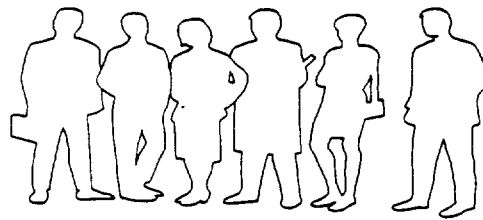
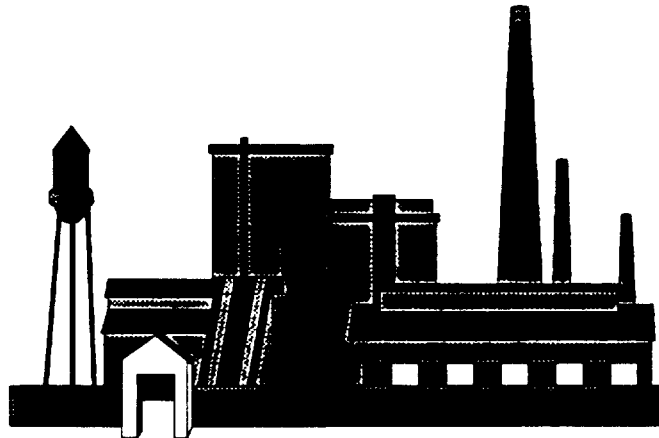


ROCKDALE OPERATIONS ABATEMENT SUPERVISORS ASBESTOS HANDBOOK



*Read the page 16 -
Answers 32
next page 6/11/92*



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ABATEMENT SUPERVISORS ASBESTOS HANDBOOK
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Appendix A	Alcoa Asbestos Management Policy
Appendix B	Alcoa Engineering Standard 18.18
Appendix C	OSHA Standard 29 CFR 1926.58

SECTION I

PURPOSE

The purpose of this handbook is to provide information necessary for the abatement supervisor or the abatement project administrator to direct the safe handling of asbestos containing materials used at Rockdale Operations. Personnel exposures can be controlled by adhering to safe work procedures, training, asbestos maintenance programs, proper use of personal protective equipment, and by the substitution of non-asbestos containing materials.

The Rockdale Operations Supervisors Asbestos Handbook and the Rockdale Operations Employees Asbestos Handbook are designed to meet or exceed the requirements of MSHA, OSHA, EPA, and the Alcoa Corporate Standards. These handbooks are a part of the continuing effort of Alcoa-Rockdale Operations to reach its goal as a leader in safety and quality.

SECTION II
RESPONSIBILITIES

SAFETY/INDUSTRIAL HYGIENE DEPARTMENT

- Assure Compliance for proper asbestos responsibilities*
1. Coordinate implementation of the Asbestos Management Program.
 2. Monitor the effectiveness of the program.
 3. Communicate changes in regulations.
 4. Maintain records of asbestos abatement activities.
 5. Audit abatement jobs for compliance of safe work procedures.
 6. Assist in plant training for asbestos awareness and arrange outside training as needed.
 7. Communications to State and Federal agencies.
- Assure*

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.

EMPLOYEES (NON-ASBESTOS)

1. Know and understand the employee responsibilities concerning asbestos.
2. Recognize asbestos installations. *50000000*
3. Avoid disturbing asbestos containing materials.
4. Report damaged asbestos to Supervision immediately.
5. Do not ~~interfere~~ with abatement work — barricades and enclosures are for your protection. *AREA*

ENTER

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.

Responsibilities (Continued) *SP1112*

*ASBESTOS
SUPERVISORS*

ASBESTOS WORKERS NAD CONTRACTORS

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

SECTION III

HEALTH EFFECT OF ASBESTOS

SYNONYMS

AMPHIBOLE

APPEARANCE: fibrous solid in various colors

EXPOSURE GUIDELINES: OSHA PEL is 0.2 fibers (>5 um) per cc 8 hr. TWA

OSHA General Industry Standard 29CFR1910-1001

OSHA Construction Standard 29CFR1926.58

OSHA Excursion Limit is 1 fiber/cc

averaged over a sampling period of 30 minutes

ACGIH TLV is 0.5 fibers (>5 um) per cc for amosite, Ala; 0.2 fibers (>5 um) per cc for crocidolite; 2 fibers (>5 um) per cc for chrysotile and other forms of asbestos, Ala

POTENTIAL HEALTH EFFECTS

This section includes possible adverse effects which could occur if this material is not handled in the recommended manner.

EYE

- Mechanical injury only

SKIN

- Mechanical injury only
- Skin absorption is unlikely due to physical properties

INGESTION

- Single dose oral LD50 has not been determined
- Amounts ingested incidental to industrial handling are not likely to cause injury; however, ingestion of larger amounts may cause injury

ACUTE INHALATION EFFECTS

- Excessive exposure to dust causes chronic inflammations of lung tissue and pleural membranes, as well as cancers, in both man and animals

SUBCHRONIC EFFECTS

- Prolonged exposure to asbestos dust has been found to cause pulmonary fibrosis (asbestosis), which may be disabling and even fatal

Health Effects of Asbestos (Continued)

CHRONIC EFFECTS/CARCINOGENICITY

- Has been shown to cause cancer in humans
- For hazard communication purposes under OSHA standard 29 CFR part 1910.1200, this chemical is listed as a carcinogen by NTP and IARC

TERATOGENIC EFFECTS

- No relevant information found

REPRODUCTIVE EFFECTS

- No relevant information found

MUTAGENICITY

- Some forms of asbestos have been reported to induce chromosomal changes in tissue culture

ASBESTOS, SMOKING, AND LUNG CANCER

One of the diseases associated with exposure to asbestos fibers is lung cancer. Statistics indicate that a worker who is exposed to asbestos daily during their working career has an increased risk of developing lung cancer of five times that of workers with no asbestos exposure.

People who smoke have a ten times greater risk of developing lung cancer than those who do not smoke.

Asbestos exposure and smoking in combination greatly increases the risk of developing lung cancer. Smokers exposed to asbestos are at fifty to ninety times the risk of developing lung cancer than nonsmokers not exposed to asbestos. Smoking impairs the body's natural mechanisms that protect the lungs from foreign particles such as asbestos fibers. Once inside the lungs, asbestos fibers cannot be cleared. The combined effect of the asbestos exposure and smoking is synergistic, as it increases the risk of lung cancer at a rate that is greater than the sum of the two.

The risk of lung cancer can be reduced dramatically by quitting the smoking habit. Alcoa has stop smoking programs in place to assist employees in overcoming their addiction to tobacco products. After quitting smoking, an employee's risk of lung cancer will eventually be that of the nonsmoker.

Contact the Medical Department for information on smoking cessation programs. ~~Appendix G lists other organisations which provide information, materials, and/or conduct smoking cessation programs.~~

SECTION IV

TRAINING PROGRAM MINIMUM REQUIREMENTS

The Rockdale Operations Asbestos Training Program is designed to provide employees the knowledge and skills necessary to safely deal with asbestos hazards on their jobs. The following chart represents the training required to meet federal, state, and Rockdale Operations' guidelines. *HA* *SI*

EMPLOYEE GROUP	TRAINING REQUIRED
General Plant Population	* Asbestos Awareness Handbook * Yearly Asbestos Safety Meeting
Employees Involved in Asbestos Clean-up Small-scale Repairs/Removal or Automotive Applications	* Asbestos Awareness Training * Initial 16 hr. operations and maintenance course * Annual 8 hr. refresher
Supervisor or Administrator Acting as the Competent Person on all Asbestos Related Projects	* Asbestos Awareness Training * Certified Asbestos Abatement Supervisor Training * Inspector Training
Asbestos Program Coordinators	* Asbestos Awareness Training * Certified Asbestos Abatement Supervisor Training
Inspector or Asbestos Identification Technician	* Asbestos Awareness Training * Certified Asbestos Abatement Supervisor Training * Inspector Training

SECTION V
DEFINITIONS

ACTION LEVEL

An airborne concentration of asbestos of 0.1 fiber per cubic centimeter (f/cc) of air calculated as an eight (8)-hour time-weighted average.

ASBESTOS

Chrysotile, amosite, crocidolite, tremolite, anthophyllite, actinolite, and any of these minerals that have been chemically treated and/or altered.

AUTHORIZED PERSONNEL

Any person authorized by the employer and required by work duties to be present in regulated areas.

CLEAN ROOM

An uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.

COMPETENT PERSON

One who has been trained and retrained annually in an EPA approved course and is capable of identifying existing asbestos hazards in the work place and has the authority to take prompt corrective measures to eliminate them. ~~The duties of the competent person include at least the following: establishing the negative-pressure enclosure, ensuring its integrity, and controlling entry to and exit from the enclosure; supervising any employee exposure monitoring required by the standard; ensuring that all employees working within such an enclosure wear the appropriate personal protective equipment, and are trained in the use of appropriate methods of exposure control, and use the hygiene facilities and decontamination procedures specified in the standard; and ensuring that engineering controls in use are in proper operating condition and are functioning properly.~~

DECONTAMINATION AREA

An enclosed area consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment contaminated with asbestos. ~~The decontamination area may be adjacent and connected to the regulated area or located remotely.~~

Definitions (Continued)

DEMOLITION

The wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos.

EMPLOYEE EXPOSURE

Exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

ENCAPSULATION

The coating of asbestos - containing material with a bonding or sealing agent to prevent the release of airborne fibers.

EQUIPMENT ROOM (CHANGE ROOM)

A contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

EXCURSION LIMIT (EL)

An airborne concentration of asbestos of 1.0 fiber per cubic centimeter (f/cc) of air as averaged over a sampling period of thirty (30) minutes.

FIBER

A particulate form of asbestos or other fibrous material five (5) micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

FRIABLE ASBESTOS

Any material that when broken; crushed or pulverized releases asbestos fibers.

HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTER

A filter capable of trapping and retaining at least 99.97 percent of all ~~non-dispersed~~ particles of 0.3 micrometers in diameter or larger.

AIRBORNE

Definitions (Continued)

MINI-ENCLOSURE

An enclosure constructed of 6-mil polyethylene sheeting to restrict access to the area where small-scale, short durations asbestos maintenance or renovation work is to be performed. The enclosure must have a contiguous change room.

NEGATIVE PRESSURE ENCLOSURE

An enclosure for large-scale, long duration projects constructed of 6-mil polyethylene sheeting and equipped with a ventilation system (which discharges through a HEPA filter) capable of creating a negative pressure of 0.02 inches of water inside the enclosure. Where feasible, a decontamination area should be contiguous to the enclosure and should be the only means of egress.

PERMISSIBLE EXPOSURE LIMIT (PEL)

No employee shall be exposed to an airborne concentration of asbestos in excess of 0.2 fibers per cubic centimeter of air as an eight-hour time-weighted average (8 hr. TWA).

REGULATED AREA

An area established by the employer to demarcate areas where airborne concentrations of asbestos exceed or can reasonably be expected to exceed the permissible exposure limit. The regulated area may take the form of a temporary enclosure, or an area demarcated to restrict access and minimize the number of employees potentially exposed to asbestos. ~~If barriade tape is used to demarcate an area it will consist of yellow and black tape with red streamers.~~

REMOVAL

The taking out or stripping of asbestos or materials containing asbestos.

RENOVATION

The modifying of any existing structure, or portion thereof, where exposure to airborne asbestos may result.

Definitions (Continued)

REPAIR

Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates where asbestos is present.

SMALL-SCALE, SHORT-DURATION ACTIVITIES

The tasks such as, but not limited to: the removal of small quantities of asbestos-containing insulation on pipes prior to repair; the removal of small quantities of asbestos-containing insulation on beams or above ceilings; the replacement of an asbestos-containing gasket when mechanical removal is required; the installation of removal of a small section of drywall material containing asbestos; or the installation of electrical conduits, pipe, or cable through or proximate to asbestos-containing materials.

SURFACTANTS

Chemicals added to water to improve its wetting ability.

SECTION VI

ASBESTOS AWARENESS

ASBESTOS DO'S AND DON'TS

This section is provided as general guidance when working with or near asbestos-containing materials:

DO

1. Get positive identification. If the asbestos survey is not complete for the area, have the material sampled and analyzed.
2. Take sufficient samples. Some vessels, equipment, etc. may contain more than one type of insulation. Asbestos materials may be covered by refractory, siding, or insulation.
3. Consult the appropriate section of this handbook if asbestos is present. Materials containing more than 0.1% by weight must be handled as asbestos.
4. Put all asbestos waste (old insulation, transite, mastic, dust collector solids, disposable clothing, gaskets, packing, shingles, ~~Haveg~~ piping, furnace refractories, pump packing, pipe gaskets, brake shoes, etc.) in approved containers for disposal. The containers must be properly labeled to warn of the asbestos hazard and sent to the designated asbestos landfill.
5. Inform all personnel in the general area that asbestos work is in progress.

DO NOT

1. Use materials containing asbestos (i.e. insulation, fireproofing, transite siding, Haveg piping, weatherproofing, and cooling tower materials) where an adequate alternate exists. **LINE MANAGER AND SAFETY/INDUSTRIAL HYGIENE MANAGER APPROVAL IS REQUIRED WHEN USING ASBESTOS MATERIALS IF A SUITABLE ALTERNATE IS KNOWN.**
2. Use asbestos labeled bags for disposal of general trash because of landfill permit requirements.
3. Sandblast or hydroblast materials containing asbestos. When sandblasting or hydroblasting adjacent areas, protect the asbestos materials from overblast. Examples of items to be protected are transite walls, galbestos siding, pipe insulation, fireproofing, etc.

Asbestos Do's and Don'ts (Continued)

4. Use compressed air to remove asbestos materials. For example, do not clean brake drums and clutch housings with compressed air. This procedure may fill the surrounding atmosphere with asbestos fibers. An acceptable method is to use an approved vacuum. Dispose of the debris in approved containers and send to the designated asbestos landfill.
5. Eat, drink, smoke, chew gum/tobacco products, or apply cosmetics in a regulated area or a decontamination area.
6. Dry sweep asbestos materials.
7. Spray asbestos-containing materials.
8. Use hand-operated or power-operated tools (such as but not limited to saws, scorers, abrasive wheels and drills) without local exhaust ventilation if the use of these tools would cause asbestos exposures to personnel in excess of 0.2 fiber cc. eight (8) hour TWA.
9. Hang plants or pictures on structures covered with asbestos-containing materials.
10. Sand asbestos-containing floor tiles.
11. Damage asbestos-containing materials while moving furniture or other objects.
12. Install curtains, drapes, or dividers in such a way that they damage asbestos-containing materials.
13. Dust floors, ceilings, moldings or other surfaces in asbestos-contaminated environments with a dry brush.
14. Use an ordinary vacuum to cleanup asbestos-containing materials.
15. Remove ceiling tiles ^{ATTACHED TO} ~~below~~ asbestos-containing materials without wearing the proper respiratory protection, clearing the area of other people, and observing asbestos removal waste disposal procedures.
16. Remove contaminated ventilation system filters without wetting. Do not shake.

NOTE: Items 5 through 16 are directly from the OSHA Asbestos Regulations.

SECTION VI
TYPICAL ASBESTOS-CONTAINING MATERIALS

SUBDIVISION	GENERIC NAME	ASBESTOS(%)	DATES OF USE
Surfacing material	sprayed-or troweled-on	1-95	1935-1970
Performed thermal insulating products	batts, blocks, and pipe covering		
	85% magnesia	15	1926-1949
	calcium silicate	6-8	1949-1971
Textiles	cloth		
	blankets (fire)	100	1910-present
	felts:	90-95	1920-present
	blue stripe	80	1920-present
	red stripe	90	1920-present
	green stripe	95	1920-present
	sheets	50-95	1920-present
	cord/rope/yarn	80-100	1920-present
	tubing	80-85	1920-present
	tape/strip	80-85	1920-present
	curtains:		
	theatre, welding	60-65	1945-present
Cementitious	extrusion panels:	8	1965-1977
	corrugated (transite)	20-45	1930-present
	flat (transite)	40-50	1930-present
	flexible	30-50	1930-present
	flexible perforated	30-50	1930-present
	laminated	30-50	1930-present
	(outer surface)		
	roof tiles	20-30	1930-present
	clapboard and shingles:		
	clapboard	12-15	1944-1945
	siding shingles	12-14	unk.-present
	pipe	20-15	1935-present

Asbestos-containing Materials (Continued)

SUBDIVISION	GENERIC NAME	ASBESTOS(%)	DATES OF USE
Paper products	corrugated:		
	high temperature	90	1935-present
	moderate temperature	35-70	1910-present
	indented	98	1935-present
	millboard	80-85	1925-present
Roofing felts	smooth surface	10-15	1910-present
	mineral surface	10-15	1910-present
	shingles	1	1971-1974
	pipeline	10	1920-present
Asbestos-containing compounds	caulking putties	30	1930-present
	adhesive(cold applied)	25	1945-present
	joint compound		1945-1975
	roofing asphalt	5	unk.-present
	mastics	5-25	1920-present
	asphalt tile cement	13-25	1959-present
	roof putty	10-25	unk.-present
	plaster/stucco	2-10	unk.-present
	spackles	3-5	1930-1975
	sealants fire/water	50-55	1935-present
	cement, insulation	20-100	1900-1973
	cement, finishing	55	1920-1973
	cement, magnesia	15	1926-1950
Asbestos ebony products		50	1930-present
Flooring tile and sheet goods	vinyl asbestos tile	1-21%	1950-present
Sheet Goods	asphalt/asbestos tile	26-33	1920-present
	sheet goods/resilient	30	1950-present
Wallcovering	vinyl wallpaper	6-8	unk.-present
Paints and coatings	roof coating	4-7	1900-present
	air tight	15	1940-present

SECTION VII
OPERATIONS AND MAINTENANCE PROGRAM

Rockdale Operations' Asbestos operations and maintenance program consists of:

1. Inspection of building and process areas prior to work or maintenance activities to determine the presence or absence of asbestos containing materials.
2. Maintenance of all labeling of asbestos-containing materials or area signs in the facility.
3. Prompt clean up of any asbestos contamination.
4. Examination of all asbestos-containing materials annually to detect deterioration. If deterioration is found, the material must be repaired or removed.
5. Adherence to these written procedures for handling asbestos materials during the performance of maintenance, demolition and renovation activities.
6. Training for personnel who may be required to administer the abatement process or employees working with asbestos-containing materials as outlined in the Training Section of this Handbook.
7. Documentation of compliance with this program.

SECTION VIII

ASBESTOS IDENTIFICATION AND BULK SAMPLING PROCEDURES

The following procedure is designed to identify and obtain samples of asbestos containing material for identification analysis and to provide the proper protection for employees conducting the sampling.

Asbestos sampling should only be performed by individuals trained in the handling and the hazards concerning asbestos containing materials. Alcoa Rockdale Operations has a number of employees trained to safely handle asbestos sampling, all such activities should be arranged through these designated resources.

1. Identification

- A. Several different products may contain asbestos. Some samples include: insulation, fiberboard, packing, gaskets, brake and clutch linings, floor and ceiling tiles, duct tape, transite pipe, roofing shingles and felts, pipe and boiler wraps, fireproofing, acoustical plasters, drywall tape and spackling, asbestos/cement product, electrical wire insulation etc.
- B. Any material suspected of containing asbestos shall be treated as asbestos until it has been identified as non-asbestos.
- C. Material suspected of containing asbestos can be submitted to the Industrial Hygiene Lab, Safety Department for laboratory analysis. It is extremely important for the safety of the individual collecting the sample and those receiving the sample that proper collecting, packaging, and labeling procedures be followed:
 1. Don appropriate personal protective equipment:
 - Half-face cartridge respirator equipped with hepa filters
 - Disposable neoprene, butyl rubber, nitrile or latex gloves.
 2. Wet down the area to be sampled using a hand sprayer with Surfactant solution (1 part liquid soap: 10 parts water).

Asbestos Identification and Bulk Sampling Procedures (continued)

CAUTION: It is crucial that the material being removed is saturated to prevent the release of airborne fibers. Therefore, continue to spray the area being sampled as the material is being removed. Attempt to collect a sample of approximately 1 inch in diameter and ~~1/4 inch thick~~. *Sample to be 1/2 inch thick*

3. Place the sample to be analyzed inside a plastic ~~bag and seal~~. *sealed container*
4. Wet and pick up any material which may have fallen and place it inside the sample bag. Any fallen material may also be picked up using a HEPA vacuum.
- ~~5. Place one bagged sample inside another bag for transportation to the Industrial Hygiene Lab, Safety Department.~~
- ~~6. Label the outer bag with the following information:~~
 - ~~- Location~~
 - ~~- Equipment involved and location~~
 - ~~- Date~~
- ~~7. Care should be taken during sample collection to prevent cross-contamination by other samples being collected.~~
- ~~D. Written verification of material content from the product manufacturer may be used to identify asbestos in lieu of lab analysis.~~
- E. Any material identified as being asbestos should be clearly and uniformly marked so that it is easily identified as asbestos. Color codes, signs, tape or labels may be used to identify the asbestos material. Where it is impractical to physically label the material, detailed records specifying the location, amount and type of asbestos should be maintained.

5-10-87

SECTION IX
AIR MONITORING

Personal air samples are required by the construction standard. A 25mm diameter open face cassette with a 50mm extension cowl is required for sampling. Additionally, the Asbestos Standard mandates a laboratory quality assurance program to be instituted by laboratories conducting analysis of samples required by this standard. ATC's EHL has instituted a quality assurance program to meet the specific requirements of 29 CFR 1926.58. If other laboratories are used, they must also have acceptable QA (quality assurance) programs.

Air sampling shall be conducted before, during, and after the performance of any demolition or renovation project involving asbestos-containing materials. During the stripping and collection of asbestos-containing materials, daily air sampling shall be conducted on personnel, work area, and immediately outside the work area at locations where the presence of facility occupants will most likely occur during the time the project is in operation.

For indoor projects, aggressive air sampling shall be conducted after removal and clean-up activities have been completed. An indoor project shall be considered complete when aggressive sampling results indicate an air fiber count of .01 f/cc or less when using PCM.

If the aggressive air sampling analysis reveals an airborne fiber count greater than .01 f/cc, then the area shall be cleaned again, followed by additional aggressive air sampling. This process shall continue until the proper air level has been achieved. Aggressive clearance sample collection shall be done in accordance with the requirements of 40 CFR Part 763, Subpart E, Appendix A(II) (B) (17) [AHERA].

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

<u>Personal Exposure Sampling</u>		<u>Minimum Sample Volume</u>
Action Level	0.1 f/cc	190 minutes 380 liters
Permissible Exposure Level	0.2 f/cc	90 minutes 180 liters
Short Term Exposure Limit	1 f/cc	20 minutes 40 liters (with 25 mm filter)

Air Monitoring (Continued)

Affected employees, or their designated representative, 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 of such results; just as with personal sampling results. OSHA Record Retention Requirements, 29 CFR 1910.20, mandate that all records be kept for the duration of the individual's employment plus 30 years.

SECTION XI

PACKAGING AND DISPOSAL

1. The recommended container is a 6-mil thick polyethylene bag. Other acceptable containers are polyethylene lined cardboard containers or polyethylene lined metal containers.
2. Polyethylene bags labeled with an approved asbestos label must be used only for bagging asbestos waste.
3. When using bags, minimize the amount of void space or air in the bags to minimize their bursting during stacking and disposal.
4. All containers used for asbestos waste must be sealed to make them leak-tight.
5. Torn bags must be rebagged (double bagged) rather than repaired by taping.
6. Disposable clothing worn during asbestos removal, packaging, and disposal must be placed into properly labeled polyethylene bags and disposed of as asbestos waste.
7. An open-top fiber or steel drum containing a polyethylene liner may be used to accumulate small quantities of bagged and sealed asbestos waste (brake shoes, brake dust, garlock gaskets, etc.). The drum must have an approved warning label, be labeled for asbestos waste use only, and the top must be kept on except during deposit of waste.
8. All containers used for unbagged asbestos waste must contain a disposable polyethylene liner approved by the Safety/Industrial Hygiene Department.
9. Container boxes must not be filled higher than the top of the walls.
10. Container liners must be lapped over and secured for temporary closure whenever the job is discontinued for a prolonged period (overnight, holiday, weekend).
11. Container liners must be securely closed before transport of the container; the sides and ends are to be lapped over and then secured.
12. Tie-downs for container liners must not be attached to the container boxes.
13. All container boxes used for asbestos waste packaging and transport and all packages of asbestos waste must be labeled with an OSHA-approved label.

NOTE: Call Safety/Industrial Hygiene for information.

SECTION XII
ABATEMENT MINIMUM REQUIREMENTS

GLOVE BAGS

General:

1. Employees who work with asbestos must receive training in asbestos hazards before the initial assignment and annually thereafter.
2. A specific job procedure must be written before beginning the job.

Safety:

1. Safety equipment required by the job location must be worn.
2. An approved respirator must be worn during material removal and cleanup. Employee must have completed the mandatory fit test.
3. Vacuum equipment must be equipped with a HEPA filter.
4. Water for wetting must contain a surfactant.

Removal:

1. The glove bag must be fitted to the pipe or structure where asbestos work is to be done. Insert the necessary tools into the bag. Attach bag to the pipe or structure and seal all openings with tape. The bottom seam of the bag must also be reinforced with tape to prevent leakage from the bag that may result from a defect in the bottom seam.
2. An opening must be made in the bag away from the work area. A spray nozzle must be inserted through this opening and the area to be worked sprayed until it is thoroughly wetted. Continue wetting dry material as it is exposed. Dry material in the bottom of the bag must be wetted. Wetting of materials may be eliminated if water is not compatible with the process or materials or equipment may be seriously damaged.
3. After removal of the layer of asbestos containing materials, the pipe or surface must be cleaned with a wire brush and wet wiped until no traces of asbestos containing material can be seen.
4. Exposed asbestos must be encapsulated at terminations.
5. Tools must be wetted and cleaned. Place the tools such that they may be removed after the bag is twisted and sealed.
6. A vacuum hose must be inserted through the opening used for wetting and used to remove any air from the bag that may contain asbestos fibers. The bag must be squeezed as close to the top as possible, twisted and sealed with tape to keep the asbestos materials safely in the bottom of the bag.

Abatement Minimum Requirements (Continued)

7. Remove the bag from the work area and remove tools.
8. The top portion of the bag and the opening used for wetting must be resealed with tape.
9. Disposal of the glove bag must be in an approved container.

SECTION XII

ABATEMENT MINIMUM REQUIREMENTS

SMALL-SCALE PROJECTS WHEN GLOVE BAGS ARE NOT USED

GENERAL:

1. Employees who work with asbestos must receive training in asbestos hazards before the initial assignment and annually thereafter.
2. Personnel in the general area must be notified that asbestos work is in progress.
3. A specific job procedure must be written before beginning the job.

SAFETY:

1. Safety equipment required by the job locations must be worn.
2. An approved respirator must be worn during material removal and cleanup. Employee must have completed the mandatory fit test.
3. Disposable coveralls with attached boots and hoods must be worn during cleanup and removal operations. Coverall boots may be worn over work shoes or inside rubber boots.
4. Vacuum and local exhaust ventilation systems must be equipped with HEPA filters.
5. Personnel monitoring must be done at the beginning of each job unless personnel wear supplied air respirators, or previous personnel monitoring of similar jobs shows short-term exposures below 1 /cc averaged over a sampling period of 30 minutes or eight (8) hour TWA exposure potentials less than 0.1 fiber/cc. Contact Safety/Industrial Hygiene for information.
6. Water for wetting must contain a surfactant.
7. Local exhaust ventilation must be provided for hand operated or power operated tools (such as, but not limited to, saws, scorers, abrasive wheels, and drills). The efficiency of local exhaust ventilation systems must be verified by Safety/Industrial Hygiene.

REGULATED AREA:

1. A regulated area must be established and asbestos warning signs posted to restrict access to authorized personnel only.
2. Area must be cleaned of existing asbestos contamination and other debris.
3. Portable objects must be removed to prevent contamination.

Asbestos Abatement Minimum Requirements (Continued)
Small Scale Projects When Glove Bags Are Not Used

4. Coverings must be placed over remaining objects and underneath the work area. Scaffold landings must be covered. Materials must not be dropped to the ground. Pre-job planning must include provisions for keeping deteriorated material in place after jacketing is removed.
5. Mini-enclosures or negative pressure enclosures must be used for jobs whenever feasible if the potential exposure level may equal or exceed 1 f/cc averaged over a sampling period of 30 minutes or 0.2 fibers/cc eight (8) hour TWA (local exhaust ventilation or other engineering controls methods may eliminate the need for enclosures).

REMOVAL:

1. The materials must be wet down before, during, and after removal to prevent airborne emissions. Materials must be thoroughly wetted, but not to the point that they crumble and turn to mush. Wetting of material may be eliminated if water is not compatible with the process, or materials/equipment may be seriously damaged, or local exhaust ventilation reduced the potential exposure limit below 1 fiber/cc averaged over a sampling period of 30 minutes or 0.2 fibers/cc as an eight (8) hour TWA.
2. Material must be removed and placed into labeled polyethylene bags or containers approved by Safety/Industrial Hygiene. Bags or containers must be lowered to the ground, not dropped.
3. The surface from which asbestos has been removed must be wetted and cleaned.
4. Exposed asbestos must be encapsulated at terminations.
5. After asbestos removal, a thorough inspection and cleanup of the area must be conducted. Pick up and dispose of coverings and double bag contaminated or broken bags. Vacuum the work area as required.
6. All items removed from the regulated area must be decontaminated. A Job Safety Analysis (JSA) must be followed when changing HEPA filters.
7. Disposable coveralls, exposed area of skin and respirator must be vacuumed and boots must be decontaminated each time before exiting the regulated area.
8. Disposable coveralls must be disposed of in a sealed asbestos waste bag.
9. Work clothes must be vacuumed off.
10. All materials used to establish the regulated area must be removed.
11. Bags or containers must be transported to the collection area.

SECTION XIII

REMOVAL OR MODIFICATIONS TO CATEGORY I & II NON-FRABLE ASBESTOS CONTAINING MATERIALS

Floor tile, (and mastic), galbestos, transite siding, gaskets, packings, clutch and brak repairs, and other category I & II non-friable asbestor containing materials should not be modified by cutting, drilling, sawing, sanding, grinding or other destructive means. Analaternate material should replace any of these asbestos containing materials needing repairs. Modifications should then be done on new materials.

REQUIREMENTS:

1. Employees must receive appropriate training in asbextor hazards, work procedures, and personal protection equipment before handling these asbestos contianing materials.
2. The area supervisor shall contact the safety, industrial hygiene, and environmental departments for proper work procedures.
3. Guidelines for compliance with all state, federal, local, ALCOA regulations, and safe work procedures on a job by job basis shall be strictly followed.
4. A JSA outlining appropriate procedures is recommended be written for each job.

GENERAL:

Prodedures for handling or working with asbestos materials may include but are not limited to the following items:

1. Material sampling/identification
2. Notifications - NESHAPS
3. Personnel awareness - notices, signs, and barricades
4. JSA/Asbestos safety checklist
5. Personal protective equipment
6. Use of amended water/wetting agents
7. Approved containers/waste disposal methods

FLOOR TILE

1. Wet floor surfaces to be removed.
2. Determine ACM content in mastic by testing. Floor mastic may be removed with a commercial mastic remover.

GASKETS AND PACKINGS

1. Wet gaskets or packings to be removed with amended water before handling.
2. Clean adhered materials from surfaces before replacing new gaskets or packings.

AUTOMOTIVE CLUTCH AND BRAKE REPAIR

1. Do not use compressed air to remove asbestos dust or other materials from the brake drums or clutch housing.
2. Do not remove ACM parts or handle ACM contaminated equipment without thoroughly wetting and washing all working surfaces with amended water.

RING BUSS SPACERS

1. Wet spacer blocks before and during removal.
2. Clean contaminated surfaces before replacing new non-acm spacer block.

SECTION XIV

ASBESTOS RULES AND REGULATIONS

Asbestos has been widely used in a variety of products, many of which are or have been used at Rockdale Operations. Asbestos creates a significant health hazard potential to employees who inhale airborne fibers. As a result of the potential health hazards, several rules and regulations governing asbestos have been established and are listed below:

1. OSHA 29 CFR 1910.1001, Work place exposure for asbestos
2. OSHA 29 CFR 1926.58, Asbestos Standard for Construction Work
3. EPA 40 CFR Part 61 National Emission Standards, Hazardous Air Pollutants
4. Alcoa Engineering Standard 18.18
5. Alcoa Asbestos Management Policy

SECTION XV

MEDICAL SURVEILLANCE

Employees wearing negative pressure respirators and employees exposed at or above the action level for asbestos exposure for 30 or more days a year are required to be in a medical surveillance program as outlined in 29 CFR 1926.58. For Alcoa employees, this periodic evaluation will be conducted according to Alcoa Medical Protocol B7, Occupational Medical Evaluation, Asbestos.

The abatement contractor is responsible for providing medical surveillance for their employees and supervisors who have been or will be exposed to airborne concentrations of asbestos at or above the action level.

The examination, performed by a licensed physician, shall include as a minimum the following:

1. Medical and work history
2. Physical examination
3. Respiratory disease questionnaire
4. Chest x-ray, dependent on age and exposure history
5. Pulmonary function tests
6. Other tests deemed appropriate by the medical professional

The employee will be informed of the results of the examination by letter.

Medical surveillance records will be maintained for the duration of employment plus 30 years.

SECTION XVI
RECORDKEEPING

PURPOSE

To insure that the Occupational Safety and Health Administration (OSHA) regulations and Environmental Protection Agency (EPA) regulations are followed during asbestos abatement projects.

The Operations' location management shall maintain the following records:

1. A list of all materials identified as containing asbestos.
2. The asbestos abatement contractor shall provide Rockdale Operations management with a project report containing, as a minimum, documentation of the following:
 - a. EPA Notification
 - b. Abatement Specifications
 - c. Standard Operating Procedures
 - d. Medical Surveillance
 - e. Respirator Trainign/Fit Testing
 - f. Worker/Supervisor Certification
 - g. Air monitoring for pre, during, and post abatement sampling
 - h. Final inspections/chechlists
3. The records are to be retained for thirty (30) years.

SECTION XVII

EMERGENCY REMOVAL AND NOTIFICATION

GENERAL:

This procedure is designed for use when circumstances do not allow routine planning of asbestos abatement jobs. This procedure shall only be used in "emergency" situations.

"Emergency" asbestos abatement jobs are classified as:

1. Equipment failure which may endanger the safety of employees or cause damage to other plant property.
2. Asbestos containing material which is damaged and poses a risk of exposure to employees.

SAFETY:

1. Safety equipment required by job location must be worn. Additional equipment may be necessary depending on the emergency situation.
2. An approved respirator must be worn during removal and cleanup. Employees must have completed the mandatory fit test.
3. Disposable coveralls with attached hoods, steel toed rubber boots, and rubber gloves must be worn during removal and clean-up.
4. Vacuum cleaners must be equipped with HEPA filters and operating properly.
5. Amended water must be used to wet the asbestos containing material.

PROCEDURE:

1. A regulated area must be established around the vicinity of the emergency. The area must be marked with barricade tape and asbestos warning signs posted to restrict access to authorized personnel.
2. Glove bags should be used whenever possible. Use minimum requirements for glovebags in the asbestos handbook.
3. If circumstances prevent the use of glovebags, use the minimum requirements for small-scale jobs when glovebags are not used in the asbestos handbook.

**Asbestos Emergency Removal and/or
Clean-up Procedure (Continued)**

4. Damaged material which has fallen on surfaces below should be promptly cleaned up before removal or repairs. If damaged asbestos falls on solid surfaces, the material must be wetted with amended water and picked up by hand and HEPA vacuum. Final cleaning must be accomplished by wet wiping the surface with rags or mops wetted with amended water.
5. If damaged materials falls on soil, it will be necessary to remove a layer of the soil to a depth sufficient to remove any asbestos contamination.
6. All contaminated material must be placed in approved asbestos waste containers.
7. After completion of the removal/clean-up, a thorough inspection of the area must be conducted.
8. All items removed from the regulated area must be decontaminated.
9. Disposable coveralls, exposed areas of the skin, boots, and respirators must be vacuumed off before leaving the regulated area.
10. Disposable coveralls must be disposed of in an asbestos waste container.
11. Vacuum off work clothes. Remove the respirator last.