

## Coal Mine Safety Achievements In The Usa And The

The U.S. mining sector has the highest fatality rate of any industry in the country. Fortunately, advances made over the past three decades in mining technology, equipment, processes, procedures, and workforce education and training have significantly improved safety and health. The National Institute for Occupational Safety and Health (NIOSH) Mining Safety and Health Research Program (Mining Program) has played a large role in these improvements. An assessment of the relevance and impact of NIOSH Mining Program research by a National Research Council committee reveals that the program makes essential contributions to the enhancement of health and safety in the mining industry. To further increase its effectiveness, the Mining Program should proactively identify workplace hazards and establish more challenging and innovative goals toward hazard reduction. The ability of the program to successfully expand its activities, however, depends on available funding.

Coal will continue to provide a major portion of energy requirements in the United States for at least the next several decades. It is imperative that accurate information describing the amount, location, and quality of the coal resources and reserves be available to fulfill energy needs. It is also important that the United States extract its coal resources efficiently, safely, and in an environmentally responsible manner. A renewed focus on federal support for coal-related research, coordinated across agencies and with the active participation of the states and industrial sector, is a critical element for each of these requirements. Coal focuses on the research and development needs and priorities in the areas of coal resource and reserve assessments, coal mining and processing, transportation of coal and coal products, and coal utilization.

Mine Safety combines detailed information on safety in mining with methods and mathematics that can be used to preserve human life. By compiling various recent research results and data into one volume, Mine Safety eliminates the need to consult many diverse sources in order to obtain vital information. Chapters cover a broad range of topics, including: human factors and error in mine safety, mining equipment safety, safety in offshore industry and programmable electronic mining system safety. They are written in such a manner that the reader requires no previous knowledge to understand their contents. Examples and solutions are given at appropriate places, and there are numerous problems to test the reader's comprehension. Mine Safety will prove useful for many individuals, including engineering and safety professionals working in the mining industry, researchers, instructors, and undergraduate and graduate students in the field of mining engineering.

Coal mine disasters in the United States are relatively rare events; many of the roughly 50,000 miners underground will never have to evacuate a mine in an emergency during their careers. However, for those that do, the consequences have the potential to be devastating. U.S. mine safety practices have received increased attention in recent years because of the highly publicized coal mine disasters in 2006 and 2010. Investigations have centered on understanding both how to prevent or mitigate emergencies and what capabilities are needed by miners to self-escape to a place of safety successfully. This report focuses on the latter - the preparations for self-escape. In the wake of 2006 disasters, the U.S. Congress passed the Mine Improvement and New Emergency Response Act of 2006 (MINER Act), which was designed to strengthen existing mine safety regulations and set forth new measures aimed at improving accident preparedness and emergency response in underground coal mines. Since that time, the efforts of the National Institute of Occupational Safety and Health (NIOSH) and the Mine Safety and Health Administration (MSHA) have contributed to safety improvements in the mining industry. However, the Upper Big Branch mine explosion in 2010 served as a reminder to remain ever vigilant on improving the prevention of mine disasters and preparations to help miners survive in the event of emergencies. This study was set in the context of human-systems integration (HSI), a systems approach that examines the interaction of people, tasks, and equipment and technology in the pursuit of a goal. It recognizes this interaction occurs within, and is influenced by, the broader environmental context. A key premise of human-systems integration is that much important information is lost when the various tasks within a system are considered individually or in isolation rather than in interaction with the whole system. Improving Self-Escape from Underground Coal Mines, the task of self-escape is part of the mine safety system.

Through the first decade of the twentieth century, Americans looked upon industrial accidents with callous disregard; they were accepted as an unfortunate but necessary adjunct to industrial society. A series of mine disasters in December 1907 (including one in Monongah, West Virginia, which took a toll of 361 lives) shook the public, at least temporarily, out of its lethargy. In this award-winning study, author William Graebner traces the development of mine safety reform in the years immediately following these tragic events. Reform activities during the Progressive period centered on the Bureau of Mines and an effort to obtain uniform state legislation; the effect of each was minimal. Mr. Graebner concludes that these idealistic solutions of the time were at once the great hope and the great failure of the Progressive coal-mining safety movement.

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