U.S. Army Edgewood Chemical Biological Center

Environmental Assessment for the Construction and Operation of an Asbestos Conversion Demonstration Facility

1. Purpose and Need for the Proposed Action. The purpose of the proposed action is to demonstrate the feasibility and cost-effectiveness of the ABCOV Method as a process for destroying asbestos and asbestos-containing materials (ACM) and converting them into non-toxic, non-hazardous waste, and for removing toxic metals from contaminated asbestos.

1.1. Asbestos Liability. Asbestos is a problem because, as a toxic substance and known carcinogen, it can cause several serious diseases in humans. Symptoms of these diseases typically develop over a period of years following asbestos exposure. Intact, undisturbed asbestos and ACM generally do not pose a health risk. However, they may become hazardous and pose increased risk when they are damaged, are disturbed in some manner, or deteriorate over time and thus release asbestos fibers into the air. When asbestos becomes damaged, disturbed, or has otherwise deteriorated, personnel safety requires that it be removed from service. The waste asbestos is then usually packaged in doubled 6-mil plastic bags and shipped to an approved landfill. Disposal in landfills, however, carries the risk that asbestos could pose a threat to human health in the future if it becomes disturbed or removed from the landfill. Unless the asbestos is destroyed, it will always present a potential liability.

1.2. Cooperative Agreement. The US Army Edgewood Chemical Biological Center (ECBC) located at Aberdeen Proving Ground solicited proposals from companies interested in performing cooperative research in innovative processes for asbestos abatement and removal of contaminants from asbestos containing materials. The research is aimed at effectively reducing the asbestos and ACM to a non-toxic, non-hazardous material so it can be disposed as a solid waste or used as a recyclable material. The ultimate goal of the research would be a technology that removes the long-term impact of disposing of asbestos and ACM and is more cost effective than the present means of disposal. In May 2003, ECBC entered into a Cooperative Agreement with A-Conversion, LLC to perform research and development on the ABCOV Method for asbestos conversion. The ABCOV Method is a non-thermal process that chemically converts asbestos and ACM to a harmless, non-toxic, and non-regulated silica waste. The Cooperative Agreement provides for the renovation, construction, and operation of the asbestos conversion facility in the Edgewood Area of Aberdeen Proving Ground. The ABCOV Method has been proven to remove contaminants and convert asbestos to non-toxic material in the laboratory at the bench scale. The present effort will test the scale-up of the process with the expectation that it will be shown to be an operable process and cost-effective alternative for removal of contaminants and destruction of asbestos.

2. Description of the Proposed Action. The proposed action is to execute the Cooperative Agreement with A-Conversion, LLC to perform research on the feasibility and cost-effectiveness of using the ABCOV Method for conversion of asbestos and ACM into non-toxic products at the Edgewood Area of Aberdeen Proving Ground.

2.1 Description of the Process. The asbestos destruction process (ABCOV Method) is a non-thermal, Environmental Protection Agency (EPA)-approved process that uses proprietary chemicals to chemically and physically destroy the structure of the asbestos fiber. The method is based upon the reaction of fluorides in the reagent identified as "ABCOV-C" with the silicon in the asbestos crystal to destroy the physical structure of the mineral.

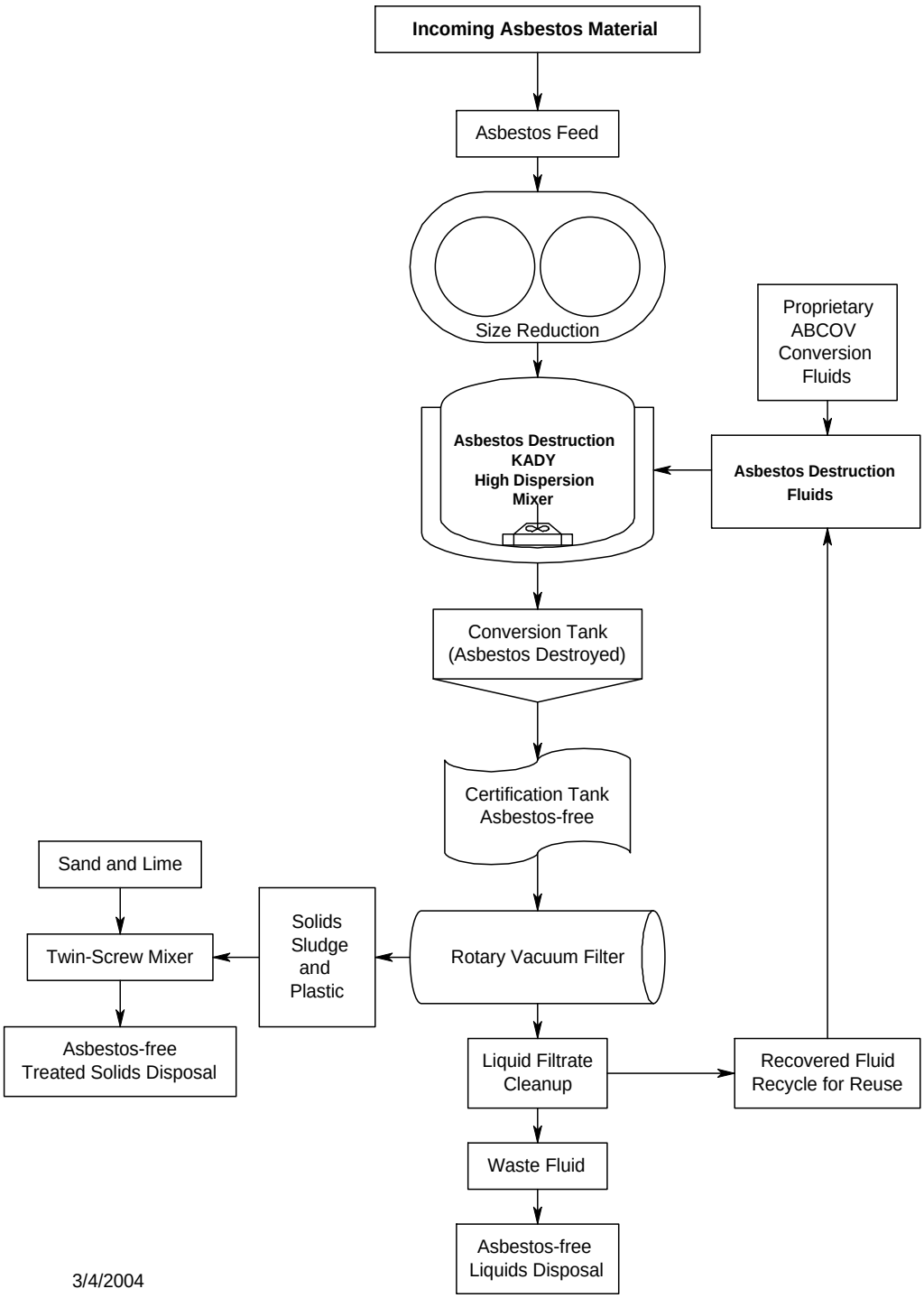
Figure 1 outlines the basic asbestos conversion process. Asbestos and ACM that is shipped to the Asbestos Conversion Facility will be contained in bags or coverings that prevent the airborne dispersal of asbestos. The bags will be uncontaminated on the outside and will be delivered by enclosed truck. The bagged ACM will enter into the processing area through a process area air lock. The air lock will be operated so that one set of doors (Rubbair Door Co.) is always closed and locked during ACM receiving.

The received ACM bags will be opened and, if the asbestos or ACM is not sufficiently wet, the interiors sprayed with an aqueous solution (ABCOV-T, described in paragraph 2.2) to dampen the ACM contents, and the contents emptied into size reduction equipment. The size-reduced ACM is sent to a wet process (ABCOV process) for destruction of the asbestos. Following the high-energy dispersion of the ACM in process fluids, the slurry is discharged into secondary mixing tanks where it will be cleared for release by Polarized Light Microscope (PLM) to confirm the asbestos or ACM is destroyed. When it is determined by PLM that asbestos fibers are no longer present, the slurry will be sent to aging tanks (holding tanks) where the slurry is kept in suspension until asbestos destruction is confirmed by Transmission Electron Microscope (TEM). Once confirmed, the aging tank contents are transferred to a vacuum filter in a "clean" section of the plant to separate the solids from process fluids. The solids are mixed with appropriate quantities of sand and lime, if necessary to adjust the pH, and disposed as non-hazardous waste. The recovered fluids are recycled into the process. Aside from the asbestos conversion process, the facility may test equipment that includes wash tanks for peripheral debris such as plastics, uniforms, boots, etc and a bailer for these washed solids. Alternately, testing the material handling may also include shredding the peripheral debris and processing it with the mainline process.

In the second phase of the testing program, lead, cadmium, and chromium will be spiked into the asbestos/ACM prior to processing to demonstrate the ability of the ABCOV method to remove heavy metal contaminants from asbestos. The metals will be removed from the converted asbestos chemically and/or by filtration and will be concentrated and collected separately for appropriate disposal.

Figure 1

The ABCOV Process of Asbestos Destruction



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2.2 Process Chemicals. Materials for the process chemicals are provided in Appendix A. The ABCOV method of asbestos destruction is generally based upon the reaction of fluorides in the proprietary reagent identified as “ABCOV-C” with the silicon in the asbestos crystal to destroy the physical structure of the mineral. Other chemicals may be used to support or catalyze the reaction.

Asbestos or ACM may be initially wetted with ABCOV-T, a reagent that acts as a wetting agent and initiates the destruction of asbestos. ABCOV-T also improves the rate of asbestos destruction by catalyzing the reaction with ABCOV-C. ABCOV-C is combined with the asbestos in the mixer. Sulfuric acid and ABCOV-T may also be added at this point. For most efficient use of process chemicals, ABCOV-C and ABCOV-T will be regenerated and reused. ABCOV-R and ABCOV-R1 contain components of ABCOV-C and are used to regenerated ABCOV-C. Special ABCOV-T is used to regenerate ABCOV-T. When process chemicals are no longer needed, they can be neutralized with ABCOV-W, a non-hazardous material that deactivates the acidic ABCOV reactants.

Diatomaceous earth is used in the filtering process to remove particulates from the liquid waste stream. Sand and lime are added to the removed solids to neutralize and solidify them. The research to be conducted will determine the optimum use of all process chemicals.

2.3 Location of Proposed Action. The action is proposed to take place in existing building E5664. This facility was used previously for a short time in 1997 to demonstrate the destruction of asbestos generated at APG using the ABCOV Method. The method was successful, however, there were significant materials handling issues that precluded operation in a cost-effective manner. Several process and equipment changes are being made in the current effort to increase the operability, efficiency and cost-effectiveness of the process. Equipment modifications include addition of size reduction equipment for the head end of the process to improve asbestos-destruction efficiency, and improved filtering equipment. Other equipment components, such as pumps, tanks, and mixers currently in place will be further evaluated and may be modified or replaced. In addition, minor improvements to the exterior of the building may be performed to improve access to the building and enhance the working environment. The gravel road to the building and a parking area on the east side of the building may be revitalized by the addition of more gravel and minor grading. An existing asphalt apron at the beginning of the gravel access road may be rebuilt. Also, a canopy may be built over the loading dock area to provide some protection from the elements for workers who are unloading trucks.

2.4 Source of ACM to be Treated. Various types of ACM will be used in the process testing including virgin asbestos, pipe lagging, and other types of ACM insulation. It is important that many different types of asbestos-containing materials be tested to demonstrate the breadth of processing capability of the ABCOV process. Asbestos generated at Aberdeen Proving Ground is the first priority for use in the facility. Asbestos and ACM will also be sought from DoD facilities in the local area including other Maryland counties, Washington D.C., Virginia, West Virginia, Pennsylvania, Delaware, New Jersey, and New York. If sufficient quantities of specific types of ACM cannot be obtained from

these sources during the period of the Cooperative Agreement, asbestos will be sought from other nearby federal and state agencies.

2.5 Amount to be Treated. The facility is being designed to be able to process as much as 495 kg (1,089 lbs) of asbestos/ACM per batch. At full capacity, the plant could possibly process as many as 24 batches in a 24-hour period. Taking into account down time for routine maintenance, etc, the maximum amount of asbestos/ACM that could be processed in the plant over an entire year is approximately 2,325 metric tonnes (5.124 million pounds). As stated, this is the design capacity. The actual amount of asbestos/ACM that will be processed in the plant is likely to be less than this amount because of the research and testing nature of the work.

2.6 Engineering Controls. All process tanks will be placed within dikes to minimize consequences from liquid leaks. Facility negative airflow with HEPA-filtered air exhaust will be used to remove any airborne ACM contamination from the process area. The process area will be sealed off from non-process areas to further assure clean areas will not become contaminated. Activated carbon will be used in conjunction with the HEPA filters for organic removal from exhausted air. Process equipment off-gas will be cleaned with a scrubber that removes acid gases.

2.7 Content and Disposition of Waste. The reaction product solids will include such materials as silica and various silicates and magnesium, calcium, iron, and their oxides and fluorides. The non-hazardous process waste solids will be disposed in an off-post sanitary landfill. Any hazardous solid waste generated will be sent to an off-post commercial hazardous waste treatment/disposal facility. Liquids will be recovered for recycling in the process to the extent possible. Some liquid waste may be pretreated before discharge to the sanitary sewer in accordance with permit requirements. When heavy metals (lead, chromium, and cadmium) are added to the asbestos prior to treatment in phase I, the metals are expected to be removed from the asbestos and concentrated in a small amount of sludge that will be tested and disposed as hazardous waste. However, during this phase of testing, all wastes and recyclable materials that are generated including the converted asbestos and process wastewater will be tested for the presence of the metals. In the event the metal contamination is not removed from any portion of the wastestream (e.g. converted asbestos, wastewater), the metal-containing waste will be disposed as hazardous waste by the existing chemical waste contractor at APG.

2.8 Transportation. Asbestos will be transported to APG by commercial carriers in accordance with applicable federal and state regulations. It will be shipped in bags or coverings that prevent the airborne dispersal of asbestos. The bags will be uncontaminated on the outside and will be delivered by enclosed truck. Trucks will travel over existing roads to the plant. If the plant operates at the maximum design capacity, a total of 3-4 trucks may be entering post to deliver asbestos to the plant per shift for a total of 9 – 12 trucks over a 24-hour period.

In order to maintain security at APG, numbered shipping seals will be affixed to each truck at the point of origin and seal numbers will be transmitted to APG prior to the arrival of the

truck. When a truck arrives, police officers will inspect the seal to assure that it is intact, check the list of seal numbers to be sure they are expecting the truck, and then perform the usual security inspection of the remainder of the truck. On occasion, the officers may perform a safety check to assure that the truck is operating in accordance with state standards. When everything checks out, the truck will be allowed to proceed to the asbestos plant. This procedure has been coordinated with the Director of Law Enforcement and Security at APG.

3. Alternatives Considered

3.1 Alternative 1 - Demonstrate the feasibility and cost-effectiveness of the ABCOV Method at an existing Building E5664 located in the Edgewood Area of APG.

3.2 Alternative 2 - Construct (or utilize) alternate facility to demonstrate the feasibility and cost effectiveness of the ABCOV Method of asbestos conversion.

3.3 Alternative 3 - No Action. Do not execute the Cooperative Agreement with A-Conversion, LLC for research into the feasibility and cost-effectiveness of the ABCOV Method for asbestos conversion.

4. Affected Environment

4.1 Topography and Soils. The Edgewood Area lies within the Coastal Plain Physiographic Province. The province is low lying with gently rolling to flat terrain. Elevations over most of the project site are 30 feet Mean Sea Level (MSL) rising to 36 feet MSL. Soils at and near the site fall into one of four series: Sassafras, Elkton, Keyport, or Tidal Marsh. Soils in this area are of the Sassafras series with some characteristics of Elkton soils. Some Tidal Marsh soils occur in areas near the surface drainage systems. Soils belonging to the Sassafras series are deep and well drained; they originate in old marine deposits that contain mostly sand and lesser amounts of silts and clays. Soils belonging to the Elkton series are deep and moderately drained; they form in sedimentary deposits of old marine clay.

4.2 Surface Water. The land area of the APG drains into numerous small creeks and rivers that are tributaries of the Chesapeake Bay. The proposed location for the asbestos conversion facility, building E5664, lies within the Canal Creek drainage area.

4.3 Air Quality. Maryland is divided into six air quality control regions. Harford County is located in region III that is designated as "attainment" for particulate matter, nitrogen dioxide, sulfur dioxide, lead, and carbon monoxide; and "non-attainment" for ozone. This means that existing concentrations in the area are within the levels allowed by the ambient air quality standards (AAQS) for all of the criteria pollutants but ozone.

4.4 Wildlife and Threatened and Endangered Species. The availability of a wide variety of habitats on APG has contributed to the presence of an abundant and diverse wildlife population. One previously listed threatened species, the bald eagle, is known to occur on APG. An active eagle management program has been implemented at APG in coordination with the U.S. Fish and Wildlife Service. Recently, eagle "buffer zones" have been established around active nests. Activities are curtailed within buffer zones during the nesting season. No records of threatened or endangered plant species currently exist for APG.

APG contains one of the two major areas of estuarine marsh on Chesapeake Bay. The species present in the vicinity of Carroll Island, which is located in the Gunpowder River, are comparable to those found in nearby areas studied by Maryland Fisheries biologists and should be characteristic of most other estuaries around APG. However, studies show that Swan, Romney, Wright, and Canal Creeks located on APG have experienced long-term degradation, as evidenced by low numbers of aquatic species. Menhaden, which are locally abundant and commercially important, provide a major food source for bird predators in the Bay area.

4.5 Historic and Archaeological Resources. The Historic American Buildings Survey/Historic American Engineering Record prepared a report (HABS/HAER, 1982) to identify and otherwise address historic buildings at APG in accordance with the National Historic Preservation Act of 1966. The Edgewood Area has three national register eligible properties, WWI Barracks Historic District (E4400 block), Quiet Lodge (E4630), and Gunpowder Meeting House (E5715). A draft 1988 Archeological Overview for APG was prepared and identified 820 possible archeological/ historic sites throughout the Aberdeen Area and the Edgewood Area of APG.

4.6 Land Use and Aesthetics. Harford County recognizes APG as federal reservation zoning and does not designate or define APG land uses. Land use designations at APG are defined by the APG Master Plan (1978) and include field training, administration, community services, services, housing, research and development (R&D), storage, recreation, and restricted building and recreation.

4.7 On Post Housing and Visitors. According to 2000 census data, APG has a population of 3,116 which includes 805 families and 902 households (U.S. Bureau of the Census, 2000). Currently, the APG Internet website (http://www.apg.army.mil/aberdeen_proving_ground.htm) states that more than 7,500 civilians work at Aberdeen Proving Ground, and more than 4,700 military personnel are assigned there. In addition, there are nearly 3,000 contractor and private business employees working on the proving ground. There are 2,700 military family members living on the post.

4.8 Off Post City and County Population. According to 2000 census data, Harford County (includes Edgewood Area) and Baltimore County (west side of Edgewood Area), respectively, have populations of 218,590 and 754,292 (U.S. Bureau of the Census, 2000).

Towns close to Edgewood Area include Edgewood, Joppatowne, and Bowley's Quarters, which had 2000 populations, respectively, of 23,378, 11,391, and 6,314.

4.9 Emergency Services. Emergency services on APG are provided by on-post personnel, including fire and law enforcement personnel. Four fire companies on APG, including two on Edgewood Area, provide fire protection. Police services include law enforcement, crime prevention, criminal investigation, traffic control, and guard and security services. An Installation Response Team has been established to implement the APG Spill Prevention Control and Counter Measures Plan (SPCCP) and the Installation Spill Contingency Plan (ISCP).

5. Environmental Impacts of Proposed Action and Alternatives

The potential direct and indirect impacts of Alternative 1, to demonstrate the feasibility and cost-effectiveness of the ABCOV method of asbestos conversion at Building E5664, and Alternative 2, to construct (reutilize) an alternative facility to demonstrate the feasibility and cost effectiveness of the ABCOV method of asbestos conversion, are discussed below by impact category.

Equipment requirements, and engineering controls to assure safety, health and environmental compliance during operational demonstration of the ABCOV method will not differ based on the location of the facility at APG. Therefore, potential impacts from the operational portion of Alternative 1 and 2 will be similar, if not identical and are addressed together. Impacts due to modification of E5664 and construction or reutilization of a different facility at the EA of APG are evaluated separately.

The No-Action alternative was only briefly evaluated, as at this time there is there is no current baseline asbestos conversion process for continuation at the EA of APG. Therefore, the no action alternative would, in fact, produce no actions. No action, i.e. failure to proceed with the research effort, would fail to meet ECBC's stated research objective of performing cooperative research in innovative processes for asbestos abatement and removal of contaminants from asbestos containing materials.

5.1 Air Impacts.

5.1.1. Alternative 1 and 2. Operational Air Quality Impacts. Potential sources of air pollutants associated with operation of the plant include the process chemicals, chemical reactions during the asbestos conversion process, and the asbestos itself.

Process chemicals will be stored inside building in an area near the asbestos processing area. Liquid chemicals will be stored in tightly closed drums on spill control pallets. To avoid potential for emission of chemical fumes into unfiltered air, drums will not be opened in the storage area. They will only be opened inside the process area, which is under negative pressure with carbon filtration. Solid chemicals will be stored in bags on pallets. Likewise, the bags will only be opened in the process area.

Asbestos is regulated as a hazardous air pollutant under the Clean Air Act (CAA), National Emissions Standards for Hazardous Air Pollutants (NESHAP). The NESHAP requires operations that convert asbestos/ACM into non-asbestos material obtain written approval of the EPA regional administrator to construct such a facility. Approval for the A-Conversion, LLC operation was granted on March 28, 1995 for construction of the plant at APG. Information provided to the USEPA included start up and performance testing of the process, continuous monitoring, sample collection and analysis over the initial 90-days of operation. Methods to clean emissions containing particulate asbestos material before they escape or are vented to the outside air are also included. These data verify that the process effectively converts the asbestos/ACM to non-asbestos material, and assure that no emission of asbestos/ACM to the ambient air occurs during this process. This approval process provides maximum health and welfare protection to the public, and abates potential air quality impacts from this process.

In addition to the Federal regulations, the State of Maryland Air and Radiation Management Administration, and the Asbestos Licensing & Enforcement regulations apply to the ABCOV method. Per the Code of Maryland Regulations, (COMAR) 26.11.02, a Permits to Construct is required for the chemical reactor, which facilitates the asbestos conversion process, and for the emission control equipment associated with the process. The permitting will identify and quantify emissions of criteria and toxic air pollutants. Control technologies for the toxic air pollutants will be evaluated to select the Best Available Control Technology (BACT). Caustic and aqueous scrubbers, and carbon adsorption, each with emission reduction factors of 99% for the toxic air pollutants expected to be generated by the process, will be employed. The resulting emissions of the toxic air pollutants will be screened to assure that the air concentration at the installation boundary meet the concentration determined to protect human health and welfare.

The processing area in which the asbestos and chemicals are handled will be maintained under negative pressure. Air from the room will exhaust through carbon and HEPA filters and emissions from process tanks will exhaust through the scrubber system. The concentration of toxic air pollutants expected to be emitted from the room filters and scrubber has been calculated using data from breathing zone monitoring of workers using the ABCOV process in previous operations. The removal efficiency of the filters and scrubber is factored in to determine the potential emissions as included in the air permit to construct. Using this method, it is anticipated that the following air pollutants could be emitted at the stated amounts if the plant were to operate continuously: fluorides – 0.32 pounds per year; hydrogen fluoride – 0.32 pounds per year; formic acid – 4.25 pounds per year; hydrogen sulfide – 2.3 pounds per year, particulate matter, 0.0025 pounds per year.

The Asbestos Licensing and Enforcement identifies that the operator, ABCOV be licensed to assure proper storage, handling and worker protection and training in regards to the asbestos and asbestos containing materials. These requirements reduce/eliminate accidents that have the potential to impact the indoor air quality.

No air impacts due to the operation of the asbestos conversion process (Alternative 1 or 2) would occur. Air exhausted from laboratory or rooms is, in accordance with the Federal requirement, passed through a HEPA filter prior to exhausting to the ambient air. The HEPA is 99.97% efficient for 0.3 micron particles, and recognized to prevent the release of asbestos fibers to the environment. The chemical reactor where the asbestos conversion process occurs will be exhausted to air control technologies which, in accordance with the State of Maryland requirements, will employ the BACT to reduce toxic air pollutants at or below concentrations required to maintain public health and air quality standards.

5.1.2. Construction Air Quality Impacts. To construct a new facility, or reutilize an existing facility, will have greater short-term air impacts than alternative 1 due to construction/renovation needs to include heavy equipment use, material and equipment deliveries, construction workers and associated vehicular traffic. Interior renovations of an existing facility would eliminate the need for new facility construction. However, if a suitable facility could not be identified, new construction would be required. These total direct and indirect emissions, although greater than Alternative 1, would not likely exceed the de minimis threshold of 25 tons/year of ozone precursors NOx and VOC based on determinations for large facilities constructed at the APG. Therefore, it is expected that no conformity analysis would be required. The construction of a new facility will not result in a significant effect on the air quality in the Edgewood Area of APG.

5.2 Water Impacts.

5.2.1 Alternative 1 and 2. Operational Impacts. Alternatives one and two are not expected to have adverse impact on water quality. Most of the water used in processing the asbestos will be recovered and recycled back into the process. However, it is estimated that between 100 and 1,000 gallons of water per day may be discharged to the sanitary sewer from the facility. Some of this is process water and some is blowdown from the scrubber. Both the process water and the scrubber blowdown will be pretreated in the plant prior to discharge and will be filtered to assure that no asbestos fibers are discharged to the sanitary sewer. The pretreatment system will be designed to reduce the concentration of contaminants to below the following limits: lead – 0.283 ppm, chromium - 3.07 ppm, cadmium – 0.096 ppm, and fluorine - 20 ppm. In accordance with APG's existing NPDES permit No. 02-DP-2531, a grab sample will be taken and analyzed for the parameters listed in the permit (see table 1 for an excerpt from the permit). Samples will be taken weekly when the plant first starts to operate. After six months of monitoring with all parameters below the specified limits, the frequency of monitoring will be reduced to monthly for cadmium, chromium, lead, and pH and once per quarter for all other parameters. If pretreatment is unable to reach the permit limits for any of the parameters, the wastewater may be shipped off-post for treatment in a commercial industrial wastewater treatment facility.

5.2.2. Construction Impacts. No significant effects on water quality are expected as facility renovations would require only minor earthwork to be conducted in or around the exterior of the existing facility and will not require implementation of storm water runoff precautions. The current facility parking requirements plus the additional gravel parking

area on the east side of the building would be sufficient to support the facility and no additional impermeable parking surface would be required**.**

New facility construction would require earthwork to include digging, grading and paving. These requirements have the ability to affect water quality due to the ground disturbance during construction, and facility and parking areas creating additional impervious surface area. However, the construction process is able to alleviate significant impacts of these processes by following state and local requirements to alleviate storm water discharge/runoff from construction using design and physical barriers.

TABLE 1.

EFFLUENT LIMITATIONS AND MONITORING REUIREMENTS FOR OUTFALL - 101

During the effective period of this permit, the permittee is authorized to discharge process wastewater from the Asbestos Conversion Facility via Monitoring Point 101. Such discharge shall be limited and monitored by the permittee at (see Footnote 1 below).

Parameter	Quantity or Loading			Quality or Concentration				Frequency of Analysis	Sample Type
	Monthly Average	Daily Maximum	Units	Min.	Monthly Average	Daily Maximum	Units		
Flow	Report	Report	gpd					Continuous	Measured
Antimony					0.206	0.249	mg/l	One/month	Grab
Arsenic					0.104	0.162	mg/l	One/month	Grab
Cadmium					0.0962	0.474	mg/l	One/week	Grab
Chromium					3.07	15.5	mg/l	One/week	Grab
Cobalt					0.124	0.192	mg/l	One/month	Grab
Copper					1.06	4.14	mg/l	One/month	Grab
Lead					0.283	1.32	mg/l	One/week	Grab
Mercury					0.000739	0.00234	mg/l	One/month	Grab
Nickel					1.45	3.95	mg/l	One/month	Grab
Selenium					0.408	1.64	mg/l	One/month	Grab
Silver					0.0351	0.120	mg/l	One/month	Grab
Tin					0.120	0.409	mg/l	One/month	Grab
Titanium					0.0618	0.0947	mg/l	One/month	Grab
Vanadium					0.0662	0.218	mg/l	One/month	Grab
Zinc					0.641	2.87	mg/l	One/month	Grab
PH				5.0				One/week	Grab

After six months of monitoring, the frequency of monitoring shall be reduced to one/month for cadmium, chromium, lead and pH and one per quarter for all other parameters. If noncompliance is reported for any parameter, the monitoring frequency for that parameter shall remain at the frequency specified above.

(1) The permittee shall construct a monitoring point to allow for representative monitoring of the effluent characteristics specified above. No later than 30 days prior to the start up of operations, the permittee shall submit to the Industrial Discharge Permits Division, with a copy sent to the Compliance Program, the planned start up date and the location and written description of the monitoring point 101. No monitoring or reporting is required until start up of the facility.

5.3 Solid Waste

5.3.1. Alternative 1 and 2. Operational Impacts. Operation of the asbestos conversion facility is not expected to have an adverse impact on solid waste. In fact, it will have a net beneficial effect on solid waste disposal by converting a potentially dangerous solid waste - asbestos - into non-hazardous material.

Solid waste generated by the plant will consist largely of the non-hazardous silica-based material that results from the destruction of the asbestos and ACM. This waste will be tested in accordance with EPA standards to assure that the asbestos was completely destroyed. This solid waste and other uncontaminated solids such as washed plastics, PPE, etc, will be sent to an off-post municipal landfill for disposal. Shipment to the landfill will be arranged by the US Army Garrison, APG. When heavy metal contaminated asbestos is treated in the plant, the resulting solid waste will be tested to assure no metals remain above the TCLP limits prior to disposal.

An application has been submitted to Maryland Department of the Environment (MDE) for a refuse disposal permit to license the asbestos conversion facility as a solid waste processing and transfer facility. This permit is required for the processing of asbestos waste from off-post. Processing of waste solely from APG would not require a refuse disposal permit.

5.3.2. Construction Impacts. Solid wastes generated by the modification of an existing facility would, if determined necessary due to age or visual cues, be screened for asbestos and lead paint prior to removal and disposal. Asbestos or lead paint wastes would be removed, stored and disposed per the regulatory requirements. Any asbestos removed may be held for processing in the plant. Other solid wastes generated during this process would be disposed as construction debris. The limited solid wastes generated and disposed from a renovation project to install the asbestos conversion facility would not adversely impact the solid waste stream. This is exemplified by the categorical exclusion in paragraph (c)(1) of Appendix B to 32 CFR 651, Environmental Analysis of Army Actions for this type of renovation activity. The action, which passes the screening criteria listed in 32 CFR Part 651.29, has been predetermined not to have an environmental impact.

Construction of a new facility would not result in the possible generation of lead paint or asbestos wastes, as could building renovations. The debris from the construction of a new facility would be handled as construction debris solid wastes and likely landfilled or if possible recycled. The solid debris would not be considered hazardous, and would not produce a significant impact in volume or content in the solid waste steam, which is generated at APG.

5.4 Hazardous Substances

5.4.1. Alternative 1 and 2. Operational Impacts. The ABCOV method uses proprietary chemical mixtures in the asbestos conversion process. A mixture known as ABCOV-T is a surfactant used for the initial wetting of ACM. It starts the conversion process. ABCOV-C

is the main reagent in the asbestos conversion process. Both chemical mixtures are corrosive and will be handled with appropriate protective equipment. The main components of the mixtures are formic acid, sulfuric acid, trifluoroacetic acid, and ammonium hydrogen fluoride.

Process chemicals will be delivered to the building by commercial carrier and will be stored in their original containers. The process chemicals will be stored inside building in an area near the asbestos processing area. The ammonium hydrogen fluoride is a solid and will be stored in bags on pallets. An estimated maximum of about 90,000 pounds of solid ammonium hydrogen fluoride may be stored in the building when the facility is operational. The liquid chemicals will be stored in tightly closed drums on spill control pallets. The pallets are designed to contain the liquid in the event one of the drums ruptured. In the unlikely event a spill was not contained in the pallet reservoir, appropriate measures would be taken to clean up and remove all spilled material. An estimated maximum of about 5,000 gallons of formic acid, 1,000 gallons of sulfuric acid, 1,000 gallons of trifluoroacetic acid, and 500 gallons of sodium bicarbonate solution in 55 gallon drums may be stored in the building when the facility is operational. Drums and bags of chemicals will only be opened inside the process area, which is under negative pressure with carbon filtration.

5.3.2. Alternative 2. Construction Impacts. Renovation of an existing facility or construction of a new facility may involve the use of a small amount of hazardous substances, such as paint, typically used in facility renovation. This is also exemplified by the categorical exclusion in paragraph (c)(1) of Appendix B to 32 CFR 651, Environmental Analysis of Army Actions for this type of construction and renovation activity. The action, which passes the screening criteria listed in 32 CFR Part 651.29, has been predetermined not to have an environmental impact.

5.5 Natural Environment (including topography, geology, vegetation)

5.5.1. Alternative 1 and 2. Operational Impacts. Since the asbestos conversion facility is operated within an enclosed building in the Edgewood Area of Aberdeen Proving Ground, no land or external structures will be disturbed during the operational phase. Transportation of asbestos will be over existing roads and will not require disruption of the natural environment. Therefore, no adverse impact to the natural environment including topography, geology, or vegetation is anticipated.

5.5.2. Construction Impacts. Modification of an existing facility to accommodate the asbestos conversion testing would involve interior changes and only minor exterior changes, eliminating the potential for adverse impact to the natural environment. Although any new construction would occur only in an area where the land use designations, as defined by the APG Master Plan (1978), meets research and development criteria, such construction could result in localized impact to the natural environment. Particularly, new construction would result in removal of local vegetation and some grading.

5.6 Wetlands

5.6.1. Alternative 1 and 2. Operational Impacts. Since the asbestos conversion facility is operated within an enclosed building in the Edgewood Area of Aberdeen Proving Ground, no land, and therefore no wetlands, will be disturbed during the operational phase. Transportation of asbestos will be over existing roads and will not require disruption of any wetlands. Therefore, no adverse impact to the wetlands is anticipated.

5.6.2. Construction Impacts. Modification of an existing facility to accommodate the asbestos conversion facility would involve interior changes and only minor exterior changes, eliminating the potential for impact to wetlands. New construction would occur only in an area where the land use designations, as defined by the APG Master Plan (1978), meets research and development criteria. Any site with the potential for impact to wetlands would be avoided. Therefore, no impact to wetlands would be expected.

5.7 Historic, Archeological, and Architectural Resources

5.7.1. Alternative 1 and 2. Operational Impacts. Since the asbestos conversion facility will be operated within an existing non-historic building in the Edgewood Area of Aberdeen Proving Ground, no land or external structures will be disturbed. No adverse impact to historic or archeological resources is anticipated.

5.7.2. Construction Impacts. Modification of an existing facility to accommodate the asbestos conversion facility would involve interior changes and only minor exterior changes, eliminating potential architectural and historical impacts. If an exterior modification is necessary, the historical status of the facility will be determined prior to construction. Building E5664 is not of historical significance. Any exterior work on a facility that has not been determined to be non-historic will be coordinated through the installation cultural resource manager within the Directorate of Safety Health & Environment (DSHE). Since the facilities are already in place, no archeological impacts will occur.

New construction would occur only in an area where the land use designations, as defined by the APG Master Plan (1978), meets research and development criteria. The selected site would require evaluation for archeological survey requirements. If this requirement is deemed necessary, a survey would be conducted and the results coordinated with the State Historic Preservation Officer. The site would be required not to impact cultural resources and the facility not to impact aesthetics. New construction that follows these guidelines would not result in an impact to the environment.

5.8 Land Use and Aesthetics.

5.8.1. Alternative 1 and 2. Operational Impacts. There are no anticipated land use conflicts. The site for the proposed action was previously used for asbestos storage and the operation of an asbestos conversion facility in the mid 1990's. The surrounding land is used by the Edgewood Chemical Biological Center for mission work related to chemical and biological defense. This is consistent with the proposed action.

5.8.2. Construction Impacts. Modification of an existing facility to accommodate the asbestos conversion facility would involve interior changes and only minor exterior changes, eliminating potential aesthetics concerns. New construction would occur only in an area where the land use designations, as defined by the APG Master Plan (1978), meets research and development criteria.

5.9 Socioeconomic/Human Health and Safety

5.9.1. Alternative 1 and 2. Operational Impacts. The proposed action will have no impact on workforce socioeconomics. The facility will be operated by A-Conversion, LLC employees and a small number of existing government employees will oversee the work.

Safety will be of foremost importance at the plant. All plant operators will have complete OSHA training required for asbestos plant operators. Prudent steps will be taken to avoid common accidents including slips, trips, and falls. Electrical equipment will be properly installed and grounded to reduce the potential for electrocution. All power equipment will be operated in strict accordance with approved procedures to assure safe operation. Respiratory protection will be worn by workers in the asbestos processing area to assure no exposure to asbestos fibers.

5.9.2. Construction Impacts. Health and Safety of workers and persons near either a facility modification or new construction site would not be significantly impacted as the necessary precautions will be taken to prevent construction accidents during a new construction or facility modification process.

5.10 Public Services and Utilities

5.10.1. Alternative 1 and 2. Operational Impacts. Operation of the asbestos conversion facility will require the same utilities whether it is renovated in an existing facility or part of a newly constructed facility. While a new facility would require additional infrastructure demands, the overall requirements are currently carried in the installation utilities distribution system, and would not result in a significant impact to this system. Building E5664 currently has sufficient power and water to support the asbestos conversion facility. Sanitary connections and steam are sufficient to support the presence of the operating staff in the building.

5.10.2. Construction Impacts. Utilities used in existing facilities include; electricity, steam, potable water and sanitary connections, and are all supplied to APG and distributed through an existing network. Renovations for an asbestos conversion plant in an existing facility, which had adequate electrical power to support the equipment, may not require

changes in operational power. Comfort requirements would already be in place. However, if the facility did not support this type of operation, the APG power grid could supply the necessary power to operate the equipment. The load on utilities during operation of the additional activities would not result in a supply or flow burden and will have no environmental impact.

Utility requirements for a new facility would be achieved through the extension/modification of existing electric, water and steam distribution systems. A new facility would require new access to each of these utilities. The demand for these utilities would be greater with new construction, rather than renovation, due to the additional square-footage increase. Even with this need, the load on the existing utility structure would not result in a supply burden, and is not seen to have a significant environmental impact.

5.11 Traffic

5.11.1. Alternative 1 and 2. Operational Impacts.

The proposed action will result in a slight increase in truck traffic entering APG. Operating at full capacity, the plant can process approximately 25,000 pounds of asbestos per operating day. This amount of asbestos, if brought from off-post, would be transported in closed trucks as described in paragraph 2.8. At maximum design capacity, one truck per hour may arrive at APG.

5.11.2. Alternative 2. Construction Impacts. Renovation of another facility or construction of a new facility would result in a slight increase in construction traffic. Since construction traffic regularly enters post, the increase would not be expected to be significant.

5.12 Odor and Noise.

5.12.1. Alternative 1 and 2. Operational Impacts. Exterior noise during facility operation will not differ from current operations at ECBC facilities. Noise levels within the operational portion of the building may exceed the 85 dB (A) noise hazard level. Whenever a noise hazard exists, workers will wear hearing protection.

5.12.2. Construction Impacts. The modification of an existing building (alternative 1) will not require any unusual or specialized construction work, and no unusual odor factors are expected to be released inside or outside of the building during the modification. No heavy earthwork equipment will be needed to implement the modifications. A slight increase in noise is expected from construction work during building modifications, but this will be of short duration, and will be mostly confined to the interior of the building being modified and grading of the gravel road and parking area.

Construction of a new facility (alternative 2) would require use of standard commercial equipment and practices. Excavation, grading, paving and utility hook-ups would occur, and odors and noise associated with these areas of construction are to be expected.

These activities would be intermittent and short tem. The construction would cause no significant impact due to the short duration, and because it would likely occur in an area where the land use was already designated for R&D facilities, rather than an undisturbed area.

5.13. Wildlife, including Threatened and Endangered Species and Bald Eagles

5.13.1. Alternative 1 and 2. Operational Impacts. No significant effects are expected on wildlife during operation of the proposed asbestos conversion facility at either a newly constructed or renovated facility including building E5664. Ecosystems are protected by the same safety, security, and facility design requirements, which protect human health and safety. The combination of these procedures, equipment, and facility design will prevent hazardous releases to the air, water, or solid waste refuse stream. Building E5664 is not within the eagle buffer zones that have been established around active nests.

5.13.2. Construction Impacts. Facility renovations to support the asbestos conversion facility would require mainly interior renovations, with no disturbance to existing grassland or wooded areas. Exterior renovations will take place within the existing footprint of the building and surrounding support area (roads and parking lots). These renovations would occur during the workday hours and would not increase the human presence felt currently by the surrounding wildlife. Facility renovations to support the proposed action would not impact wildlife.

New construction would originate in an area where the Installation land planning use is designated for Research and Development facilities. Additionally, it would be chosen in an area that is not within the bald eagle buffer zones. New facility construction will require earthwork to include digging, grading and paving. These requirements would result in the loss of grassland area habitat and associated noise and human activities, which may extend beyond the workday hours. These effects may have a minor impact but would not significantly affect the wildlife populations at APG because they will be limited in size and duration, and will occur in an area that currently supports human activities rather than encourages wildlife.

5.14 Environmental Justice

5.14.1. Alternative 1 and 2. Operational Impacts. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low Income Populations, requires Federal agencies to consider whether their projects will result in disproportionate adverse impacts on minority or low-income populations. The U.S. Census considers a poverty area as an area in which at least 20% of the population lives below the poverty level. According to 2000 statistics by the Census Bureau, only 10.3% of all persons within the town of Edgewood were living below the poverty level. Thus, Edgewood is not considered a “poverty area” as defined by the Census Bureau. The 2000 census data also indicates that 79.1% of Edgewood’s population is Caucasian.

Operation of the asbestos conversion facility at the Edgewood Area of APG is not expected to result in adverse impacts to minority or low-income populations in Edgewood. As discussed above, the proposed activities are not expected to result in significant adverse impacts to the immediate environment. Implementation of the proposed action is not anticipated to have any disproportionately high adverse human health or other environmental impacts on low income or minority populations at Edgewood.

5.14.2. Construction Impacts. For the reasons stated above, neither renovation of an existing facility nor construction of a new facility for the asbestos conversion facility at the Edgewood Area of APG is expected to result in adverse impacts to minority or low-income populations in Edgewood. The proposed activities are not expected to result in significant adverse impacts to the immediate environment. Implementation of the proposed action is not anticipated to have any disproportionately high adverse human health or other environmental impacts on low income or minority populations at Edgewood.

6. Agencies and Persons Contacted.

Maryland Department of the Environment
Marcelina Gurley
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Dennis Bolt

Greg Misko
Elizabeth Hirsh

7. Conclusion. This EA has examined the potential for environmental impacts resulting from the construction and operation of an asbestos conversion plant in the Edgewood Area of Aberdeen Proving Ground. This includes transportation of asbestos waste to the site, processing of the asbestos, and disposal of all waste from the process. The potential direct impacts evaluated include air quality, noise, odor, water quality, solid waste disposal, hazardous substances usage, human health and safety, traffic, and public services and utilities. The potential indirect effects evaluated include socioeconomic effects of the workforce, and archeological, historical, and architectural effects. Additional analyses required by NEPA that were addressed include determination of: land use conflicts and environmental justice.

This EA finds that no significant adverse impact on human health or the environment is anticipated from the proposed testing. The action will be conducted in an existing enclosed facility in an area that has been used for R&D for many decades. The asbestos conversion process being evaluated has been proven to be effective in converting asbestos to non-hazardous material. The emission control system is designed to remove potential pollutants from the air emissions. Solid wastes to be generated by the process are non-hazardous and can be easily disposed in appropriate waste facilities in accordance with existing procedures. Liquid waste, likewise, will be disposed appropriately in existing waste management facilities.

Three alternatives for accomplishing the proposed action were considered. The use of a particular existing facility, building E5664, is the preferred alternative. The second alternative, the use of a different facility or construction of a new facility has no benefits over the preferred action but may have several disadvantages, particularly construction of a new facility. The third alternative, no action, would fail to accomplish the mission objective of evaluating a process for conversion of asbestos into an inert, non-hazardous material.