36812

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Agency for Toxic Substances
and Disease Registry
Atlanta GA 30333

DEC 2 0 1990

Clasp

The Honorable William K. Reilly
Administrator
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Dear Mr. Reilly:

This letter is in reference to an enclosed Public Health Advisory for current and potential exposures to hazardous wastes, specifically chrysotile asbestos, at the New Vernon Road Site and the White Bridge Road Site in Meyersville, Passaic Township, New Jersey. These two sites are subsites of the Asbestos Disposal Sites NPL Site in Millington, New Jersey.

The Agency for Toxic Substances and Disease Registry (ATSDR) reviewed the analytical results of air, soil, and residential dust sampling at these sites. These samples were collected by the U.S. Environmental Protection Agency (EPA) Region II beginning in August 1990. The initial results indicated that soil at two subsites contained high concentrations of chrysotile asbestos (5 percent by volume) and at least one dwelling was contaminated by high levels of chrysotile asbestos (2 percent by volume). The Advisory is not applicable to any other subsite associated with this NPL site.

The enclosed Public Health Advisory expresses our concerns and addresses measures to mitigate the risk to human health. By separate letter, Dr. Barry L. Johnson, ATSDR Assistant Administrator, has notified the EPA Region II Administrator and the New Jersey State Health Director of this Advisory.

Sincerely,

Bill Roper

William L. Roper, M.D., M.P.H.
Administrator

Enclosure

ABD 001 1737

**AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY**
**DIVISION OF HEALTH ASSESSMENT AND CONSULTATION**
**PUBLIC HEALTH ADVISORY**

**ASBESTOS DISPOSAL SITES NPL SITE**
**NEW VERNON ROAD SUBSITE AND**
**WHITE BRIDGE ROAD SUBSITE**

**PASSAIC TOWNSHIP, MORRIS COUNTY, NEW JERSEY**

**December 20, 1990**

## INTRODUCTION

The U.S. Environmental Protection Agency (EPA), Region II, conducted soil and dust sampling for asbestos at subsites of the Asbestos Disposal Sites in Meyersville, New Jersey, as part of a program designed to assess the need for removal actions at NPL Sites. Based on the analytical results of that sampling, the Agency for Toxic Substances and Disease Registry (ATSDR) has determined that contamination at the New Vernon Road Site and the White Bridge Road Site presents a public health concern. This Public Health Advisory is issued to notify the EPA, the New Jersey State Department of Health, and the public that the presence of asbestos at these two subsites represents an imminent and substantial threat to human health.

The health threat results from chrysotile asbestos contamination in the soil and in the homes located on these two sites. The risk of exposure to free asbestos fibers is increased for the residents of any home in the general area which is contaminated with site-related asbestos. Persons who work at or visit these sites may also be at increased health risk because of the potential for exposure to free asbestos fibers at concentrations above background. Background implies levels of asbestos detected in similar rural areas remote from the source of site-related asbestos.

Chrysotile, the substance of health concern in these homes, is one of a group of naturally occurring fibrous silicate minerals, generally referred to as asbestos. The ATSDR considers the different mineral forms of asbestos to be known human carcinogens with a prolonged latency period of between 10 and 30 years between exposure and the onset of disease. Adverse health effects can occur after an exposure of limited duration. Health effects are known to occur after inhalation of asbestos fibers and may occur through ingestion of asbestos fibers. [2,3]

Potential health effects include: asbestosis (a physical injury of the lung tissue caused by the asbestos fibers); lung cancer; mesotheliomas (malignant tumors formed within the thin membrane surrounding internal organs, primarily caused by exposure to asbestos); and, gastrointestinal cancer, including the colon and esophagus. [3]

Because of the known carcinogenicity of asbestos and the likelihood of exposure at these sites, ATSDR recommendations include: (1) residents in on-site homes known to be contaminated with free asbestos fibers be dissociated from the contamination existing as free fibers; (2) buildings, including the dwellings, adjacent to these two sites be sampled for free asbestos fibers, and, if fibers are found at

ABD 001 1738

comparable concentrations to the on-site dwellings, the occupants be dissociated from the contamination; (3) activities at the sites that would increase airborne particulates be restricted at areas where asbestos contamination is known to exist; (4) the homes of employees of the businesses at these sites be sampled for free asbestos fibers, and, if fibers are found at concentrations comparable to the on-site dwelling, the workers and their families be dissociated from the contamination. The EPA Region II is aggressively implementing these recommendations and has substantially reduced the concentrations of the asbestos fibers in one of the dwellings at the New Vernon Road Site.

The purposes of this Public Health Advisory are to notify the EPA, the New Jersey State Department of Health, and the public of the substantial human health hazard at these sites, and to bring to their attention ATSDR's concerns and recommendations for the protection of the public health.

**BACKGROUND**

The ATSDR received a request from EPA Region II for an evaluation of the health hazard posed by asbestos contamination in the soil and in one dwelling at the New Vernon Road Site. The contamination was found through a sampling event conducted as part of a removal assessment program of NPL sites. The sampling was conducted by EPA Region II in August 1990 at two of the subsites associated with this site: New Vernon Road Site and White Bridge Road Site.

Analysis of the samples, according to an analytical method for determining bulk asbestos content, revealed a maximum concentration of 5 percent by volume chrysotile asbestos in the soil and 2 percent by volume in a residential vacuum cleaner bag. All 12 samples collected contained at least 2 percent by volume chrysotile. In making conclusions based on data obtained from vacuum cleaner bag samples, the following factors should be considered:

- The concentration of asbestos in the vacuum bag may reflect higher or lower concentrations than are actually present in the home.
- Although primarily used in the household, many vacuum cleaners are used elsewhere (e.g., cleaning the interior of a car). This introduces other sources of contamination which may skew the analytical results.
- During vacuuming, some fibers may pass through the bag and be exhausted into the ambient air of the home. Thus, vacuuming may increase the potential for exposure by increasing the number of fibers in the air in the breathing zone.

In September 1990, sampling of household dust by EPA Region II in the homes on-site and in some adjacent homes confirmed the presence of free asbestos fibers. At least one sample from each home contained detectable asbestos fibers. The levels detected were below quantification levels for the analytical methods used.



ABD 001 1739

Indoor air samples collected in October 1990 allowed for a comparison of the levels of asbestos found in the home at the New Vernon Road Site to levels of asbestos present in control homes, which would be considered background concentrations. At the recommendation of ATSDR, EPA selected two homes which were representative of homes in the area of the subsites, but known to be unassociated with site-related asbestos (control homes). These two homes were sampled as was the dwelling on the New Vernon Road Site. Preliminary results indicate that no asbestos particulates or fibers were present in the control homes. The samples from the New Vernon Road Site contained a total concentration of asbestos fibers of 3000 fibers per cubic meter ($f/m^3$) [0.0003 fibers per cubic centimeter (f/cc)]. Characterization of the New Vernon Road samples showed that the concentration of fibers over 5 micrometers (um) in length was 0.0013 f/cc or 1300 $f/m^3$. [11]

Following this round of air sampling, a removal action was completed in the dwelling and the air was resampled. Results indicated a concentration of 1900 $f/m^3$. The samples from the control homes were collected using a passive technique (i.e., normal household activities) while the air sample in the dwelling was collected using an aggressive technique (e.g., fans or blowers agitated the dust and fibers). The control samples are, therefore, indicative of normal exposures, while the dwelling sample is indicative of worst case exposures. [10]

The New Vernon Road Site consists of approximately 30 acres of land and two dwellings off New Vernon Road in Meyersville, New Jersey, in Passaic Township. In the late 1960s, asbestos refuse from an asbestos processing plant in Millington was placed in landfills on the site at two separate locations. These locations are now called the filled pond area and the main landfill area. The refuse consisted of loose asbestos fibers, broken asbestos tiles, and broken asbestos siding.

The White Bridge Road Site consists of approximately 12 acres and one dwelling in Meyersville. The site is now a horse farm. From 1970 to 1975, wastes similar to those disposed at the New Vernon Road Site were placed in a landfill in the eastern portion of the site in and around what has become a riding track.

Both the White Bridge Road Site and the New Vernon Road Site are located in a primarily rural area. A combined total of 15-20 off-site residences are potentially impacted by any migration of the wastes from the two sites. This number of potentially-impacted residences is based on the observations of the ATSDR Regional Representative over the course of several site visits and includes the homes of the employees of the businesses on these sites. Additional site descriptive information and demographics can be found in the Health Assessment. [1]

On the New Vernon Road Site, the property owner operates a tree surgery business which is reported to employ between three and four persons. These employees may be exposed to the asbestos on-site in the course of their employment. This exposure is likely to be less than 2 hours per day since most of the employees' tasks are off-site. On the White Bridge Road Site, a stable and riding track for horses is operated by the property owner. Two to three employees and, to a



ABD 001 1740

lesser extent, an unknown number of customers may be exposed to asbestos on-site while grooming and handling the horses, especially in the area of the riding track.

Chrysotile is one of a group of six naturally occurring fibrous silicate minerals generally referred to as asbestos. Asbestos is a known human carcinogen and is one of the primary causes of mesothelioma. Mesotheliomas are tumors arising from the thin membrane surrounding internal organs. Inhalation of asbestos fibers can lead to fibrotic lung disease (asbestosis), cancer of the lung, the pleura, and the peritoneum. There is some evidence that inhalation and ingestion of asbestos fibers may lead to an increased risk of gastrointestinal cancer. However, chrysotile has been shown to cause all of the adverse health effects associated with asbestos exposure. [2,3]

There is a substantial latency period of between 10 and 30 years between the exposure and the occurrence of apparent adverse health effects. Some human and animal studies have indicated that adverse health effects can occur after exposures of limited duration. In order for exposure to occur, the asbestos must exist as free fibers capable of becoming airborne. [2,3]

The length and diameter of fiber is important in determining the ultimate effect of the exposure. For instance, fibers less than 0.5 micrometers in diameter are those most active in producing tumors. [2] The ATSDR considers all mineral forms of asbestos, including chrysotile, to be a hazard to human health, based on human epidemiological studies and animal studies.

To date, exposure to all concentrations of asbestos fibers have demonstrated an excess cancer risk. [2,3] A marked enhancement of the risk of lung carcinoma in exposed workers or populations who also smoke cigarettes has been noted in human epidemiology studies. [2,3] The ATSDR Toxicological Profile for Asbestos indicates the increased risk associated with smoking may be as high as ten times the risk for nonsmokers.

Ambient concentrations of asbestos in urban areas have been reported to be less than 100 nanograms total asbestos per cubic meter of air ($ng/m^3$). [9] In one study described on page 75 of NIOSH's document, Revised Recommended Asbestos Standard, the concentration of asbestos in a building insulated with asbestos averaged 6,000 fibers of chrysotile per cubic meter of air. [2; Nicholson, Rohl, and Weisman, 1975] In another study completed later and described on page 82 of ATSDR's Draft Toxicological Profile for Asbestos, asbestos in indoor air was reported in the range of 20 to 6,000 fibers of asbestos per cubic meter. Ambient air concentration in rural settings across the country range from 1 to 3 orders of magnitude smaller than indoor air. [3; Nicholson, 1987] The ATSDR considers that a mass of 1 nanogram of asbestos may contain a sufficient number of fibers to create a health threat.



ABD 001 1741

**BASIS FOR ADVISORY**

There is ample opportunity for human exposure to chrysotile asbestos at the New Vernon Road Site and the White Bridge Road Site. The owners of both these sites spend a great deal of time in the outdoors, either at the stables or working with equipment, and children play outdoors on the New Vernon Road Site. The activities of the residents and their customers may lead to suspended asbestos particulates in the air, thereby creating a better opportunity for exposure.

Asbestos contamination can be brought into the home as well. Studies indicate that asbestos workers have carried contamination home on their clothing and on their person. [3] In the situation at these sites, it is possible that children and pets which frequent the site may also carry contamination into the home.

The ATSDR considers the high concentration of asbestos in the soil outside the homes on the site to represent a serious hazard to the occupants' and the general public's health. Continued exposure to free asbestos fibers at concentrations present at these sites represents an imminent and substantial health hazard to exposed individuals.

**CONCLUSIONS**

Residents in homes at this site with free asbestos fibers face an imminent and substantial health hazard from exposure to asbestos. Workers at the New Vernon Road Site and workers and customers at the horse farm and riding stables at the White Bridge Road Site may also encounter asbestos contamination and face an increased risk of developing adverse health effects. The families of these workers and customers will be at risk if the free asbestos fibers are taken into their residential environments.

**RECOMMENDATIONS AND PROPOSED ACTIONS**

The ATSDR will consult with the New Jersey State Department of Health on actions needed to address asbestos contamination that is not related to the NPL Site known as the "Asbestos Disposal Sites." The ATSDR, in consultation with the New Jersey State Department of Health, will develop exposure-based criteria to identify residents at risk of adverse health effects associated with these subsites. The two agencies will make a medical monitoring program available to those residents identified. A health education program for the community will be made available as well.

In addition, ATSDR recommends the following actions be taken to mitigate the health hazard associated with asbestos contamination at the New Vernon Road Site and the White Bridge Road Site:

1. The EPA should dissociate affected residents, either on-site or off-site, from exposure to the site-related asbestos fibers in indoor air.

2. Additional sampling should be performed by the EPA to determine the extent of off-site migration.



ABD 001 1742

3. Additional sampling for the presence of asbestos should be performed by EPA to determine if workers and customers of the affected businesses are being exposed. Initially, this sampling should be targeted at areas frequented by those workers and customers who are physically on-site for at least 40 hours per week. The sampling should include their homes. The targeting is recommended due to the longer exposures of these individuals. Additional sampling of individuals with shorter exposures may become necessary based on an evaluation of these initial results.

4. If rural New Jersey background levels of asbestos are not already available from State agencies, a concurrent sample to those already recommended should be collected in a maximum of three homes of similar construction in a rural setting in New Jersey. The ATSDR will accept these control samples as indicative of rural background asbestos concentrations in that part of New Jersey.

5. The EPA or the property owners should restrict access, authorized or unauthorized, to those areas known or suspected to be contaminated with asbestos. This restriction applies to workers, residents, and customers.

6. The EPA or the property owners should reduce or eliminate activities that would increase airborne particulates in those areas known or suspected to be contaminated with asbestos.

7. If Recommendations 5 and 6 cannot be implemented, EPA should post warning signs in the vicinity of the horse track at the White Bridge Road Site to advise customers of the asbestos-related hazards at the site.

For additional information, please contact ATSDR at the following address:

Robert C. Williams, P.E.
Director, Division of Health Assessment and Consultation
Agency for Toxic Substances and Disease Registry
1600 Clifton Road, NE, MS E-32
Atlanta, Georgia 30333
(404) 639-0610
FTS 236-0610



ABD 001 1743

## REFERENCES


1. Health Assessment for Asbestos Disposal Site. Prepared by Agency for Toxic Substances and Disease Registry. April 10, 1989.

2. Revised Recommended Asbestos Standard. Prepared by National Institute for Occupational Safety and Health. December 1976.

3. Draft Toxicological Profile for Asbestos. Prepared by Agency for Toxic Substances and Disease Registry. February 16, 1990.

4. Excerpts from Sampling Report: New Vernon Road Site and White Bridge Road Site, Asbestos Dump Sites. Prepared by Fred C. Hart Associates, Inc., Subcontractor to Roy F. Weston, Inc. Prepared for: U.S. Environmental Protection Agency, Region II. Undated.

5. Conference call between Agency for Toxic Substances and Disease Registry, Division of Health Assessment and Consultation, Emergency Response and Consultation Branch (ERCB); Public Health Advisor, Agency for Toxic Substances and Disease Registry, Region II; and, New Jersey Department of Health. August 21, 1990. Refer to ERCB Superfund Record of Communication dated August 27, 1990.

6. Conversation between Mr. Richard Nickle, Agency for Toxic Substances and Disease Registry and Mr. William Howard, Centers for Disease Control. August 30, 1990. Refer to ATSDR Superfund Record of Communication dated August 31, 1990.

7. Conversation between Mr. Richard Nickle, Agency for Toxic Substances and Disease Registry and Mr. Raymond McQueen, National Asbestos Council. August 30, 1990. Refer to ATSDR Superfund Record of Communications dated August 31, 1990.

8. Facsimile transmission of preliminary analytical data. Transmitted by: Mr. Arthur Block, Public Health Advisor, ATSDR Regional Services, Region II, Agency for Toxic Substances and Disease Registry, New York. Transmitted to: Mr. Richard Nickle, Division of Health Assessment and Consultation, Emergency Response and Consultation Branch, Agency to Toxic Substances and Disease Registry. August 5, 1990.

9. Fifth Annual Report on Carcinogens: Summary 1989 (NTP 89-239). Prepared for the National Institute of Environmental Health Sciences, U.S. Public Health Service, U.S. Department of Health and Human Services. Prepared by: Technical Resources, Inc., Rockville, Maryland.

10. Telephone conversations between Mr. Arthur Block, Ms. Nicki DiForte, and Mr. Richard Nickle concerning air sampling results. Conversation 10/24 and 10/25, 1990. Referred to ATSDR Superfund Record of Communications dated 10/25/90.




ABD 001 1744

11. New Vernon Residential Asbestos Air Investigation: Meyersville, New Jersey. Prepared for the EPA/U.S. EPA Environmental Response Team (ERT). Prepared by ERT's REAC contractor, Edison, New Jersey. No date.



ABD 001 1745