



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

SUBJECT: Request for Exemption from the \$2 Million and 12-Month Statutory Exemptions and Additional Funding for a Removal Action at the Powhatan Mining Company Site in Woodlawn, Baltimore County, Maryland

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TO: Kathryn A. Hodgkiss, Acting Director
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I. PURPOSE

The purpose of this Action Memo is to request additional funding for the continuation of a Removal Action necessary to mitigate the release and threatened release of hazardous substances, pollutants or contaminants at the Powhatan Mining Company Site (the Site). A non-emergency Removal Action was initiated by the OSC in a Special Bulletin dated August 11, 2009. More recent data and conditions warrant a time-critical action requiring greater funding.

The Site includes a former asbestos ore processing facility and the nearby grounds contaminated by the release of asbestos. A Removal site evaluation initiated by the On-Scene Coordinator (OSC) in accordance with Section 300.410 of the National Oil and Hazardous Substances Contingency Plan (NCP), 40 C.F.R § 300.410 has identified a threat to public health or welfare or the environment due to hazardous substances at the Site. To mitigate the threat, funding under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) is needed to conduct a Removal Action pursuant to Section 300.415 of the NCP, 40 C.F.R. §300.415 which will minimize the public's exposure to asbestos. A Removal Action Project Ceiling for funds in the amount of \$2,136,000 of which \$1,920,000 are from the Regional Removal Allowance is necessary to mitigate the threats as identified in this Action Memorandum.

Exemptions to the 12-month and \$2 million statutory limits for completion of the Removal Action will be necessary. The Site meets the criteria in section 104(c) of CERCLA for an emergency exemption to the statutory limits. EPA has determined that a Removal Action falls within the nationally significant or precedent-setting category if it addresses asbestos as the principal contaminant of concern. Because asbestos is the hazardous substance of concern at the Site, the Removal Action is within this category.

II. SITE CONDITIONS AND BACKGROUND

A. SITE DESCRIPTION

1. Removal Site Evaluation

The Site is located in a residential area west of Windsor Mill Road in Woodlawn, Baltimore County, Maryland. The area is also known as Gwynn Oak. For approximately sixty years, the now defunct facility (the Facility) located at the Site processed asbestos ore obtained from mines in Maryland and other States.

On several occasions in late 2008 and in 2009, the OSC conducted visual assessments at the Site. These activities were initiated based on discussions with the Maryland Department of the Environment (MDE). On April 13, 2009, the MDE requested EPA to initiate a Removal Action at the Site. The MDE provided information to the OSC on the history of Site operations, land ownership transactions, recent and historic sampling results and a structural assessment of the existing Site building. The OSC visited the MDE office in April 2009 to conduct a review of MDE files on the Site. In August 2009, the OSC initiated a Special Bulletin non-emergency Removal Action at the Site based on visual inspection of the Site and analytical results from samples collected in June 2009 (see Section B - Other Actions To Date for more detail on this removal activation).

In June, August and December 2009 the OSC arranged for the collection of samples from the indoor air of the Facility, ambient air outside the Facility, Facility indoor dust, debris from both inside and outside the Facility, and soils from both the grounds adjacent to the Facility and residential yards west of the Facility. Visual observation revealed the presence of asbestos containing material (ACM) inside and outside the Facility and asbestos ore in several locations outside the Facility. Analytical results from samples collected by both EPA and the MDE confirmed the presence of asbestos fibers in all media.

2. Physical Location/Site Characteristics

The Powhatan Mining Company was formed in 1917 and the Facility at the Site reportedly was constructed in or around 1920. The Facility operated until the late 1970s/early 1980s and company employees initially mined asbestos ore from small, local amphibole asbestos deposits of the anthophyllite or tremolite asbestos type. When these Maryland deposits were reportedly exhausted by 1940, asbestos ore was shipped to the plant from remote locations (Georgia, Alabama and California are noted as sources in historical geological reports).

Facility Characteristics and Setting: According to the current Facility owner and based on review of historical journal articles, the former processing Facility seems to have

always consisted of one primary building. The southern side of the building has a sheet metal exterior with interior framing made of wood. The northern side, a garage-like shape, is made of cement block and may have been added at a later date, according to the Facility owner, possibly in the 1930s. The Facility owner uses the garage-like portion of the Facility to repair his personal cars and perform other maintenance activities. A second building is located roughly twenty-five feet north of the Facility and is currently used as the Facility owner's residence. It may have been used for storage and related activities during the company's operation but, as reported by the current Facility owner, was renovated and cleaned by a former property owner in the mid- to late 1980s. A small, shed-like building is located behind the main Facility.

The Powhatan Mining Company owned approximately one acre of land that included the Facility building and residential structure. A 5.7 acre parcel located east and south of the Facility was owned at times by the various owners of Powhatan Mining Company. The last owner of the parcel died in 1988 and her Estate sold the 5.7 acre parcel in 1994 which was subsequently divided into 12 lots.

A church is located east of the Facility on one large subdivided lot of the adjoining 5.7 acre parcel. It was enlarged in approximately 2001. In 2004, the remaining eleven subdivided lots were approved for residential construction. This development was to be known as Valerie Manor. Only three homes were built on three lots. Given their distance from the Facility, and based on historic aerial photographs, this area likely did not contain asbestos waste. However, earth moving and road construction activities took place within tens of feet of the Facility to serve homes slated to be built on the lots nearest it. Historic aerial photographs and an eye witness suggest that this earth-moving activity uncovered buried asbestos waste. A portion of the area is now covered with an asphalt road, gazebo and two mounds of soil moved there as a result of construction activities. The soil mounds are now covered with vegetation. The developer's plans to build on the remaining subdivided lots are halted indefinitely.

Private residences and yards, built in the 1960s, are located west and south of the Facility, some with yards located within tens of feet of the rear of the Facility. A middle school is located approximately 1000 feet east of the Facility.

Figure 1 shows the location of the Facility and the surrounding structures noted above. Figure 2 shows several photographs of the Facility. The Site is currently identified as areas where asbestos-contamination from the Facility has come to be located. Based on EPA's sampling, the former processing facility, adjacent grounds on the one acre parcel, and specific asbestos-contaminated residential yards are currently included in the Site. The Site may be expanded to include any areas where contamination at levels of health concern is discovered during assessment activities.

Production History: According to oral reports, the Facility initially produced asbestos brakes for use by the U.S. military during World War I. However, a document entitled *Asbestos in Maryland* published in *Maryland: A Journal of Natural History* (October

1946) states that the Powhatan Mining Company initially was formed in an attempt to “find a use for Maryland tremolite...because the ship shortage of the first World War cut off the supply of chemical filter tremolite from Italy”. In 1929, the company owner established a U.S. patent for a specific asbestos ore refining procedure. Below is a description of the plant process as described by the *Facility* owner/operator *at the time* and reported in *The History of the Powhatan Mining Corporation* in the journal *Asbestos*, September, 1929.

“..... the asbestos is carefully selected, hand-cobbed, washed and concentrated by specially designed machines which remove all gangue (non-fibrous matter) and extraneous impurities. The fibers are dried and digested with pure hydrochloric acid until the iron and other impurities are completely dissolved. By a special filter apparatus and an abundance of wash water all traces of acid are completely eliminated, as well as fines or dust-like matter (very minute fibers). This leaves the thoroughly separated asbestos chemically pure and stable. The fibers are dried, graded according to length and packed for shipment”

The *Asbestos in Maryland* document reports that the Powhatan Mining Company processed asbestos for use in chemical filters, plastics, fire proofing, heat insulation, composition flooring, furnace linings and furnace cement, retort cement, fire brick, paints, and “quite a number of uses the manufacturer prefers not to mention”.

MDE Facility Evaluation: Sampling and inspection reports in the 1970s and 1980s by the Maryland Department of Health and Mental Hygiene (MDHMH), the MDE predecessor agency, indicate that housekeeping and maintenance problems were common both within and outside the Facility building. A 1971 MDHMH inspection memorandum indicates that the air in the interior of the Facility was unusually dusty, dust buildup was excessive, and dust could easily migrate from the building to outside air. In 1977, the company sought permission to dispose at a local landfill approximately twenty tons of powdered waste that contained 50 to 60 percent asbestos.

In April 2009, the MDE arranged for a structural assessment of the Facility by a licensed professional engineer. The structure was described as being in overall fair condition. However, only the northern, garage-like portion of the building was entered for inspection as all or sections of the southern, former processing side of the building were deemed unsafe for close inspection. The report, *Structural Condition Assessment of the Former Powhatan Mining Company Facility*, Daytner Construction Group, April 24, 2009, notes several structural concerns as follows: the corrugated metal roof and roof connecting nails are corroded, steel hoppers on the roof are corroding and the guy wires used as support are loose and not secured properly, roof panels are loose and some are missing, gaps appear between roof panels and support members, the corrugated metal siding is corroded, several windows are boarded up or have broken glass, a large portion of the top sill plate between the roof and wall has damaged wood, the concrete block wall on the south side of the building is cracking. The report notes the need for asbestos abatement before improving the structure and suggests, pending a more thorough cost

analyses, that abatement and demolition may be the best option. The report recommends interim measures be performed at a minimum.

EPA Evaluation: The OSC entered the Facility in May, June and August of 2009 along with the current owner. On each occasion the OSC and owner entered the southern, corrugated metal side of the Facility previously inaccessible to the MDE-hired professional engineer. The owner keeps this area of the Facility closed off from the garage-like portion. He rarely enters the area but does have items stored there. This section of the building has many holes in the floor and the floor is unstable in numerous locations. The owner has placed boards over weak floor areas in an attempt to avoid falls. During the June visit, an EPA contractor employee's leg went directly through an unidentified weak floor location. Stairs, railings and flooring are all constructed of wood and are commonly deteriorated. The OSC observed that approximately six 3' by 3' sections of the roof are completely missing. In addition, almost every existing window has missing or broken panes and some window frames are completely devoid of glass. A large quantity of animal feces was present. The owner indicated that one or more raccoons frequent this side of the Facility and enter through building openings.

The OSC observed many areas containing what appeared to be asbestos-laden dust or debris. Locations with the most evident dust build-up included old processing equipment and wooden ledges and beams that were prevalent throughout the building and could not easily be reached from the interior steps and floor. Build-up of dust generally did not exceed an inch or two in thickness. Because obvious asbestos containing debris was not strewn about floors in large quantities in a haphazard manner, it is possible that workers attempted a cleanup of the building years ago before shutdown but simply could not reach or chose not to reach the most distant locations.

The owner has attempted to maintain the interior portions of the garage-like portion of the Facility where he spends considerable time. However, even in this section, asbestos-laden dust appears on elevated beams and ledges. This section of the Facility contains a large quantity of personal items belonging to the owner.

In November 2009, the OSC arranged for the services of a professional structural engineer to evaluate the structural integrity of the *Facility*. In a letter report (Pennoni Associates, December 4, 2009), the engineer noted specific poor building conditions including openings in the roof and windows, inadequate handrails in almost all interior areas, decaying wood structural members, lack of steel supports, high degree of corrosion of the exterior metal cladding, and the use of guy wires to hold rooftop vertical process equipment in place. The engineer went on to conclude that the building could remain standing while interior asbestos cleanup ensued but made recommendations on necessary safety measures that should first be implemented.

3. Quantities and Types of Substances Present

Explanation of Asbestos Sample Units and Sample and Analytical Procedures:

Measurement units for asbestos sample analytical results will vary dependent on the media sampled. Air sample results are generally presented in fibers of asbestos per cubic centimeter of air (f/cc), soil, solid or bulk sample results (samples collected by scooping the media into a container) are presented as per cent of asbestos in the sample, and results for dust samples collected with a micro vacuum sampler (running a vacuum hose along a pre-measured surface area) are presented in structures per square centimeter (s/cm²).

Asbestos analytical results for air samples can be quite confusing as they are often qualified or described by analytical technique (e.g. PCM, TEM), counting rules or “binning category” (e.g. PCME, AHERA, Berman-Crump) and whether or not they were determined by a direct or indirect analytical method. Although several types of air analytical results are available for the Site, this discussion will only present those results analyzed by the TEM technique, counted by the PCME category and determined by the direct method (except where noted otherwise). Following is the rationale for this approach:

- TEM or Transmission Electron Microscopy is widely considered the most sensitive technique to analyze asbestos air samples to assess health risks to the public. It provides a 20,000X magnification level and can detect the thinnest and shortest asbestos fibers as well as provide information on fiber structure, elemental composition and asbestos fiber type. The other widely used technique, PCM or Phase Contrast Microscopy, only provides a 100x to 400x magnification level and cannot distinguish fiber types.
- Asbestos fibers can be counted in different ways by looking at length, width, diameter and other characteristics revealed by the analytical instrument. There are many different counting or binning categories. PCME counted fibers are equivalent in dimension to fibers detected by the PCM analytical technique but the samples are analyzed by the more sophisticated TEM technique (the “E” in PCME stands for PCM-equivalent.) The past cancer risk studies on which federal health standards are based used PCM counted asbestos fibers to measure risk and thus EPA’s cancer potency value for asbestos in the Integrated Risk Information System (IRIS) also is based on PCM size fibers. EPA guidelines indicate that PCM fibers determined by the more sensitive analytical technique (the PCME fibers) should be those evaluated by EPA toxicologists to make health determinations.
- Air samples analyzed directly are those where the sample filter is transferred directly (after minor prepping) to a grid and placed under the microscope for fiber counting. Samples analyzed indirectly have the filters ashed and treated with acid first because the filter was overloaded with particles. This is the only way the filter can be analyzed. This process usually alters fibers and breaks apart fiber components. It is generally believed the indirect analyses procedure leads to an artificially high asbestos count. Although there is some debate regarding whether

or not indirect values should not be used for risk assessment purposes, until the issue is resolved, the data will not be presented in this action memorandum. When comparing the data from the Site for air samples collected at the same time, all samples analyzed indirectly were higher than samples determined directly.

Sample Results at the Site:

MDE Results: Air samples collected by the MDHMH in 1977 at and around the Facility, including at the nearby middle school, revealed asbestos levels up to 0.012 fibers/cc (by TEM but counting category not known). Samples collected by the MDE in 1989 from debris lying outside the building in the Facility driveway revealed asbestos levels in the 50 per cent range. Samples of debris and solids collected by the MDE in April 2009 revealed asbestos levels ranging from 5 to 25 percent. The one onsite surface soil sample was found to contain 5 per cent asbestos. Several test pits dug on grounds adjacent to the Facility by MDE in 2009, including in the adjacent parcel, disclosed the presence of asbestos ore “near the ground surface” and two to five feet below grade. The analyzed ore samples were found to contain 98 to 100 per cent anthophyllite asbestos. Save for a small amount of chrysotile found in one debris sample, anthophyllite was the asbestos type identified in all of these samples.

EPA Results: During the June, August and December 2009 visits, the OSC arranged for the collection of Facility indoor dust, indoor debris, onsite soil, and Facility indoor and exterior air samples for asbestos analyses. The OSC also collected soil from several of the residential yards located immediately behind and west of the facility. EPA collected interior air and dust samples from both sides of the Facility and debris samples from the metal-sided section. Soil samples were collected from the gravel driveway, from an onsite area between the Facility and adjacent residential yards, and from within six residential yards.

Inside Facility Sample Results: Indoor air asbestos results when no *human* activities or only minimal activities were occurring ranged from 0.003 to 0.21 PCME fibers/cc as determined by direct TEM analyses. (PCME asbestos fiber is the fiber category, defined by specific fiber shape, length and diameter, used by EPA and ATSDR toxicologists/risk assessors to determine health risks from asbestos exposure. Minimal activities means that the sampling team merely walked in the building or moved building items for brief periods of time over an approximate five hour sampling period.) Seven interior dust results collected by microvac sampling ranged from 7,000 PCME structures/cm² to 1,600,000 PCME structures/cm². Eleven samples of loose debris collected from various locations inside both the used and unused portions of the building ranged from 0.18 to 25.5 per cent total asbestos. After 0.18 per cent, the next lowest sample result was 5.3 per cent asbestos.

Exterior Sample Results: Nine soil samples collected within tens of feet of the Facility contained levels ranging from 2 to 8 per cent asbestos. The gravel driveway revealed 0.18 per cent total asbestos. These areas are routinely traversed by the building owner and any visitors to his home. Soil results from six residential yards located just behind the Facility contained levels ranging from non-detect to 11 per cent asbestos. At least five samples were collected from each yard and five of the six yards had at least one result above 1 per cent asbestos.

Four ambient air samples (no agitation of the ground surface) collected from locations within tens of feet of the building in June 2009 were either non-detect or 0.002 PCME fibers/cc by direct TEM analysis. Air samples collected just outside of the garage bay doors with the doors open and minimal activity taking place inside ranged from non-detect to 0.17 PCME fibers/cc by direct TEM. Air samples collected when a car periodically drove over the gravel driveway were 0.012 and 0.018 PCME fibers/cc by direct TEM.

Small pieces of asbestos ore, apparently unused by the Facility during operations, occasionally can be seen lying on Facility grounds. When MDE dug test pits in five areas on and off the one acre building parcel, cinder block-size chunks of asbestos ore were uncovered in two of the test pits. Additional assessment work consisting of below ground digging or boring will be necessary to determine the extent of past asbestos ore or waste burial around the former facility.

In all media at the Site, anthophyllite asbestos is by far the predominant asbestos type with actinolite and tremolite asbestos occasionally detected at lower concentrations.

The vast majority of asbestos found at the Site is not derived from products which are part of the Facility structure. In fact, no asbestos piping, insulation, tiles or other asbestos-containing structural components are present at the Facility. The asbestos is in loose form existing as residuals from asbestos ore being processed to make asbestos-containing products. Surprisingly, no Facility-manufactured asbestos products have been discovered at the Site. The small amounts of asbestos ore found at the Site were unearthed from mines, brought to the Facility, and apparently discarded or left unused.

4. National Priorities List

The Site is not currently on the National Priorities list (NPL). The OSC will forward appropriate Site information and data to the Region's Site Assessment program for consideration and follow up.

B. OTHER ACTIONS TO DATE

The MDE issued a corrective order in July 1989 to the previous facility owner requiring the cessation of all activities involving the removal of friable asbestos materials and the submission of a written plan addressing cleanup of the asbestos. In August 1989, the owner responded by indicating that any cleanup of asbestos in the southern portion of the Facility will be performed by a licensed asbestos contractor and he sought written permission from MDE per a written phone conversation to clean, without permits, the garage-like portion of the Facility. In an April 1990 letter, the MDE indicated that the garage-like area showed no signs of visible asbestos residue and could be used by the owner for a purpose of his choosing. The MDE also stated that the remainder of the Facility (the southern, sheet metal portion) was highly contaminated and could not be used until cleaned by a licensed contractor. According to the current owner of the Facility, Baltimore County has since informed the owner that his location had been re-zoned residential and he can no longer operate a business from the building (the property is currently zoned residential). The OSC's visual observations indicate the owner does not use the building for commercial purposes.

The MDE has corresponded with the development corporation that owns eleven of the subdivided lots adjacent to the Facility. Historical aerial photographs suggest that construction activity in several of the lots in the 2006/2007 time frame may have occurred in areas where spent waste from the former plant was discarded and/or buried. The development company noted that a January 2002 Phase I report identified no environmental problems. The OSC's review of that report confirms that the author did not identify the former Powhatan Mining Company or the potential for asbestos waste or ore to be present.

On August 11, 2009, the OSC prepared a Special Bulletin initiating a non-emergency Removal Action designed to secure the Site and provide measures to mitigate the migration of asbestos off the Site. Specifically, the OSC intended to repair roof holes, cover or replace broken windows and cover other openings in the former facility. Five roofing contractors visited the Site or reviewed facility photos to consider making a cost proposal. Only one proposal was received but the company only provided material cost estimates stating that a total cost estimate could not be provided. This company and another suggested that the condition of the building warranted demolition, not repairs that would be unusually costly and likely only be temporarily effective.

C. STATE AND LOCAL AUTHORITIES' ROLES

The Site initially came to the attention of the OSC through EPA's Site Assessment Program. MDE had contacted the Site Assessment Program to determine if an OSC could evaluate the Site for a possible Removal Action. In April 2009, EPA received a formal request from the MDE for EPA to conduct a removal action at the Site. MDE has limited experience with the new EPA guidance for investigating asbestos contaminated sites and the potential scope of a cleanup action will likely exceed the State's resources.

The Baltimore County Department of Environmental Protection and Resource Management is aware of the Site, has conducted visits to the Site in the past and has been involved with property development issues.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Section 300.415 of the National Contingency Plan (“NCP”) lists the factors to be considered in determining the appropriateness of a Removal Action. At this time, the following sections apply:

§ 300.415 (b)(2)(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

Asbestos is the identified hazardous substance of concern at the site. Based on visual observation and MDE and EPA sampling results, asbestos-containing dust and/or debris is present throughout the Facility at high concentrations. The source of the asbestos is not from structural components of the building but originates from processed asbestos ore. Asbestos fibers, debris and ore are located in outside surface and sub-surface soils. Air sample results (direct TEM analysis) collected from within the building with little or no agitation of settled dust were 0.003 0.004, 0.049, 0.064 and 0.21 fibers/cc. The latter value exceeds the OSHA permissible exposure level of 0.1 fibers/cc and two approach this level. Ambient air samples collected in June 2009 from four stations located several tens of feet away from the building were analyzed and found to be non-detect, 0.002, 0.002 and 0.0025 fibers/cc. These levels are on the very high side of what is routinely reported as a typical urban background range for ambient air asbestos. It is possible that fibers are migrating from the interior of the building to the outside air.

Dust levels in the Facility ranged from several thousand to several million structures/cm² (s/cm²). Two of six results exceeded 200,000 s/cm² and two others exceeded 1,000,000 s/cm². These dust levels are indicative of severe contamination both in the closed-off southern portion of the Facility and in the garage-like area where the owner works on his personal cars, repairs mechanized equipment and performs other activities. For comparison purposes, although the exposure scenarios at the Libby Site involved residents living in contaminated homes or apartments, 5,000 s/cm² was the risk benchmark used by EPA at the Libby Site and the World Trade Center responses. Loose debris samples collected from both sides of the building ranged from 5.0 to 25 per cent asbestos - with a few exceptions, materials containing greater than 1 per cent asbestos generally have been banned from use in the U.S.

The make-up of the dust and loose debris in the Facility is such that it will release fibers to the air if disturbed. Asbestos ore (98 to 100 per cent asbestos) has been found in test pits and lying in small chunks in a few locations on the Site surface.

Historic aerial photographs suggest that areas of the Site were used to bury asbestos waste or unused asbestos ore (the MDE investigated some of these locations). Drainage from the Site travels over an area of soil, obviously contaminated with asbestos fibers based on visual observation, towards the back yards of at least two residences located immediately west of and directly behind the Facility. Historic aerial photos clearly show the outline of a drainage pattern going back to the 1940s where homes are now located. A shed at the back of the Facility in the pathway of drainage contains several bags filled with white debris. An MDE sample from one bag disclosed 25% asbestos.

Based on his site visits, the OSC believes it is unlikely the general public is currently accessing the facility or frequently disturbing Site soils. The sheet metal former processing part of the building is effectively secured from trespassers by the building owner and he alone utilizes the garage-like portion of the building (although friends or acquaintances may occasionally visit him there.)

In contrast, following are considerations which lead the OSC to believe there is a significant potential for unacceptable asbestos exposure to nearby populations:

- The broken windows, building gaps and missing roof sections of the Facility could serve as conduits for the release of fibers from the building to outside air. The opportunity for this occurrence would be most prevalent during dry, windy conditions. The slats in the one louvered window frame of the building (third floor) are caked with what looks to be asbestos-containing materials that can be dislodged. Ambient air sample results suggest that the Facility interior may be contributing fibers, at least locally, to outside air,
- Asbestos contaminated soil and loose ACM in a shed (with a dirt floor) is located between the Facility and residential back yards located behind and immediately to the west. Runoff and drainage flows from the Site through this area to the yards. Historic aerial photos confirm the location of past drainage from the Site and show that several home yards behind the building are now within the footprint of the drainage area from the Site.
- At least four yards have asbestos in soil at levels above 1 per cent and ranging up to 11 per cent. Several of the homeowners have lived at their homes for over 30 years.
- Additional yards will warrant sampling based on an evaluation of historic aerial photos.

- Site soil asbestos values range from 2 to 8 per cent. Visitors to the Facility owner's home would traverse these soils and several of the locations are devoid of vegetation. The gravel driveway adjacent to the garage-like structure routinely used by the owner and visitors contains 0.18 per cent asbestos. An activity based sampling scenario (periodically driving over the area) resulted in air values of 0.012 and 0.018 fibers/cc, well above typical urban air levels.
- The site owner alone is preventing access by the public to the Facility and, although effective to this point, it is uncertain how long this measure will prove adequate.
- Access to the exterior shed and asbestos-containing soil outside the Facility is not restricted by fencing and children or teens could enter the property without difficulty. A residential community is located directly behind the former plant.

Asbestos is a hazardous substance within the meaning of CERCLA because it is listed in Section 302.4 of the NCP.

Chronic (long-term) inhalation exposure to asbestos in humans can lead to a lung disease, termed asbestosis, which is a diffuse fibrous scarring of the lungs. Symptoms of asbestosis include shortness of breath, difficulty in breathing, and coughing. Asbestosis is a progressive disease. The severity of symptoms tends to increase with time, even after the exposure has stopped. In severe cases, this disease can lead to death, due to impairment of respiratory function. Other non-cancer effects from asbestos exposure by inhalation include pulmonary hypertension and immunological effects.

Asbestos is recognized as a known human carcinogen by EPA, the Department of Health and Human Services (DHHS) and the International Agency for Research on Cancer (IARC). Inhalation exposure can cause lung cancer and mesothelioma (a rare cancer of the thin membranes lining the abdominal cavity and surrounding internal organs). Lung cancer is usually fatal while mesothelioma is almost always fatal, often within a few months of diagnosis. There is some evidence that breathing asbestos can increase the chance of getting cancer in other locations (stomach, intestines, esophagus, pancreas and kidneys) but this is less certain. The National Institute for Occupational Safety and Health (NIOSH) recommends that asbestos exposures "be reduced to the lowest feasible concentrations".

§ 300.415 (b)(2)(iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.

Currently there is no established action level for asbestos in soils. In an EPA memo, *Clarifying Cleanup Goals and Identification of New Assessment Tools for Evaluating Asbestos at Superfund Cleanups* (OSWER 9345.4-05, August 10, 2004), the

Director of the Office of Superfund Remediation and Technology Innovation recommended that regions establish site-specific action levels for asbestos in soils, and stated that regions should not assume that materials containing less than 1 per cent asbestos do not pose an unreasonable risk to human health. The memo states: "Recent data from the Libby site and other sites provide evidence that soil/debris containing significantly less than 1 per cent asbestos can release unacceptable air concentrations of all types of asbestos fibers (i.e., serpentine/chrysotile and amphibole/tremolite). The most critical determining factors in the level of airborne concentrations are the degree of disturbance, which is associated with the level of activity occurring on the site, and the presence of complete exposure pathways."

A highly used area of the Site (gravel driveway) contains 0.18 per cent asbestos based on one composite sample. Ten soil samples collected onsite at locations circling and within tens of feet of the *Facility* ranged from 2 to 8 per cent asbestos. Soil samples collected from behind the building in the drainage pathway to back yards showed the highest levels. Asbestos ore is visible in a few surface locations around the building apparently unearthed during ground disturbing activities for the construction of homes in the proposed housing development. Test pits performed by the State revealed asbestos-containing rock ore or discarded process waste.

Sampling from six yards to the west/southwest of the Facility shows levels in soil ranging from non-detect to 11 per cent asbestos. In each of four yards, at least one sample had a value above 4 per cent.

§ 300.415 (b)(2)(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

Dust and loose debris in the Facility is heavily contaminated with asbestos. Dry, windy conditions offer the greatest opportunity for asbestos fibers to be released to ambient air from the Facility especially in light of the broken or missing windows and missing roof panels. Ambient air results in June suggest that an indoor air contribution to elevated outdoor asbestos readings may occur without windy conditions. Dry conditions also present the potential for asbestos soil surface contamination to more easily release fibers to the air. A major wind storm could result in additional loss of existing roofing leading to a greater potential for a significant fiber release from the building. Rainy conditions will result in the continuing opportunity for drainage of asbestos contamination into adjacent yards .

§ 300.415 (b)(2)(vi) Threat of fire or explosion

There were no materials observed in the building suggesting an explosion threat. The potential for a fire is greater in that the building interior is primarily made of wood with little renovation since initial construction. Many locations are rotting. No modern structural plastics were observed in the southern processing area of the building, the

largest portion of the former plant. The Facility owner alone guards against trespassing and there is no external structure (e.g. fence) guarding against access to the Facility exterior should an arsonist ignite a fire. A fire in the Facility would likely lead to a greater opportunity for the release of asbestos fibers to ambient air as the fibers would be carried with smoke away from the Facility. Firefighters would be exposed to asbestos fibers if not wearing protective respiratory gear.

§ 300.415 (b)(2)(vii) The availability of other appropriate federal or state response mechanisms to respond to the release.

The MDE formally requested EPA to conduct a Removal Action at the Site. No other federal or State response mechanisms are currently available to perform the actions necessary to mitigate the threats to public health and the environment presented by the release or threatened release of hazardous substances and pollutants and contaminants at the Site.

§ 300.415 (b)(2)(viii) Other situations or factors which may pose threats to public health or welfare or the environment.

The current Site owner solely provides measures to prevent access to the building and performs those building and grounds maintenance activities he can manage. It is unclear for what duration he can properly and promptly perform this activity. Failing to address the threat now merely postpones a response to a later date when hazardous conditions may be even more acute.

IV. ENDANGERMENT DETERMINATION

Actual and threatened releases of hazardous substances and/or pollutants or contaminants from this Site, if not addressed by implementing the Removal Action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, and/or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

The Site meets the criteria in section 104(c) of CERCLA, 42 U.S.C § 9604(c), for an emergency exemption from the 12 month statutory limit for Removal Actions as follows:

§104(c)(1)(i) “Continued response actions are immediately required to prevent, limit, or mitigate an emergency”

The Facility’s poor condition with openings, broken windows and missing roof sections can allow for the release of asbestos fibers in the building to the ambient air.

Residents are located within tens of feet of the building. Severe winds could further loosen guy wires holding up old roof processing equipment (resulting in their collapse), further weaken deteriorating exterior framing and result in the greatest potential for fibers to migrate from the building.

Interior cleanup followed by demolition of the building is the best means to address potential asbestos airborne migration since it is likely that all areas of asbestos contamination cannot be accessed during the interior cleanup. Careful building dismantlement afterward will prevent chronic asbestos releases resulting from asbestos fibers wedged under roof panels, in building connections and in other compact, unreachable areas that can loosen and release during windy conditions. Based on subcontractors' recommendations regarding the problems associated with roof and window repair work, "patching" the building to prevent releases before or after cleanup activities is economically unwise and, if feasible, will only provide temporary results.

Surface drainage from the site can continue to release fibers to residential back yards. Several back yards already have significant percentage values of asbestos in soil (up to 11 per cent) due to historic drainage from the site and possibly from air emissions fallout. With the coming of warmer and drier weather, this soil will likely release asbestos fibers to the air at significant concentrations during routine yard activities.

§ 104(c)(1)(ii) "There is immediate risk to public health or welfare or the environment"

Asbestos fibers in back yard soils at levels up to 11 per cent present an immediate threat to homeowners if inhaled during yard activities or after tracking into the home. Historically, before the publication of the EPA's *Framework for Investigating Asbestos-Contaminated Sites*, September 2008, EPA Removal Programs often used 1 per cent asbestos as a removal action level in soils where human exposure to the soils was frequent. Recent activity-based air sampling results at several nationwide asbestos sites have indicated that soil values less than 1 per cent can lead to air concentrations at levels of public health concern.

Drainage from the Site will continue to contribute asbestos fibers to adjacent yards.

The openings in the Facility continue to act as conduits for asbestos fibers to leave the Site by air migration toward residences. Capturing when this occurs by air sampling is difficult as releases from the building and migration direction would be dependent on many variables.

The Agency for Toxic Substances and Disease Registry has conducted a preliminary review of available environmental data and determined that the asbestos in residential soil poses a public health threat and EPA actions are necessary to mitigate risk.

§ 104(c)(1)(iii) “Assistance will not otherwise be provided on a timely basis”

The MDE lacks the resources necessary to mitigate the threats posed to human health and the environment as indicated by their request to EPA to conduct an action. There are no known potentially responsible parties with the ability to perform this work.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Action Description

The proposed Removal Action is designed to eliminate the threat posed by existing conditions at the Site, specifically by eliminating the potential for inhalation of asbestos fibers at levels of public health concern. The following actions are planned:

1. Mobilize personnel and equipment to the Site.
2. Provide necessary support equipment (e.g. office trailers and office equipment) to allow for efficient day-to-day operations.
3. Provide additional Site security and access restriction measures (e.g. security guard, fencing, lighting) during removal activities to protect equipment and materials from vandalism and limit opportunities for the public, especially children or teenagers, to be exposed to hazardous substances.
4. Clear, remove and dispose of Site debris, vegetation and obstructions in order to safely and efficiently perform the necessary removal activities.
5. Coordinate with the Facility owner to identify those personal belongings in the Facility to be salvaged or discarded.
6. Remove asbestos-contaminated personal belongings and items identified for disposal from the Facility in a manner that will mitigate the potential for release of fibers to ambient air.
7. Clean asbestos fibers from the items identified for return to the Facility owner by using vacuuming and wet wiping or scrubbing procedures. Demonstrate that returned items do not exceed 5,000 asbestos structures/cm² (s/cm²).
8. Store the items identified for return to the owner in a temporary structure.

9. Construct a permanent structure similar in size and function to the garage-like portion of the Facility.
10. Clean the interior of the entire Facility of all visible asbestos to the extent practical using vacuuming and wetting methods. For visible asbestos that remains in areas that cannot be accessed (e.g., under Facility roof/sidewall connections, under overlapping roof panels), use an asbestos encapsulant material to temporarily hold the asbestos in place before Facility dismantling.
11. Dismantle the Facility using wetting agents and other engineering means that will mitigate the release of asbestos fibers to ambient air.
12. After demolition, fill in the rear basement area to bring it to grade and cover the former location of the facility with soil and vegetation, asphalt, gravel or another suitable material. Any asbestos fibers remaining in the area of the former facility will lie below this cover.
13. During removal operations, minimize the migration of asbestos from the Site via runoff waters through storm water and sedimentation control measures (e.g. silt fencing, berms).
14. Excavate soil containing greater than 1.0 per cent asbestos (asbestos-contaminated soil) from adjacent residential yards located generally southwest of the Facility. Specific yard areas to be excavated will be determined based on additional field sampling. Soil excavation should not exceed one foot in depth. If post-excavation sampling of soils at greater than one foot depth reveals asbestos content above 1.0 per cent, warning fencing will be placed before covering with clean fill, followed by re-vegetated top soil, sod or other suitable cover material. In the event that yards cannot be excavated due to topographic, run-off or other engineering considerations, cover the asbestos-contaminated soil with re-vegetated top soil, sod or other suitable material.
15. Using guidance found in the Framework for Investigating Asbestos-Contaminated Superfund Sites, OSWER Directive 9200.0-68, activity-based air sampling (ABS) will be conducted at yards with asbestos found in soil at less than 1.0 per cent to determine the need for excavation (or covering) activities. A human health risk assessment will be performed on the ABS results to determine the need for excavating soil at individual yards. Excavation (or covering as described in #14 above) will be performed on yards where ABS results generally exceed a 10⁻⁴ excess cancer risk.
16. If feasible based on topography and storm water runoff considerations, cover asbestos-contaminated soil on the Facility property with sod, re-vegetated top soil and/or other suitable material based on a risk assessment of soil and activity-based asbestos air sampling results per guidance found in the Framework for

Investigating Asbestos-Contaminated Superfund Sites, OSWER Directive 9200.0-68. Where necessary to ensure proper grading and control storm water runoff, excavate in asbestos-contaminated areas and replace with clean fill, followed by re-vegetated top soil, sod and/or other suitable cover material.

17. Transport and dispose of off-Site excavated asbestos-contaminated soil, asbestos-contaminated building components, asbestos-contaminated items identified for disposal and asbestos-contaminated personal belongings pursuant to Section 121(d) (3) of CERCLA and 40 C.F.R. 300.440.
18. Transport and dispose off-Site any small quantities of hazardous substances unexpectedly encountered during performance of removal operations and dispose in accordance with Section 121(d) (3) of CERCLA and 40 C.F.R. 300.440.
19. Conduct monitoring and sampling as needed during removal activities to make determinations on measures needed to protect public health.

B. Contribution to Remedial Performance

The Removal Action is not expected to be inconsistent with or hinder any potential future remedial actions should the Site be listed on the National Priorities List (NPL).

C. Applicable or Relevant and Appropriate Requirements (“ARARs”)

The proposed Removal Action will attain ARARs to the extent practicable given the exigencies of the situation. The OSC will attempt to meet the requirements of Subpart M - National Emission Standards for Asbestos under 40 C.F.R. Part 61 - National Emission Standards for Hazardous Air Pollutants (NEHAPs). During removal activities, the OSC will confer with the Region III NESHAP coordinator for guidance on applicable regulations. Consultation procedures prescribed by the National Historic Preservation Act (NHPA) have been initiated to determine if the Facility holds historic significance.

The OSC sent a request letter to the MDE on January 25, 2009 for the identification of State ARARs. A deadline of February 26, 2010 was requested. The State did not provide ARARs as of April 19, 2010.

D. Estimated Costs

The proposed distribution of funding is as follows:

	Present Ceiling	This Action	Proposed Ceiling
<u>Extramural Costs:</u> <u>Regional Removal Allowance Costs:</u> <i>(All Costs Rounded)</i>			
Total Cleanup ERRS Contractor Costs (This cost category includes estimates for ERRS, subcontractors, and IAGs with other Federal Agencies. Proposed Ceiling includes a 20% contingency)	\$44,000	\$1,876,000	\$1,920,000
<u>Other Extramural Costs Not Funded from the Regional Allowance:</u>			
Total START	\$6000	\$200,000	\$206,000
Total CLP	0	\$10,000	\$10,000
Subtotal Other Extramural	\$6000	\$210,000	\$216,000
Subtotal ALL Extramural Costs	\$50,000	\$2,086,000	\$2,136,000
TOTAL REMOVAL ACTION PROJECT CEILING	\$50,000	\$2,086,000	\$2,136,000

VII. EXPECTED CHANGE IN SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If the proposed actions at the Site are not implemented or are delayed, additional releases of asbestos fibers to ambient air will occur. As the Facility continues to deteriorate, the releases will likely be more frequent and occur at greater concentrations. Migration of asbestos to residential yards via surface runoff will continue. The Facility owner cannot do more than continue efforts to restrict access to his property. Delaying this action increases the possibility that the property will be abandoned or scarcely maintained.

VIII. OUTSTANDING POLICY ISSUES

The principal contaminant at the Site is asbestos and Removal sites in this category have been designated as nationally significant or precedent-setting. Per EPA Delegation 14-2 and Redelelegation R-14-2, the Action Memorandum requires consultation with and concurrence by EPA Headquarters. A Request for Concurrence Memorandum, with concurrence signature by the Director of the Office of Emergency Management, accompanies this Action Memorandum.

The Action Memorandum proposes dismantlement of the Facility and re-building the garage-like portion of the building by EPA contractors (the appraised re-build value of the garage-like structure is \$102,000). EPA will attempt to adequately clean and salvage most of the personal possessions inside the Facility that are deemed of value by the current owner. EPA will provide the owner with the appraised value of those personal items that cannot be salvaged unless the owner and EPA agree that the items are of no value. Unsalvageable items will be disposed. Per OSWER Directive 9360.3-24 Analyzing Compensation Alternatives for Partially or Completely Demolished Structures, July 30, 2004, consultation with EPA Headquarters is required. In conformance with Directive 9360.3-24, a memorandum was prepared for Headquarters approval identifying the Region's preferred approach on Facility demolition and coordination procedures with the Facility owner regarding compensation for personal items that cannot be salvaged.

IX. ENFORCEMENT

The EPA Region III Hazardous Site Cleanup Division Office of Enforcement has been provided with background information on the Site and the OSC coordinates with the assigned staff members. A Confidential Enforcement Memorandum has been prepared and is included as an attachment to this document.

The total EPA costs for this Removal Action, based upon full-cost accounting practices that will be eligible for cost recovery, are estimated below as follows¹

Direct Extramural Costs:	\$ 2,136,000
Direct Intramural Costs:	\$ 100,000

¹ Direct Costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

	Total	\$ 2,236,000
Indirect Costs (63.22% of above - rounded)		\$ 1,414,000
Estimated EPA Costs for the Removal Action (rounded)		\$ 3,650,000

X. RECOMMENDATION

This Action Memorandum represents the selected Removal Action for the Powhatan Mining Company Site in Woodlawn, Maryland, developed in accordance with CERCLA, as amended, and not inconsistent with the NCP. This decision is based on the Administrative record for the Site.

Pursuant to Section 113 (k) of CERCLA and EPA Delegation 14-22, I hereby establish the documents listed below as the Administrative Record supporting the issuance of this Action Memorandum.

1. Final Draft Powhatan Trip Report (for December 2009 sampline events), TetraTech, February 18, 2010.
2. Aerial Photographic Analysis - Powhatan Mining Company, TS-PIC-21003601S, EPA Environmental Sciences Division, February 2010.
3. Powhatan Mining Asbestos Site, Final Trip Report, Lockheed Martin Technology Services, December 30, 2009 (redactions included for privacy considerations).
4. Soil Sampling Analytical Reports from EMSL Laboratory dated December 29, 2009.
5. Building structural evaluation letter, Pennoni Associates Inc, December 4, 2009.
6. Appraisal of 2006 Emmanuel Court, Baltimore County, MD, Turlington Valuation Associates, Inc., TVA Appraisal #09-487, October 19, 2009.
7. Email of September 29, 2009 regarding roofers who declined to bid on Facility repair work, GBeland, Kemron Inc. to JKelly, EPA.
8. Photographs showing asbestos inside facility and in drainage area leading to residential yards, August 2009.
9. Pollution Report #1 and Special Bulletin A, August 11, 2009.
10. Asbestos Evaluation and Sampling at the Former Powhatan Asbestos Mill, Greenhorne & O'Mara, Inc., July 2009.

11. Structural Condition Assessment of the Former Powhatan Mining Company facility, Daytner Construction Group, April 24, 2009.
12. Letter from MDE to EPA requesting removal action at the Site, April 13, 2009.
13. Phase I Environmental Assessment of the Gordon Property, Environmental Technical Services, Inc. January 3, 2002.
14. Letter from MDE FWhitehead to FHilnbrand regarding use of the Facility, April 23, 1990.
15. Letter from FHilnbrand (son for father DHilnbrand) to FWhitehead in response to the July 1989 Corrective Order, August 28, 1989.
16. Corrective Order from MDE GFerreri to Mr. and Mrs. D Hilnbrand regarding cleanup of asbestos in the Facility, July 10, 1989.
17. Various MDHMH Air Quality Laboratory Reports in 1989 denoting asbestos debris found outside the Facility.
18. Letter from MDHMH DNoren to Anne Arundel County Health Department HBeard re: Disposal of Powhatan Mining Company asbestos waste at a landfill, December 27, 1977.
19. Memorandum from MDHMH MEisenberg to GFerrari presenting Air Sampling Results near the Powhatan Mining Company, October 27, 1977
20. Memorandum from RJohnson to ERobison, MDHMH: Visit to Powhatan Mining Company, April 21, 1971.
21. Asbestos in Maryland in Maryland, Herbert Bangs, in A Journal of Natural History, The Natural History Society of Maryland, Volume XVI, No.4, October 1946.
22. The History of the Powhatan Mining Corporation, in Asbestos, Volume 11, No. 3, September 1929.

Conditions at the Site meet the criteria set forth in NCP Section 300.415(b) for a Removal and I recommend your approval of the proposed Removal Action. The total Removal Action Project Ceiling, if approved, will be \$2,136,000. Of this, an estimated \$1,920,000 comes from the Regional Removal Allowance. This amount includes non-emergency funds in the amount of \$50,000 previously allocated to this project and initiated by the OSC using his authority under Delegation 14-2.

Action by the Approving Official:

This Action Memorandum represents the selected Removal Action for the Powhatan Mining Company Site in Woodlawn, Baltimore County, Maryland developed in accordance with CERCLA as amended, and not inconsistent with the NCP. This decision is based on the Administrative Record for the Site.

I have reviewed the above-stated facts and based upon those facts and the information compiled in the documents described above, I hereby determine that the release or threatened release of hazardous substances at and/or from the Site presents or may present an imminent and substantial endangerment to the public health or welfare or to the environment. I concur with the recommended Removal Action as outlined.

APPROVED: _____

DATE: signed 6/8/10

Kathryn A. Hodgkiss, Acting Director
Hazardous Site Cleanup Division
EPA Region 3

DISAPPROVED: _____

DATE: _____

Kathryn A. Hodgkiss, Acting Director
Hazardous Site Cleanup Division
EPA Region 3

Attachments: - Figures 1 and 2
- Enforcement Confidential Memo