C O N F I D E N T I A L

Inter-Office Memorandum

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At: RTE

Date: March 24, 1972

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At: RTE

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Subject: Asbestos Usage and Control - Ravenswood Works

References - *See Attached

1.* Emergency Asbestos STD-OSHA
2.* Johns-Manville - Product Insulation, "Insulating & Finishing Cements".
3. Occupational Safety & Health Reporter, Pages 863-869, 912-914.
4.* I.O.M. K. R. Blevins to G. P. Fleming, February 22, 1972

I. SUMMARY AND RECOMMENDATION

Recently recognized potential health hazards with regard to asbestos dust and new OSHA regulations requires that the Ravenswood Works re-evaluate the use of Asbestos Products and handling practices. In order to eliminate or minimize the health hazard and the additional expense involved in handling asbestos dust generating products, a list of recommendations are given below. These recommendations will accomplish two functions.

1. Elimination of the major portion of asbestos dust generating products by substitution with non-hazardous products.

2. Provide method of handling to insure that the Works is within the recommended TLV.

Recommendations

1) Carbon Baking Operation

a) Discontinue the use of asbestos shorts cement in the flue repair operation. Substitute Johns-Manville No. 460 Cement or similar material.

b) All flue top and headwall demolition to be wetted down before demolition starts or respiratory protection provided until current inventory has been replaced.

PLAINTIFF'S EXHIBIT tabbies WV-021869
PLAINTIFF'S EXHIBIT tabbies 07565.01

2) Pot Repair Operation

a) Mix all asbestos shorts cement in wettable bags.

b) Investigate and try substitute non-hazardous product to determine the feasibility of direct substitution. Immediate trial recommended, using J.M. No. 460 and No. 375.

c) Investigate collector bar design with ultimate objective to eliminate the need of a wet sealing compound.

Note: Demolition is no hazard because pot is presoaked prior to demolition.

3) Casting Operation

a) Mix asbestos shorts material in wettable bags.

b) Investigate design changes required to use a different trough lining such as maronite, glass rock, or Carborundums G.C.-50 with an ultimate objective of eliminating the use of asbestos shorts cement.

c) Wet all asbestos shorts cement prior to demolition and keep wet through entire demolition process including clean-up and disposal.

4) Works General

a) Discontinue use of asbestos shorts cement, mortar, and plaster for insulation patching and insulating hot surfaces. Substitute materials are available.

b) Discontinue the use of asbestos filled pipe insulation. Suitable products such as mineral wool, fiber glass and glass rock are available.

c) Discontinue the use of asbestos filled insulation board. Substitute products are available.

d) All demolition of asbestos dust generating materials such as pipe insulation, transite pipe, asbestos tile, duct insulation, etc., to be:

i) Wet down during operation, clean-up and disposal if possible.

ii) If wetting is not possible, provide respirators to all workers who must be in area and keep all others away from exposure area. Use vacuum cleaner for clean-up and wet waste prior to disposal.

II. OSHA REGULATION - CURRENT AND PENDING

The Emergency Asbestos Standard (OSHA) adopted on December 7, 1971, has made a review of asbestos usage at the Ravenswood Works necessary.

The revised Asbestos Standard sets forth a rigid procedure for the handling of all material that generates asbestos dust. The Threshold Limit Value (TLV) was reduced from 12 fibers per millimeter greater than five (5) microns in length or two million particles per cubic foot of air, to five (5) fibers per milliliter greater than five (5) microns in length. Concentrations of five (5) fibers not to exceed ten fibers per milliliter greater than five (5) microns in length, may be permitted up to a total of fifteen (15) minutes in an hour for up to five (5) hours in an eight (8) hour day. Additional restrictions were added concerning housekeeping and are listed below:

a) All hand or power tools which produce asbestos dust shall be provided with local exhaust vantilation and dust collector.

b) Asbestos cement mortar, coating grouts, and plaster shall be mixed in closed bags or other containers.

c) Asbestos waste and scrap shall be collected and disposed of in sealed bags or other containers.

d) All clean-up of asbestos dust and blowing shall be performed by vacuum cleaners. No dry sweeping shall be performed.

Additional recommendations made by the Advisory Committee on Asbestos to The Assistant Secretary of Labor which are not part of the regulation at the present time, but are likely to become binding are summarized below:

a) Scheduled monitoring and records of asbestos dust concentrations. (The samples cannot be analyzed at the works but must be sent to an outside laboratory because of equipment limitations. The analysis will cost $35.00 per sample.) Any area in excess of the TLV will be sampled monthly, all other areas where asbestos dust is likely will be sampled each six (6) months.

b) Employees exposed to asbestos dust shall be informed of this hazard.

c) In areas with dust levels in excess of the TLV standard, respirators will be worn.

d) In areas with dust levels in excess of 10 times the TLV standard, protective clothing will be provided to the employee.

e) Warning signs and labels will be required for asbestos dust hazard areas.

f) Lowering of the TLV standard to two (2) fibers per milliliter with an ultimate of zero (0) fibers per milliliter.

g) Special medical examinations for employees in asbestos exposure areas.

h) Additional labor bargaining pressures.

III. USAGE OF ASBESTOS PRODUCTS

A. General

In view of the above legislation, current and pending, a study has been conducted to determine where the works is using asbestos products. See usage chart below: (Note: only those products which are dust generating have been listed -- for complete list of asbestos materials purchased in 1971, see K. R. Blevins I.O.M. to G. P. Fleming, February 22, 1972).

a) Asbestos Shorts - - 60,000 lbs.

b) Asbestos Cement - - 450 lbs.

c) Asbestos pipe insulation - steam lines.

d) Transite pipe.

Of the items listed above, the only potential hazard of any consequence is the asbestos shorts. The other three items can and do generate dust under certain conditions, but the control of this dust is not difficult and the frequency of usage is slight.

The asbestos shorts usage is broken down as follows:

a) Fabrication Plant - 10,000 lbs/year. This material is primarily used in the Casting operation. Hot metal troughs are lined with asbestos shorts and cement. A small amount of asbestos shorts and cement are used for various patching and small insulating repair work.

b) Reduction Plant - 50,000 lbs/year. This material is primarily used in the Carbon Baking Furnace maintenance work to set headwall casting. A small amount of asbestos shorts are used to seal the collector bar in new pots in the Pot Repair operation. An additional small amount of asbestos shorts are used for miscellaneous insulation patching.

B. Fabrication Operations

The primary use of asbestos shorts in the Fabrication Plant is for trough linings in the Casting operation. This operation has been discussed with K. R. Blevins and J. A. Cole. The use of asbestos shorts could be eliminated by redesign of the trough and a change in material. Suitable material for this type of troughs are maronite (tempered), glass rock and Carborundum Refractories GC-50. Maronite and glass rock are being used in the Corporation for troughs and hot metal ladles. There may be other materials available. The materials above are mentioned because of current usage elsewhere.

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C. Reduction Operations

The major use of asbestos shorts at the Ravenswood Works is in the Carbon Baking Furnaces in the Reduction Plant. The annual usage is between 50,000 and 60,000 lbs per year. Asbestos shorts are mixed with molasses and water to make a plastic resilent adhesive mortar used to set headwall castings. This mortar is required to seal off the hot gas flues from the atmosphere. Considering the affects of asbestos regulations and the administration and equipment costs to continue using asbestos shorts for this application, the Johns-Manville people were brought in by Purchasing and the problems and usage were discussed. The J-M people feel that there is a reasonable substitute material that doesn't contain asbestos shorts. This material will be tried in the near future. There are other solutions to this problem which require design changes and these solutions will be reviewed for future consideration.

A secondary usage of asbestos shorts in the Reduction Plant is for the sealing of the collector bars in new pots. This operation is done in the Pot Repair operation. The collector bar must be sealed from the atmosphere at the pointwhere it extends from the inside of the pot. If sealing is not affected at this point the carbon liner will air burn and leakages of hot metal and ultimate pot failure will occur. There is no immediate solution for this problem, however, other materials are being considered and design changes are possible if no other solution is found.

D. Works

The isolated usage of asbestos shorts plaster and mortar for patching and insulating present no problem inasmuch as other non-asbestos materials are available.

Asbestos filled hot pipe insulation can be eliminated by the use of other suitable pipe insulation such as glass wool or other similar non-asbestos products.

Transite pipe which is used throughout the Works for various operations such as fire protection systems, connector links between the reduction cell and the exhaust gas header, and other miscellaneous uses only presents a problem when sawed or broken up for disposal. The potential dust hazard can be controlled by proper handling methods.

IV. DEMOLITION ACTIVITIES

The elimination or control of the use of asbestos generating products does not eliminate the potential dust hazard that now exists in all demolition operations which use asbestos products. A few examples of the type of demolition that will generate asbestos dust are listed below:

1) Removal of trough liners in Casting.
2) Demolition of Carbon Baking furnaces.
3) Removal of asbestos filled pipe insulation.
4) The breaking and removal of transite pipe and sleeve joints.
5) The removal of asbestos flooring tile.
6) The removal of asbestos wall board or asbestos paper material used for insulation.

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There are other areas where asbestos dust will likely be generated by demolition work.

The first step to elimination of asbestos dust is recognizing the potential source. A number of things can be done that will eliminate the hazard. The most acceptable means is by wetting the generating source with water and keeping it wet throughout clean-up and disposal. It is realized that this is not always possible but in those cases where water can be used the dust hazard is eliminated. If no suitable methods of dust control are available, the workers in the contaminated area must wear respirators for general protection, as well as compliance with all OSHA requirements such as "posting".

The bulk of the asbestos shorts are used by Casting and Carbon Baking and in both of these areas water can be used to eliminate the dust hazard. The wetting method at Casting and Carbon Baking will cover 90% of the demolition dust hazard exposure in Works. The other 10% dust hazard exposure will have to be handled on an "as happens" basis with each incident being evaluated by management and the necessary precautions taken to control employee asbestos dust inhilation.

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