

Letter Health Consultation

POWHATAN MINING COMPANY

WOODLAWN, BALTIMORE COUNTY, MARYLAND

NOVEMBER 14, 2011

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
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. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

You May Contact ATSDR TOLL FREE at
1-800-CDC-INFO

or

Visit our Home Page at: <http://www.atsdr.cdc.gov>

LETTER HEALTH CONSULTATION

POWHATAN MINING COMPANY

WOODLAWN, BALTIMORE COUNTY, MARYLAND

Prepared By:

Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Site and Radiological Assessment Branch



Agency for Toxic Substances
and Disease Registry
Atlanta GA 30333

November 14, 2011

Mr. Jack Kelly
On Scene Coordinator
Removal Response Program (Mail Code 3HS31)
USEPA - Region 3
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Dear Mr. Kelly:

Thank you for the opportunity for the Agency for Toxic Substances and Disease Registry (ATSDR) to provide technical assistance to the U.S. Environmental Protection Agency (EPA) for the past two years regarding the investigation of and demolition activities at the Powhatan Mining Company site in Woodlawn, Maryland. This site is a former asbestos manufacturing facility and asbestos was found on site, in the soils of several nearby properties, and in the indoor air of the one home tested to date. This letter health consultation provides ATSDR's public health conclusions and recommendations from our review of the recent indoor air and dust sampling for asbestos in the home directly adjacent to the site.

The tested home is the closest residential structure to the former manufacturing facility. Many years ago, prior to its conversion to a home, the building was used to dry products manufactured at the facility, and personnel changed clothing and washed in the building. Recently, asbestos-containing fill material was discovered adjacent to the home's foundation. You shared preliminary results from mid-October testing of the home with ATSDR the week of October 24, 2011. Samples from stationary air monitors run in several different rooms, with oscillating fans and ceiling fans running, showed phase contrast microscopy equivalent (PCMe) asbestos air concentrations ranging from 0.0091 to 0.019 structures per cubic centimeter (s/cc), with all fibers identified as anthophyllite, the main type of asbestos processed at the former plant. Microvac dust sampling showed very low or non-detect levels of PCMe asbestos fibers.

ATSDR generally focuses its evaluation on air results, since asbestos air concentrations most closely represent potential inhalation exposures. We compare the measured concentrations to the health-based benchmark concentration for residential reoccupancy developed by EPA Region 2 and partner agencies in the wake of the World Trade Center disaster¹. This value, 0.0009 PCMe s/cc, represents an excess cancer risk of no more than 1 in 10,000 for a 30-year continuous exposure.

Because the recent indoor air sampling from the home adjacent to the Powhatan site indicated concentrations well above the health-based benchmark concentration, ATSDR concludes that long-

¹ Contaminants of Potential Concern (COPC) Committee of the World Trade Center Indoor Air Task Force Working Group. World Trade Center indoor environment assessment: selecting contaminants of potential concern and setting health-based benchmarks. Contributors from U.S. Environmental Protection Agency, New York City Department of Public Health and Mental Hygiene, Agency for Toxic Substances and Disease Registry, New York State Department of Health, and Occupational Safety and Health Administration. May 2003.

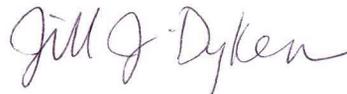
term, continuous exposures to these levels could increase the risk of cancer to unacceptable levels. We recommend the home be cleaned thoroughly using wet methods, high efficiency particulate air (HEPA) vacuuming, and/or steam cleaning. Particular attention should be placed on dusty areas like ceiling fan blades that could be a continual source of fibers if not cleaned thoroughly.

After further sampling confirms that the cleaning was effective, we recommend the homeowner be advised to continue cleaning at regular intervals using these methods. This will help prevent any further buildup in indoor dust of residual asbestos that might remain at the site. We suggest that you also consider providing the homeowner with a copy of ATSDR's fact sheet "Asbestos and Health: Frequently Asked Questions" (attached), which gives information on asbestos health effects and may help the homeowner decide whether to take personal action in response to past exposure that likely occurred. This fact sheet is also available on ATSDR's web site at http://www.atsdr.cdc.gov/NOA/docs/Asbestos%20FAQ_ENG_web.pdf.

We understand that further indoor sampling may be conducted at other residences near the former facility. Because these residences were never used directly for site operations, we anticipate lower asbestos concentrations in those homes compared to the home discussed in this letter. However, if you find any airborne asbestos concentrations exceeding the 0.0009 PCMe s/cc value, we would similarly recommend appropriate cleaning of the home followed by air sampling to confirm the cleaning was effective. We would also recommend homeowners be advised to clean their homes regularly using appropriate methods to reduce chances of any future asbestos buildup.

Thank you for including ATSDR in your site work. Please do not hesitate to contact me if you have any questions or concerns. I can be reached at (770) 488-0768 or by email at JDyken@cdc.gov.

Sincerely,



Jill J. Dyken, PhD, PE
Environmental Health Scientist
Site and Radiological Assessment Branch
Division of Health Assessment and Consultation

Enclosure

cc:

Lora Werner, ATSDR/DRO Region 3



This fact sheet was written by the **Agency for Toxic Substances and Disease Registry (ATSDR)**, a federal public health agency. ATSDR's mission is to serve the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent harmful exposure and disease related to toxic substances.

Asbestos

Asbestos and Health: **Frequently Asked Questions**

What is the purpose of this fact sheet?

The purpose of this fact sheet is to provide information about asbestos and health. This fact sheet will explain the following:

- Asbestos – general information
- Asbestos exposure
- Health effects of asbestos exposure
- Tests to diagnose asbestos-related disease
- Treatment of asbestos-related disease
- Reducing your exposure to asbestos
- How to get more information

Asbestos

What is asbestos?

Asbestos is the name given to a group of six different fibrous minerals that occur naturally in the environment. Asbestos fibers are too small to be seen by the naked eye. They do not dissolve in water or evaporate. They are resistant to heat, fire, and chemical or biological degradation.

Asbestos is also used in many commercial products, including insulation, brake linings, and roofing shingles.

What are the types of asbestos?

The two general types of asbestos are *amphibole* and *chrysotile (fibrous serpentine)*. *Chrysotile* asbestos has long, flexible fibers. This type of asbestos is most commonly used in commercial products. *Amphibole* fibers are brittle, have a rod or needle shape, and are less common in commercial products. Although exposure to both types of asbestos increases the likelihood of developing asbestos-related diseases, amphibole fibers tend to stay in the lungs longer. They also are thought to increase the likelihood of illness, especially mesothelioma, to a greater extent than chrysotile asbestos.

What is naturally occurring asbestos?

Naturally occurring asbestos refers to those fibrous minerals that are found in the rocks or soil in an area and released into the air by:

- routine human activities or
- weathering processes.

If naturally occurring asbestos is not disturbed and fibers are not released into the air, then it is not a health risk. Asbestos is commonly found in ultramafic rock, including serpentine rock, and near fault zones. The amount of asbestos that is typically present in these rocks ranges from less than 1% up to about 25%, and sometimes more. Asbestos can be released from ultramafic and serpentine rock if the rock is broken or crushed.

In California, ultramafic rock, including serpentine rock, is found in the Sierra foothills, the Klamath Mountains, and the Coast Ranges. This type of rock is present in at least 44 of California's 58 counties. Not all ultramafic rock contains asbestos; it has the potential to contain asbestos. Environmental testing can determine if a rock contains asbestos.

Asbestos Exposure

What is asbestos exposure?

Asbestos exposure results from breathing in asbestos fibers. If rocks, soil, or products containing asbestos are disturbed, they can release asbestos fibers into the air. These fibers can be breathed into your lungs and could remain there for a lifetime. Asbestos exposure is not a problem if solid asbestos is left alone and not disturbed.

Who is at risk for asbestos exposure?

Almost everyone has been exposed to asbestos at some time in their life. Higher levels of asbestos are more common near:

- an asbestos mine or factory
- a building being torn down or renovated that contains asbestos products
- a waste site where asbestos is not properly covered up or stored to protect it from wind erosion, or
- an area containing naturally occurring asbestos that has been disturbed through activities that crush asbestos-containing rock or stir up dust in soils that contain asbestos fibers.

In indoor air, the concentration of asbestos depends on whether:

- asbestos was used for insulation, ceiling or floor tiles, or other purposes, and whether these asbestos-containing materials are in good condition or are deteriorated and easily crumbled
- activities in the house, such as repairs and home improvements have disturbed asbestos-containing materials, or
- asbestos has been brought into the home on shoes, clothes, hair, pet fur or other objects.

Outdoor air concentrations of asbestos can also contribute to indoor air asbestos levels.

Health Effects of Asbestos Exposure

What is the likelihood of developing health problems from asbestos exposure?

Being exposed to asbestos does not mean you will develop health problems. Many things need to be considered when evaluating whether you are at risk for health problems from asbestos exposure. The most important of these are:

- how long and how frequently you were exposed
- how long it has been since your exposure started
- how much you were exposed
- if you smoke cigarettes (cigarette smoking with asbestos exposure increases your chances of getting lung cancer)
- the size and type of asbestos you were exposed to
- other pre-existing lung conditions

A doctor can help you find out whether you are at risk for health problems from asbestos exposure.

Are children at greater risk for asbestos-related diseases?

Children have more time to be exposed and develop asbestos-related diseases. Medical experts do not know whether lung differences may cause a greater amount of asbestos fibers to stay in the lungs of a child who breathes in asbestos compared with the amount that stays in the lungs of an adult.

What are the symptoms of asbestos-related disease?

Most people don't show any signs or symptoms of asbestos-related disease for 10 to 20 years or more after exposure. When symptoms do appear, they can be similar to those of other health problems. Only a doctor can tell if your symptoms are asbestos-related.

What are some types of asbestos-related diseases?

Asbestos-related diseases can be:

non-cancerous

- **Asbestosis** is scarring of the lungs. It is typically caused by very high exposure levels over a prolonged period of time, as seen in work-related asbestos exposure. Smoking increases the risk of developing asbestosis. Some late stage symptoms include progressive shortness of breath, a persistent cough, and chest pain.
- **Pleural changes or pleural plaques** include thickening and hardening of the pleura (the lining that covers the lungs and chest cavity). Most people will not have symptoms, but some may have decreased lung function. Some people may develop persistent shortness of breath with exercise or even at rest if they have significantly decreased lung function.

cancerous

- **Lung cancer** is cancer of the lungs and lung passages. Cigarette smoking combined with asbestos exposure greatly increases the likelihood of lung cancer. Lung cancer caused by smoking or asbestos looks the same. Symptoms for lung cancer can vary. Some late stage symptoms can include chronic cough, chest pain, unexplained weight loss, and coughing up blood.
- **Mesothelioma** is a rare cancer mostly associated with asbestos exposure. It occurs in the covering of the lungs and sometimes the lining of the abdominal cavity. Some late stage symptoms include chest pain, persistent shortness of breath, and unexplained weight loss. Coughing up blood is not common.

Can asbestos-related disease be serious?

Asbestos-related disease can be serious, though not everyone exposed to asbestos gets health problems. Health problems that develop may range from manageable to severe—and some may cause death.

How common are asbestos-related diseases?

- **Mesothelioma** is relatively rare. According to the American Cancer Society, there are about 2,000 – 3,000 new cases per year in this country. It is most common in asbestos-related work exposure though it has been observed in certain communities worldwide where people have had lifetime exposures to naturally occurring asbestos.
- **Lung cancer** from all causes affects about 61 out of every 100,000 Americans a year. According to the American Cancer Society, it is the leading cause of cancer-related death in both men and women and accounts for about 29% of all cancer deaths. Asbestos exposure is only one of many potential causes of lung cancer. Cigarette smoking is by far the most important risk factor for lung cancer. Cigarette smoking combined with asbestos exposure greatly increases the likelihood of lung cancer.

Tests to diagnose asbestos-related disease

What will my doctor typically do?

Your doctor will first take your medical history and perform a physical exam. He or she will then decide if you need additional testing.

What are some tests to help diagnose asbestos-related disease?

On the basis of your medical history and physical exam, your doctor may or may not recommend any of these tests for you:

- **A chest x-ray** is the most common test used to determine whether you have received sustained exposure to asbestos. The x-ray cannot detect the asbestos fibers themselves, but it can detect early signs of lung changes caused by asbestos. If the chest x-ray shows spots on the lungs, they may or may not be asbestos-related. They may be normal variations or related to infections and different types of diseases. Only a doctor trained in reading x-rays can determine if a spot is asbestos-related or something else.
- A lung function test also known as a pulmonary function test (PFT) is a simple breathing test to see how well your lungs are working. In this test, a person blows big breaths into a machine. Based on your medical history and physical exam, your doctor may or may not recommend this test for you.
- **A computerized tomography scan (CT)** is a type of x-ray machine that usually delivers a much higher dose of radiation than a chest x-ray. A CT scan may be more sensitive than a chest x-ray in detecting early changes of disease. A CT scan is recommended only when the chest x-ray is inconclusive.
- For a test called **bronchoalveolar lavage (BAL)**, a small flexible tube is inserted through the nose and down the airway. A small amount of saline solution is injected into the tube and then sucked back up. The

fluid obtained contains saline plus material from the lung. Illness from asbestos exposure generally cannot be predicted from this test. This test is performed only under special circumstances.

- For a **lung biopsy**, samples of lung tissue are taken through a needle while the patient is sedated. This tissue is examined under a microscope. Lung biopsies are rarely performed. Lung biopsies are rarely performed because diagnosis is usually based on findings from the medical evaluation and other tests. A lung biopsy is not needed for most people who are diagnosed with an asbestos-related disease.

What about urine and sputum tests?

Sputum is the material that is brought up from the lungs by coughing. Urine and sputum tests are not reliable for determining how much asbestos may be in the lungs. Nearly everyone has low levels of asbestos in these materials. These tests cannot predict the risk of illness. More research may improve the reliability and predictability of these tests.

Should I have my children tested?

Taking x-rays of children's lungs to look for asbestos-related disease is not currently recommended because changes to the lung usually take years to develop. In addition, x-ray radiation may pose a higher risk for children.

Treatment of asbestos-related disease

What are some preventive health guidelines?

If you have an asbestos-related disease or history of significant asbestos exposure, your doctor may recommend that you follow the preventive care guidelines listed below:

- regular medical examinations
- regular vaccinations against flu and pneumococcal pneumonia shots
- quit smoking if you are a smoker
- limit further asbestos exposure

Following these preventive care guidelines may help reduce complications from asbestos-related disease or exposure. Your doctor may recommend other supportive care for complications and, if needed, treatment.

Supportive care includes interventions that may help the symptoms of the disease, but does not reverse the disease process. Supportive care is tailored to the symptoms and the disease. For example, a severe cough may be treated with a cough suppressant so that a person can rest or sleep at night.

What is the treatment for asbestosis?

Preventive and supportive care are the primary treatments for asbestosis. Preventive care guidelines are given in the previous section. Asbestosis can remain stable or increase in severity, but rarely gets better. Scarring of the lungs is

permanent and no method exists to remove it from the lungs.

What is the treatment for pleural changes?

Treatment for pleural changes involves preventive and supportive care. Preventive care guidelines are given in the previous section.

What is the treatment for lung cancer?

Lung cancer treatment depends on:

- location of the cancer
- stage of the disease
- age of the patient
- general health of the patient

Treatment options include:

- chemotherapy
- radiation therapy
- a combination of chemotherapy and radiation therapy
- removing the diseased part of the lung through surgery

What is the treatment for mesothelioma?

Depending on the stage of the disease, mesothelioma treatment options include:

- chemotherapy
- radiation
- surgery

Reducing your exposure to asbestos

Can asbestos be removed from the lungs?

No known method exists to remove asbestos fibers from the lung once they are inhaled. Some types of asbestos are cleared naturally by the lung or break down in the lung.

What can I do to reduce my exposure to asbestos?

Limit exposure by taking the following steps if you live in an area where naturally occurring asbestos has been disturbed and is likely to become airborne:

- Walk, run, hike, and bike only on paved trails.
- Play only in outdoor areas with a ground covering such as wood chips, mulch, sand, pea gravel, grass, asphalt, shredded rubber, or rubber mats.

- Pave over unpaved walkways, driveways, or roadways that may have asbestos-containing rock or soil. Ê
- Cover asbestos-containing rock or soil in gardens and yards with asbestos-free soil or landscape covering. Ê
- Pre-wet garden areas before digging or shoveling soil. Ê
- Keep pets from carrying dust or dirt on their fur or feet into the home. Ê
- Remove shoes before entering your home to prevent tracking in dirt. Ê
- Use doormats to lower the amount of soil that is tracked into the home Ê
- Keep windows and doors closed on windy days and during nearby construction. Ê
- Drive slowly over unpaved roads. Ê
- Use a wet rag instead of a dry rag or duster to dust. Ê
- Use a wet mop on non-carpeted floors. Ê
- Use washable area rugs on your floors and wash them regularly. Ê
- Vacuum carpet often using a vacuum with a high-efficiency HEPA filter. Ê
- Inspect your home for deteriorating asbestos-containing insulation, ceiling or floor tiles. Ê
- Do not disturb asbestos-containing insulation, ceiling or floor tiles; hire a trained and certified asbestos contractor to remove the materials. Ê
- Ask your employer if you are working with materials or in an environment containing asbestos. If you are, make sure you are properly protected from asbestos exposure. Ê

For more information

How can I stay informed?

If you want more information on limiting your environmental exposure to asbestos, or have specific questions, contact ATSDR:

Toll free call:

1-888-42-ATSDR (1-888-422-8737)

Online:

<http://www.atsdr.cdc.gov/contactus.html>

