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Asbestos Mgmt. Plan

Rockdale Operations Asbestos Management Plan

ASBESTOS MANAGEMENT PLAN ROCKDALE OPERATIONS

Approve by:

Gary Griesbach: _____

Greg Kraft: _____

John Pizzey: _____

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Overview

Rockdale Operation has abated a large portion of the Asbestos that was originally present on site. There are still many areas of the facility where Asbestos is still present. It is Rockdale Operation's plan to manage this remaining asbestos in place with effective inspection, maintenance and replacement programs. In areas where high exposure potential exists (i.e., areas requiring high levels of maintenance) asbestos will be eliminated. This is a tactical approach that leaves non-friable asbestos installations alone, treats all suspect areas as asbestos until tests prove otherwise, and abates asbestos only when the conditions and needs arise.

Pursuant to this management plan, this manual establishes a written Asbestos Management Program that delineates guidelines for effective asbestos management and identifies the Rockdale Operation employees responsible for this management. The written program includes the following items and procedures:

- Responsibilities
- Proper identification,
- Communication,
- Inspection,
- Adherence to Regulations,
- Remediation,
- Disposal,
- Day-to-day operations and maintenance, and
- Emergency contingencies.
- Long Range Plan

Proper adherence to the program will provide for the protection and well-being of our employees, as well as, ensure compliance with applicable Federal and State regulations, Alcoa's Asbestos Management Procedure and Alcoa Engineering Standard 18.18.

I. RESPONSIBILITIES

ASBESTOS COORDINATOR

1. Maintain asbestos survey.
2. Conduct periodic inspection of ACM.
3. Oversee contracted asbestos abatement jobs.

INDUSTRIAL HYGIENE

1. Coordinate implementation of the Asbestos Management Program.
2. Monitor the effectiveness of the program.
3. Communicate changes in regulations.
4. Periodically audit abatement jobs for compliance of safe work procedures.
5. Assist in plant training for asbestos awareness and arrange outside training as needed.
6. Respond as necessary to emergency fiber release episodes.

ENVIRONMENTAL DEPARTMENTS

1. Communicate changes in regulations.
2. Maintain records of asbestos abatement activities.
3. Communications to State and Federal agencies.
4. Maintain appropriate records pertaining to the site asbestos landfill.
5. Respond as necessary to emergency fiber release episodes.
6. Review surplus equipment to determine if it contains ACM

MANAGEMENT/SUPERVISION

1. Plan jobs involving asbestos containing materials to allow for asbestos abatement activities.
2. Provide required training for employees who may contact asbestos containing materials on their jobs.
3. Assure that abatement workers in their unit or area are provided with the needed information and cooperation to safely conduct the asbestos related activity with minimal disruptions.
4. Notify the asbestos coordinator of all asbestos (i.e. insulation, galbestos, and packing) removal activity.

PROCUREMENT

1. Procurement agents shall ensure that only non-asbestos products are purchased.
2. Obtain written approval of the location manager prior to deviating from item 1.
3. Maintain written records of asbestos products purchased in exception to item 1.

MAINTENANCE, ENGINEERING AND PLANNING

1. Review work order requests to:

- A. Prevent unauthorized or untrained individuals from performing work that could potentially release asbestos fibers into the building environment, or to the atmosphere, and
 - B. Ensure that asbestos-related work activities are designed and conducted by qualified persons.
- 2. Prior to any maintenance or construction work determine if ACM are to be disturbed in the work scope and take necessary precautions.

EMPLOYEES (NON-ASBESTOS)

- 1. Know and understand the employee responsibilities concerning asbestos.
- 2. Recognize asbestos installations.
- 3. Avoid disturbing asbestos containing materials.
- 4. Report damaged asbestos to Supervision immediately.
- 5. Do not enter abatement work area - barricades and enclosures are for your protection.

ASBESTOS ABATEMENT SUPERVISOR or ABATEMENT PROJECT ADMINISTRATOR

- 1. Assure all rules and agreed upon work practices are followed.
- 2. Obtain equipment and supplies necessary to accomplish each job.
- 3. Plan asbestos work to efficiently conduct abatement jobs with minimal disturbance to day-to-day activity.
- 4. Monitor all activities and contractors to insure compliance.

ASBESTOS WORKERS and CONTRACTORS

- 1. Handle asbestos according to the requirements of the Rockdale Operations Supervisors Asbestos Handbook and applicable State and Federal Regulations.
- 2. Work safely and efficiently.
- 3. Promptly report safety concerns during abatement jobs.

II. IDENTIFYING ASBESTOS CONTAINING MATERIAL

The asbestos coordinator will maintain an up-to-date asbestos survey which identifies location and type of asbestos present at Rockdale Operations.

Identification

The following steps will be followed to determine if a material contains ACM.

1. Is the material labeled as containing asbestos. Do not assume that simply because a material is not labeled that it is non-asbestos.
2. Consult the asbestos coordinator for your area. Data may already exist to indicate if a material contains asbestos.
3. If no data exist to indicate that the material is asbestos free, contact one of the certified bulk samplers listed in appendix B for sampling and analysis.

Labeling

Labeling will be used as the preferred method to communicate the presence of ACM. The asbestos-containing labels will convey the following message:

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

Where ACM has been replaced with non-ACM, the new material will be labeled as Non-Asbestos Containing Material or Asbestos Free whenever possible.

Where labeling is not feasible an alternative will be used to communicate the presence of ACM. Such alternatives could include placards, inventories, diagrams, or marked blueprints. To effectively communicate the presence and location of ACM, alternatives will need to be associated with training and be made accessible to employees.

Summary

All insulation will be tested prior to removal to determine if ACM is present unless it is clearly marked and documented in the surveys.

III. 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 Alcoa Maintenance, Engineer, or Planner responsible for the work performed.

All Rockdale Operation employees are required to receive periodic training on asbestos as specified in appendix C. Frequency of training will be contingent on job classification and work location. A matrix showing the type and location of ACM will be included where appropriate.

Labeling of ACM will occur whenever feasible. See "Rockdale Operations Employee Asbestos Awareness Handbook" for examples.

V. 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	Corporate Requirement
	<u>EPA</u> <u>NESHAP</u> <u>TDH</u>	<u>OSHA</u>	<u>ALCOA</u> <u>18.18</u>
<u>Asbestos Survey & Sampling</u>	NA	1926.1101 AHERA protocol credited inspector	Survey minimum every 3 years
Remove ACM, repair, maintenance, disturbance of ACM (Equipment)	Annual notification, use accredited workers	1926.1101 Determine OSHA class	Control fiber release below 0.1 f/cc
Removal ACM, repair, maintenance, disturbance of ACM (Building)	Annual notification, use accredited workers	1926.1101 Determine OSHA class	Control fiber release below 0.1 f/cc
<u>Renovation and Demolition</u>	Notification	1926.1101 OSHA class I & II	Follow 40 CFR Part 61 29 CFR 1926.1101
<u>Asbestos Disposal</u>	40 CFR part 61 for containers	•Labels •Sealed impermeable bags or containers	Follow 1926.1101
<u>Housekeeping</u>	NA	1910.1001	Follow 1910.1001

Notification to the Texas Department of Health and other required notifications will be made by the Environmental Department. The asbestos coordinator will work with the Environmental Department to make the notifications.

Only persons trained and certified may engage in any asbestos work.

Rockdale Operations 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.

VI. REMEDIATION AND DISPOSAL

Appendix C outlines the process for asbestos abatement. Specific requirements for asbestos abatement activity are outlined in Rockdale Operations Asbestos Abatement Supervisors Handbook.

Several Alcoa employees have been trained to conduct small asbestos abatement removals or clean up in emergency situations only. Alcoa employees that can perform abatement activities are listed in Appendix B. All other abatement activity will be performed by an approved asbestos abatement contractor listed in Appendix B.

Asbestos Landfill

All asbestos shipments will be weighed prior to burial. The Environmental Department will maintain a record of the amount and burial location of all asbestos entering the landfill.

VII. OPERATIONS, MAINTENANCE, AND HOUSEKEEPING PROCEDURES

Maintenance and Repair Instructions

Procedures describing minimum maintenance and repair procedures are contained in Rockdale Operations Asbestos Supervisors Handbook. All material likely to contain asbestos is outlined in Rockdale Operations Employee Awareness Handbook. General awareness training is provided to all appropriate employees on an annual basis. Employees are trained to assume any material listed in the handbook contains asbestos until proven otherwise. Only employees specifically trained are permitted to disturb or work with asbestos containing material.

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 must be packaged and disposed of in the manner outlined in section Rockdale Operations Asbestos Supervisors Handbook.

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.

Surplus Equipment

All surplus equipment is reviewed by the Environmental Department for asbestos prior to sale or disposal. If a possibility of asbestos exists, sampling is performed by qualified personnel using all current quality assurance and control measures.

VIII. 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. Additional information is available in the "Release Prevention Control and Countermeasure Plan" for the site.

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. Operations personnel should immediately barricade the area with red tape with an ample buffer zone, and contact the asbestos coordinator. If a minor fiber release episode should occur, persons certified, 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 encapsulate, 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.

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. Operations personnel should immediately barricade the area with red tape with an ample buffer zone, and contact the asbestos coordinator. 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, and trained in asbestos response activities. The magnitude of a major release could include a partial water-wall failure of the boiler at the power plant. The entire boiler would not explode (as referenced in the Corporate "Alcoa Asbestos Management Procedure"). Small (very small) package boilers have been known to explode before, but the controls on the power plant at Rockdale would prevent an explosion.

IX. Long Range Plan

Asbestos will likely be present when the plant at Rockdale ultimately closes. A detail survey and demolition plan will have to be completed at the time of closure. Attempting development of such plans now would not be useful because the amount of ACM present will be much different as ACM is slowly removed over time to accomplish maintenance activities.

It should be noted that estimates to remove all of the ACM from the power plant range from \$30 million to \$100 million.

Appendix A

ALCOA ASBESTOS MANAGEMENT PROCEDURE

BACKGROUND:

Asbestos is regulated in the United States under the U.S. EPA Clean Air Act, the Toxic Substances Control Act and the Occupational Safety and Health Act. These rules place strict limits on asbestos fiber exposure levels, asbestos fiber releases during demolition, asbestos usage in buildings, asbestos disposal, and the manufacture or impact of many products that contain asbestos. Strict asbestos management (or removal) programs are required in public schools and are being considered for public buildings.

On October 18, 1991, a U.S. Appeals Court vacated the Toxic Substances Control Act Section 6 Rules which ban the manufacture, use or impact of many asbestos-containing materials. The ultimate status of those rules and any future bans on asbestos products is uncertain. The action to date has no effect on Alcoa's Asbestos Management Procedure.

Alcoa has determined that asbestos can be managed in place in most construction and insulation applications with effective inspection, maintenance and replacement programs. In areas where high exposure potential exists (i.e., areas where high levels of maintenance are required) asbestos elimination is encouraged.

Since Alcoa loses control of asbestos maintenance programs when buildings and equipment are sold to others, it is in the Company's best long-term interest (i.e., minimization of potential future liability exposure, consistency with Alcoa's values) to remove all friable asbestos before sale. Accordingly, the sponsoring manager is required to have the material removed and replaced before the transfer is completed.

Likewise, when property or equipment is purchased, the seller should be required to identify all friable asbestos. The sponsoring manager is encouraged to have the material removed and replaced before the transfer is completed. This will prevent future problems for Alcoa, since the asbestos will ultimately have to be removed and disposed of as a special waste, or perhaps a hazardous waste.

Asbestos concerns are worldwide. Therefore, this is applicable to all Alcoa locations.

PROCEDURE:

This procedure will apply to all owned or controlled facilities including industrial as well as office buildings. Relevant aspects of the procedure also extend to properties leased by Alcoa where Asbestos Management Programs should be

required of building owners. Some variations may occur where local regulations or special circumstances dictate.

- I. When purchasing or selling property, equipment and products, the following practices must be utilized:
 - Sponsoring managers shall require that environmental surveys conducted prior to purchase of new facilities involve asbestos surveys and risk assessments. Full compliance with all Alcoa asbestos management procedures will apply if properties with asbestos are purchased.
 - Procurement agents shall ensure that only non-asbestos products are purchased. Every reasonable effort will be made to find non-asbestos substitutes for the remaining asbestos-containing products used in Alcoa facilities. Deviations from this procedure will require written approval of the location manager. The procurement manager must maintain written records of asbestos products purchased in exception to this procedure.
 - Procurement agents shall ensure that equipment sold by Alcoa is free of friable asbestos (crushable with hand pressure) prior to sale unless a written exception is made by Pittsburgh Environmental Affairs. Where an exception is granted, written disclosure of the presence of asbestos must be provided to the purchaser.
 - Sponsoring managers shall ensure that before any sale of real property, an asbestos survey will be conducted. All friable asbestos materials must be removed and disposed of properly. In some cases, non-friable asbestos materials should also be removed if it is suspected that the future use of the property will subject them to damage, thereby releasing asbestos fibers. Written exceptions to the removal procedure can only be made by Pittsburgh Environmental Affairs. Buyers must be informed in writing of the presence of any asbestos in buildings which are sold.
- II. In existing facilities, the location managers shall require surveys for all Alcoa facilities to determine the presence of Asbestos Containing Materials "ACM" (greater than 1.0% of any fibrous asbestos mineral forms). The surveys must include the condition of ACM in addition to the location, accessibility and an estimate of ACM quantity.
- III. Location managers operating facilities having any ACM shall develop written Asbestos Management Programs which must be approved by the appropriate Business Unit President. The location Asbestos Management Program is to include:

- Identification of ACM via direct labels or any alternatives to direct labeling which would clearly communicate the presence of ACM to affected employees. Such alternatives could include placards, inventories, diagrams, or marked blueprints. To effectively communicate the presence and location of ACM, some of the alternatives should be associated with training and be made accessible to employees.
 - Communication of the presence of asbestos to facility employees and contractors who work in areas where asbestos is present.
 - A plan for re-inspection of ACM on a periodic basis (minimally, every 3 years) with written inspection reports.
 - Remediation, through removal, repair, enclosure or encapsulation of ACM in a deteriorated condition (Attachment 1).
 - Assurance that all asbestos work including removal and disposal is carried out in compliance with all relevant Federal, State and local regulations (ref. Alcoa Engineering Standard 18.18 "Asbestos Removal Standard").
 - Operation and Maintenance procedures to prevent employee exposure to asbestos during normal day-to-day operation of facilities where ACM is present.
 - A plan to address any potential emergencies where asbestos may be released in the facility (i.e., boiler explosion). The RPCC (Release Prevention Control and Countermeasure) Plans could be revised to include this contingency where appropriate.
 - A long-range, strategic plan that recognizes that at the end of a facilities life, prior to its sale or demolition, all friable asbestos must be removed.
- IV. Asbestos removal contracts can best be written in Pittsburgh in close cooperation with the various field Procurement Departments, since insurance, certification and liability issues are complex. The contracts should be retained for a 30 year retention period by both Pittsburgh and the field locations. The retained records should include daily sign-in/out logs (with social security numbers for each person listed), contractor employee fitness and fit test records, training certificate copies, project daily log copies, and any other documents that the field location feels are appropriate. Contracts for asbestos surveys of facilities may be issued by either field locations or by the Pittsburgh Environmental Affairs Group, whichever is desired by the field location.

- V. Alcoa locations will comply with applicable asbestos laws and regulations and will employ more restrictive internal standards where necessary to conform with the above procedure.

REVIEW DATE:

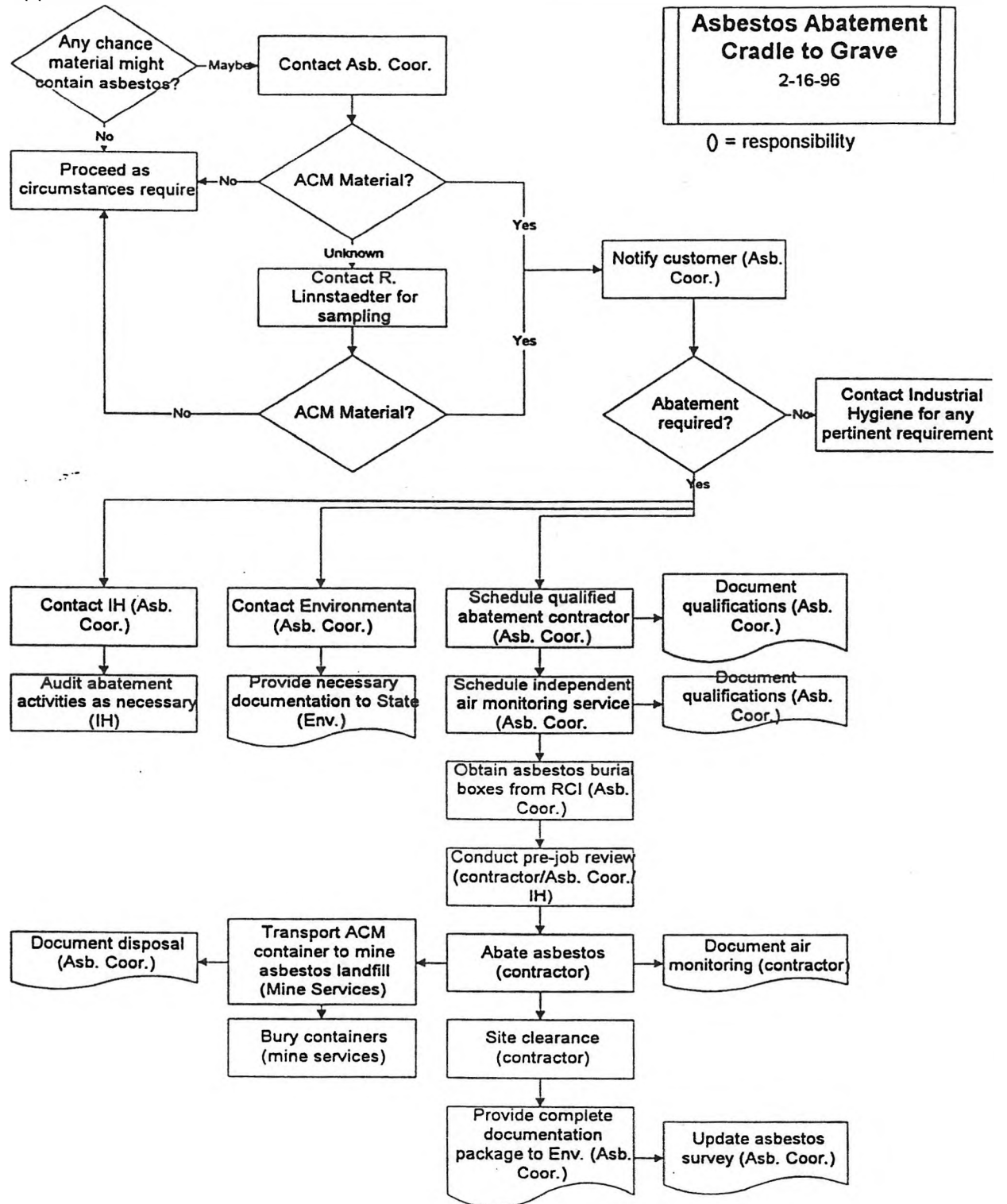
This procedure will be managed by the Health and Safety Group. It will be reviewed December 1995.

REFERENCE(S):

APPENDIX B POINT ACCOUNTABLE PERSON

Asbestos Coordinator	
Energy	Dan Pierce
Smelter/Atomizer	Kevin Rolan
Environmental	
Rockdale Operations	Jim Richter
Industrial Hygiene	
Rockdale operations	Tim Fitzpatrick
Certified Inspectors	
Energy	Dan Pierce
	David Stanley
	Ron Green
Smelter/Atomizer	Kevin Rolan
Smelter/Atomizer	Jessie Love
Conduct asbestos bulk sampling	
Energy	Dan Pierce
	David Stanley
	Ron Green
Smelter/Atomizer	Kevin Rolan
Smelter/Atomizer	Jessie Love
Rockdale Operations	Jim Richter
Rockdale Operations	Ronnie Linnstaedter
Asbestos removal	
Energy	Dan Pierce
	David Stanley
	Ron Green
Rockdale Operations	Jim Richter
Rockdale Operations	Tim Fitzpatrick
Asbestos bulk analysis	
Rockdale Operations	Ronnie Linnstaedter
	Jim Richter
Approved Contractors	
Rockdale Operations	Northwinds Abatement
Rockdale Operations	Service Environmental
Rockdale Operations	Commercial Contracting
Third party air monitoring	
Rockdale Operations	Geo Tech
In-house air monitoring	
Rockdale Operations	Jim Richter
Asbestos transport	
Rockdale Operations	Mine Services

Appendix C



Appendix D
Alcoa Engineering Standard 18.18

This is a Safety and Health Mandated Procedure - Alcoa Controlled Entities Worldwide.

1.0 SCOPE

This specification covers the precautionary measures to follow when removing asbestos-containing materials as well as legal requirements as mandated by 29 CFR 1926.58 and 40 CFR 61, Subpart M, the standards which cover all construction work involving asbestos. The scope of this document is limited to those requirements and recommendations having to do with asbestos removal. Other requirements of 29 CFR 1926.58 such as the labeling of intact asbestos insulation and the general industry requirements from 29 CFR 1910.1001 will not be fully discussed here. More than half of the states have laws related to asbestos. Those unique state regulations are not covered in this specification, but whenever state or local requirements are more stringent, they should be followed over the Federal regulations.

Asbestos was used extensively in the past for insulating boilers, furnace linings, steam pipe covering, duct work, gaskets, brake linings, sound insulation, roofing, floor tiles, and for general fireproofing. When materials are suspected of containing asbestos, assume that they do unless current analytical testing confirms otherwise. Samples of bulk material can be analyzed by the Environmental Health Laboratory at Alcoa Technical Center. Additional discussion of sample analysis is included in Section 2.2 on sampling. OSHA's Construction Standard requires that asbestos containing materials with at least 0.1% asbestos be labeled [29 CFR 1926.58 k) (2 (vi) (B)]. EPA's NESHAP defines ACM (asbestos containing materials) as containing more than 1% asbestos as determined by using the polarized light microscopy method (specified in 40 CFR 763, Subpart F, Appendix A, Section 1).

ASBESTOS REMOVAL CHECKLIST

- 1) Industrial hygienist and/or environmental engineer must be contacted prior to removal of any materials suspected of containing asbestos.
- 2) Obtain current, reliable analysis of materials suspected of containing asbestos.
- 3) Notification procedures consistent with Federal and local regulations must be followed.
- 4) Employees involved in asbestos removal operations must have had training or certification where required within the last 12 months.
- 5) Appropriate medical surveillance as well as employee fitness to wear a respirator must be addressed. Employee respirator fit tests must be current.

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- 6) Appropriate protective clothing must be specified and worn for each job.
- 7) Regulated areas, with asbestos warning signs, must be established where air concentrations could exceed the PEL.
- 8) Asbestos Demolition/Renovation Projects within regulated areas must be done in negative pressure enclosures whenever feasible.
- 9) Develop a written contingency plan for dealing with any asbestos release emergencies which might occur.
- 10) Competent persons must supervise activities within regulated areas of large scale jobs.
- 11) Initial personal exposure monitoring is required at the beginning of each job.
- 12) Daily exposure monitoring is required for large scale demolition renovation projects.
- 13) Work area must receive a thorough visual inspection after the clean-up phase to insure adequate clean-up. Air monitoring may also be warranted to document safe exposure levels.
- 14) All waste materials including used disposable protective clothing must be properly containerized and labeled as asbestos.
- 15) Placard vehicles carrying asbestos waste on public roadways per D.O.T. requirements.
- 16) A waste shipment record must accompany any shipment of asbestos waste except in states or municipalities where more stringent hazardous waste manifest requirements are in effect.
- 17) All asbestos waste must be deposited in a permitted landfill with state approval for asbestos disposal. Notification of the disposal facility prior to asbestos waste shipment is recommended. All local regulations concerning asbestos waste disposal must be followed.

2.0 REQUIREMENTS

2.1 NOTIFICATION PROCEDURES

The plant industrial hygienist and/or environmental engineer must be contacted prior to removal of any materials suspected of containing asbestos to insure the

implementation of adequate health protection measures and also to arrange for required notification and proper waste disposal. Federally mandated notification rules for asbestos Demolition/Renovation work are found in the USEPA National Emission Standards for Hazardous Air Pollutants (NESHAPs) Asbestos Regulations 40 CFR 61, Subpart M.

Some states, cities, and counties have notification rules in addition to the NESHAPs notification. All legally mandated notifications are to be made in conjunction with each asbestos job.

NESHAP regulations require the owner to notify the Program Administrator before beginning any renovation or demolition involving asbestos removal. Typically, state pollution control agencies have the authority for EPA Clean Air Act programs including the NESHAPs Program. The appropriate EPA Regional office can be contacted to determine what agency has NESHAP authority for your location.

Notification is required prior to any demolition even if survey shows that no RACM* is present.

* RACM (regulated asbestos containing materials) include:

Friable asbestos

Category I - nonfriable ACM that has become friable

Category II - non friable Asbestos which has a high probability of becoming friable during demolition renovation operations.

Notifications must be in writing and postmarked at least 20 working days before the scheduled renovation or demolition. Refer to Figure 1, 18.18, for the process flow diagram as well as to 40 CFR 61.145 a) and 40 CFR 61.145 b) for more information.

Notification is required as early as possible before but no later than the following working day for facilities ordered to be demolished by State or local government agency and for emergency renovations required as a result of a sudden or unexpected event.

Notification is also required for unscheduled renovations where the additive amount of RACM estimated to be removed during a calendar year is anticipated to be at least the "notification quantity". Such notification is required at least 10 working days before the end of the calendar year preceding the year for which notice is being given.

The following information is required for the NESHAP notification. It is recommended that the form contained in Attachment 1 be used unless there is a more stringent local requirement.

Indication of whether the notice is original or revised

Facility, contractor, waste transporter:

Owner/operator Name

Contact Name

Address

Telephone number

Type of operation, renovation or demolition

Description of the facility or the affected part including:

Address (street number, city, county, state)

Location (building number, building name, floor, room number if appropriate)

Size (square feet (meters), number of floors), age

Present and prior use of the facility

Procedures used to detect asbestos (including analytical methods)

Estimate of amount of asbestos (category I, and category II) to be removed (e.g. length of pipe lagging, area of asbestos on other facility components, or volume in cubic feet or meters)

Estimate of the amount of asbestos (category I, and category II) which will not be removed prior to demolition

Scheduled starting date and completion dates of ACM removal or any other activity that would disrupt asbestos.

Description of the planned work including methods to be employed in removal and waste handling.

Certification that at least one trained person will supervise the work.

For emergency renovations, the nature of the event which resulted in the damage to ACM

Notifications must be revised if the amount of RACM changes by 20% or more. Revisions are also required if the start date changes. In this case notify of the date change by telephone as soon as possible. Follow up with a written notification revision as soon as possible but no later than the original start date.

2.2 SAMPLING

This section describes sampling to be conducted during all phases of asbestos jobs from planning, through removal as well as after cleanup. Some of this sampling is required by the OSHA Standard while other aspects of sampling are highly recommended as good practice during the conduct of asbestos removal.

2.2.1 Bulk Sampling

During planning phases of asbestos removal jobs, it is essential that asbestos bulk sampling be conducted to determine the extent of asbestos containing materials (ACM). Bulk sampling conducted previously is sufficient to serve this purpose if the analytical method, level of detection, and laboratory quality control are of equal or superior quality to the methods specified by the current regulations. OSHA's Construction Standard does not include an asbestos bulk sampling methodology so refer to the EPA method described in 40 CFR 763, Subpart F, Appendix A (polarized light microscopy). Alcoa's Environmental Health Laboratory (EHL) has the capability of conducting this analysis and is involved in a NIST (National Institute of Science and Technology) quality assurance program to maintain analytical proficiency. Arrangements can be made with EHL to analyze rush samples by contacting them prior to sampling and by sending samples via overnight express mail. Any outside laboratory used for bulk asbestos sample analysis must use comparable analytical methods and maintain a quality assurance program. The use of glass containers for bulk asbestos sampling is prohibited while the use of plastic and paper envelopes is discouraged. Proper containers can be obtained from the Environmental Health Laboratory, Alcoa Technical Center.

2.2.2 Air Monitoring - Personal Exposures

Personal air samples are required by the construction standard. 29 CFR 1926.58, Appendix A, a mandatory appendix to the Asbestos Standard, describes NIOSH Method 7400 including both sampling and analytical procedures. NIOSH Method 7400 utilizes a 25 mm diameter open face cassette with a 50 mm extension cowl. Written justification must be made if another method is used. Additionally, the Asbestos Standard mandates a laboratory quality assurance program to be instituted by laboratories conducting analysis of

ASBESTOS REMOVAL

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samples required by this standard (29 CFR 1926.58 f)(5)(iv), mandatory Appendix A OSHA Reference Method - Quality Control Procedures). ATC's EHL has a quality assurance program which meets these requirements. If other laboratories are used, they must have acceptable QA programs.

All personal air samples are required to be taken in the employees breathing zone. For comparison with the PEL and the action level, sufficient samples should be taken to be representative of each employee's 8-hour (full shift) exposure.

Personal Exposure Sampling		Minimum Sample Volume Duration/Volume *	
Permissible Exposure Level	0.2 f/cc	90 minutes	180 liters
Short Term Exposure Limit	1 f/cc	30 minutes	60 liters
Action Level	0.1 f/cc	190 minutes	380 liters
		* using 25 mm diameter filter	

Affected employees, or their designated representatives, have the right under the OSHA regulation to observe any monitoring of employee exposure to asbestos. Written results of personal asbestos monitoring are required to be made available to effected employees within 15 days of the receipt of such results. Just as with all personal sampling results, OSHA Record Retention Requirements, 29 CFR 1910.20, mandate that they be kept for the duration of the individual's employment plus 30 years.

Initial monitoring is required at the beginning of each asbestos job to determine the asbestos concentrations to which employees will be exposed. Exceptions to this requirement are when there is objective data to indicate that the ACM cannot release fibers in concentrations exceeding the action level or when there is historical data for closely resembling conditions.

Daily monitoring is required for demolition renovation projects. These demolition renovation projects are defined by examples under Section 2.6 Work Practices. The definition of demolition renovation projects pre-supposes that the employee exposures will exceed the action level of 0.1 fibers per cubic centimeter of air (0.1 f/cc). There must be sufficient samples to represent exposures of each employee assigned to work in the regulated work area. Regulated work areas are also explained further in Section 2.6.

2.2.3 Air Sampling - Area Sampling

While area sampling is not required by the asbestos regulations, it may be prudent in some circumstances. Area sampling is recommended in the non-mandatory Appendix F of the OSHA Construction Standard for Asbestos for large scale asbestos removal projects which utilize negative air pressure enclosures. Area samples are recommended in the work area, in the clean change room at the periphery of the restricted area, and in the area of the portable ventilation unit exhaust. Additional area samples are recommended in the asbestos removal area following cleanup. The enclosure should not be dismantled unless final clearance samples are below the OSHA action level of 0.1 f/cc. EPA recommends that these clearance samples be less than 0.01 f/cc for schools. Areas such as offices, lunchrooms, and control rooms should meet the EPA's recommended "clearance level" of 0.01 f/cc. Clearance sampling for the purpose of determining the adequacy of cleanup is done after surfaces in the work area have been allowed to dry thoroughly. Use of forced air equipment is sometimes used to conduct aggressive sampling in order to dislodge any stray fibers from surfaces and thereby represent worst case conditions.

Minimum Sample Volumes for Area Samples *

Clearance Level	Minimum Sample Volume
0.1 f/cc	380 liters
0.01 f/cc	1200 liters (3000 liters preferred)

*Note: Using 25 mm filter

2.3 EMPLOYEE TRAINING

Training shall be provided annually to all employees involved in asbestos removal operations. All Alcoa employees and outside contractors exposed to asbestos > 0.1 f/cc must have completed required training at some time within a 12 month period prior to assignment to any asbestos job. If asbestos work occurs infrequently during the year, JSAs and/or training materials should be available to employees for their review prior to the job.

The plant industrial hygienist can offer assistance in employee training programs. Attendance at these training sessions should be documented. OSHA requires that records of asbestos training be kept for a period of one year. This should be considered a minimum requirement. The training program should include the following:

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- 1) Recognition of asbestos.
- 2) Health effects associated with asbestos exposures including the relationship between asbestos and smoking.
- 3) Nature of job which could result in exposure.
- 4) Protective measures including engineering controls, work practices, housekeeping, and personal protective equipment used to reduce potential exposures.
- 5) Respirator fitting and use.
- 6) Medical surveillance requirements.

Some states have adopted additional regulations requiring standardized training and licensing of asbestos removal contractors. In locations where this additional requirement is in effect, appropriate licenses and certifications must be obtained.

2.4 MEDICAL SURVEILLANCE

Employees wearing negative pressure respirators and employees exposed at or above the action level (0.1 f/cc) and/or the excursion limit (1 f/cc) for 30 or more days a year are required to be in a medical surveillance program as described in 29 CFR 1926.58 (m). For Alcoa employees, this periodic evaluation will be conducted according to Alcoa Medical protocols:

- B-7 Occupational Medical Evaluation, Asbestos
- B-25 Occupational Medical Evaluation, Respirator Users

Medical records made in accordance with the OSHA standard are subject to record keeping requirements as set forth in 29 CFR 1910.20. Medical records are required to be maintained for the duration of employment plus 30 years.

2.5 PERSONAL PROTECTIVE EQUIPMENT

2.5.1 Respirators

Respiratory protection used for employees involved in asbestos jobs must be used in accordance with Alcoa Specification 18.1.1 as well as OSHA regulations (29 CFR 1910.134 (b), (d), (e), and (f)). This engineering specification describes minimal requirements of a Respiratory Protection Program including medical evaluation of respirator users, training, and fit testing. Fit testing under the Construction Standard is required prior to the initial job assignment and every six months thereafter. All respirator fit testing done in conjunction with this

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specification must be carried out according to the provisions of Appendix C to the OSHA asbestos standard for construction, which is mandatory.

The plant industrial hygienist can assist in the selection of appropriate respiratory protection. OSHA does not allow single use disposable respirators to be used to meet respiratory protection requirements of the asbestos standard. The selection of appropriate respiratory protection depends upon the concentration of asbestos in the work environment. An additional consideration in respirator selection is that the OSHA standard gives employees a choice of using a powered air purifying respirator (PAPR) rather than a negative pressure regulator so long as the PAPR provides adequate protection. Although OSHA would not require respiratory protection for employees exposed to less than the PEL, it is a good practice to use respiratory protection in any work situation where accidental exposure might occur due to some event such as rupturing of a glove bag or breakage of an asbestos waste container.

Exposure Level (X)	Respirator Type
PEL = 0.2 f/cc	
$X \leq 10$ (PEL)	1/2 mask HEPA*
10 (PEL) $< X \leq 50$ (PEL)	Full facepiece HEPA*
50 (PEL) $< X \leq 100$ (PEL)	PAPR HEPA* 1/2 mask supplied air (positive pressure mode)
100 (PEL) $< X \leq 1000$ (PEL)	Full face supplied air (positive pressure mode)
$X > 1000$ (PEL)	Full face supplied air with auxiliary SCBA**

*HEPA - High efficiency particulate absolute

**SCBA - Self contained breathing apparatus

Reusable respirators should be thoroughly washed to remove any asbestos contamination prior to sanitization and storage (refer to 18.1.1).

2.5.2 Clothing

Appropriate work clothing is required to be provided to employees when they are exposed to asbestos above the PEL and when the possibility of eye irritation exists. The purpose of special clothing for asbestos jobs is to prevent the contamination of street clothing that will be worn home by the employee. The

type of work clothing which is necessary depends on the type of work that will be done.

For large removal operations, where there is a greater possibility of contamination, employees will need whole body coverings including:

Coveralls or Work Clothes These can be either disposable garments or reusable garments which are dedicated to asbestos work.

Footwear Molded rubber boots with safety toes can be washed or wiped clean of asbestos contamination following the job. Disposable rubber shoe coverings can be used to protect work shoes from contamination and they are available in styles of sufficient durability to withstand use in the work environment. Tyvek shoe covers would only be adequate under the most controlled conditions and they do present a greater slipping hazard than rubber shoe coverings. Pant legs should be worn outside any boots or shoe coverings and taped to them around the ankles.

Work Gloves Work gloves to be used should be selected on the basis of hand protection required. Inexpensive cotton work gloves are a good choice because they can be laundered during the job and disposed of at the job's completion. Sleeves of coveralls should be brought down over gloves and taped at the wrists.

Head Coverings Disposable head coverings are recommended when jobs involve removal of overhead asbestos or are excessively dusty. Tyvek hoods are available attached to disposable coveralls or as a separate garment.

Eye Protection Safety glasses, faceshields, vented goggles, or other appropriate eye protection must comply with the provisions of 29 CFR 1910.133.

Respiratory Protection Refer to Section 2.5.1

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Small asbestos jobs such as removal of pipe insulation in a glove bag or removal of an entire asbestos covered pipe or structure also requires some protective clothing. Due to the nature of these jobs, appropriate protective clothing may not need to be as extensive as that required for large scale asbestos jobs.

Coveralls	Even though exposures during these small jobs should not exceed the PEL, disposal coveralls are recommended as a precaution against contaminating work clothing with asbestos fibers.
Gloves	Disposable work gloves may be necessary for some small scale asbestos jobs depending on the need for hand protection from sharp or abrasive objects.
Shoe Coverings	The need for protecting work shoes from asbestos contamination will depend on the nature of the job. If there is a risk of contamination, disposable shoe coverings or cleanable work boots are recommended.
Eye Protection	Facility requirements for eye protection must be met.
Respiratory Protection	Half mask, negative pressure respirators should be used during glove bag jobs.

2.5.3 Disposal of Personal Protective Equipment

Before leaving the work area, specific procedures should be followed for removal of protective garments so as not to contaminate the employee or the surrounding areas. Section 2.7 of this standard discusses personal hygiene practices and hygiene facilities in more detail.

All disposable protective equipment (garments, gloves, etc.) is to be treated as asbestos-containing material and disposed of accordingly. (See Section 2.8).

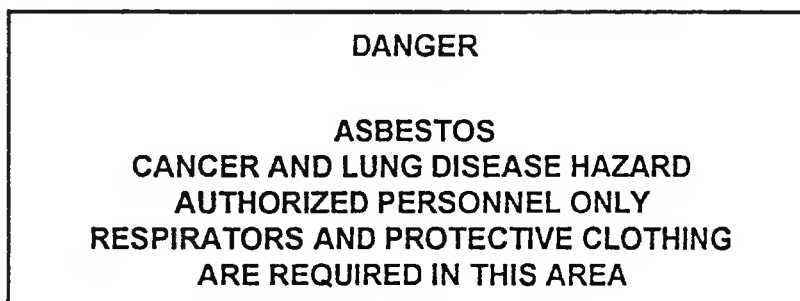
2.6 WORK PRACTICE AND ENGINEERING CONTROLS

Work practices and engineering controls should be used to achieve compliance with the PEL of 0.2 f/cc.

2.6.1 Restricted Areas

OSHA regulations require the establishment of regulated areas whenever concentrations of airborne asbestos exceed or could reasonably be expected to exceed the PEL. The regulated area is meant to keep the number of employees in the work area to a minimum, to restrict access to authorized persons who are properly trained and outfitted in adequate personal protective equipment as well as to protect persons outside the work area from exposure to asbestos.

Warning signs are required to be posted around the perimeter of the regulated area so that employees have the opportunity to read them and take appropriate measures before entering the work area. Unless local regulations require more stringent measures, signs must conform to 29 CFR 1926.58 (k)(1), and read as follows:



2.6.2 Asbestos Demolition/Renovation Projects

All requirements in 29 CFR 1926.58 (g) (1) apply to asbestos removal, renovation, and demolition projects. Exceptions to these requirements are made in the case of small scale short duration operations which are discussed in Section 2.6.3 of this document. Engineering and work practice requirements for asbestos demolition/renovation projects include the following:

- 1) Negative pressure enclosures must be constructed in the regulated area whenever feasible. Feasibility is not determined by cost, rather it relates to factors such as space limitations or greater hazards. It is recommended that this enclosure comply with guidelines in 29 CFR 1926.58, Appendix F. This non-mandatory Appendix is entitled "Work Practices and Engineering Controls for Major Asbestos Removal, Renovation, and Demolition Operations". Enclosures may be temporary structures lined with a double layer of 6 mil *flame retardant* polyethylene sealing all of the seams and penetrations through the plastic sheeting. A single means of access and egress should be provided with all other.

doors sealed. This doorway should be covered with a double flap of plastic sheeting to separate the work area from the hygiene facility which will be discussed further in Section 2.7. Ventilation is to be provided using a number of HEPA filter units sufficient to achieve three to four air changes per hour in the enclosure. OSHA also recommends a pressure of -0.02 inches of water within the enclosure. By definition, HEPA filters must be capable of removing 99.97% of the asbestos particles from the air. HEPA units are to be operated 24 hours a day during the entire project. Exhaust air must be adequately filtered for asbestos removal and should go, if possible, to the outside of the building where the asbestos project is being conducted.

- 2) Competent persons must supervise activities within regulated areas, including setting up negative pressure enclosures and ensuring its integrity, ensuring that engineering controls are functioning, controlling access to the regulated area, ensuring that employees entering regulated areas are properly outfitted with PPE, ensuring that employees are adequately trained, sampling exposures, inspecting employees work clothing for rips and tears, ensuring that employees follow decontamination procedures. Responsibilities of competent persons are described in 29 CFR 1926.58 (b),(e) (ii) (A)-(H), and (e) (6) (iii).
- 3) Only authorized persons are to be allowed within the restricted area. All such persons must comply with training requirements (Section 2.2), medical surveillance requirements (Section 2.4), and the personal protection requirements including respiratory protection (Section 2.5).

2.6.3 Small-Scale Short Duration Asbestos Jobs

Engineering controls and safe work practices are required to be used to control exposures during small scale asbestos jobs to levels below the action level of 0.1 f/cc. OSHA does not require negative pressure enclosures, supervision by a "competent person" or decontamination facilities for small-scale, short duration tasks. Examples of such tasks include pipe repair, valve replacement, installing electrical conduits, installing or removing drywall, roofing, and other general building maintenance or renovation involving only limited exposure to asbestos. Any asbestos removal which can be accomplished in a glove bag is considered to be a small-scale job. Controls and work practices which can be used to control exposures during small-scale jobs include:

- 1) Wet methods - Amended water or removal encapsulants.
- 2) Removal methods such as carefully cutting asbestos from pipes or other surfaces.
- 3) Glove bags.
- 4) Removal of entire asbestos insulated pipe or structure.
- 5) Mini-enclosures.

2.6.4 Dust Suppression Techniques

Wherever feasible, wet removal methods are required to be utilized. In a very limited number of situations wet removal is not feasible such as:

- 1) Situations where electrical hazards exist such as removal of asbestos from a "live" electrical box.
- 2) Removing asbestos insulation from a live steam pipe.

Where it is not possible to disconnect electricity or to turn off the steam, asbestos material can be removed in a dry state. Prior to removal, asbestos material should be sprayed with water containing a wetting agent to enhance penetration. Airless sprayers are recommended for application of wetting agents. The wetting agent should consist of 50% polyoxyethylene ester and 50% polyoxyethylene ether in a concentration of one ounce in five gallons of water. The material should be kept wet during all stages of work to minimize exposure to employees and emissions to outside air. Water should not be used if this would introduce other hazards (i.e., electrical, generation of toxic gases, etc.).

2.6.5 Work Practices

Written asbestos removal plan is recommended for large scale asbestos renovation/demolition work in 29 CFR 1926.58, Appendix F. Such a plan will describe the work practices as well as control methods. Such a plan would have information that is also required to be reported as part of the NESHAPs requirements (40 CFR 61, Subpart M).

Asbestos material should be removed in small sections and handled very carefully. While still wet, the pieces of material should be carried and lowered to ground level rather than dropped, and then placed into appropriate waste containers. Section 2.8 has more information on waste disposal.

If the work is regulated under U.S. EPA Clean Air Act regulations, and water cannot practically be used for dust control, a dust collection/exhaust system is required. Such a dust control system may be necessary even if not mandated by regulation, depending on the specifics of the job, and potential for airborne emissions and employee exposure.

2.6.6 Housekeeping and Clean-Up

- 1) All surfaces in the work area must be cleaned using vacuum cleaners equipped with HEPA exhaust.
- 2) All waste materials should be placed promptly into labeled containers to reduce asbestos dust hazard in the work area.
- 3) When asbestos removal job is complete, all surfaces should be cleaned with a HEPA-filtered vacuum or with damp rags. Do not dry sweep asbestos materials, as this will create airborne dust.

The asbestos work area must receive a thorough visual inspection after the clean-up phase to insure adequate clean-up. Industrial hygiene monitoring may also be warranted to document safe exposure levels. The EPA recommends that a "clearance level" of 0.01 f/cc be achieved for schools. Clean-up in areas which will be reoccupied by people for more than eight hours a day such as offices, lunchrooms, and control rooms should meet the EPA "clearance level". All plastic sheeting, cleaning materials, clothing, and all other disposable items used in the work area shall be packed into water impermeable containers and properly disposed of as described in Section 2.8.

2.6.7 Prohibitions

The following work practices are specifically prohibited during asbestos jobs.

- 1) Employee rotation is not considered by OSHA to be an acceptable way to reduce employee exposures to asbestos.
- 2) High speed abrasive disk saws are not permitted to be used for asbestos work unless they are equipped with HEPA exhaust.
- 3) Compressed air is not permitted to be used to remove asbestos unless it is used in conjunction with an enclosed ventilation system.

2.6.8 Contingency Plans

Written asbestos emergency plans are recommended for dealing with asbestos release emergencies and for unexpectedly encountering ACM during jobs, CERCLA RQ = 1 lb. (0.454 kg.)

2.7 PERSONAL HYGIENE PRACTICES AND HYGIENE FACILITIES

2.7.1 Smoking and eating are not permitted in the work area.

Employees should thoroughly wash their hands, faces, and arms before smoking or eating during breaks and upon job completion. Lunchrooms with airborne concentrations less than the action level must be available to employees working in regulated areas.

2.7.2 Decontamination Facilities

Use of decontamination facilities for employees in jobs where they are exposed to concentrations of asbestos greater than the PEL is mandatory. These facilities are comprised of a clean room, a shower room, and an equipment room which is directly connected to the work area. The design of these hygiene facilities is described in non-mandatory 29 CFR 1926.58, Appendix F.

EQUIPMENT ROOM

The equipment room, also known as the dirty room, is the area connected directly to the work area with a double flap type doorway. This is the area in which the workers remove contaminated work clothing before proceeding to the shower room. It also serves as an equipment storage area. Asbestos waste containers may also be decontaminated and moved out of the work area via the equipment room. Separated from the equipment room by a double flap is the shower room.

SHOWER ROOM

Shower facilities should be contiguous with both the equipment room and the clean room. All workers leaving the work area are required to shower. Showers can also be used to clean contaminated equipment and materials such as respirators and work boots which are being taken out of the restricted area for further sanitization. Shower facilities could also be used to decontaminate the outside of asbestos waste containers. Separated from the shower room by a double flap is the clean room. The subject of contaminated shower water is addressed in Section 2.8.4.

CLEAN ROOM

Clean rooms or change rooms should provide for storage of workers' street clothes and personal belongings. They should also be equipped with towels (disposable towels are available) and Clean PPE needed for the job.

When it is not feasible to construct decontamination facilities adjoining the worksite because of space limitations or the lack of water, the Construction Standard allows for some alternative procedures to prevent spread of asbestos contamination between the job site and remote shower facilities.

- 1) HEPA vacuum protective clothing at the worksite, then proceed to showers or
- 2) Change into new disposable suits at the worksite before proceeding to the showers.
- 3) Exposed skin areas should be wiped clean with wet toweling or premoistened towelettes.

2.7.3 Exceptions

Small scale asbestos jobs do not require the use of decontamination facilities, however, practices must be adopted to prevent spread of asbestos away from the job site. HEPA vacuuming disposable clothing is strongly recommended as such a practice. Following this, disposable clothing can be removed and properly discarded with other asbestos waste.

2.7.4 Laundering

Reusable asbestos work clothing or other personal protective equipment (PPE) should be stored in containers labeled with asbestos warning labels. Any person who launders or cleans contaminated PPE or work clothing is required to be informed of the potential harmful effects of asbestos and protective measures that should be taken. Contaminated work clothing should not be shaken or handled in a way that is likely to create airborne fibers.

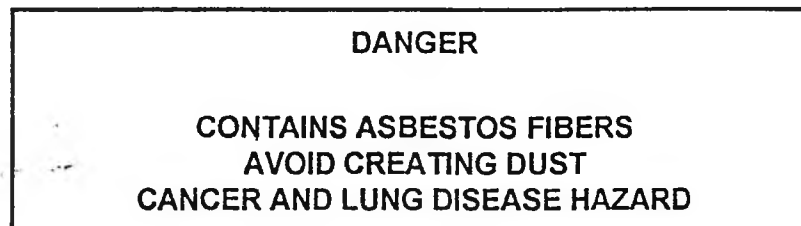
2.8 WASTE DISPOSAL

Federal regulations which deal with asbestos waste are contained in the NESHAPs (40 CFR 61, Subpart M 61.145 - 61.147). As part of the notification procedure described in Section 2.1, generators of asbestos waste from renovation/demolition projects are asked to describe the method of containing asbestos waste as well as the name of the waste site to which waste will be taken for disposal.

2.8.1 Containers

To reduce generation of airborne fibers, asbestos waste should be placed into disposal containers while wet. The type of container which is appropriate for asbestos waste is dependent upon the type of waste. All asbestos waste containers shall be free of asbestos dust before leaving the restricted area.

OSHA regulations require that asbestos waste containers be labeled with the following:



- 1) Recommended containers are 6 mil thick polyethylene bags.
- 2) Asbestos waste containing metal or other sharp objects should be packaged in sturdier waste containers such as metal drums, fiber drums, or poly-lined plywood boxes.
- 3) Pipes and equipment insulated with asbestos being removed in large sections can be wrapped in 6 mil plastic to create leak-tight containers.

2.8.2 Transportation

In the United States, containers should be transported with proper D.O.T. (Department of Transportation) shipping documents and identification.

Shipping Name:
Asbestos mixture, 9, NA2212, III,
RQ, (contains friable asbestos waste)

A waste shipment record (Attachment 2) is required by NESHAPs and must accompany any shipment of asbestos waste except in states or municipalities where more stringent hazardous waste manifest requirements are in effect. There are no federal regulations concerning the type of vehicles which should be used to transport asbestos waste, however, some state regulations specify that asbestos waste be transported in closed vehicles. As a minimum, the load must

be secured and transported in such a way to prevent damage to the containers during transport. NESHAPs require labeling of vehicle during loading and unloading of RACM. The sign must say:

DANGER ASBESTOS DUST HAZARD CANCER AND LUNG DISEASE HAZARD AUTHORIZED PERSONNEL ONLY
--

2.8.3 Landfills

Waste asbestos is a "non-hazardous" solid waste under Subtitle D of the Resource Conservation and Recovery Act (RCRA). All asbestos waste must be deposited in a permitted landfill with state approval for asbestos disposal.

- 1) Before using a landfill for asbestos disposal, it is recommended that the site be visited and investigated to confirm that it is permitted, operating in accordance with 40 CFR 61.25 of the Clean Air Act regulations, and is being operated by reputable management.
- 2) Notification of the disposal facility prior to asbestos waste shipment is recommended.
- 3) To minimize air emissions during disposal, the EPA recommends that the landfill designate a special area for asbestos waste which is separate and preferably isolated from other activities. It is also recommended that asbestos waste be deposited in trenches or at the "toe" of the slope and covered within 24 hours of disposal with at least six inches of material. Asbestos wastes should be compacted only after being covered.

2.8.4 Other Waste

Contaminated water from asbestos renovation demolition jobs may be regulated in some locations. It is recommended that asbestos levels in any water discharged from an asbestos renovation or demolition site be controlled to less than EPA's recommended Maximum Contaminant Level (MCL) of 7.1 million fibers per liter in drinking water. The generally recommended disposal procedure is to filter the contaminated water through a two stage disposable cartridge type filtering system (20 micron filter followed by a 5 micron filter).

3.0 OUTSIDE CONTRACTORS

All asbestos contracts for Alcoa facilities will be written by Pittsburgh Procurement in close cooperation with field procurement offices. Outside contractors shall be required to follow the provisions of this document, as well as all Federal, state, and local regulations where applicable for the removal of asbestos-containing materials.

3.1 CONTRACTOR REQUIREMENTS

- 1) The Construction Standard for Asbestos also requires that contractors/employers inform other employers on the worksite of the nature of asbestos work and the requirements pertaining to regulated areas.
- 2) Other Hazard Communication issues relevant to contractors working in Alcoa facilities are covered in 33.052.4 "Application of the OSHA Hazard Communication Standard for Outside Contractors".
- 3) The contractor must supply Alcoa with copies of all documents (notifications, air monitoring results, landfill approvals, etc.) generated by the contractor in accordance with regulatory requirements.
- 4) It is required that the contractor afford Alcoa the opportunity to review the landfill to be used for disposal of the material.
- 5) Some local asbestos regulations require third party oversight of contracted asbestos removal work. While asbestos contractors are responsible for conducting asbestos removal in compliance with all applicable regulations, Alcoa location Industrial Hygienist should be given the opportunity to evaluate asbestos control during removal work as deemed necessary by their professional judgement.

4.0 VISUAL INSPECTION

Visual inspection of asbestos abatement projects is an important process in determining whether the work has been acceptably performed. The main points of this practice may be summarized as follows:

- 1) The visual inspection process begins at the earliest stages of planning and continues through job completion.

- 2) The inspector, whether acting as the building owner, design professional, industrial hygienist, or testing laboratory representative, must be involved through the entire process.
- 3) The contractor has his own unique responsibilities (to himself as well as to the owner) for visual inspection.
- 4) The visual inspection procedures and criteria for acceptance must be clearly stated in the specification.
- 5) The inspector requires the assistance and cooperation of the removal contractor in order to perform an effective visual inspection.
- 6) The fundamental criterion for completeness of removal and clean-up is the total absence of residue and debris.
- 7) Protective measures, including barriers and enclosures, decontamination chambers, protective clothing, and respirators, must remain in effect until visual inspection is completed and final air samples are taken.

Visual inspection of small-scale operations is particularly important in the absence of other controls, such as negative pressure, for fiber release and the possible waiver of post-repair air testing.

Note that visual inspection is only one component of a very complex set of procedures involved in asbestos abatement. Consultation of reference materials and publications is suggested for orientation to the broader aspects of asbestos abatement. Refer to ASTM E1368 for more information concerning usual inspection.

5.0 REFERENCES

For further information, you may find the following references helpful:

- 1) Bureau of National Affairs 49 BSP-57, "BNA Special Report, Asbestos Abatement: Risks and Responsibilities", 1987. (800)372-1033
 - 2) EPA Report Number 530-SW-85-007 "Asbestos Waste Management Guidance: Generation, Transport, Disposal", 1985 May.
 - 3) EPA Report Number 560/5-85-024, "Guidance for Controlling Asbestos-Containing Materials in Buildings", 1985 June. EPA publications are available by contacting EPA at following toll free number: (800)424-9065.
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- 4) I.H. Technical Bulletin No. 86-4. Available through Pittsburgh Safety and Industrial Hygiene Division.
- 5) OSHA Safety & Health Standard 29 CFR 1926.58 - Asbestos for the Construction Industry.
- 6) U.S. EPA Regulations for Asbestos (40 CFR 61, Subpart M.)

The following references are not an endorsement of vendors, but may be of assistance:

- 1) Vacuum Cleaners

Euroclean
1186 Stratfield Road
Fairfield, CT 06432 (203)336-5432

Hako Minuteman, Inc.
111 South Route 53
Addison, IL 60101 (312)627-6900

Nilfisk of America, Inc.
300 Technology Drive
Malvern, PA 19355 (215)647-6420

- 2) Dust Collection/Exhaust System

Abatement Technologies
3305 Breckenridge Blvd. Suite 118
Duluth, GA 30136 (404)925-2761

Asbestos Control Technology, Inc.
P.O. Box 183
North Pine Avenue
Maple Shade, NJ 08052 (609)779-1300
(Micro-Trap Asbestos Filtration System -
2 models available. Capacity 600 - 1,700 CFM)

Global Consumer
1721 N. Highland
Los Angeles, CA 90028 (312)426-6980

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GPAC Inc. (Owns patent for negative pressure enclosures)
P.O. Box 662
Maple Shade, NJ 08052 (609) 486-1555

Sentry Equipment
2676 Sunset Lane
Allison Park, PA 15101 (800)255-3362 (outside PA)

3) Wetting Agents

Aquatrols Corporation of America
Pennsauken, NJ

BWE/Better Working Environment
380 Stevens Road, Suite 206
Solana Beach, CA 92075 1(800)654-6792
(Asbestos removal encapsulant BWE 5000
recommended for amosite)

EPA recommended wetting agent:
50% polyoxyethylene ester,
50% polyoxyethylene ether

Ethylene glycol is the wetting agent recommended for
amosite asbestos.

Liquid dishwashing detergents such as liquid Joy make
effective and economical wetting agents.

Rohm & Haas
W. Philadelphia, PA

4) Disposable Protective Garments

Dupont Type 14 "Tyvek"; available through area
distributors.

Kimberly Clark Corp.
1400 Holcomb Bridge Road
Roswell, GA 30076 (404)587-8114
(Disposable coveralls, hoods, towels and wipers)

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ARD 041046

MSA
P.O. Box 426
Pittsburgh, PA 15230 (412)273-5000
(Protective clothing, gloves and headwear)

5) Decontamination Units

Aerospace America, Inc.
900 Truman Parkway
Bay City, MI 48706 (517)684-2121
(Showers and water filtration)

Creative Innovations
P.O. Box 3257
West Chester, PA 19381 (215)696-4952
(Decon Chamber, Spot Shot Shower, and Water Filtration)

Evergreen Safety Systems, Inc.
14045 W. 66th Ave.
P.O. Box 1207
Arvada, CO 80001 (303)422-2185
(Portable decontamination units)

Personal Protection, Inc.
P.O. Box 737
Crystal Lake, IL 60014 (312)658-2321
(Contaminant and decontaminating systems)

Pezanni & Reid Equipment Co.
3960 West Ford Street
Detroit, MI 48216 (313)554-4000
(Decontamination trailers)

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ATTACHMENT I

NOTIFICATION OF DEMOLITION AND RENOVATION

Operator Project #	Postmark	Date Received	Notification #	
I Type of Notification (O=Original R=Revised C=Cancelled)				
II Facility Information (Identify owner, removal contractor, and other operator)				
Owner Name				
Address				
City State		Zip		
Contact		Telephone		
Removal Contractor Name				
Address				
City State		Zip		
Contact		Telephone		
Other Operator				
Address				
City State		Zip		
Contact		Telephone		
III Type of Operation (D=Demolition O=Ordered Demolition R=Renovation E=Emergency Renovation)				
IV Is Asbestos Present? (yes/no)				
V Facility Description (include building name, number and floor or room number)				
Building Name				
Address				
City County		State	Zip	
Site Location				
Building Size		No. of Floors	Age in years	
Present Use		Prior Use		
VI Procedure, including analytical method, if appropriate, used to detect the presence of asbestos material				
VII Approximate Amount of Asbestos, Including:	RACM to be Removed	Nonfriable Asbestos Material Not to be Removed		Indicate Unit of Measurement Below
1 Regulated ACM to be Removed		Category I	Category II	Unit
2 Category 1 ACM Not Removed				Ln ft Ln m
3 Category II ACM Not Removed				Sq ft Sq m
Pipes				Cu ft Cu m
Surface Area				
Volume RACM Off Facility Component				
VIII Scheduled Dates Asbestos Removal (MM/DD/YY)		Start	Complete	
IX Scheduled Dates Demolition/Renovation (MM/DD/YY)		Start	Complete	
X Description of planned demolition or renovation work, and method(s) to be used.				

Continued

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XI	Description of work practices and engineering controls to be used to prevent emissions of asbestos at the demolition and renovation site.		
XII	Waste Transporter #1		
	Name		
	Address		
	City	State	Zip
	Contact	Telephone	
XII	Waste Transporter #2		
	Name		
	Address		
	City	State	Zip
	Contact	Telephone	
XIII	Waste Disposal Site		
	Name		
	Address		
	City	State	Zip
	Contact	Telephone	
XIV	If Demolition Ordered by a Government Agency, Please Identify the Agency Below		
	Name	Title	
	Authority		
	Date of Order (MM/DD/YY)	Date Ordered to Begin (MM/DD/YY)	
XV	For Emergency Renovations		
	Date and Hour of Emergency		
	Description of the Sudden, Unexpected Event		
	Explanation of how the event caused unsafe conditions or would cause equipment damage or an unreasonable financial burden.		
XVI	Description of Procedures to be followed in the event that unexpected asbestos is found or previously nonfriable asbestos material becomes crumbled, pulverized, or reduced to powder.		
XVII	I certify that an individual trained in the provisions of this regulation (40 CFR Part 61, Subpart M) will be on-site during the demolition or renovation and evidence that the required training has been accomplished by this person will be available for inspection during normal business hours (Required after 20 November 1991).		
	signature of owner/operator		date
XVIII	I certify that the above information is correct..		

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ATTACHMENT II

ASBESTOS WASTE SHIPMENT MANIFEST

G E N E R A T O R	1. Work site name and mailing address	Owner's name	Owner's telephone number
	2. Operator's name and address	Operator's telephone number	
	3. Waste disposal site name, mailing address, and physical site location	Telephone number	
	4. Name and address of responsible agency		
	5. Description of materials	6. Containers No. Type	7. Total quantity m ³ or yd ³
	8. Special handling instructions and additional information		
T R A N S P O R T E R	9. Operator's Certification: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations. Printed/typed name & title		
	Signature		Month Day Year
	10. Transporter 1 (Acknowledgment of receipt of materials) Printed/typed name & title		
	Signature		Month Day Year
	Address and telephone number		
	11. Transporter 2 (Acknowledgment of receipt of materials) Printed/typed name & title		
Signature		Month Day Year	
Address and telephone number			
D I S T R I B U T O R	12. Discrepancy indication space		
	13. Waste disposal site Certification of receipt of asbestos materials covered by this manifest except as noted in item 12. Printed/typed name & title		
Signature		Month Day Year	

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INSTRUCTIONS - ASBESTOS WASTE SHIPMENT MANIFEST

Waste Generator Section (Items 1-9)

- 1 Enter the name of the facility at which the asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's telephone number.
- 2 If a demolition or renovation, enter the name and address of the company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the telephone number of the operator.
- 3 Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the telephone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.
- 4 Provide the name and address of the local, state, or EPA Regional office responsible for administering the asbestos NESHAP program.
- 5 Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is

Friable asbestos material
Non friable asbestos material

- 6 Enter the number of containers used to transport the asbestos materials listed in Item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):

DM - metal drums, barrel
DP - plastic drums, barrels
BA - 6 mil plastic bags or wrapping

- 7 Enter the quantities of each type of asbestos material removed in units of cubic meters or cubic yards.
- 8 Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.
- 9 The authorized agent of the waste generator must read and then sign and date this certification. The date is the date of receipt by transporter.

Note: The waste generator must retain a copy of this form.

Transporter Section (Items 10 & 11)

- 10 Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person & accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport. Enter date
- 11 of receipt and signature.

Note: Each transporter must retain a copy of this form.

Disposal Site Section (Items 12 & 13)

- 12 The authorized representative of the WDS must note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to non-asbestos material is considered a WDS.
- 13 The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in item 12. The date is the date of signature and receipt of shipment.

Note: The WDS must retain a completed copy of this form. The WDS must also send a completed copy to the operator listed in item 2.

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