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Injury Trends in Mining

Since the earliest days of mining, the job of digging coal and other useful minerals out of the earth has been considered one of the world's most dangerous occupations. During the twentieth century, public concern about the toll of deaths, injuries and destruction in mine accidents prompted passage of much-needed safety legislation and intensified the search for safer methods and improved training practices and technology.

Today, mine safety and health legislation and advances in technology and training have reduced mining deaths and injuries from earlier high levels. However, any mining death or injury is still unacceptable.

The Tragic Early Toll

From 1880 to 1910, mine explosions and other accidents claimed thousands of victims. The deadliest year in U.S. coal mining history was 1907, when an estimated 3,242 deaths occurred. That year, America's worst mine explosion ever killed 358 people near Monongah, WV. While metal and nonmetal (non-coal) mining was less deadly than coal mining, available records for the era show that it, too, was highly hazardous. Fires, explosions and roof falls caused many deaths and injuries. One of the deadliest non-coal mining accidents involved a mine fire in Montana that killed 163 miners in 1917.

Decades of Difficult but Impressive Progress

Total deaths in all types of U.S. mining, which had averaged 1,500 or more per year during earlier decades, decreased on average during the 1990s to under 100 per year, and reached historic lows of 35 total deaths in 2009 and 2012. The average annual injuries to miners in all segments of the mining industry have also decreased steadily.

While annual coal mining deaths numbered more than 1,000 a year in the early part of the 20th century, they decreased to an average of about 451 annual fatalities in the 1950s, and to 141 in the 1970s. From 2006-2010, the yearly average number of fatalities in coal mining decreased to 35. In 2009, there were 18 recorded coal mining deaths, a record low number. Sadly, coal mining fatalities dramatically increased to 48 in 2010, with the tragedy at the Upper Big Branch Mine claiming 29 lives in addition to the 19 other coal miners killed that year. In 2011, 21 coal miners were killed in accidents. 2012 saw 19 coal miners killed in accidents.

The safety gains in metal and nonmetal mining have also been impressive. In the 1930s, an average of 233 miners died per year in the non-coal mining sector, compared to an average of 24 fatalities per year from 2006-2010. In 2009, mining fatalities in this sector reached a then-record low of 17. 2010 saw 23 metal and nonmetal miners killed in accidents. Record low fatalities of 16 in 2011 and 16 in 2012 show the continuing gains in metal and nonmetal mine safety.

Significant reductions in rates of mining deaths also have been achieved over the years.

With each passing decade, the annual rates of mining deaths and injuries (measuring numbers of

deaths and injuries against hours worked) have declined.

The rate of coal mining deaths decreased from about .2000 fatalities per 200,000 hours worked by miners (or one death per million production hours) in 1970 to about .0587 fatalities in 1980. It further dropped to about .0425 in 1990, then dropped again to about .0393 fatalities in 2000.

The metal and nonmetal mining death rate per 200,000 employee hours decreased from about 0.620 fatalities in 1970 to about .0381 fatalities in 1980. It further dropped to about .0261 in 1990, then dropped again to about to .0218 fatalities in 2000.

In 2011, fatality and injury rates were the lowest ever recorded. The fatal injury rate for mining as a whole was .0114 per 200,000 hours worked, and the all-injury rate was 2.73 per 200,000 hours worked, down from .0234 and 2.81, respectively, in 2010. In the metal/nonmetal mining sector, the fatal injury rate was .0084 per 200,000 hours worked, and the all-injury rate was 2.28 per 200,000 hours worked, down from .0129 and 2.37, respectively, in 2010. In the coal mining sector, the fatal injury rate was .0156 per 200,000 hours worked, and the all-injury rate was 3.38 per 200,000 hours worked, down from .0384 and 3.43, respectively, in 2010.

Entire Mining Community Involved in Safety Gains

A combination of factors has been responsible for the dramatic safety gains in the U.S. mining industry over the last century. The major elements of these accomplishments have been:

- Congressional creation in 1910 of the U.S. Bureau of Mines, whose primary roles were to investigate accidents, advise industry, conduct production and safety research and teach courses in accident prevention, first aid and mine rescue;
- Federal and state laws to better advise and regulate the mining industry, to extend coverage to all types of miners, to require or encourage use of successful safety procedures and technology, to provide effective miner training, and to focus on reducing or eliminating the most serious hazards. The most far-reaching laws were the Federal Coal Mine Health and Safety Act of 1969, the more comprehensive Federal Mine Safety and Health Act of 1977 (Mine Act), and the most recent, Mine Improvement and New Emergency Response Act of 2006 (MINER Act);
- Creation in 1973 of the Mining Enforcement and Safety Administration in the Department of the Interior, which assumed safety and health enforcement responsibilities from the Bureau of Mines. And four years later, following passage of the Mine Act, creation of the present Mine Safety and Health Administration, which was moved to the Department of Labor; and
- Introduction of vastly safer and more productive mining machines and systems, ever-safer mining methods, a growing awareness of the importance of effective accident prevention programs among both management and miners, and a more cooperative attitude toward safety issues by the mining industry, labor and government.

For more information, contact:

Program Education and Outreach Services, MSHA Headquarters, Arlington, VA, (202) 693-9400;

Your local MSHA office (check your local phone book under "U.S. Government"); or

The MSHA internet homepage at http://www.msha.gov