NEW JERSEY DEPARTMENT OF HEALTH AND SENIOR SERVICES

Occupational Health Surveillance Update

SPECIAL ISSUE

Christine Todd Whitman
Governor

Len Fishman
Commissioner

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Division of Environmental and Occupational Health

Why Silicosis? Why New Jersey?

Silicosis, a disabling disease of the lung, is a classic example of an occupational disease that can and should be prevented. The key to prevention is identification of workplaces with potential for silica exposure, controlling exposures, and then periodic monitoring to assure that exposure levels are below recommended limits.

Silicosis, which is caused by inhalation of silica dust, is one of a class of diseases called pneumoconiosis or "dust disease of the lung." Inhaled particles of crystalline silica dust promote the formation of scar tissue that can lead to disability, or often death. Symptoms of silicosis usually do not appear until more than 20 years after the exposure. Silicosis is also associated with an increased risk for tuberculosis.

Silicosis has been a public health concern in New Jersey because of the many silica-using industries in the state, including: foundries, potteries, glass manufacturing, and sand and stone mining. Although mortality from silicosis and silico-tuberculosis has declined since the 1940's, significant numbers of workers still remain exposed to hazardous levels of silica dust in New Jersey. Based on the number of employees in industries where potential silica hazards may exist, it is estimated that 25,572 workers may be exposed currently in our state.

The Silicosis Surveillance System

In response to public health concern with silicosis in New Jersey, the Department of Health and Senior Services (DHSS) developed an active silicosis surveillance system with support from the National Institute for Occupational Safety and Health (NIOSH), starting in 1984. The system was designed to describe the magnitude of silicosis in the state and characteristics of cases, and to implement and evaluate intervention strategies for reducing silica exposure in New Jersey workplaces.

To meet these objectives, the DHSS maintains a register of reported silicosis cases and collects sufficient medical and occupational data on reported cases to assess whether cases meet an epidemiologic case definition. In addition, industrial hygiene evaluations are conducted at workplaces currently using silica to prevent silicosis in the future among currently exposed workers. These evaluations assess worker exposures by means of air sampling, measure the

Continued on page 4

Inside . . .

Silicosis from the Clinician's Point of View:

an Interview with Howard Kipen

Recently, I talked with Dr. Howard Kipen about the problem of silicosis and also how his institution has been working with the Department of Health and Senior Services (DHSS) on occupational medicine issues. Dr. Kipen is a board-certified occupational medicine physician and professor with an interest in occupational disease surveillance.—Helga Fontus

Howard M. Kipen, M.D., M.P.H.
Chief
Division of Occupational Health
Associate Professor
Department of Environmental and Community Medicine and Environmental & Occupational Health Sciences Institute, Robert Wood Johnson Medical School, Piscataway, New Jersey

Q: *Is silicosis difficult to diagnose?*

Kipen: The diagnosis of silicosis is not straightforward.

Continued on page 6

New Directions in Silicosis Surveillance

In October 1997, the DHSS was awarded a new five-year grant from the National Institute for Occupational Safety and Health (NIOSH) under their Sentinel Event Notification Systems for Occupational Risks (SENSOR) program to continue its surveillance of silicosis in New Jersey.

As in previous years, the New Jersey Silicosis Surveillance project will focus on the collection of data on individuals with silicosis and follow-up with their employers to prevent exposure to this toxic dust. In addition, project staff are studying several industries with known silica exposure (surface mining, construction, and grave monument builders) and planning interventions that can help workers avoid exposure *before* silicosis develops. These initiatives include workplace industrial hygiene evaluations and educational mailings.

Surface Mining

Although New Jersey no longer has any underground mines, a total of 89 surface mines still operate in the state along with three independent milling operations. Surface mines include quarries, open pits, and dredging for various types of rock. Table 1 describes the distribution of these surface mines in the state.

Sand and mined rock such as granite can contain large amounts of crystalline silica which can put the worker at risk if precautions to prevent exposure are not followed. Enforcement of health and safety requirements in mines falls under the jurisdiction of the Mine Safety and Health Administration (MSHA). DHSS is working with MSHA to provide training and educational materials on silicosis to both employers and employees in the state.

Construction Industry

One of the highest exposures to silica dust in the construction industry occurs when concrete, brick, or other silica-containing materials are cut with masonry saws. DHSS is collecting data on hand held "chop saws" which are used mainly by masons for cutting various types of brick. DHSS is working with local bricklayers' unions to determine how much silica exposure is occurring to workers who use these portable saws. Staff industrial hygienists plan to visit construction sites where these saws are used to measure airborne silica levels and make recommendations for preventing exposure.

In a related activity, DHSS is working with the New Jersey Department of Transportation (NJDOT) to study silica exposure from cutting concrete road surfaces during highway maintenance projects. The study will also evaluate airborne silica levels to workers involved in jack hammering concrete from road surfaces.

Table 1
Distribution of Surface Mines and Mills* Operating in New Jersey, 1998

Type of Mine	*No. of Mines*
Sand and Gravel	64
Traprock	12
Granite	8
Limestone	3
Sandstone	1
Shale	1
TOTAL	92*

*milling operations include graphite(1), zircon(1), sand and gravel(1).

Source: Mine Safety and Health Administration

Unfortunately, the most common cause of silicosis in the construction industry continues to be abrasive blasting operations using silica sand as the abrasive. Although this occupation has a well known association with silicosis, companies and individuals still use silica sand on many abrasive blasting jobs. Sandblasting is dangerous because of the large amount of dust generated and the high percentage of respirable particles as the silica sand fractures on impact. Silica dust can also be generated from the material being blasted if it contains silica. Both DHSS and NIOSH recommend the use of non-silica abrasives when performing abrasive blasting. In 1994, DHSS issued a silica substitutes fact sheet to New Jersey painting and abrasive blasting contractors. Outreach to companies involved in abrasive blasting is continuing through educational mailings and on-site consultation.

Monument Builders

The Monument Builders of North America and their New Jersey chapter were contacted concerning potential workers' exposures to silica while blasting to engrave grave memorials made of granite. Although non-silica abrasives are used, silica dust can be generated during blasting of the granite which contains high levels of crystalline

Unfortunately the most common cause of silicosis in the construction industry continues to be abrasive blasting operations using silica sand as the abrasive.

silica. Forty shops in New Jersey do this type of blasting. NIOSH and DHSS educational materials will be prepared for these businesses.

Silicosis Education

In response to a request from the Silica Subcommittee of the AFL-CIO, the DHSS has prepared the following three information bulletins for physicians about silicosis. The first addresses general issues regarding silicosis. The second and third differ slightly to address specific issues in construction and surface mining:

What Physicians Need to Know About Occupational Silicosis and Silica Exposure Sources is designed for physicians who may see workers exposed to silica. DHSS is distributing it to selected physicians, employers, and employee groups in New Jersey and is making it available to other states doing surveillance for silicosis.

To My Doctor -- What Physicians Need to Know About Silicosis in Construction, Demolition, and Renovation Workers is designed for distribution to construction workers. Distribution is anticipated to take place through the member construction unions.

To My Doctor -- What Physicians Need to Know About Silicosis in Surface Mining and Milling Workers is designed for distribution to surface mining and milling workers through MSHA and/or mine operators. A DHSS industrial hygienist attended and participated in an MSHA educational seminar for over 100 surface miners and mine operators in February where it was distributed. Discussion about distribution is ongoing with MSHA through their Northeastern District. SU

A sand mine in southern New Jersey.

Occupational Health Surveillance Update

A newsletter of the Occupational Health Surveillance Program, Occupational Disease and Injury Services (ODIS), Division of Environmental and Occupational Health, New Jersey Department of Health and Senior Services.

Len Fishman
Commissioner
James S. Blumenstock
Acting Senior Assistant Commissioner
Kathleen O'Leary
Director, ODIS

✦

Surveillance Program

Martha Stanbury
Program Manager
Helga Fontus
Editor

Patrick Bost
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Maritsa Figueroa
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David Martin
Marion Pearson
Rukmani Ramaprasad
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Eileen Senn
Devendra Singh
Emily O'Hagan Smith
David Valiante

✦

Joseph E. Rizzo
Layout & Graphic Design
Kathie Kirkpatrick
Graphic Consultant

✦

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The key to prevention is identification of workplaces with potential for silica exposure, controlling exposures, and then periodic monitoring to assure that exposure levels are below recommended limits.

performance of engineering controls such as ventilation and dust collection systems, and determine the effectiveness of respiratory protection equipment.

Cases of silicosis are identified primarily from hospital discharge data, although some cases have come from mortality data, physician reports, and medical screenings at silica-using worksites. Interviews with cases or their next-of-kin are conducted to collect or verify demographic information provided by the case report; and to obtain information about the individual's work history including all company names, industry types, years of employment, occupations, and job duties. Medical records are obtained and reviewed by an occupational medicine physician, and chest x-rays are interpreted by a NIOSH-certified "B-reader."

Collected information is used to determine if the individual's condition meets the epidemiologic case definition for silicosis (see page 5) and to determine names of companies where silica exposure took place.

Companies are then contacted to determine if there is current silica exposure at the site. If current silica exposure potentially poses a risk to employees, then DHSS industrial hygienists conduct a site visit to evaluate the risk and make recommendations for controlling silica dust hazards.

Silicosis Surveillance Data

Sufficient medical and exposure history information was obtained on 748 of 1,040 cases reported through 1997 to determine if they met the case definition for silicosis: 384 (52%) individuals had silicosis, 205 (27%) individuals had other pneumoconiosis (asbestosis or coal workers pneumoconiosis), and 159 (22%) individuals did not have pneumoconiosis. To date, another 60 cases have been reported but collection and evaluation of information have not been completed.

Eighty-five percent of the 384 confirmed cases were white and 91% were male. Most were older workers or retired at the time of the report, with 317 (83%) individuals born before 1930. On the other hand, thirty-five (9%) of these individuals were first exposed in the 1960's, including three who were first exposed in the 1980's. The industries where they were exposed are displayed in Table 1. Foundries, pottery manufacturing, and mining predominated.

The map on page 5 shows the distribution of companies by county in New Jersey. The map excludes companies located out of state and companies for which an address could not be determined. The large number of companies in Mercer County (n=59) reflects the historic clustering of the pottery and porcelain industry in Trenton. Foundries predominated in Middlesex County, and the sand mines and associated glass manufacturing have been located for more than a century in Cumberland County in southern New Jersey.

Table 1
Confirmed Silicosis Cases
by Industry Groups

Industry	Number of Cases	Percent
Mining	48	13
- Iron mining	18	
- Industrial sand	19	
Construction	26	7
Manufacturing	271	72
- Stone, clay, glass	160	
Structural clay	29	
Pottery	89	
Cut stone	15	
- Primary metals	85	
Foundries	64	
- Fabricated metal products	9	
- Other manufacturing	17	
All Others	32	9
TOTAL	377*	100

* excludes seven confirmed cases with unknown workplace

Workplace Evaluations

Overall, 361 companies were identified as sources of silica exposure in the work histories of cases. (Individuals sometimes worked at more than one company, and some companies had more than one confirmed case reported.)

Industrial hygiene workplace evaluations have been conducted at 74 silica-using companies, including four evaluations that were performed in conjunction with NIOSH. The remaining companies were determined to have gone out of business, were presumed to have gone out of business because they could not be located, or were located out of New Jersey.

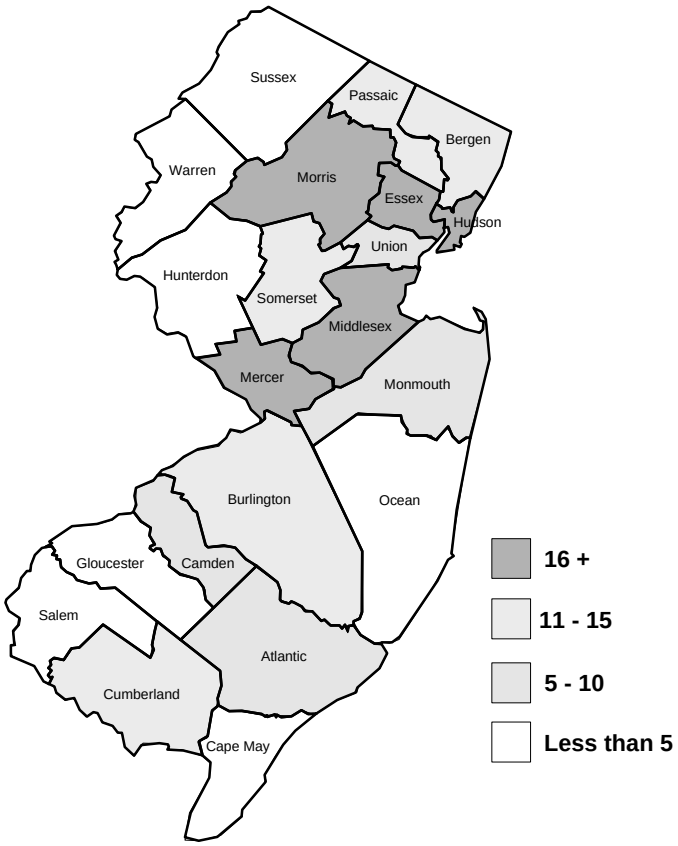
Exposure to silica dust in excess of the OSHA or MSHA permissible exposure limit was documented at 19 (26%) companies and in excess of the NIOSH Recommended Exposure Limit at another nine (12%) companies. Re-evaluation at 31 of the 74 companies found that companies had voluntarily complied with approximately 60% of recommendations of the industrial hygienist who conducted the site visit. Examples of two successful interventions conducted in collaboration with NIOSH are outlined on pages 8 and 9.

Discussion

Hospital discharge data continue to be the primary source of data to identify cases of silicosis each year. The predominant characteristics of the reported individuals were that they were elderly men, many of whom worked in New Jersey's potteries and foundries. Although many of the companies where exposure took place have closed, some are still operating and industrial hygiene evaluations have shown potential for current overexposure to silica.

DHSS prevention efforts are presently focused on identifying and intervening where silica exposure is a current problem, *before* any workers develop silicosis, by using hazard surveillance strategies (see related article on page 2). SU

Workplaces Identified from Silicosis Cases
by County, New Jersey, 1979 - 1997
n = 265



Epidemiologic Case Definition for Silicosis

Cases are confirmed in the surveillance system using the following criteria:

1) a significant history of occupational exposure to silica, and

2) a chest x-ray interpretation that uses the International Labor Office's (ILO) classification showing 1/0 or greater rounded opacities and/or a biopsy report that describes the characteristic pathology of silicosis.

Cases with a history of greater than three years in coal mining and less than ten years of exposure in a silica-using industry are not considered cases, even though their x-rays met the second criterion above. (Coal workers' pneumoconiosis is not easily distinguishable from silicosis on x-ray but differs clinically).

Findings can be subtle and silicosis can be confused with other conditions such as tuberculosis and other lung infections. Physicians don't pick up the diagnosis rapidly, partly because it is a disease of long latency and there is no treatment they can use beyond removal from exposure.

Q: *How then is the diagnosis confirmed?*

Kipen: The patient must have a history of exposure to silica and a chest x-ray consistent with this history. However, other causes of the abnormal x-ray findings must be considered. Of course, in rare cases a lung biopsy can also help demonstrate silicosis.

Q: *Are there special qualifications needed to diagnose silicosis?*

Kipen: The patient's chest x-ray needs to be interpreted by a physician familiar with the signs of the various pneumoconioses (dust diseases of the lung). A variety of radiologists, pulmonologists, and occupational physicians have this expertise, although a few are actually certified by the National Institute for Occupational Safety and Health (NIOSH). They are known as B-readers.

Q: *What would you advise general practitioners whom workers are most likely to seek when they become ill?*

Kipen: There are no early symptoms of silicosis. Symptoms are only associated with advanced disease. Early findings are limited to abnormal rounded densities in the upper lung zone, seen best on a chest film. The DHSS has developed some new silicosis educational materials specifically targeted to physicians that would be useful to patients and their doctors. Inquiries regarding these publications should be directed to DHSS at (609) 984-1863 or by visiting the DHSS Web site. (See Resources on page 10)

Q: *Is a confirmed silicosis case eligible to receive workers' compensation?*

Kipen: Yes, and health providers should urge eligible patients to file a claim with the New Jersey Department of Labor, Division of Workers'Compensation at (609) 292-2516. This is important because a study I collaborated on with the DHSS showed that most confirmed cases do not seek compensation and awards were infrequent among those who had filed a claim. Again, it is critical that the elements I mentioned earlier - history of exposure and a chest x-ray consistent with this history - be documented. This is why a qualified physician can help in confirming the diagnosis.

Q: *Can you describe your work with the DHSS?*

Kipen: I am a NIOSH- certified B-reader and provide complimentary consultation and review records and x-rays of all silicosis cases reported to the DHSS. I have also provided consultation on an *ad hoc* basis for outbreak investigations concerning occupational and environmental exposures.

Q: *Has this cooperation with the DHSS been beneficial to any initiatives at the medical school?*

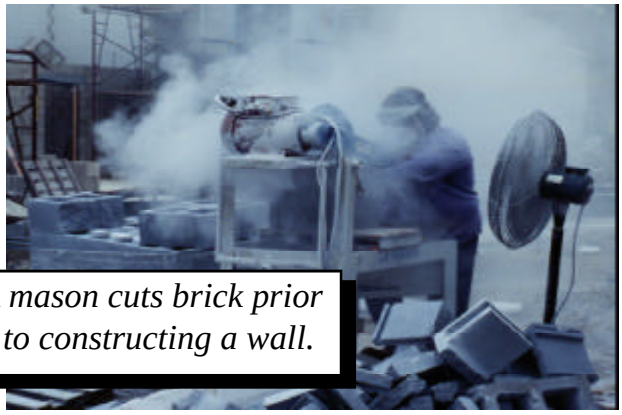
Kipen: All of our occupational medicine residents over the years have had some substantial benefit from associations with the DHSS. Our residents have had very instructive clinical experience with patients with silicosis as a result of this cooperation. This collaboration has allowed them to go to work sites with DHSS industrial hygienists and provide them with hands-on experience in evaluating occupational illnesses. They have also benefited from the DHSS' assistance on a study of irritant asthma (RADS) and worked with the Department on a residential mercury exposure problem. SU

"If It's Silica, It's Not Just Dust"

In October 1997, OSHA announced new initiatives to focus on silica hazards. One effort - "If It's Silica, It's Not Just Dust" - is an educational campaign in conjunction with the Mine Safety and Health Administration, NIOSH, and the American Lung Association. OSHA has also undertaken enforcement and consultation efforts targeted at silica. A third component to this initiative will be the development of a proposed rule for silica that would be a comprehensive standard with provisions including engineering controls, product substitution, medical screening, medical surveillance, respiratory protection, and training and education. The DHSS is working with OSHA area offices in New Jersey to provide information from the silicosis surveillance system to assist in these undertakings.

Silicosis in the Construction Industry

Construction workers face many hazards at their work site. Falls, electrocutions, and trench cave-ins kill hundreds of construction workers every year. While deaths and serious injuries from these hazards are well documented, there are other less obvious occupational hazards at the construction site. One such hazard is exposure to crystalline silica dust which can cause silicosis. Because the onset of symptoms occur many years after exposure, employers and employees may take few precautions in preventing silica dust exposure. Construction workers can be exposed to silica while working with many of the materials that are commonly used on the construction site. Sand, concrete, and masonry contain crystalline silica. Construction activities such as sandblasting, cutting concrete and brick, demolition, and jack hammering can produce clouds of dust containing silica. The New Jersey silicosis registry has identified over 25 confirmed cases in construction workers.



A mason cuts brick prior to constructing a wall.

Construction work sites pose many challenges in preventing exposure to chemicals and physical agents which can damage workers' health. The dynamic and short term nature of construction jobs and personnel make the use of standard industrial hygiene controls difficult. Expensive ventilation control systems are usually not feasible, and medical surveillance programs are difficult to administer. However, good industrial hygiene practices can be applied to all construction sites. Since silicosis is caused by the inhalation of silica dust, the primary means of prevention is avoiding exposure to dust. This can be accomplished in many ways as listed below:

> The dynamic and short term nature of construction jobs and personnel make the use of standard industrial hygiene controls difficult.

- using wet methods;
- using silica sand substitutes for abrasive blasting;
- putting enclosed cabs on construction equipment;
- standing upwind of the dust;
- vacuuming work clothes rather than using compressed air to blow dust off;
- using appropriate respiratory protection;
- implementing a good respiratory protection program. SU

www.state.nj.us.health/eoh/survweb/

The Occupational Health Surveillance Program Home Page:

...describes surveillance activities for:

- Fatal occupational injuries
- Heavy metals
- Silicosis
- Occupational asthma
- Other occupational diseases

... summarizes occupational disease reporting requirements for:

- Hospitals
- Laboratories
- Physicians

... lists our publications (some are available on-line):

- Educational materials
- Industrial Hygiene Fact Sheets
- FACE* investigations reports
- FACE Facts and Hazard Alerts
- Program publications in professional journals
- Program special reports

... and provides links to other related sites.

* FACE (Fatality Assessment and Control Evaluation)

For more information on our Home Page and publications that are available on-line, please call Janet Varan at (609) 984-1863.

Workplace Intervention Profile

Graphite Mill

Standard Industrial Classification (SIC) Code: 1499 - Miscellaneous Nonmetallic Minerals

Primary Process: Raw graphite is ground, screened, and occasionally blended with other materials. Both natural and synthetic graphite are processed at the mill. Natural graphite (plumbago) is crystalline carbon with many different mineral impurities, including silica. The crystalline silica content varies between 3.6 - 11%, depending on the country of origin. Synthetic graphite is crystalline carbon made by subjecting coal or petroleum coke to temperatures of 2,000 - 3,000 ^{o}C in an electric furnace. It contains very small quantities of crystalline silica.

Employee Reported to DHSS with Confirmed Silicosis: 54-year old male who died of the disease after working in mill for 24 years.

Findings from On-site Visit:

Air sampling: of the 35 personal and 19 area samples collected for respirable dust, one personal sample exceeded the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) of 2mg/m^3. Because of interferences in the analytical method, silica content of the respirable dust samples could not be determined. However, using silica percentages found in samples collected by the Mine Safety and Health Administration (MSHA), the potential for overexposure to respirable crystalline silica was demonstrated. Of 34 personal breathing zone and 20 area samples collected for total dust, one personal and two area concentrations exceeded the ACGIH TLV and the MSHA Permissible Exposure Limit of 10 mg/m^3 for total particulate.

Exposure control: local exhaust ventilation (LEV) systems for some of the operations were not adequate to prevent dust emissions; some of the operations did not have LEV and some existing systems were disabled.

Medical survey: three employees had chest x-rays that were classified as being consistent with pneumoconiosis. Chronic respiratory symptoms and reduced pulmonary function were associated with jobs involving greater potential for exposure to dust.

Recommendations:

- Improve LEV systems.
- Develop a formal respiratory protection program.
- Institute a medical surveillance program.

Findings of Follow-up Visit:

- Major improvements in ventilation.
- Medical surveillance program implemented.
- *Areas for improvement*: implement written respiratory protection program.

Workplace Intervention Profile

Sanitary Ware Manufacturer

Standard Industrial Classification (SIC) Code: 3261 - Vitreous China Plumbing Fixtures

Primary Process: Vitreous china plumbing fixtures (e.g., toilets, sinks, bidets) are made as follows: various amounts of raw materials are combined to form a clay slip; and the slip is cast in molds. The casting is then shaped, dried, finished, glazed, and fired in a tunnel kiln. The three main types of silica-containing raw materials are clay (hydrated aluminum silicates), feldspar (alkaline aluminum silicates), and flint (crystalline silica). One or more glaze coats, which also contain crystalline silica, are sprayed onto the cast greenware prior to firing in the kiln.

Number of Employees Reported to DHSS with Confirmed Silicosis: 7 cases.

Findings from On-site Visit: On-site industrial hygiene evaluation showed that at least 50% of the personal samples for respirable crystalline silica dust exceeded the NIOSH Recommended Exposure Limit of 0.05 mg/m^3 and at least 44% exceeded the OSHA Permissible Exposure Limit. Overexposures occurred during the following operations: slip preparation, casting, glaze preparation, and glaze spraying.

Recommendations:

- Assign safety and health responsibilities to a specific person.
- Improve methods of filling mills with slip ingredients.
- Redesign casting shop's workstations.
- Clean castings in the green phase rather than the white phase.
- Substitute a nonsilica product for the silica mold release compound.
- Improve dust control systems for glaze spraying operations.
- Improve housekeeping methods; minimize dry sweeping.
- Institute scheduled preventative maintenance program for dust control systems.
- Implement and enforce a comprehensive respiratory protection program.
- Institute environmental monitoring and dust control system testing programs.
- Institute medical surveillance program.

Findings of Follow-up Visit:

- Human resource manager has been assigned safety and health responsibilities.
- Transfer of materials to mills is via closed pneumatic conveyance system.
- Casting benches are being reengineered to reduce scrap material and resultant dust.
- Cleaning of castings is primarily conducted during the green phase rather than the white phase.
- Talc (<1% silica) is now being utilized as the mold release parting compound.
- Glaze spraying operations are automated and controlled by effective spray booths.
- Dry sweeping will be minimized with the purchase of two wet floor scrubbers.
- Annual medical exams are provided to workers that include x-rays, physicals, and pulmonary function tests.
- *Areas for improvement*: better enforcement of proper respirator use, institution of environmental monitoring, and institution of dust control system testing programs.

Silicosis Resources

New Jersey Department of Health and Senior Services

Silicosis and Your Health, 4pgs.
Silicosis y Su Salud, 4 pgs.
Stop Silicosis in Sandblasters: Use Silica Substitutes, 4 pgs.
What Physicians Need to Know About Occupational Silicosis and Silica Exposure Sources, 6 pgs.
To My Doctor: What Physicians Need to Know About Silicosis in Construction, Demolition, and Renovation Workers, 6 pgs.
Right to Know Hazardous Substance Fact Sheets on:

- Silica, Amorphous (Fused) (#1656)
- Silica, Cristobalite (#1657)
- Silica, Graphite (#1658)
- Silica, Mica (#1659)
- Silica, Quartz (#1660)
- Silica, Tripoli (#1664)

Occupational Disease and Injury Services
New Jersey Department of Health and Senior Services
PO Box 360
Trenton NJ 08625-0360
(609) 984-1863
Fax: (609) 292-5677
Internet: ***www.state.nj.us.health/eoh/survweb/*** or for quick access to the Right to Know Hazardous Substance Fact Sheets, ***www.state.nj.us.health/eoh/rtkweb/***

Occupational Safety and Health Administration (OSHA)

Crystalline Silica Exposure in the Construction Industry (pocket-size)
It's Not Just Dust, It's Silica (self-stick label)

OSHA Publications Office
200 Constitution Ave NW
Room N3101
Washington DC 20210
(202) 219-4667
Fax: (202) 219-9266
Internet: ***www.osha.gov***

American Lung Association

Smoking Cessation Information
Tuberculosis Information
1-800-LUNG-USA or 1-800-586-4872

Silicosis Resources

Mine Safety and Health Administration (MSHA)

Silica Exposure of Metal and Nonmetal Miners
Tips for Dusty Jobs - Baggers
Tips for Dusty Jobs - Crusher Operators
Tips for Dusty Jobs - Drillers
Tips for Dusty Jobs - Mobile Equipment Operators
Two Minutes on Silicosis for Metal and Nonmetal Miners
Ten Minutes on Silicosis for Metal and Nonmetal Miners

Most of the above MSHA resources are pocket-size.

Call your local MSHA office or the national office: (703) 235-8307 (metal and nonmetal mining)
(703) 235-1358 (coal mining)

Internet: ***www.msha.gov***

National Institute for Occupational Safety and Health (NIOSH)

A Guide to Working Safely with Silica, 20 pgs.
ALERT - Request for Assistance in Preventing Silicosis and Deaths in Construction Workers, 18 pgs., (96-112)
ALERT - Request for Assistance in Preventing Silicosis and Deaths in Rock Drillers, 14 pgs., (92-107)
ALERT - Request for Assistance in Preventing Silicosis and Deaths from Sandblasting, 16 pgs., (96-102)
Construction Workers: It's Not Just Dust! ... Prevent Silicosis (pocket-size)
Tips for Preventing Silicosis (pocket-size)
What Rock Drillers Can Do to Protect Their Lungs from Silica Dust (pocket-size), (97-118)

NIOSH
Publications Dissemination
4676 Columbia Parkway
Cincinnati OH 45226-1998
1-800-35-NIOSH (1-800-356-4674) or (513) 533-8328
9am-4pm
Fax: (513) 533-8573
e-mail: pubstaff@niosdt1.em.cdc.gov
Internet: ***www.cdc.gov/niosh/silicpag.html***

REMINDER

Physicians are required by law to report certain occupational diseases and injuries

INCLUDING SILICOSIS

For more information on reporting requirements or to obtain a copy of the *Occupational Disease and Injury Report for Physicians* form, call Occupational Disease and Injury Services at

1-800-772-0062

Occupational Illness and Injury Reporting to New Jersey Department of Health & Senior Services											
	Number of New Cases Reported [1]										
Condition	From beginning of reporting through 1988	'89	'90	'91	'92	'93	'94	'95	'96	'97	Cumulative Total
Fatal injuries [2]	756	136	101	112	138	145	114	118	99	101	1,820
Occupational asthma [3]	32	46	65	66	47	70	41	57	39	72	529
Silicosis [4]	691	53	66	74	46	46	26	25	15	21	1,100
Other pneumoconioses [5]	1,883	801	760	609	676	624	474	655	611	498	7,591
Acute lung conditions [5]	271	154	115	76	65	75	57	68	82	59	1,022
Chemical poisonings [5]	894	257	248	293	217	207	141	216	150	129	2,752
Elevated blood lead levels [6]	2,138	539	541	318	286	416	308	225	244	208	5,223
Elevated blood and urine mercury levels [6]	200	17	78	55	24	17	24	23	34	11	483
Elevated blood and urine cadmium levels [6]	46	37	144	17	2	16	14	30	17	18	341

1 Includes confirmed and unconfirmed cases.
2 Data sources: death certificates, medical examiners' reports, OSHA, workers' compensation reports, FARs, news clippings. Reporting began in 1983.
3 Data sources: physicians, hospital reports. Reporting began in 1988.
4 Data sources: hospital reports, physician reports, death certificates. Reporting began in 1979. Incomplete reporting from hospitals in 1993 and 1994.
5 Data source: hospital reports. Reporting began in 1985.
6 Data sources: physicians, laboratory reports. Reporting began in 1985.

New Jersey Department of Health & Senior Services
Occupational Disease & Injury Services
P. O. Box 360
Trenton NJ 08625-0360

Phone: 609-984-1863
Fax: 609-292-5677