PLAINTIFF'S EXHIBIT
WH-991

ESIS, INC.
EMPLOYERS SELF INSURANCE SERVICE · IVB BUILDING, P.O. BOX 7728, PHILADELPHIA, PENNSYLVANIA 19101 · (215) 241-3416

August 2, 1976

Mr. S. A. Gause, Engineering Manager
Westinghouse Electric Corporation
Hampton, South Carolina 29924

Reference: ESIS Contract No. E55-115

Dear Mr. Gause:

On July 21 and 22, 1976, I conducted an asbestos survey on several operations in your Hampton Plant. The air samples taken and the respective analyses were made to evaluate potential exposures to asbestos fibers to employees working in those areas.

A detailed report of my findings is attached for your review. All samples of the areas surveyed appear to be below the present OSHA standard of two fibers longer than five micron fiber length per cubic centimeter of air (effective July 1, 1976).

If you have any questions regarding this report, please contact me at the Environmental Health Laboratory, 1021 Georgia Avenue, Macon, Ga. 31201, (912) 745-4702.

I wish to thank you and your staff for the cooperation that was extended during the course of this visit.

Very truly yours,

John M. Savidge
Director
Environmental Health Laboratory

JMS/ps

Enclosure

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ENVIRONMENTAL HEALTH REPORT

Prepared For:

Westinghouse Electric Corporation
Hampton, South Carolina 29924

Survey Conducted By:

John M. Savidge, Director
Environmental Health Laboratory
Macon, Georgia
Certified by the American Board of
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Laboratory Analysis By:

Environmental Health Laboratory
Macon, Georgia
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Chemist:

Alice C. Farrar
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ENVIRONMENTAL HEALTH REPORT

Summary:

On July 21 and 22, 1976, I conducted an environmental health survey to evaluate employees exposures to airborne asbestos fibers in the vicinity of several operations using materials with asbestos as one of the components.

Air samples collected on filters and analyzed for fiber content were all found to be well below the present OSHA standard. Wetting methods, ventilation and/or respirators were used in areas where molding compounds were premolded, tooled (sawing, drilling, lathing, etc.) or where a high dust level existed.

All areas inspected appeared to be adquately controlled to prevent airborne asbestos fibers from exceeding the exposure limits prescribed in the federal Occupational Safety and Health Standard.

Methods:

Samples were collected within the various areas using MSA personal sampling pumps with flow rates calibrated approximately for two liters per minute. Breathing zone samples were taken on the employees performing the operation, and other samples were taken representing the general area. Air was pulled through a membrane filter (0.8 micrometer porosity) mounted in an open face filter holder. Exact times of flow start and stop were recorded for each pump and multiplied by the specific flow rate for the respective pump to obtain the sample volume of air.

Filters were analyzed by the membrane filter method using phase contrast microscopy at 450 X (magnification).

Standards:

The standard used is contained in OSHACT, paragraph § 1910.1001, Asbestos of the the Occupational Safety and Health Administration, Department of Labor.

Some of the applicable portions of the standard are listed below:

(a)(2) "Asbestos fibers" means asbestos fibers longer than five micrometers.

(b)(2) Standard effective July 1, 1976. The eight-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed two fibers, longer than five micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(b)(3) Ceiling concentrations. No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of ten fibers, longer than five micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(c)(1)(iii) Particular tools. All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided

with local exhaust ventilation systems in accordance with subdivision (ii) of this subparagraph.

(c)(2) Work practices. (i) Wet methods. Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers in excess of the exposure limits prescribed in paragraph (b) of this section, unless the usefulness of the product would be diminished thereby.
(ii) Particular products and operations. No asbestos cement, mortar, coating, grout, plaster, or similar material containing asbestos shall be removed from bags, cartons, or other containers in which they are shipped, without being either wetted, or enclosed, or ventilated so as to prevent effectively the release of airborne asbestos fibers in excess of the limits prescribed in paragraph (b) of this section.
(iii) Spraying, demolition, or removal. Employees engaged in the spraying of asbestos, the removal, or demolition of pipes, structures, or equipment covered or insulated with asbestos, and in the removal or demolition of asbestos insulation or coverings shall be provided with respiration equipment in accordance with paragraph (d)(2)(iii) of this section and with special clothing in accordance with paragraph (d)(3) of this section.

(e) Method of measurement. All determinations of airborne concentrations of asbestos fibers shall be made by the membrane filter method at 400-450 X (magnification) (four millimeter objective) with phase contrast illumination.

(h)(2) Waste disposal. Asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing, consigned for disposal, which may produce in any reasonably foreseeable use, handling, storage, processing, disposal, or transportation airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section shall be collected and disposed of in sealed impermeable bags or other closed impermeable containers.

(The full standard is included at the end of this report and should be referred to for information on recordkeeping, signs and labels, medical examinations, and termination of employment.)

Results:

Sample Number	Location	Concentration fibers, longer than 5 micrometers, per cc of air
1	Bldg. A, Molding Preform (area) during initial set-up	0.2 (dusty operation)
2	Bldg. A, Molding Preform (area) during typical operation	0.04
3	Bldg. A, Molding Preform (operator breathing zone)	0.2 (dusty operation)
4	Bldg. A, Molding Preform (operator breathing zone) during typical operation	0.05

5	Bldg. A, Finishing Drilling (operator breathing zone)	0.02
6	Bldg. A, Finishing, Drilling (area)	0.02
7	Bldg. A, Press Molding (operator breathing zone)	0.03
8	Bldg. K, Coating Room (operator breathing zone)	0.02
9	Bldg. K, Coating Room (operator breathing zone)	pump failure
10	Bldg. J, Machining, Drilling (operator breathing zone)	0.05
11	Bldg. J, Machining lathe (operator breathing zone)	None detected
12	Blank	None detected in 100 fields
13	Blank	None detected in 100 fields

Locations:

Westinghouse Electric ~~Western Electric~~, Hampton, South Carolina

Building A - Molding operations

Location I was a pre-molding operation using phenolic molding compounds in powder or pellet form which was transported (vacuum) to a machine compressing them into more useful shapes to be used in molding. The operation was visibly dusty. The operator wore a respirator and was free to move away from the operation. Ceiling exposures would obviously not be continuous eight-hour exposures, nor did the operation run continuously for eight hours daily according to the operator. Operator and area samples were taken at what appeared to be peak levels for a short time interval and also at lower levels over a longer time period.

Location II was at one of many drilling operations where molded pieces were drilled with specified holes. Local exhaust ventilation was used at site of operation. Operator and area samples were taken.

Location III was at one of many press molds where the pre-formed molding compound was weighed (some broken to smaller size), heated, and placed in press. Operator sample was taken.

Building K - Epoxy Resin Coating

Area sampled was in mixing room. A small quantity (20 grams) of raw asbestos (Union Carbide) was mixed with Ciba CY-179 Resin and alumina tri-hydrate to make a batch of coating (10-15 min.). Two or three batches are mixed per day. Operators wear respirators. The same operators then spray coating on pipes placed in a hood with good ventilation. Respirators are also worn. Operators are free to move from mixing room to coating room, and to other open areas where pipes are stored etc.

Peak levels would not be continuous eight-hour exposures. Mixing area and operator samples were taken during mixing and coating operations.

Building J - Machining

Saws, Lathes, and Drilling were the operations in this area. All sawing was done using wet methods. Operator samples were taken at the lathing and drilling operations. Operators were free to move away from the operations. All lathes and drills utilized local exhaust ventilation. Operators did not wear respirators.

Conclusions:

Durez molding compounds specify they contain mineral cellulose filler. RX468 molding compound specifies it contains Asbestos as the basic filler. Raw asbestos is used in the coating resin. It was for this reason that Western Electric requested a survey to see if employees were exposed to an asbestos hazard.

The specified Phase Contrast Microscopy method does not qualitatively analyze for asbestos. It is a method to count fibers that are present. One would assume if asbestos was an ingredient, that fibers present would be asbestos. If the fiber count was high it would be more accurate to perform x-ray diffraction to get positive identification for asbestos.

All samples analyzed showed fiber counts well below the present OSHA standard (two fibers, greater than five micrometers, per cc of air).

The highest levels were found at the pre-molding. This was an obvious dusty operation and workers should wear respirators. Fiber level was still low.

The raw asbestos used in mixing requires caution in handling. Even though small amounts are weighed only two or three times daily, the storage, container, and waste disposal of bags are important to consider. A bag torn open, sitting on the floor in the mixing room was an obvious hazard. Bumping, dropping, or even a breeze could cause some asbestos to become airborne. A ceiling level for even just short exposures is only ten fibers per cc. It is recommended that more care and caution be given to the storage, handling, and labeling of this asbestos as specified in the OSHA standard.

The control in all other areas surveyed by housekeeping and ventilation was good.

There appears to be no asbestos hazard according to the samples analyzed. The samples were taken in areas that Western Electric suggested were representative of operations where asbestos was present.

Messrs. Herb Johnson, Eugene Smith, and Richard Sinclair of Western Electric assisted in location and operator selection.

John M. Savidge 8/4/72

John M. Savidge
Director
Environmental Health Laboratory

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