UPDATE

Contact: Terry Hammond (404) 639-3902 November 18, 1992

NIOSH Issues Nationwide Alert on Silicosis

The National Institute for Occupational Safety and Health (NIOSH) has issued a nationwide Alert to warn workers involved in rock drilling that they may be at risk for developing silicosis -- a chronic, irreversible, sometimes fatal, respiratory disease which is completely preventable. NIOSH Director Dr. J. Donald Millar, calls the disease "...an occupational obscenity because there is no scientific excuse for its persistence."

The Alert, "Preventing Silicosis and Deaths in Rock Drillers," documents 23 cases of silicosis among rock drillers, describes the working conditions that favor the development of silicosis, and recommends appropriate preventive measures. These cases are not unique. Silicosis disables many workers, and hundreds of Americans die each year with the disease. Many of those afflicted have no knowledge of the disease which plagues them.

Silicosis is caused by breathing in fine particles of crystalline silica -- a primary component of much of the earth's crust. Once the silica particles enter the lung, they become trapped, and areas of swelling (or nodules) form around them. As the condition worsens, the nodules become progressively larger and breathing becomes increasingly difficult. Eventually the worker may die of respiratory failure. Because of the ambiguity of the symptoms--cough and shortness of breath--silicosis is frequently misdiagnosed as bronchitis, emphysema, or tuberculosis. Once diagnosed, there is little hope for recovery; there is no cure. The only known treatment for advanced silicosis is a lung transplant. This high-risk procedure costs more than $300,000.

Dr. Gregory Wagner, Director of the NIOSH Division of Respiratory Disease Studies, believes there is an urgent need to notify workers who are clearly at risk of exposure to silica. "Transplantation is no solution. What we are doing is replacing part of a worker rather than replacing a process," he said. "It is unacceptable."

Silicosis first received widespread public attention in 1936 when as many as 1,500 men died near the town of Gauley Bridge, West Virginia, as a result of breathing in silica dust. The incident has been called "America's worst industrial disaster." These men were asked to tunnel through a mountain of almost pure silica, even though the health effects of silica exposure had been documented for decades. In this element of extreme risk, no safety precautions were taken. Nearly six decades after the catastrophic happenings at Gauley Bridge, an estimated two million American workers remain at risk for developing silicosis.

One example of this continuing tragedy was documented in May 1992. A 45-year-old surface coal miner was admitted to West Virginia University Hospital with respiratory failure, unable to breath without the aid of a mechanical ventilator. He had worked for 22 years as a surface driller, had not seen a doctor in years, and had never received a chest X-ray. Although the drilling rigs he worked with had dust-suppressive devices (filters, pumps, and water spray units), they were in disrepair and were rarely used. He was diagnosed with severe silicosis.

NIOSH urgently requests assistance in disseminating the crucial prevention information contained in the Alert. The following page summarizes the key information from the document. It is essential that rock drillers, driller helpers, employers of drillers, and drill rig manufacturers be informed of the respiratory hazards associated with drilling operations so that preventive actions can be taken.

U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES
Public Health Service
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

CDC
CENTERS FOR DISEASE CONTROL

Preventing Silicosis and Deaths among Rock Drillers

NIOSH issues Alerts in response to immediate occupational health hazards. The Alerts are designed to inform workers that they are at risk and to propose ways of reducing that risk. Hazardous conditions cannot be prevented unless workers are in fact aware of hazards and how to avoid them. To accomplish this task, NIOSH Alerts request the assistance of health and safety officials, editors of appropriate trade journals, and employers in the effort to inform workers and implement recommendations. The goal of the Institute is to prevent occupational injury and disease through dissemination of these warnings.

Who is at Risk?

Workers who drill into rock containing silica or remove silica-containing debris after drilling are at risk for developing silicosis. Silica is the most abundant mineral on the earth's surface; consequently, there is a high probability of exposure. Silicosis has been diagnosed in rock drillers employed in caisson construction, metal mining, slate and rock quarries, tunnel construction, and highway and dam construction.

How Does Exposure Occur?

The drilling process can create large quantities of silica dust. During drilling, the silica present in the rock is fractured into very fine particles which can then be inhaled by the worker. The smallest particles, once inhaled, deposit deep in the lungs, where they can cause severe damage.

What are the Health Effects?

Once silica particles enter the lungs and become trapped, the lung tissue scars and forms nodules. As the condition worsens, the nodules become progressively larger. The nodules make breathing increasingly difficult, and eventually the worker may die of respiratory failure.

The symptoms of silicosis include shortness of breath, cough, and difficulty in breathing with physical exertion. Because of the common nature of these symptoms, the disease is frequently misdiagnosed or proceeds undetected. The disease is diagnosed on the basis of its symptoms in conjunction with work history and X-ray assessments of dust-induced lung damage.

How Can Workers Be Protected?

NIOSH recommends the following measures to reduce crystalline silica exposures in the workplace and prevent silicosis and silicosis-related deaths:

- Before rock drilling begins, assess the potential for worker exposure to crystalline silica.
- Use control measures such as wet drilling and exhaust ventilation to minimize exposures.
- Conduct air monitoring to measure worker exposures.
- Provide workers with training that includes information about health effects, work practices, and protective equipment for crystalline silica.
- Practice good personal hygiene to avoid unnecessary exposure to silica dust.
- Wear washable or disposable protective clothes at the worksite. Shower and change into clean clothes before leaving the worksite to prevent contamination of cars, homes, and other work areas.
- Use respiratory protection when source controls cannot keep silica exposures below the NIOSH recommended exposure limit (REL).
- Provide periodic medical examinations for all workers who may be exposed to crystalline silica.
- Post signs to warn workers about the hazard and to inform them about required protective equipment.
- Report all cases of silicosis to State health departments and to OSHA or MSHA.

The above information is a summary of the key points in the Alert. For copies of the Alert [Publication number DHHS (NIOSH) 92-107], write or fax requests to:

NIOSH Publications Dissemination
4676 Columbia Parkway
Cincinnati, OH 45226 **FAX: 513-533-8573**

For more information about this or other occupational safety and health concerns, call toll-free:

1-800-35-NIOSH

The NIOSH toll-free information service provides convenient access to NIOSH and its information systems.

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