Coal Mine Safety and Health

Linda Levine
Specialist in Labor Economics

February 23, 2009

Congressional Research Service
7-5700
www.crs.gov
RL34429

CRS Report for Congress
Prepared for Members and Committees of Congress

Summary

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 in the two subsequent years, dropping to 29 in 2008.

Coal miners also suffer from occupationally caused diseases. Prime among them is black lung (coal workers' pneumoconiosis, CWP), which still claims about 1,000 lives 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 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 did not always meet the act's deadlines, it published the requisite final standards on emergency mine evacuation, civil penalties, rescue teams, mine seals, flame-resistant conveyor belts and belt air, and refuge alternatives by the end of 2008.

By June 15, 2009, the MINER Act also requires that two-way wireless communications systems and electronic tracking systems be part of emergency response plans (ERPs). But, during a hearing of the Subcommittee on Employment and Workplace Safety of the Senate Health, Education, Labor, and Pensions (HELP) Committee in June 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 the act's deadline would be met. Then, on January 16, 2009, MSHA issued a program policy letter which states that "because fully wireless communications technology is not sufficiently developed at this time, nor is it likely to be technologically feasible by June 15, 2009, ...[n]ew ERPs and revisions to existing ERPs should provide for alternatives to fully wireless communication systems." The guidance sets forth "the features MSHA believes would best approximate the functional utility and safety protections of a fully wireless system, given the limitations of current technology." As MSHA-approved electronic tracking systems now are available, mine operators are expected to provide for them in new and revised ERPs.

Also on January 16, 2009, MSHA published a proposed rule on coal mine dust monitors that revises 30 C.F.R. Part 74 to permit approval of devices differing from the design of those used since 1970. This change is needed to allow use of the continuous personal dust monitor (CPDM), which enables real-time dust measurement and thereby "offers the best solution for protecting miners" from CWP and silicosis, according to MSHA. The proposed rule also updates the design-based requirements for the currently employed device (coal mine dust personal sampler units). The comment period closes on March 17, 2009.

Contents

Tables

Contacts

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 of the U.S. Department of Labor's Mine Safety and Health Administration, incorporating discussion of the standard-setting required by the Mine Improvement and New Emergency Response Act of 2006. The report closes with an examination of recent 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 4.0 per 100,000 workers in 2007, the latest year for which data are available from the U.S. Bureau of Labor Statistics (BLS), compared to 28.4 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 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

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

[2] Data from the BLS's National Census of Fatal Occupational Injuries available at http://stats.bls.gov/iif/oshwc/cfoi/CFOI_Rates_2007.pdf.

[3] BLS, *Workplace Injuries and Illnesses in 2007*, October 23, 2008.

[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.

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]

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 the two subsequent years, the number of fatal work injuries declined steadily, falling to 29 in 2008.

Despite the improvement shown 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.

[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 has wanted MSHA to be more active. It has for some time asserted 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 has supported the regulatory approach that characterized much of the current decade. It has urged that inspections be focused on mines with evident problems rather than on all mines, as required by law.

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

Table 1. Number of Fatalities and Fatal Injury Rate in the Coal Mining Industry, 1995-2008

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	34	0.03
2008	29	0.02

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

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

[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.

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]

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 mandated to inspect each underground mine at least four times a year and each surface mine twice a year. (Not until FY2008 did MSHA fulfill this mandate. The agency put in place the "100 Percent Plan" in October 2007 to achieve the required inspections of 14,800 active mining operations.)[11] 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.

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

[11] "MSHA Says 100 Percent Plan Succeeded in Completing All Mandated Mine Inspections," *Daily Labor Report*, December 15, 2008.

Safety

The Mine Improvement and New Emergency Response Act

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.[12] The Bush Administration said in response that it was pursuing a revised agenda,[13] and being more frank by no longer listing long-term projects on which little progress had been made.

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 the first major revision of federal mine safety legislation since 1977, is the Mine Improvement and New Emergency Response (MINER) Act (P.L. 109-236).[14]

MSHA rulemaking activity started to quicken after enactment of P.L. 109-236 in June 2006. A final rule on emergency mine evacuation went into effect in December 2006, which 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.

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 hours and frequency of training for mine rescue team members. (Relatedly, in September 2008, the agency published a final standard on the equipment that must be contained in mine rescue stations at underground coal and metal/nonmetal mines and a final standard concerning firefighting equipment in underground coal mines.) The D.C. Circuit Court of Appeals invalidated part of the mine rescue team rule in February 2009. MSHA will comply with the court's decision about mine-site teams at small mines training semi-annually rather than annually, and state employees on state-sponsored rescue teams training at small mines semi-annually rather than annually as well as participating in two rescue contests rather than one.

The MINER Act further 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. In April 2008, the agency issued the final rule on sealing of abandoned areas in underground coal mines.

---

[12] Jody Warrick, "Federal Mine Agency Considers New Rules to Improve Safety," *Washington Post*, January 31, 2006, p. A3.

[13] 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.

[14] 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.

Continued congressional dissatisfaction with MSHA's performance following passage of the MINER Act in 2006 resulted in inclusion of provisions related to the safety of miners in the Consolidated Appropriations Act, 2008 (P.L. 110-161). Signed in December 2007, this act required the agency to issue 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 that had been established by the MINER Act.[15] Within the same time frame, P.L. 110-161 also directed the Secretary of Labor to propose and finalize regulations consistent with the recommendations of NIOSH made pursuant to the MINER Act requiring rescue chambers or equally protective refuge facilities in underground coal mines.

MSHA met these deadlines for publishing the two standards. After receiving the final report of the study panel on use of belt air in December 2007, it published the final rule concerning fire prevention and detection in connection with conveyor belts in December 2008. The standard requires operators to request agency approval in their mine ventilation plans to use air from belt entries to ventilate working sections of mines, requires airlocks on doors along escape ways, reduces levels of respirable dust at belt entries, and mandates installation of smoke sensors within one year of their approval by MSHA, among other things. The final rule differs from the proposed rule by allowing mine operators to replace outdated existing conveyor belts within 10 years of new models being approved by the agency; the one-year requirement still applies to installation of new belts. In December 2008, as well, the final rule on refuge alternatives and their components (e.g., breathable air, water, first-aid supplies) was issued. The rule permits two kinds of refuges, each of which must among other things provide 96 hours of breathable air, allow a minimum 15 square feet of floor space, be located within 1,000 feet of the nearest working face, and have an apparent temperature of 95 degrees Fahrenheit or less. Other refuge alternatives are to be phased out over time. In addition, operators must describe the location of refuge alternatives in their emergency response plans (ERPs), train miners to locate and use refuges, and conduct examinations of refuges and their components before the start of shifts.

The final rule on refuge alternatives for underground coal mines also requires they contain a two-way communication facility that is part of the mine communication system. Although aware that such systems are not now available, MSHA wants them included in ERPs once they are developed. In order for an underground mine operator's plan to be approved, the MINER Act imposed a deadline (June 15, 2009) for provision of "post accident communication between underground and surface personnel via a wireless two-way medium," and for provision of "an electronic tracking system permitting surface personnel to determine the location of any persons trapped underground or set forth within the plan the reasons such provisions cannot be adopted."

During a hearing held by the Subcommittee on Employment and Workplace Safety of the Senate Health, Education, Labor, and Pensions (HELP) Committee in June 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 the act's June 2009 deadline would be met. Seven months later, on January 16, 2009, MSHA issued a program policy letter that provides guidance for complying with the post-accident two-way communications and electronic tracking

[15] 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.

requirements of the MINER Act. It notes that because MSHA-approved electronic tracking systems now are available, mine operators should provide for them in new and revised ERPs. But,

> because fully wireless communications technology is not sufficiently developed at this time, nor is it likely to be technologically feasible by June 15, 2009, ... [n]ew ERPs and revisions to existing ERPs should provide for alternatives to fully wireless communication systems.... While operators and District Managers must consider mine-specific circumstances in determining appropriate two-way communications systems, this guidance outlines the features MSHA believes would best approximate the functional utility and safety protections of a fully wireless system, given the limitations of current technology.

Drug and Alcohol Use

MSHA issued an advance notice of proposed rulemaking—Use of or Impairment from Alcohol and Other Drugs on Mine Property—in October 2005. A proposed rule was published in the September 8, 2008, *Federal Register*. The comment period was extended to October 29, 2008.

The current MSHA standard prohibiting possession and use of intoxicating drinks and narcotics applies only to surface and underground metal and nonmetal mines (30 C.F.R. Sections 56.20001 and 57.20001). The proposed rule, codified at 30 C.F.R. Subchapter N (Uniform Mine Safety Regulations), extends coverage to surface and underground coal mines.

The proposed rule generally adopts the Department of Transportation's (DOT's) testing program requirements (49 C.F.R Part 40) that call for testing under the following circumstances: pre-employment, random unannounced, post-accident if the employee might have contributed to the accident, and based on reasonable suspicion of an employee having used a banned substance. (Prohibited substances are listed in the standard, although mine operators are not prevented from testing for other drugs and the Secretary of Labor subsequently may add substances.) Like the DOT regulation, the proposed rule requires the removal from safety-sensitive duties of employees who test positive and their referral to substance abuse professionals. In order to resume performing these job duties, the employees would have to undergo return-to-duty and follow-up testing. The content of required employee and supervisor training in the proposed rule is similar to the DOT regulation as well.

The proposed rule requires operators to give violators one chance to obtain help and retain their jobs. The disciplinary consequences for subsequent violations are left up to the mine operator.

For those mine operators that currently lack alcohol- and drug-free mine programs, the proposed rule allows them one year from its effective date to implement the requirements. Those operators with programs that test for the minimum specified substances would be deemed in compliance if their prohibitions and training requirements are comparable to those in the rule despite their use of different drug-testing technologies. Such operators would have to comply with all requirements of the rule, including testing procedures and technologies, within two years of its effective date.

Health: Personal Dust Monitors

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) permissable 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.[16]

Besides the limit itself, controversy continues about how dust concentrations are measured in mines. After MSHA proposed new regulations in 2000 (superseded by revised proposals in March 2003), it suspended work on a final rule in June 2003 to obtain information on recently developed continuous personal dust monitors (CPDMs) that NIOSH was testing. CPDMs 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 CPDMs were able to greatly reduce respirable dust exposure based on having real-time dosimetry. The firm that has the rights to the device informed NIOSH that it could have them available within four to six months after rulemaking is completed.[17]

On January 16, 2009, MSHA published a proposed rule on dust monitors. It revises 30 C.F.R. Part 74 by creating performance-based requirements to permit approval of the recently developed CPDMs that NIOSH had extensively tested with the collaboration of MSHA and stakeholders.[18] The new device allows real-time measurement of the respirable dust to which coal miners are exposed and thereby "offers the best solution for protecting miners from" CWP and silicosis.[19] The rule also updates the design-based requirements for the coal mine dust personal sampler units (CMDPSUs) that have been used since 1970. These devices employ a filter cassette to ascertain the concentration of respirable dust; the cassette is sent to MSHA for processing at the end of a full shift or eight hours, whichever is less.

MSHA and NIOSH will hold two hearings at which interested parties may make oral statements. The period for receipt of written statements closes on March 17, 2009.

Enforcement

Civil Penalties Assessed and Contested

The increased value of civil penalties promulgated by MSHA in its March 2007 rule coincides with employers more often contesting citations. There were 9,902 penalties contested out of 135,719 violations assessed or 7.3% in 2006. Contested citations rose to 14.9% in 2007, or 19,358 penalties contested out of 130,137 violations assessed. Of the 198,751 violations assessed in 2008, 22.8% or 45,352 were contested. Similarly, the percentage of dollars assessed being

[16] 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.

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

[18] By law, NIOSH and MSHA must jointly approve devices to measure respirable dust concentrations in coal mines. MSHA's specific role is to "approve the intrinsic safety of the device, which assures that the device could be operated safely in the potentially explosive atmosphere of an underground coal mine" (74 FR 11, p. 2916).

[19] Department of Labor, Mine Safety and Health Administration, "Coal Mine Dust Personal Monitors, proposed rule," 11 *Federal Register* 2917, January 16, 2009.

contested jumped from 34.6% in 2006 ($12.1 million out of $35.1 million) to 53.7% in 2007 ($40.0 million out of $74.5 million). The percentage rose still further to 67.1% in 2008 ($130.5 million out of $194.6 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.[20]

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.[21]

> 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.[22]

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.

[20] "Sixth MSHA Rule from MINER Act Imminent," *Daily Labor Report*, June 17, 2008.

[21] 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*.)

[22] 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.[23]

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."[24] 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.[25]

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.[26]

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.[27] At

[23] 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.

[24] MSHA, *Report of Investigation*, p. 176.

[25] 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.

[26] 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 report available at http://www.msha.gov/CCreview/MSHAResponsetoCCIR.pdf.

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

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.

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 Bush Administration requested a somewhat lower sum, $332 million, for MSHA in FY2009. According to the agency's budget justification, much of the $2 million net decrease ($20 million gross decrease) is related 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 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

110th Congress

The Supplemental Mine Improvement and New Emergency Response 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 incorporated language from the Miner Health Enhancement Act (H.R. 2769).

On the health front, Section 8 of the bill would have required 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 permissable exposure limits (PELs). In addition, NIOSH would have had to submit each year new or revised RELs, and DOL would have had to adopt them within 30 days as PELs.[28]

An amendment to the bill also required the Secretary of Labor to study and report on miner substance abuse issues that pose safety risks. Another amendment authorized $10 million for the Secretary, in consultation with the Secretary of Health and Human Services, to award grants for

[28] The Secretary of Labor would have been allowed to review the feasibility of a PEL before it was put into effect if mine operators or miners provided evidence that feasibility might be an issue. If operators or miners provided evidence that an REL issued by NIOSH lacked the specificity needed to serve as a PEL, the Secretary could have deferred implementation until NIOSH recommended a more detailed REL.

provision of rehabilitation services to current and former miners suffering from mental health impairments.

Section 7 addressed another health issue, namely, respirable dust. H.R. 2768 would, effective on the date of enactment, have required mine operators to 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 was being met, MSHA and mine operators would have sampled the amount of dust in the mine atmosphere using personal dust monitors that provide real-time information to the miners equipped with the devices. An amendment to the bill appropriated $30 million to the Secretary to buy these devices.

In light of the use of retreat mining in the 2007 Crandall Canyon tragedy, the bill contained provisions that address the practice.[29] For example, mine operators would have been required to have a current pillar extraction or barrier reduction plan approved by MSHA before performing such activities, and the Secretary would have established a special internal review process for plans involving miners working at depths of more than 1,500 feet. The National Academy of Sciences, in consultation with NIOSH, would have been required to make recommendations within one year of enactment about ways to better protect miners during retreat mining and when working at great depths.

In addition to the retreat mining provisions in Section 4 of S-MINER, the section would have required the National Academy of Sciences (not later than one year from enactment) to 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 focused on enforcement authority. To ensure the agency had sufficient qualified and trained inspection personnel on board before current inspectors retire, the bill would have abolished for five years any ceilings on the number of persons in the position. In addition, an office of miner ombudsman would have been created in the Labor Department's Office of Inspector General. S-MINER also would have permitted in instances where a pattern of violations was found (1) assessment of a penalty beyond those already authorized and (2) withdrawal of all miners from an entire mine. The bill would have raised the amount of some currently authorized penalties and established a procedure for dealing with operators who fail to pay final assessments. The Secretary would have been 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 addressed rescue, recovery and incident investigating authority. It included a requirement that within 30 days of enactment a communications emergency call center be created for coal and other mine operations, 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 had to be developed and disseminated; the guidelines would have had to delineate lines of authority within MSHA and between the agency, the private sector and state responders so each could perform their respective responsibilities.

[29] 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 MSHA conducting all accident and incident investigations, Section 6 authorized an independent investigation for incidents involving multiple injuries or deaths, or multiple entrapments. NIOSH would have appointed team members. Not less than 30 days after its enactment, rulemaking would have had to commence on the procedures to be followed in the conduct of independent investigations. However, the bill would not have had these other investigations limit the investigative authority of the Chemical Safety and Hazard Investigations Board or the department's inspector general.[30]

Section 6 of H.R. 2768 also would have replaced Section 7 of the MINER Act concerning family liaisons with a requirement that the Secretary designate a full-time permanent employee of MSHA to serve as a family liaison. The designee would, 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 established 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.

President Bush opposed the bill. 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) stated that the provision requiring MSHA to adopt NIOSH's voluntary RELs as mandatory PELs "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 that by allowing entities in addition to MSHA to investigate certain accidents, S-MINER would

> 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 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.

The Mine Communications Technology Innovation Act

The House passed the Mine Communications Technology Innovation Act (H.R. 3877/S. 2263) on October 29, 2007. H.R. 3877 would have had 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 have coordinated with industry and relevant federal agencies to develop consensus standards for communications in underground mines.

Presumably, the "relevant federal agencies" would have included NIOSH. The MINER Act of 2006 at 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

[30] 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.

statute further stated 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, organized a Mine Emergency Communications Partnership "to facilitate the development, evaluation, and implementation of" post-accident communication and tracking technologies. The partnership includes mining associations, unions, state and federal regulatory agencies, equipment manufacturers, and researchers who "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]

111th Congress

H.R. 497 would amend the Internal Revenue Code to provide incentives for the improvement of mine safety. This would be accomplished by providing a credit in lieu of expensing for purchases of advanced mine safety equipment utilized at underground mines. Advanced equipment includes such property as emergency communication technologies/devices that allow a miner to communicate with someone outside the mine, electronic identification and location devices that permit someone not in the mine to track miners at work, and emergency oxygen-generating self-rescue devices. In addition, the bill would increase the existing mine rescue team training credit and make it permanent.

Author Contact Information

Linda Levine
Specialist in Labor Economics
llevine@crs.loc.gov, 7-7756

[31] See the following for additional information: http://www.cdc.gov/niosh/mining/mineract/mineemergencycommunicationspartnership.htm.