

ASBESTOS MANAGEMENT PLAN

ALCOA TECHNICAL CENTER

**ENGINEERING AND
SAFETY & INDUSTRIAL HYGIENE DEPARTMENTS**

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1.0 OBJECTIVE

The objective of this plan is to provide the information necessary to prevent the release of asbestos fibers from asbestos containing materials at Alcoa Technical Center including the ATC pilot atomizer facility. This is accomplished by:

1. Identifying building specific Asbestos Containing Materials (ACM) at ATC.
2. Provide the ability to plan containment of ACM prior to beginning maintenance and/or construction projects.
3. Develop an asbestos management plan for ATC.
4. Provide an active database to record and manage the surveillance, containment and remediation of asbestos.

2.0 ASBESTOS CHARACTERISTICS AND HEALTH EFFECTS

Asbestos is the common name for a group of naturally occurring fibrous mineral silicates. Because it is noncombustible and has low thermal conductivity, asbestos has been used extensively in the construction industry in a wide variety of applications.

There are six different types of asbestos: chrysotile, which accounts for 90% of commercially used asbestos; amosite and crocidolite, which are also commonly found in commercial and construction products. The three remaining, less commonly used types are: tremolite, actinolite and anthophyllite.

Asbestos building materials are typically found in mixtures with different bonding materials such as thermal insulation on pipes, boilers, and air handling ducts; and as sprayed-on or trowelled-on surfacing materials. Asbestos may also be found in miscellaneous materials such as fire-retardant blankets, cloths and textiles, roofing felts, plasters, cementitious tiles, and panels. Damaged or deteriorated asbestos-containing materials (ACM) may release microscopic fibers which can remain suspended in the air for extended periods of time which can be inhaled into the lungs.

Inhalation of asbestos fibers has been linked to the development of respiratory diseases and of cancers of various internal organs including the lungs, esophagus, larynx oral cavity, stomach, colon, and kidney. The three most common asbestos related diseases are: asbestosis (fibrous scarring of the lungs), lung cancer, and mesothelioma (cancer of the lining of the chest or abdominal cavity). These diseases do not develop immediately after inhalation of asbestos fibers; it may be 20 years or more before symptoms appear. Although no safe level of asbestos exposure has yet been determined, only a small portion of people exposed to low levels of asbestos develop asbestos-related diseases. Smoking combined with exposure to asbestos significantly increases the risk of developing respiratory diseases and cancers. Past studies of unprotected asbestos workers in occupational settings have shown that smoking combined with high levels of exposure to asbestos can increase the risk for development of asbestos-related disease by a factor of 50 compared to non-smoking workers.

3.0 IDENTIFICATION

3.1 Labels

Labels that warn of the presence of asbestos have been posted at bulk sampling locations. The Asbestos Management Plan should be reviewed prior to starting work that could disturb construction materials because the labeling does not identify ACM at all locations.

The asbestos-containing labels convey the following message:

DANGER
Contains Asbestos Fibers
Avoid Creating Dust
Cancer and Lung Disease Hazard

3.2 Asbestos Database Use and Management

This document provides step-by-step instructions in the use and management of the ATC Asbestos Survey Database. The survey database provides specific information regarding locations, quantities and types of asbestos containing materials at ATC. The database was prepared by Baker Environmental Inc. as part of the "Asbestos Survey and Asbestos Management Plan for Alcoa Technical Center." Electronic and hard copies of the survey report are available in the Building D Design Room, Environmental Department and Planning and Scheduling Department. An asbestos "layer" was also added to the FDMS database. This layer contains building by building graphical information of:

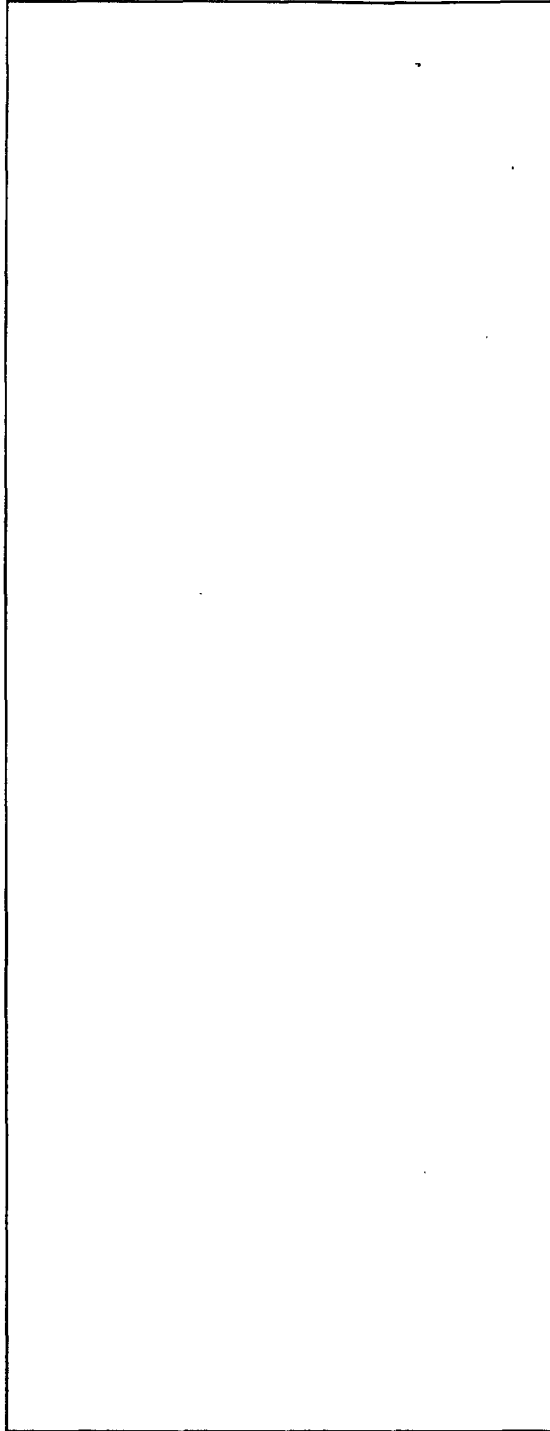
1. Survey sample locations.
2. Sample numbers.
3. Sample results, positive or negative.

The electronic CADD survey drawings are also located in the Building D Design Room. Flowcharts were generated as guides for using, editing, and maintaining the asbestos database and are included as appendices.

3.2.1 Maintenance, Engineering and Planning Departmental Responsibilities

The presence of ACM in facilities requires the establishment of a standardized and coordinated procedure for reviewing work order requests. This is necessary to: a) prevent unauthorized or untrained individuals from performing work that could potentially release asbestos fibers into the building environment, and b) to ensure that asbestos-related work activities are designed and conducted by qualified persons. The procedure for asbestos disturbance, removal, or repair of ATC property is as follows:

Procedures for Asbestos Disturbance, Removal, or Repair of ATC Property



Prior to any maintenance or construction work at ATC, it is the responsibility of the Maintenance personnel, Engineer and/or Planner to determine if **ACM** are to be disturbed in the work scope and take necessary precautions as follows:

1. Check "Listing of Asbestos Free Buildings." No containment or remediation actions are necessary within these buildings. Continue to step two for all other buildings.
2. Check "Listing of Asbestos Containing Materials." This listing provides a quick reference on suspect materials. Should work involve disturbing suspect materials, use the database to determine if your project area actually contains **ACM**.
3. Should your project involve disturbing or removing **ACM**, you will need to plan for containment as outlined and also detail any removal location, quantity removal date etc. to keep the database information current.

As a reminder, the "Listing of Asbestos Containing Materials" has been added to the Design Department's "Engineering/Design ATC Project Information Sheet" (HB-1 Sheet). In addition, the new service request form and Goldenrod form both question if the project involves solid/hazardous wastes which should also be used as an asbestos reminder.

3.2.2 Design Department Responsibilities

The Design Department will be responsible for the upkeep of the survey database and CADD drawings with information provided by the Maintenance, Engineering and Planning Departments. The Design Department will keep all copies of records pertaining to Operations and Maintenance activities and reinspection surveys.

3.2.3 Listing of Asbestos Free Buildings

The following buildings were found to be free of asbestos:

Buildings B5
Building B South Cooling Tower
Building H
Building S6
Building S7
North Guard House
Building G

However, as the survey was building specific and not laboratory equipment specific, laboratory and portable equipment such as ovens, safes etc. are not included in the survey

database. Such equipment containing asbestos could be located or relocated to these or other buildings. For example, a laboratory oven containing asbestos insulation could be located in Building G and would not be included in the survey database.

3.2.4 Listing of Asbestos Containing Materials

The following items were found to be Asbestos Containing Materials (ACM):

Flooring materials: Tile, Adhesive, Sheeting
Lab Hoods
Table Top, Rooms D-1206 and S4-3
Insulation materials: Tank, Pipe, Thermal Fitting, Breeching/Stack
Heat Shielding
Transite Sheeting
Wall Joint Compound
Thermal System Gaskets

4.0 COMMUNICATION

Maintenance workers, custodians, and building occupants shall be informed of the presence, location, and quantity of asbestos containing material, scheduled and ongoing asbestos-related activities, inspection results, response actions, and post-response action activities such as periodic reinspection and surveillance. Short-term workers, including telephone workers, utility workers, repairmen, and exterminators who could potentially come into contact with asbestos in this facility must be informed by the ATC Maintenance, Engineer, or Planner responsible for the work performed.

5.0 REINSPECTION

ACM identified at Alcoa Technical Center shall be visually inspected by a trained, licensed, and qualified inspector at least once every three years. The purpose of the reinspection is to determine if changes in the condition of the ACM have occurred and caused the ACM to become damaged or friable potentially causing fiber release.

6.0 ADHERENCE TO REGULATIONS

All asbestos work including removal and disposal shall be conducted in accordance with all applicable regulations and standards. These include: OSHA Standard 29 CFR 1926.1101, USEPA NESHAP ASBESTOS Regulations 40 CFR Part 61, and Alcoa Engineering Standard

18.18 Asbestos Removal Standard Appendix J. A matrix of asbestos regulatory training and notification requirements follows:

Asbestos Regulatory Training and Notification Requirements

Job Type	Regulatory Requirement	Regulatory Requirement	Regulatory Requirement	Regulatory Requirement	Regulatory Requirement
	<u>EPA NESHAP</u> (PA Title 25 Chapter 124.3)	<u>OSHA</u>	<u>PA ACT 194</u>	<u>ALCOA 18.18</u>	PA DER TITLE 25, Chapter 288.302 299.152 & 232
<u>Asbestos Survey & Sampling</u>	NA	1926.1101 AHERA protocol credited inspector or cut	Licensed inspector	Survey minimum every 3 years	Special residual waste, see below
Removal ACM, repair, maintenance, disturbance of ACM (Equipment)	NA	1926.1101 Determine OSHA class	Notification to state, follow 29 CFR 1926 Licensed workers	Control to fiber release below 0.1 f/cc	Special residual waste, see below
Removal ACM, repair, maintenance, disturbance of ACM (<u>Building</u>)	Add to yearly total. If 3 sq. or linear ft, use accredited worker (asbestos MAP)	1926.1101 Determine OSHA class	Notification to state, follow 29 CFR 1926 Licensed workers	Control to fiber release below 0.1 f/cc	Special residual waste, see below
<u>Renovation and Demolition</u>	Notify EPA Region III if over threshold	1926.1101 OSHA class I & II	Notification to state, follow 29 CFR 1926 Licensed workers	Follow 40 CFR Part 61 29 CFR 1926.1101	Special residual waste, see below
<u>Asbestos Disposal</u>	NA	- Hazwoper trained - Labels - Sealed impermeable bags or containers	NA	Follow 1926.1101	Trained personnel, prior notification to landfill, follow PA 299.152 & 232
<u>Housekeeping</u>	NA	1910.1001	NA	Follow 1910.1001	NA

Notification to the Department of Environmental Resources and Department of Labor and Industry of asbestos abatement activities shall be conducted by the Project Manager for the asbestos abatement contractor after review by the ATC Environmental Department. The Alcoa engineer for the project shall ensure this notification is made. A copy of the notification shall be provided to the ATC Environmental Department.

Only persons trained and licensed for the appropriate task by the Pennsylvania Department of Labor and Industry under PA Act 194 may engage in any asbestos work at Alcoa Technical Center.

ATC Environmental and Safety and Industrial Hygiene Department will stay up to date on any changes in state and federal asbestos regulations and revise and communicate changes to this plan.

7.0 OPERATIONS, MAINTENANCE, AND HOUSEKEEPING PROCEDURES

7.1 Maintenance and Repair Instructions

The following asbestos tasks (contained in Appendix H) describe minimum maintenance and repair procedures that must be followed by all personnel and contractors who work with ACM.

7.2 Waste Handling and Disposal

Waste Handling

Asbestos-containing waste is to be handled, transported, and disposed in a manner that prevents visible emissions. Protective polyethylene coverings, used disposable coveralls, used respirator filters, vacuum cleaner, and water wastes must be considered "asbestos wastes." Asbestos waste should be placed in 6 mil polyethylene bags that have pre-printed asbestos warning labels affixed to the bags.

Asbestos-containing and asbestos contaminated material must be placed in sealable 6 mil polyethylene bags while still wet. The bag should then be evacuated with a HEPA vacuum. It should be sealed by twisting the top 6-12 inches closed and wrapping with a minimum of two layers of duct tape. Twist the top, fold over, and then apply a second wrap of duct tape. Clean the outside of the disposal bag by wet wiping. Finally, place the bag into a second properly labeled 6 mil polyethylene bag. If sharp objects are to be disposed of, these should be placed in a puncture proof container such as a fiber board box and then bagged.

Excess wastewater generated from wetting procedures should be containerized, and processed through a two stage water filter, 5 micron pore size second stage, prior to disposal via

sanitary sewage system. The used filters must then be disposed of as asbestos contaminated waste.

Along with the actual asbestos-containing material removed during O&M activities, there may be large amounts of other materials that must be disposed of as asbestos contaminated waste. These include:

- Cloths and mop heads used during wet cleaning operations.
- Plastic sheeting used for containment barriers, airlocks, and decontamination chambers.
- Disposable clothing items worn in the work area.
- Carpet or wall coverings, drapes, etc., involved in a release episode.
- Contaminated respirator filters.
- Ceiling tiles taken from suspended ceilings where friable asbestos was applied above the tiles.
- Contaminated water filters.

State and Federal Regulations

Asbestos bearing waste is classified as a special residual waste by Pennsylvania Department of Environmental Resources Title 25, Chapter §287.2(d)(1). The Environmental Department receives and reviews the weekly Pennsylvania Bulletin to be current on any changes in state asbestos regulations.

Federal regulations on asbestos waste are in 40 CFR 61, Subpart M 61.145-61.147. The Environmental Department maintains the current Code of Federal Regulations and receives and reviews the daily Federal Register to be current on any changes in federal asbestos regulations. Waste disposal information is required on notification forms.

On- and Off-Site Management

Asbestos material is accumulated in Building S-7, the ATC hazardous waste storage building prior to disposal. The building is constructed and properly labeled and managed to be in compliance with all state and federal waste accumulation building requirements. This disposal of asbestos is managed by the Environmental Department personnel, J. D. Rind and R. F. Tomicek. Asbestos contaminated material is currently transported off-site by McCutcheon Enterprises, Inc. or Amaral-Neumeyer (ATC's contractor for asbestos abatement) and disposed of at Valley Landfill, located in Irwin, Pennsylvania. The Environmental Department

has audited and approved Valley Landfill; the audit findings are on file in the Environmental Department.

The Environmental Department ensures that asbestos transported off-site for disposal is in compliance with all waste transportation regulations. The shipping paper signatory inspects every load of asbestos bound for disposal to ensure compliance. A copy of this inspection form is then stapled to ATC's copy of the shipping paper. Currently, the shipping paper used by ATC is ATC's non-hazardous waste manifest, see Appendix K. A waste shipment record accompanies every load of asbestos waste transported for disposal. The on-site waste contractor, either McCutcheon Enterprises, Inc. or Amaral-Neumeyer, prepares all asbestos properly (i.e., bags and labels) prior to shipments for disposal under the direction of T. O. Montgomery and R. F. Tomicek. Valley Landfill is contacted prior to any asbestos waste shipments. The on-site waste contractor, McCutcheon Enterprises, maintains the waste profiling of asbestos material and all analytical data necessary for waste disposal.

Asbestos records are kept on file by the Environmental Department in Building E, Room 114.

Marking

All containers with waste asbestos material are marked in accordance with OSHA regulations as shown in the Alcoa Engineering Standard 18.18, page 17.

Surplus Equipment

All equipment to be surplus is reviewed by the Environmental Department for asbestos. If a possibility of asbestos exists, sampling is performed by qualified personnel using all current quality assurance and control measures. Environmental Department personnel review the data to determine the course of action. See Appendix L for a sample of the surplus checklist.

7.3 Respiratory Protection Program

Before any cleanup or O&M procedures are initiated, a Respiratory Protection Program, as outlined in Occupational Safety and Health Administration (OSHA) Regulation 29 CFR 1910.134, must be implemented and documented for all employees whose work activities will involve contact with ACM. A written program must specify standard operating procedures for the use and maintenance of the respiratory protection equipment. The program must include respirator selection fit-testing, and hands-on training of each employee required to

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wear a respirator. Respirators selected for use must be approved as protective against asbestos fibers by the National Institute for Occupational Safety and Health (NIOSH). Medical examinations must be provided for each worker required to participate in the Respiratory Protection Program.

Respiratory protection must be utilized by workers when performing any project where the potential for exposure to asbestos fibers exists. The type of respiratory and personal protective equipment required by workers must be established for each work area where an O&M procedure, repair, renovation, or similar work is scheduled. Initial air monitoring samples must be obtained to determine the concentration of airborne asbestos fibers in each work area, and the continued use of respiratory protection and type of respiratory protection will be determined according to the results of air sampling.

7.4 Area Restrictions for ACM Related Work

Access to areas containing either friable or non-friable ACM must be restricted before starting any O&M activity that could disturb the asbestos. Only trained, licensed, and certified personnel who are necessary to perform the maintenance activity are to be allowed into the restricted area.

Restriction of an area can be achieved by the use of the following procedures:

- Physically isolating the area.
- Scheduling the maintenance project during hours when the area will be unoccupied.
- Posting signs at all entrances into the area.
- Temporarily shutting of or modifying the air handling system.
- Limiting other sources of air movement in the area.

7.5 Equipment Requirements

The following equipment and materials are required for implementing the recommended O&M program:

Disposable Items	Non-Disposable Items
Tyvek Suits (1 case of 25)	Half Face Respirators (4 each)
HEPA Respirator Cartridges (2 boxes of 10)	HEPA Filter Vacuum (1 each)
Duct Tape (10 rolls of 2" x 60 yds)	Spray Bottles (2 each)
6 mil Polyethylene Sheeting (1 roll of 20' x 100')	Airless Sprayer (1 each)
"Danger of Asbestos" Labeled Bags (1 roll of 75)	Signs and Placards (1 set)
Approved Bridging Encapsulant (One 5-gallon container)	Razor Knife, Chisel Hammer and Other Tools
Asbestos Warning Tape	
Amending Agent	

7.6 Decontamination Procedures

After handling ACM, decontamination must be accomplished as follows:

- Wet wipe tools involved in abatement or cleanup.
- HEPA vacuum protective clothing including hood and booties.
- Remove protective clothing by turning the clothing inside-out, rolling it into a ball, and disposing as asbestos contaminated waste.
- Before removing respirator, wet wipe the respirator facepiece and exposed skin.
- Thoroughly wash exposed body parts.

7.7 Housekeeping Procedures

Care of asbestos containing flooring material:

- Sanding of asbestos containing flooring is prohibited.

- Stripping of finishes shall be conducted using low abrasion pads at speeds lower than 300 rpm and wet methods.
- Burnishing or dry buffing may only be performed on asbestos containing flooring with sufficient finish so that the pad cannot conduct the asbestos containing material.

Dust and debris in an area containing friable asbestos containing materials or deteriorated asbestos containing materials, or asbestos containing thermal system insulation shall not be dusted or dry swept or vacuumed without using a hepa filter.

8.0 FIBER RELEASE EPISODES – PROCEDURES AND MANAGEMENT

A fiber release episode may result from accidental damage or deterioration of friable ACM. In the event of a fiber release episode, immediate action must be taken to protect building occupants from exposure to airborne asbestos fibers. Access to the affected area must be restricted. Hazard signs must be posted at all entry ways, and the air handling system to that area shut off. The use of appropriate respiratory protection and protective clothing is required by workers when responding to fiber release episodes. Appendix I contains clean-up procedures for debris caused by damaged thermal insulation, surfacing, or miscellaneous ACM.

8.1 Minor Fiber Release Episodes

A minor fiber release episode is the falling or dislodging of no more than 3 square feet or 3 linear feet of friable ACM. If a minor fiber release episode should occur, persons certified, licensed, and trained must take immediate action to control fiber release, repair the damaged area of asbestos-containing materials, and clean up asbestos-containing debris using the following procedures:

- Completely saturate damaged ACM and debris located in the vicinity of the fiber release episode with amended water.
- Thoroughly clean carpets in the area using a high efficiency particulate air (HEPA) vacuum and then a steam cleaner, or HEPA vacuum and wet wipe/mop hard floor surfaces.
- HEPA vacuum and wet wipe other horizontal surfaces contaminated with debris, and dispose of porous contaminated materials.
- Dispose of debris, filters, mop heads, and cloths in sealed, labeled, leak-tight containers.

- Seal the damaged area of asbestos material with an appropriate encapsulant, or repair the damaged area using an asbestos free material such as spackle, plaster, cement or insulation. If the damaged area cannot be repaired, physically isolate and restrict access to the area. Response actions to remove the remaining asbestos-containing material must be immediately initiated.

8.2 Major Fiber Release Episodes

A major fiber release episode is the falling or dislodging of more than 3 square feet or 3 linear feet of friable ACM. If a major fiber release should occur, the following actions must be taken:

- Restrict entry into the area and post signs at all entrances to prevent access by unauthorized persons.
- Temporarily shut off or modify the air handling system to limit air movement through the area.

Response actions associated with the major fiber release episodes must be designed, supervised, and conducted by persons certified, licensed, and trained in asbestos response activities.

9.0 ASBESTOS ABATEMENT

The procedures contained in this plan are not intended for use as final asbestos control. They are designed to provide interim guidance for the safe handling of ACM until the asbestos is ultimately removed. All friable ACM must be removed prior to selling or transferring ownership of any building at Alcoa Technical Center.

10.0 RECORDKEEPING

Records pertaining to O&M activities and reinspection surveys shall be maintained for 30 years.