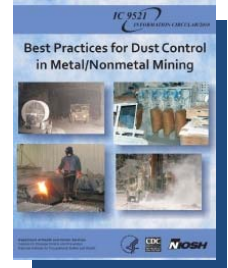


## BEST PRACTICES FOR DUST CONTROL IN METAL/NONMETAL MINING

Currently, New Jersey has 78 active mines, all of which are surface mines. The majority extracts sand or stone and many include processing facilities. Respirable crystalline silica dust exposure has long been known to be a serious health threat to workers in this industry.

The recent publication from the National Institute for Occupational Safety and Health (NIOSH) entitled “Best Practices for Dust Control in Metal/Nonmetal Mining” discusses the latest information on the health effects of respirable silica dust and focuses on the state-of-the-art controls available to suppress, enclose, or filter the dust to prevent exposure. The most relevant chapters for New Jersey mines are highlighted below.



### CHAPTER 1 – describes the health effects from overexposure to respirable crystalline silica, including lung cancer

Occupational exposures to respirable crystalline silica are associated with the development of silicosis, lung cancer, pulmonary tuberculosis, and airways diseases. These exposures may also be related to the development of autoimmune disorders, loss of kidney function, and other adverse health effects. In 1996 and 2009, the International Agency for Research on Cancer (IARC) reviewed the published experimental and epidemiologic studies of cancer in animals and workers exposed to respirable crystalline silica and concluded that there was sufficient evidence to classify silica a human carcinogen. Several types of silicosis can occur depending on the amount and pattern of exposure. *Because there is no cure for silicosis, preventing exposure to respirable crystalline silica dust is critical.*

### CHAPTER 4 – addresses dust control techniques at mineral processing operations

Dust can be generated during mineral processing from the time the ore reaches the primary crusher until it is packaged into some type of shipping container to be delivered to the customer. By applying the current state-of-the-art engineering controls, methods, and techniques to lower respirable dust levels, managers, engineers, and health specialists can lower respirable dust exposures to miners and work toward the ultimate goal of eliminating silicosis and other chronic respiratory diseases from miners in the industry. Dust control measures are addressed for the following operations in the mineral processing cycle:

- Primary dumping
- Crushing and grinding
- Transfer points
- Conveying
- Screening
- Packaging/bagging product for shipment

### CHAPTER 5 – summarizes state-of-the-art dust controls for surface mines

Most of the dust generated at surface mines is produced by mobile earth-moving equipment such as drills, bulldozers, trucks, and front-end loaders excavating silica-bearing rock and minerals. Four practical areas of engineering controls designed to mitigate exposure of surface mine workers to airborne dusts, including silica, are:

- Drill dust collection systems
- Enclosed cab filtration systems
- Controlling dust on unpaved haulage roads
- Controlling dust at the primary hopper dump