April 2014

MINE SAFETY

Basis for Proposed Exposure Limit on Respirable Coal Mine Dust and Possible Approaches for Lowering Dust Levels

GAO Highlights

Highlights of GAO-14-345, a report to congressional requesters

Why GAO Did This Study

Underground coal miners face the threat of being overexposed to coal mine dust, which can cause CWP and other lung diseases, collectively referred to as black lung disease. In October 2010, MSHA—the federal agency responsible for setting and enforcing mine safety and health standards—proposed lowering the exposure limit for respirable coal mine dust to reduce miners' risk of contracting black lung. In August 2012, GAO reported that the evidence MSHA used supported its conclusion that lowering the exposure limit on coal mine dust would reduce miners' risk of disease. However, some have questioned whether and how recent NIOSH trend data on CWP were used in developing the proposed limit.

In May 2013, GAO was asked to provide additional information on MSHA's proposal. GAO examined (1) the extent to which MSHA used recent CWP trend data as a basis for its proposed exposure limit, and (2) expert views on ways to lower the level of dust in coal mines, including their associated advantages, disadvantages, and cost. GAO reviewed MSHA's proposal and related documents; updated a previous GAO literature search; interviewed MSHA and NIOSH officials; and, with the help of the National Academies, convened a group of experts knowledgeable about underground coal mining and methods for reducing coal mine dust. GAO is not making any recommendations in this report, and MSHA and NIOSH both generally concurred with the findings.

View GAO-14-345. For more information, contact Revae Moran at (202) 512-7215 or moranr@gao.gov

What GAO Found

The Department of Labor's Mine Safety and Health Administration (MSHA) appropriately did not use recent trend data on coal workers' pneumoconiosis (CWP) as a basis for its proposal to lower the permissible exposure limit for respirable coal mine dust. These recent data from the Department of Health and Human Services' National Institute for Occupational Safety and Health (NIOSH) are inappropriate for this purpose because they do not include the types of detailed information about individual miners needed to estimate the likelihood that miners would develop CWP at different exposure levels, such as historical dust exposures. MSHA primarily based its proposed new limit on two reports and six epidemiologic studies, which each concluded that lowering the limit on exposure to coal mine dust would reduce miners' risk of developing disease. MSHA's proposed coal mine dust limit was supported by these reports and studies because, unlike recent CWP trend data, they included information needed to conduct a reliable epidemiological analysis of disease risks associated with different levels of exposure to coal mine dust.

Experts identified various approaches that could incrementally reduce overall coal mine dust levels as well as individual miners' exposure to dust. They said that air and water are the primary engineering controls used to reduce overall coal mine dust levels in the mine environment, which are used in various mining equipment, such as sprays. The experts also said that no one technology or approach would result in substantially lower dust levels, but instead could have a cumulative impact if used together. They also noted that all the approaches may not be effective in all types of mines, and that there are a number of cost drivers that would have to be considered, such as machine maintenance and training. The experts also identified other approaches, such as personal protective equipment and administrative controls, which could reduce individual miners' exposure to dust. Personal protective equipment includes respirators and air stream helmets; administrative controls include rotating workers and using remote control devices. However, they noted that these approaches would not help mine operators comply with MSHA's exposure limit because they would not reduce the overall level of coal mine dust in the mine environment.

Miner Using Water Spray to Control Coal Dust

Source: www.CDC.gov.