

Health Consultation

PUBLIC HEALTH IMPLICATIONS OF ASBESTOS
AT THE MALLEABLE IRON FITTINGS COMPANY

BRANFORD, NEW HAVEN COUNTY, CONNECTICUT

AUGUST 25, 1999

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Agency for Toxic Substances and Disease Registry

Division of Health Assessment and Consultation

Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. The Administrator of ATSDR shall use appropriate data, risks assessments, risk evaluations and studies available from the Administrator of EPA

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HEALTH CONSULTATION

PUBLIC HEALTH IMPLICATIONS OF ASBESTOS
AT THE MALLEABLE IRON FITTINGS COMPANY

BRANFORD, NEW HAVEN COUNTY, CONNECTICUT

Prepared by:

Connecticut Department of Public Health
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

The conclusions and recommendations in this health consultation are based on the data and information made available to the Connecticut Department of Public Health and the Agency for Toxic Substances and Disease Registry. The Connecticut Department of Public Health and the Agency for Toxic Substances and Disease Registry will incorporate additional information if it becomes available. The incorporation of any additional data could change the conclusions and recommendations listed in this document.

Background and Statement of Issues

Region I of the US Environmental Protection Agency (EPA) has requested that the Connecticut Department of Public Health (CT DPH) determine whether the asbestos contained in buildings number 9 and 10 of the Malleable Iron Fittings Company (MIF) in Branford, CT, present a public health hazard [1].

The Malleable Iron Fittings Company operated from the 1850s to 1971. This facility produced iron using a process that combined various metals. Several buildings were recently the location of National Oil Service, Inc.

Site Location and Demographics

The Malleable Iron Fittings site is located in Branford, Connecticut on 50 Maple Street. The site covers approximately 40 acres. The site consists of approximately 15 buildings; many of which are unoccupied and in disrepair. Trespassers and vehicles can easily access the site.

The population estimates are as follows: within ¼ mile = 567, up to ½ mile = 2,231, and up to one mile = 6,973. The surrounding area is industrial.

Site Visit

A site visit was conducted on July 23, 1999, by Gary Perlman, Kenny Foscue (CT DPH), an Environmental Engineer from EPA, the East Shore Health District Health Director, the Branford First Selectman, and Kristen Day (CT DPH asbestos Program). The focus of this site visit was buildings 9 and 10. These two buildings are part of a large complex which includes several occupied and unoccupied factory buildings. These buildings are on a road which leads directly to the Branford Landing boat house. Buildings 9 and 10 housed the power generation equipment. The inside of each building contained asbestos in various conditions of deterioration. Friable asbestos insulation was observed around numerous pipes exiting the building. Outside the building were the remains of an apparent transformer part with soil staining nearby. About fifty feet from the outside of the building were two toy trucks and beer cans. The building adjacent to buildings 9 and 10 is an active business, and across the street is a wood working facility. Outside buildings 9 and 10 is a large area of demolition debris containing red brick, cement, and wire-- this is the remains of an attached building. The asbestos content of this debris is unknown. People have been reported to remove bricks from the demolition debris near buildings 9 and 10.

About twenty feet from the building was a block, the size of a brick, of asbestos containing material. An active commuter and industrial train route passes two hundred yards behind buildings 9 and 10. People frequently hike next to the train tracks. The building across the street from buildings 9 and 10 is a location where local volunteers feed feral cats on a daily basis.

Mercury Spill

A mercury spill was discovered on May 5, 1999 in building 9, during an environmental inspection by an environmental consultant, and may have been on the floor for about 2 years (the duration of site discovery activities). The spill area was estimated to be five feet by five feet, and the estimated amount spilled was up to ten pounds [2]. An empty coffee can lying on its side near the spill, with two pounds of mercury inside, was identified as the possible source. During the spill discovery phase, a lock was placed on the boiler house door. This door is no longer locked. The spill was cleaned up on May 13, 1999, and interior and exterior ambient air mercury readings were below 0.005 mg/m³. Samples of concrete were analyzed from the floor where the spill occurred, and the mercury concentration ranged from 1.18 mg/kg to 115 mg/kg [2]. After the mercury spill was cleared the building was determined to be ready for asbestos sampling [2].

Building conditions

On April 22, 1999, a Building Official of the Town of Branford was notified by an engineering firm that the majority of the buildings on the site are in immediate danger of collapse. These buildings include number 9 and 10 among others listed [3]. Specifically, buildings 9 and 10 were described as follows: "partial wall and roof collapse, unstable brick at top of adjacent partially demolished chimney, hopper structure above building 10 has detached metal sheathing that has partially fallen in the past and has very deteriorated steel framing" [3]. The percent of asbestos in the various building materials ranged from 0 to 50 percent. Friable asbestos containing material was identified in the following: boiler insulation, boiler door gasket, pipe insulation, pipe joint insulation, pump gasket, and rope gasket [4]. Non-friable asbestos containing material was identified in the following: corrugated paper, felt paper debris, fire hose, paper flashing, patch cement, transite panel debris, and transite electrical panel cement [4].

Discussion

Environmental Condition

The building complex which houses buildings 9 and 10 was used for the production of electrical energy. The inside of these buildings contains various pipes and boiler-related equipment. These structures are covered with thermal insulating materials containing asbestos in a friable condition. The exterior of the building appears to contain fire resistant construction materials including shingles, transite siding, and an asphalt coated material suspected of containing asbestos.

The main entrance door was open, and there appeared to be water damage inside. The building is structurally unsound, and is likely to collapse. There are numerous broken windows, and pipes

protruding through the structure with asbestos falling off. The nearest exposed population is one hundred feet away in an adjacent active factory building.

Due to the threat of a building collapse, the Branford Police have been notified to patrol the area about once every hour.

Exposure Pathways

Asbestos

As a result of the asbestos contained within buildings 9 and 10, people who access this building are at risk of exposure to asbestos. There is evidence that trespassers have accessed the site in the past. Of main concern is the identification of children's toys seventy-five feet from the site. Trespassers of all ages may enter the site without any restriction.

Workers or trespassers who pass by or through the site are at risk of exposure to asbestos. It is possible that asbestos fibers would be released from buildings 9 and 10 in the event of a building collapse. Workers in areas surrounding this building and trespassers could be exposed to asbestos fibers during this type of event. Moreover, these workers potentially could be exposed for an extended period of time following such an event as a result of asbestos contamination in the surrounding environment.

Demolition debris:

Outside buildings 9 and 10 is a large area of demolition debris containing bricks. There is asbestos containing materials mixed with this demolition material, however the extent has not been determined.

Mercury:

Buildings 9 and 10 had a ten pound spill of mercury identified in May of 1999. This spill may have been the result of an accident during remediation activities as long as 2 years ago. The mercury has been cleaned up, though the concrete contains elevated mercury levels. This represents a potential ongoing inhalation exposure source for people who trespass in this building.

Toxicology Evaluation-Adult and Children's Health

Asbestos is a group of naturally occurring fibrous minerals composed of magnesium and calcium silicate [6]. Asbestos was used in more than 3,000 products due to its strength and resistance to heat and chemicals. Because asbestos does not evaporate, dissolve, burn or easily undergo reactions, it remains in the environment.

The primary route of exposure to asbestos is through inhalation. Inhalation exposure to asbestos increases the risk of developing lung cancer and mesothelioma, a cancer of the thin membrane that surrounds the lung and other internal organs [5]. Breathing air contaminated with asbestos

can also cause scarring of the lung tissue called asbestosis. It may take 10 to 30 years after the exposure for health effects to appear. The CT DPH and ATSDR have considered children's health in this evaluation. Because children have a higher respiratory rate their exposures may be greater. In addition, exposure that occurs during childhood could result in disease at a younger age even after a latency of 10-30 years. This is especially important since there is evidence that children have access to the site.

Information on the health effects of asbestos in humans comes mostly from studies of people who were exposed to high levels of asbestos in the work place. Occupational investigations that reviewed several concentrations of asbestos fibers in air have shown an excess cancer risk. Adverse health outcomes associated with exposure are affected by the size of the asbestos fibers. Fibers that range in size from 0.5 to 5 microns in diameter with a length to width ratio of 3 to 1 are most likely to be deposited in the lung [5].

The health effects from swallowing asbestos are unclear. There is some evidence that ingestion of asbestos fibers may lead to an increased risk of gastrointestinal cancer.

Conclusions

Current conditions at this site pose a public health hazard. Friable asbestos-containing materials are present throughout buildings 9 and 10. In addition, a variety of building materials containing asbestos, including transite board, roofing shingles and tar paper, are on the exterior of the main building and are in various states of deterioration. Current and past exposures are possible due to free access to this building. Additionally, workers in the adjacent building may be exposed to low level sporadic releases of asbestos. Trespassers may have been and will continue to be exposed to asbestos if they access the buildings 9 and 10.

The most significant exposure to friable asbestos would likely result in the event of a building collapse. This presents a public health hazard. The asbestos emissions associated with such an event would likely result in widespread environmental contamination and significant exposures to workers and people who trespass through the area.

Additional hazards may be present at this site. Other chemical wastes associated with power generation or previous manufacturing processes (*e.g.*, mercury and polychlorinated biphenyls (PCBs)) and associated equipment may be present on site or may have been disposed of on site.

Recommendations

- Additional measures should be taken to prevent site access thereby reducing the possibility of exposure to asbestos or other hazards associated with a building collapse.

- The asbestos-containing materials in the buildings need to be removed in a controlled manner that prevents the release of asbestos to surrounding businesses.
- Identify whether PCBs are present in the electrical components outside at the site.
- Public education and outreach to nearby workers, boaters, and residents needs to occur to inform them about the risks associated with exposure to asbestos and trespassing on the site or in the buildings.

References

1. Electronic mail from Richard Haworth (EPA) to Susanne Simon (ATSDR Region 1) on July 17, 1999 at 04:08pm.
2. Written correspondence from Douglas J. Rhoads, Senior Geologist (EnviroMed Services Inc.) to Anthony DaRos (Branford First Selectman) May 21, 1999.
3. Written correspondence from Harry J. Shepard III, P.E. (Criscuolo/Shepard Associates, P.C.) to Perry Smart (Building Official, Town of Branford) April 22, 1999.
4. EnviroMed Services, Inc., Asbestos and Lead Inspection Report for Town of Branford MIF Complex Buildings #9 & 10, #15 & 16, #21, #29 & 30, and #52; 50 Maple Street, Branford, CT. May 3-13, 1999.
5. Agency for Toxic Substances and Disease Registry, "Toxicological Profile for Asbestos," August, 1995.
6. *Dorland's Pocket Medical Dictionary*. 24th edition, W.B. Saunders Company, Philadelphia, PA. 1989.
7. Written correspondence and photographs from Richard Haworth (EPA) to Gary Perlman (CT DPH) on July 28, 1999.

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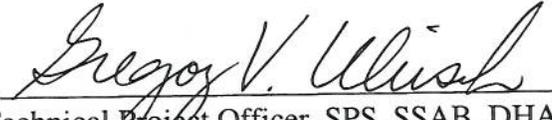
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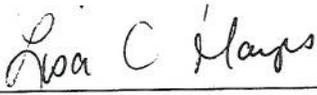
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CERTIFICATION

The Health Consultation for the Malleable Iron Fittings Company site was prepared by the Connecticut Department of Public Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was initiated.


Technical Project Officer, SPS, SSAB, DHAC

The Division of Health Assessment and Consultation, ATSDR, has reviewed this Health Consultation and concurs with its findings.


for Chief, SPS, SSAB, DHAC, ATSDR

APPENDIX A

Site Map

Photographs [7]

Malleable Iron Fittings Site, Branford, CT



Connecticut Department of Public Health
Toxic Hazard Assessment Program

July 29, 1999



