MSHA Could Not Show It Made the Right Decision in Approving the Roof Control Plan at Crandall Canyon Mine* in March 2008, and the Chairman of the House Education and Labor Committee issued a memorandum reviewing the committee's investigation of the Crandall Canyon Mine incident in May 2008, MSHA released its accident report on July 24, 2008. Like the University of Utah's *Seismological Report on the 6 Aug 2007 Crandall Canyon Mine Collapse in Utah*, issued August 2007, MSHA concluded that the seismic activity associated with the mine collapse was *not* due to a naturally occurring earthquake. Rather,

The extensive pillar failure and subsequent inundation of the section by oxygen-deficient air occurred [on August 6] because of inadequacies in the mine design, faulty pillar recovery methods, and failure to adequately revise mining plans following coal burst accidents [about which MSHA was not notified] within 15 minutes as required by 30 CFR 50.10. [This failure on the operator's part] denied MSHA the opportunity to investigate these accidents and ensure corrective actions were taken before mining resumed in the affected area.¹⁵

The August 16 accident occurred because rescue of the entrapped miners required removal of compacted coal debris from an entry affected by the August 6 accident. Entry clean-up reduced confining pressure on the failed pillars and increased the potential for additional bursts. Methods for installing ground control systems required rescue workers to travel near areas with high burst potential.... On August 16, the coal burst intensity exceeded the capacity of the support system.¹⁶

In addition to failing to provide MSHA the requisite notification of prior bursts, the mine operator (Genwal Resources Inc., GRI) conducted bottom and barrier mining that were not included in the approved roof control plan and that intensified stress on the pillars. GRI also mined in an area that was not part of the approved roof control plan, according to MSHA's report, thereby making conditions more unstable. Further, GRI did not propose revisions to the roof control plan that were sufficient to control bursts. MSHA levied a fine of \$1,340,000 for multiple violations (30 CFR 50.10, 30 CFR 75.203(a), 30 CFR 75.220(a)(1), 30 CFR 75.223(a)) that directly contributed to the fatalities that occurred at Crandall Canyon Mine on August 6, 2007.

¹⁴ "MSHA Regulation on Dust Monitors Needed to Require Use in All Coal Mines," *Daily Labor Report*, May 23, 2007.

¹⁵ MSHA, *Report of Investigation: Fatal Underground Coal Burst Accidents, August 6 and 16, 2007, Crandall Canyon Mine*, July 24, 2008, p. 2 and 3, available at [<http://www.msha.gov/Fatals/2007/CrandallCanyon/CrandallCanyonreport.asp>]. (Hereafter cited as MSHA, *Report of Investigation*.)

¹⁶ *Ibid.*, p. 4.

MSHA cited the mine operator for 11 additional, noncontributory violations issued as the result of the investigation. The proposed penalty for these violations is \$296,664, bringing the total proposed penalties against the mine operator to \$1,636,664.¹⁷

MSHA faulted engineering analyses performed by Agapito Associates, Inc. (AAI) for the mine operator. It issued one enforcement action to AAI for “inaccurately evaluat[ing] the conditions and events at the mine when determining if areas were safe for mining,” which “directly contributed to the death of nine people.”¹⁸ MSHA fined AAI \$220,000 for violating 30 CFR 75.203(a).

Since 1989, MSHA has carried out internal reviews of its actions after accidents involving at least three fatalities. Because the Assistant Secretary for MSHA and the Administrator for Coal Mine Safety and Health were directly involved during the Crandall Canyon Mine accident and rescue, however, the Secretary of Labor appointed an Independent Review Team (IRT). The IRT’s report found many deficiencies on the part of MSHA before the accident that claimed six lives, during the rescue operation, and in other areas. For example, the IRT concluded that MSHA, in approving the roof control plan and amendments, did not fulfill its responsibility to ensure they were sufficiently protective of the safety of miners; failed to comply with the MINER act’s provisions that it be the primary source of communication with the families of trapped miners, the media, and the public; and

The Agency’s increased focus on compliance assistance and special emphasis activities may have impacted its ability to complete required inspections as mandated by the 1977 Mine Act.¹⁹

MSHA already has taken measures to address some deficiencies noted in the IRT report and plans to implement additional changes in response other IRT recommendations with which it agrees. The agency has, for example, issued a letter to mine operators requesting that detailed information be included in their submittals for approval of complex and/or non-typical roof control plans; sent memoranda, instructions, and checklists to district personnel about approval of complex/non-typical roof control plans and reviews, and about implementation of a standardized roof control plan approval and review process; issued a procedure instruction letter to district personnel on use of technical support assistance during review of roof control plans; and sent a memo requiring that sections in which retreat mining is occurring be inspected at least monthly.²⁰

¹⁷ MSHA, “MSHA Levies \$1.85 Million in Fines for Crandall Canyon Mine Disaster,” *News Release*, July 24, 2008, available at [<http://www.msha.gov/MEDIA/PRESS/2008/NR080724.asp>].

¹⁸ MSHA, *Report of Investigation*, p. 176.

¹⁹ Earnest C. Teaster Jr. and Joseph W. Pavlovich, *Independent Review of MSHA’s Actions at Crandall Canyon Mine*, July 21, 2008, p. 5, available at [<http://www.msha.gov/CCreview/CrandallCanyonIR.asp>].

²⁰ MSHA, *Crandall Canyon Accident Investigation: Summary and Conclusions*, available at [<http://www.msha.gov/Genwal/ccSummary.asp>] and the agency’s response to the IRT (continued...)

On September 3, 2008, MSHA acknowledged that it had made a criminal referral in connection with the Crandall Canyon Mine accident to the U.S. attorney's district office in Utah. The prosecutor's office already was conducting an investigation into the mine fatalities on the basis of a referral made earlier in the year by the Chairman of the Education and Labor Committee.²¹ At the behest of the U.S. attorney's office, the Mine Safety and Health Review Commission will cease all civil enforcement proceedings and investigations related to this matter.

Civil Penalties Assessed and Contested. The increased value of civil penalties promulgated by MSHA in a March 2007 rule coincides with employers more often contesting citations. In 2006, there were 9,876 penalties contested out of 135,718 violations assessed or 7.3%; in 2007, the 18,997 penalties contested represented 14.6% of 130,156 violations assessed; and of the 73,794 violations assessed in the January-April 2008 period, 22.4% or 16,506 were contested. Similarly, the percentage of dollars assessed being contested jumped from 34.6% in 2006 (\$12.1 million out of \$35.1 million) to 53.0% in 2007 (\$39.5 million out of \$74.5 million) to 61.4% in January-April 2008 (\$40.3 million out of \$65.7 million).

MSHA determined that more than 200 mine operators have been contesting all their assessed violations. Administrator Stickler considers them to be "abusing the system" and creating a backlog, which DOL reportedly is dealing with by putting more solicitors on mining cases.²²

Funding

Congress increased MSHA's appropriation from \$302 million in FY2007, to \$334 million in FY2008. In response to rulemaking activity required in 2008 by Congress in the MINER act and other legislation, MSHA asked the Occupational Safety and Health Administration for volunteers to help develop standards. MSHA's Office of Standards, Regulations, and Variances develops standards for coal and other mining industries covered by the agency; it also processes petitions for modifications that are submitted to MSHA and administers the agency's Freedom of Information Act program. The office employs about 17 full-time equivalent employees.

The Administration has requested a somewhat lower sum, \$332 million, for MSHA in FY2009. According to the agency's budget justification, the Administration attributes much of the \$2 million net decrease (\$20 million gross decrease) to the cost in FY2008 of hiring and training new coal mine inspectors and for overtime and travel of currently employed inspectors (almost \$11 million). Only

²⁰ (...continued)
report available at [<http://www.msha.gov/CCreview/MSHAResponseToCCIR.pdf>].

²¹ "MSHA Asks Prosecutor to Consider Charges Based on Crandall Canyon Mine Collapse," *Daily Labor Report*, September 5, 2008.

²² Lauren Couillard, "Sixth MSHA Rule from MINER Act Imminent," *Daily Labor Report*, June 17, 2008.

a small portion (\$367,000) is associated with cessation of “one-time costs in FY2008 for service contracts pertaining to rule making related to the MINER Act.”

Legislative Activity

The MINER Act and the Consolidated Appropriations Act, 2008

The legislative activity undertaken at both the state (e.g., West Virginia, Kentucky, and Illinois) and federal levels in 2006 emphasized factors thought to have played a part in the Sago mine disaster (e.g., emergency oxygen supplies, tracking and communication systems, deployment of rescue teams). The most prominent measure, and first major revision of federal mine safety legislation since 1977, is the Mine Improvement and New Emergency Response Act (MINER, P.L. 109-236).²³ Congress passed the MINER act, and the President signed it into law on June 15, 2006, within a month of its introduction.

Among the major points of the MINER act that require action on the part of MSHA are

- *Emergency response* (Section 2). Each mine is to have a plan approved by MSHA that addresses post-accident communications, tracking, and breathable air and lifelines; and sets procedures for coordination between operators, rescue teams, and local emergency response personnel.
- *Rescue teams* (Section 4). Each mine with more than 36 employees is required to have an employee on each shift knowledgeable about emergency response; two certified teams familiar with the mine available, who participate in rescue contests and training, within one hour from the rescue station. More flexibility is provided for smaller mines.
- *Penalties* (Section 8). Increases the scale and scope of penalties including imprisonment and fines up to \$250,000 (\$500,000 second offense) for willful violators of standards or orders, and a civil penalty of up to \$220,000 per violation for a new “flagrant violation” category.
- *Sealing of abandoned mine areas* (Section 10). Increases the existing standard of 20 psi pressure resistance.

Dissatisfaction has been expressed about the speed with which MSHA is implementing the statute. For example, as previously noted in the report’s section

²³ Earlier in the decade, Congress gave MSHA \$10 million to collect and digitize mine maps and new technologies for detecting mine voids (Consolidated Appropriations Resolution, 2003, P.L. 108-7). The Emergency Supplemental Appropriations Act of 2006 (P.L. 109-234) made available \$26 million for MSHA to hire 170 coal mine inspectors above the agency’s June 2006 level, and \$10 million for NIOSH to conduct research on new safety technologies.

entitled “Regulatory Regime,” the MINER act set a deadline of December 2006 for MSHA to issue a final rule raising certain civil penalties. The rule, which raises penalties beyond those specified in the statute, was not released until March 2007. Similarly, the act required MSHA to finalize a rule on mine rescue teams and on mine seals by December 2007. The first standard did not appear in the *Federal Register* until February 2008; the second, until April 2008.

As a result of the dissatisfaction, the Consolidated Appropriations Act, 2008 (P.L. 110-161), signed in December 2007, set deadlines for a proposed rule (June 2008) and a final rule (December 2008), consistent with the recommendations of the Technical Study Panel on the Utilization of Belt Air established by Section 11 of the MINER act.²⁴ (MSHA received the final report of the panel in December 2007.) P.L. 110-161 also directed the Secretary of Labor, within the same time frame, to propose and finalize regulations consistent with the recommendations of NIOSH, pursuant to Section 13 of the MINER act, requiring rescue chambers or equally protective refuge facilities in underground coal mines.

MSHA met the deadlines of P.L. 110-161 for publishing the two proposed standards. On June 16, 2008, the proposed rule on refuge alternatives and their components (e.g., breathable air, water, first-aid supplies, two-way communication systems) was issued. Although the rule permits different kinds of refuges, each alternative must be tested by the manufacturer or a third party before it receives MSHA approval and each must provide 96 hours of breathable air. In addition, miners must be trained during quarterly drills in the location and use of refuge alternatives. The comment period closed August 18, after the agency has held four public hearings. The belt air proposed rule was issued on June 19, 2008. Among other things, it addresses the flame resistance of conveyor belts; the use of belt air to ventilate the work areas of miners, including minimum air velocity, provision of airlock doors, and limiting the levels of respirable dust and methane gas; and mine-specific training of atmospheric monitoring system operators. Four public hearings will take place before the comment period closes on September 8, 2008.

The S-MINER Act

At the time of the MINER act’s passage, some Members characterized the law as only a “first step” that would be followed by more measures. In January 2008, the House passed the Supplemental Mine Improvement and New Emergency Response Act (S-MINER, H.R. 2768) which incorporates language from the Miner Health Enhancement Act (H.R. 2769).

²⁴ On December 18, 2007, MSHA received the final report of the Technical Study Panel on the Utilization of Belt Air. “Belt air” is air directed underground to ventilate active work areas via the same tunnels in which conveyor belts remove coal from mines. Because these tunnels consequently contain a great deal of highly flammable coal dust, some think that using them for ventilation increases the risk of directing fires toward the work areas of miners and toward their evacuation routes.

On the health front, Section 8 of the bill would require

- NIOSH, within 30 days of enactment, to transmit to MSHA its recommended exposure limits (RELs) for chemicals and other substances hazardous to miners; MSHA would then have up to 30 days from receipt of the RELs to adopt them as permissible exposure limits (PELs);
- NIOSH to submit each year new or revised RELs, and DOL to adopt them within 30 days as PELs;²⁵ and
- MSHA to apply OSHA's asbestos standard to the mining industry within 30 days of the bill's enactment.²⁶

An amendment to the bill also requires the Secretary of Labor to study and report on miner substance abuse issues that pose safety risks. Another amendment authorizes \$10 million for the Secretary, in consultation with the Secretary of Health and Human Services, to award grants for provision of rehabilitation services to current and former miners suffering from mental health impairments.

Section 7 addresses another health issue, namely, respirable dust. H.R. 2768 would, effective on the date of enactment, have mine operators adopt NIOSH's RELs of 1 milligram of respirable coal dust and 0.05 milligrams of respirable silica dust per cubic meter of air. To ensure that the coal dust standard is being met, MSHA and mine operators would have to sample the amount of dust in the mine atmosphere using personal dust monitors (PDMs) that provide real-time information to the miners equipped with the devices. An amendment to the bill appropriates \$30 million to the Secretary to buy PDMs for this purpose.

In light of the use of retreat mining in the 2007 Crandall Canyon tragedy, the bill contains provisions that address the practice.²⁷ For example, mine operators would be required to have a current pillar extraction or barrier reduction plan approved by MSHA before performing such activities; the Secretary must establish a special internal review process for plans involving miners working at depths of more than 1,500 feet; and the agency must more closely monitor implementation of these practices. The National Academy of Sciences, in consultation with NIOSH, would be required to make recommendations within one year of enactment about ways to better protect miners during retreat mining and when working at great depths.

²⁵ The Secretary of Labor would be allowed to review the feasibility of a PEL before it is put into effect if mine operators or miners provide evidence that feasibility may be an issue. If operators or miners provide evidence that an REL issued by NIOSH lacks the specificity needed to serve as a PEL, the Secretary may defer implementation until NIOSH recommends a more detailed REL.

²⁶ In February 2008, MSHA published a final asbestos standard that includes exposure limits equal to those set by OSHA.

²⁷ When an underground area has been mined of its coal, the coal pillars that have been holding up that area of the mine's roof are pulled to obtain their coal in the opposite direction from which mining originally occurred.

In addition to the retreat mining provisions in Section 4 of S-MINER, the section revisits and supplements the emergency response provisions in the MINER act. Among other things, MSHA would have to issue regulations in 2008 or 2009 concerning such safety issues as rescue chambers or other refuge designs recommended by NIOSH, survivable mine ventilation controls, flame resistant conveyor belts, and ventilation of active working places. H.R. 2768 similarly sets deadlines on mine operators related to such safety issues as post-accident communication and electronic tracking systems, a pre-shift communication program, and atmospheric monitoring of carbon monoxide levels.

Section 4 also would repeal Section 10 of the MINER act, which imposed a deadline (December 2007) for a final rule on sealing of abandoned mine areas. In its stead, S-MINER would require MSHA to issue a final rule on the matter not later than three months after enactment.²⁸ Section 4 would, as well, have the National Academy of Sciences (not later than one year from enactment) report on ways to protect miners from the risk of lightning strikes near mines; this was a factor in the Sago mine accident.

Section 5 of S-MINER focuses on enforcement authority. To ensure the agency has sufficient qualified and trained inspection personnel on board before current inspectors retire, the bill would abolish for five years any ceilings on the number of persons in the position. In addition, an office of miner ombudsman would be created in the Labor Department's Office of Inspector General. S-MINER also would permit in instances where a pattern of violations is found (1) assessment of a penalty beyond those already authorized and (2) withdrawal of all miners from an entire mine. The bill would raise the amount of some currently authorized penalties and establish a procedure for dealing with operators who fail to pay final assessments. The Secretary would be required to establish an advisory committee to recommend whether the government should license mines, their operators, and related personnel to guarantee they are not frequent violators of the 1977 statute.

Section 6 of H.R. 2768 addresses rescue, recovery and incident investigating authority. It includes a requirement that within 30 days of enactment a communications emergency call center be created for coal and other mine operations; it must be staffed and operated 24 hours a day 7 days a week by at least one employee of MSHA. Within six months of S-MINER's enactment, guidelines for rescue operations would have to be developed and disseminated; the guidelines must delineate lines of authority within MSHA and between the agency, the private sector and state responders so each can perform their respective responsibilities.

In addition to MSHA conducting all accident and incident investigations, Section 6 would authorize an independent investigation for incidents involving multiple injuries or deaths, or multiple entrapments. NIOSH would appoint team

²⁸ In May 2007, MSHA issued an emergency temporary standard to increase protections for those working in underground mines with sealed off abandoned areas. After extending the comment three times (once to hold hearings in four states and twice to give individuals time to review reports by NIOSH and the U.S. Army Corps of Engineers), MSHA published a final standard in April 2008.

members. Not less than 30 days after its enactment, rulemaking would have to commence on the procedures to be followed in the conduct of independent investigations; rulemaking must be completed by October 1, 2008. However, the bill would not have these other investigations limit the investigative authority of the Chemical Safety and Hazard Investigations Board or the department's inspector general.²⁹

Section 6 of H.R. 2768 also would strike Section 7 of the MINER act concerning family liaisons. In its place, S-MINER would have the Secretary designate a full-time permanent employee of MSHA to serve as a family liaison who will, at least in incidents involving multiple miners, serve as the primary communicator with the families of those miners.

A third amendment to H.R. 2768 created Section 9, which establishes a mine safety program fund. Into this account in the Treasury would be deposited mine safety civil penalties and private donations. Sums in the account would be available for mine safety inspections and investigations only.

The Administration's Position. The President has said he will not sign the bill if it arrives at his desk in its current form. When the House Education and Labor Committee was marking up S-MINER in late October 2007, the OSHA Fairness Coalition wrote the Committee to express its opposition to the legislation. It specifically was concerned that requiring MSHA to adopt NIOSH's voluntary RELs as mandatory PELs would circumvent the participatory rulemaking process because RELs do not go through a comparable public review.³⁰ In a statement of Administration policy issued when the House was preparing to vote on H.R. 2768, the Office of Management and Budget (OMB) similarly noted that "This provision would mandate the adoption of potentially hundreds of PELs without any input from stakeholders and without [prior] determination of whether the PEL is economically and technologically feasible."

The OMB further said in the statement of Administration policy that rulemaking already is underway as a result of other bills the President previously signed: H.R. 2768 would "overturn regulatory processes that were required by the MINER Act ... and would impose burdensome and unrealistic time requirements." Moreover, by allowing entities in addition to MSHA investigate certain accidents, S-MINER would, according to the OMB,

undermine the government's ability to hold accountable mine operators who violate mine safety and health regulations since multiple investigations potentially using different methodologies and reaching different conclusions

²⁹ The Chemical Safety and Hazard Investigations Board is an independent agency of the federal government that, among other things, investigates and identifies the causes of chemical accidents.

³⁰ In addition, the employer group reportedly is concerned that this requirement would set a precedent that Congress subsequently could apply to OSHA. "House Committee Approves S-MINER Bill, Amendment Adds Retreat Mining Provisions," *Daily Labor Report*, November 1, 2007.

could prejudice the government's ability to prosecute civil or criminal violations of mine safety and health standards that contributed to, or exacerbated, an accident.

Related Legislation. S-MINER was referred to the Senate in January 2008. It joins S. 1655 (the Miner Health and Safety Enhancement Act of 2007) which was introduced on June 19, 2007, the same day as the initial version of the S-MINER act. While otherwise quite similar, S. 1655 does not contain the retreat mining provisions included in the substitute to H.R. 2768 that the Education and Labor Committee considered in November 2007 (after the Crandall Canyon incident had occurred). In addition, S. 1655 does not include the provisions in H.R. 2768 about a study of substance abuse and related rehabilitation grants (at Section 8), a mine safety program fund (at Section 9), and the appropriation for MSHA to purchase PDMs.

S-MINER also joins in the Senate H.R. 3877/S. 2263 (the Mine Communications Technology Innovation Act), which the House passed on October 29, 2007. H.R. 3877 would have the Director of the National Institute of Standards and Technology (NIST) establish a research, development and demonstration program to develop best practices, adapt existing technology, and accelerate development of next generation technology and tracking systems for mine communications. The Department of Commerce's NIST also would coordinate with industry and relevant federal agencies to develop consensus standards for communications in underground mines.

Previously, the MINER act (Section 6) created within NIOSH an Office of Mine Safety and Health "to enhance the development of new mine safety technology and technological applications and to expedite the commercial availability and implementation of such technology in mining environments." The 2006 statute further states that the NIOSH office is "responsible for research, development, and testing of new technologies and equipment designed to enhance mine safety and health," and to carry out this responsibility has the authority to award grants to encourage the development and manufacture of mine safety equipment and to award contracts to perform product testing. Separately, the Emergency Supplemental Appropriations Act of 2006 (P.L. 109-234) awarded \$10 million to NIOSH to target research into safety technologies specifically related to communications and tracking, among other things, that would be available for use in mines within 24-36 months.

NIOSH, which is part of the CDC, has organized a Mine Emergency Communications Partnership "to facilitate the development, evaluation, and implementation of" post-accident communication and tracking technologies. The partnership initially has focused on applications suited for coal mines. Its members, who include mining associations, unions, state and federal regulatory agencies, equipment manufacturers, and researchers, "are expected to share their knowledge of, and experiences with, communication and tracking systems and provide mine sites where tests and demonstrations of communication and tracking systems can be conducted."³¹ MSHA notes that it has been working with this NIOSH partnership to

³¹ See the following for additional information: [<http://www.cdc.gov/niosh/mining/>]
(continued...)

help arrange field tests of new communication and tracking technologies, which could enable mine operators to meet the MINER act's June 2009 deadline for inclusion in MSHA-approved plans of wireless two-way post-accident communication devices and electronic tracking technologies.³²

³¹ (...continued)
mineract/mineemergencycommunicationspartnership.htm].

³² See the following for MSHA-approved communications and tracking technologies:
[<http://www.msha.gov/techsupp/PEDLocating/MSHAApprovedPEDproducts.pdf>].