

WHY Target Crystalline Silica Exposu

- ◆ Widespread occurrence & use
 - Maritime
 - Agriculture
 - Construction
 - General Industry
- ◆ Number of related deaths
- ◆ Number of exposed workers
- ◆ Health effects

Occurrence of Crystalline Silica

- ◆ SiO_2 is basic component of sand, quartz, & granite
- ◆ Quartz is 2nd most common mineral in earth's crust
- ◆ Airborne silica is produced by, among other activities

Sandblasting

Stone cutting

Rock drilling

Drilling

Roof bolting

Quarrying

Foundry work

Tunneling

Industries with Silica Exposure

- ◆ Electronics
- ◆ Foundries
- ◆ Ceramics, clay & pottery, stone, & glass
- ◆ Construction
- ◆ Agriculture
- ◆ Maritime
- ◆ Mining
- ◆ Railroad (setting track)
- ◆ Slate & flint quarry crushing
- ◆ Use & manufacture of abrasives
- ◆ Manufacture of detergents

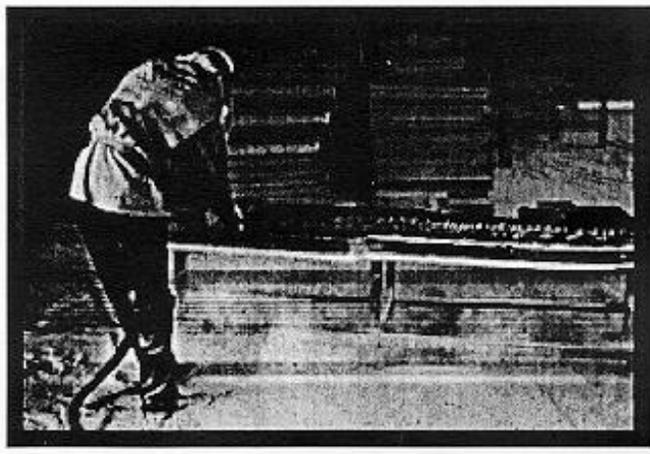
Number of Silica-Related Deaths¹

- ◆ Total US deaths, 1968-1990, where silicosis r
death certificate: 13,744
- ◆ Deaths where silicosis reported as underlying
death: 6,322
- ◆ 68% of silica-related deaths reported in 12 sta
- ◆ 10% of silica-related deaths reported from cor
industry

¹ Study by Bang *et al.*, 1995

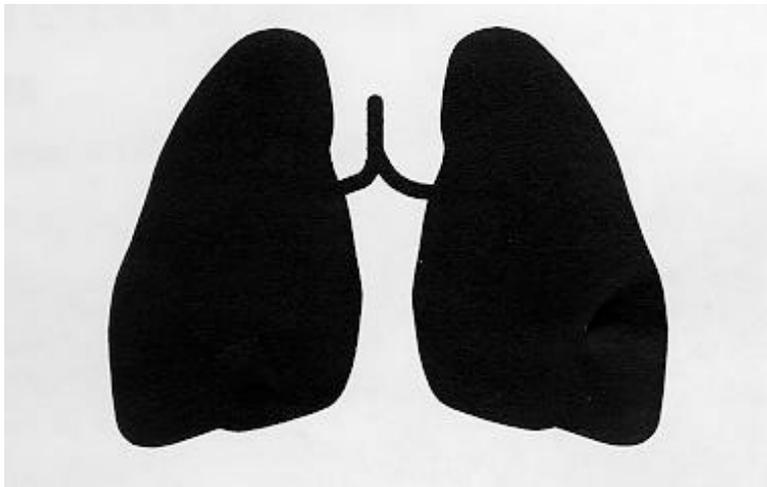
Number of Exposed Workers

- ◆ NIOSH *Hazard Alerts* estimate
 - > 1,000,000 workers at risk
 - > 100,000 sandblasters



Health Effects

- ◆ Pulmonary fibrosis (silicosis)
- ◆ Possible lung cancer



Inspection Targeting

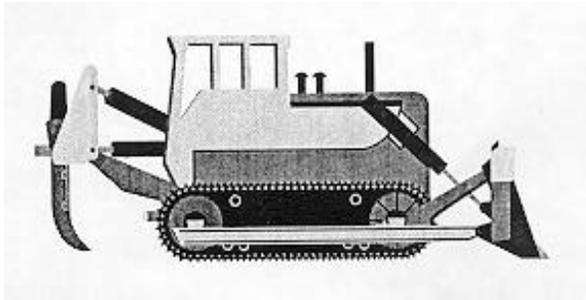
- ◆ Wherever possible, inspections will be focused to establishments where known exposures to crystals have occurred or there are known cases of silicosis
- ◆ Process
 - Identification of establishments
 - Selection of sites by use of random numbers table
 - Numbers of inspections determined by Regions
 - Sites with effective control programs can be exited after p

Examples of Potential Data Sources for

- ◆ Workers' compensation data
- ◆ OSHA 200 data
- ◆ SENSOR data (NIOSH cooperative agreement agencies)
- ◆ State surveillance data
- ◆ Hospital Discharge data
- ◆ OSHA data on industries with historic exposure to crystalline silica

Additional Information Sources for Construction

- ◆ Visual observations of relevant processes
- ◆ Dodge reports
- ◆ University of Tennessee construction activity



Elements of an Effective, On-going Control Program for Crystalline Silica

- ◆ Personal air monitoring
- ◆ Medical surveillance
- ◆ Training
- ◆ Availability of monitoring/surveillance data to workers
- ◆ Respiratory protection program
- ◆ Hygiene facilities/clothing change areas

Elements of Control Program

(cont'd)

- ◆ Recordkeeping
- ◆ Exposures below PEL or abatement program with protection
- ◆ Housekeeping
- ◆ In construction: a Safety & Health program
- ◆ Regulated areas