

A. B. McKee, ATC-C

David L. McKee

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FROM ROBERT J. ORMESHER
INGOT CASTING DIVISION
ALCOA TECHNICAL CENTER - B

TO MEMORANDUM

Industrial Hygiene

1980 October 15

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RE: REMOVAL OF ASBESTOS CONTAINING LINING FROM FURNACES

Most of the furnace equipment presently in service in the Ingot Casting Division was designed, fabricated and/or purchased during an era when most of the best insulating and refractory lining materials contained asbestos. Some of these pieces of equipment have recently been relined with asbestos free materials, but many still have the asbestos containing materials in place. Relining, remodeling, or even scrapping these items requires some special procedures to prevent asbestos exposure of either the worker or of non-involved employees. This memo details the special procedures that must be followed under these circumstances.

Initial site preparation involves taking precautions to contain entrained asbestos fibers to the immediate work area. In the case of a melting furnace, a total enclosure made of plastic sheeting is required. It has to be erected in such a manner that it can be dismantled, when the old lining has been removed, so that all the dust is contained. Attaching the plastic to the inside of a lumber frame is recommended to allow for easy removal and packaging in approved containers. The size of the enclosure must be large enough to contain the power equipment, an approved vacuum cleaner, and several 55 gallon specially marked steel drums.

The crews working in the enclosure must wear special protective clothing and use special equipment. Disposable coveralls, gloves, hair covering (under the hard hats) and respirators approved for asbestos must be worn at all times when work is in progress in the enclosure. The coveralls are to be taped at the ankles and wrists. All disposable clothing is to be removed and discarded each time a workman leaves the work area. Shoes must be wiped with a damp rag or vacuumed so that the area outside the enclosure is not contaminated. Before leaving the contaminated area for any reason, the workmen shall vacuum the protective clothing, remove the head covering, unzip the coveralls and carefully peel them off, with gloves and shoe coverings remaining attached. The respirator is removed last. The disposable clothing and used filter cartridges shall be disposed of in plastic bags, appropriately labeled for asbestos waste. Respirators shall be cleaned and sanitized at the end of every shift. Workers must wash all skin surfaces that have been exposed to asbestos before eating, drinking, smoking or leaving work. Any water that is used for these purposes must be placed in plastic bags and then into the drums with the contaminated clothing. No smoking or eating is permitted while in the enclosure.

PLAINTIFF'S
EXHIBIT

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During the removal of phosphate containing refractories the use of water as a dust suppressant is not permitted. It is possible to form several very undesirable gaseous reaction products with the water. Because of this, the general practice of not using water has been adopted. Hydraulically driven hammers or jack hammers with totally enclosed air systems rather than the standard pneumatic jack hammer must be used for removing the refractory lining. Removal of the asbestos containing insulation is best done with pry bars having a vacuum nozzle running continuously at the breakaway point. This material shall be bagged as it is removed rather than permitting it to pile up for cleanup at a later time. The objective for doing this carefully and effectively is to prevent contamination of non-asbestos refractory materials which must also be disposed of as asbestos.

The cleanup of the enclosed area after the lining materials have all been placed in the properly marked containers must be thorough. The inside of the plastic enclosure, the furnace shell, both the inside and outside surfaces that could be dusty, and finally the floor must be cleaned with the special vacuum cleaner. When this is all completed, the plastic sheeting can be taken down, continuously folding the contaminated side to the inside, and placed in a drum for disposal.

The disposal of all asbestos containing waste material as well as contaminated material requires special procedures. Asbestos containing insulation, contaminated refractory rubble, the used disposable clothing, loose material picked up with the vacuum cleaner, wiping rags, rinse water from the wiping rags, and finally the plastic enclosure sheeting must be packaged in plastic bags and then sealed in specially marked steel drums. All plastic bags and sealed steel drums shall be affixed with labels that read:

CAUTION
CONTAINS ASBESTOS FIBERS
BREATHING ASBESTOS DUST MAY CAUSE
SERIOUS BODILY HARM

Labels with this wording are available in ATC stores. These drums must then be disposed of in an approved land fill. Most land fill facilities cannot accept this kind of waste so there is an incentive to completely fill the drums (the last waste from an Ingot Casting furnace had to be shipped to Alabama at a cost of almost \$90/drum).

Western Pa.

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Robert J. Ormesher
ROBERT J. ORMESHER 7814

RJC:pm

cc: R. E. Miller, ATC-B
J. R. Stemler, ATC-C
J. E. Devine, ATC-D
A. B. McKee, ATC-C
R. L. Schonbachler, ATC-D

R. D. Blackburn, ATC-B
L. Resch, ATC-B
Information Copies to:
... J. Sartschev, Pgh
E. B. Perry, Pgh
E. L. Rooy, Pgh