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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTER FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

HEALTH HAZARD EVALUATION DETERMINATION REPORT

HHE-80-107

WESTVACO CORPORATION
LUKE, MARYLAND

FEBRUARY 3, 1981

PREFACE

The Hazard Evaluations and Technical Assistance Branch of NIOSH conducts field investigations of possible health hazards in the workplace. These investigations are conducted under the authority of Section 20(a)(6) of the Occupational Safety and Health Act of 1970, 29 U.S.C. 699(a)(6), which authorizes the Secretary of Health and Human services, following receipt of a written request from any employer or authorized representative of employees, to determine whether any substance normally found in the place of employement has potentially toxic effects in such concentrations as used or found.

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I. SUMMARY

On April 14, 1981, a representative of the United Paper Industry Workers Union requested a Health Hazard Evaluation to determine asbestos exposure from insulation used in the Piedmont Parts warehouse of the Westvaco Corporation in Luke, Maryland.

The Westvaco Corporation decided to remove the insulation. The Electrical and Industrial Maintenance Corporation of Salem, Virginia, was contracted to do the work. A survey was conducted on July 31, 1980, to observe the asbestos insulation removal procedures. No personal samples were taken.

Observations during the survey indicated that the company contracted to remove the asbestos insulation was operating in accordance with applicable EPA and OSHA regulations governing the removal and disposal of asbestos. However, certain deficiencies were noted in the personal protective procedures. Appropriate recommendations are contained in the body of the report.

KEYWORDS: Asbestos

II. EVALUATION CRITERIA

Occupational exposure to asbestos has been shown in numerous studies to be associated with asbestosis, lung cancer, mesothelioma, and gastrointestinal cancer. Both the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) regulate the stripping or removal of asbestos. Work practices during asbestos stripping and disposal operations are covered by EPA regulation 40 CFR part 61, subpart B, National Emission Standard for Asbestos. Landfill disposal and site requirements are covered by 40 CFR part 61.25, Waste Disposal Sites. Worker protection during removal or stripping operations is covered by OSHA regulations 29 CFR part 1910.1001, Occupational Exposure to Asbestos.

III. FINDINGS

The walls and ceiling of the parts warehouse had been sprayed in 1950 with a friable type insulation containing asbestos. Over the years it had dried and deteriorated. Two adjoining trailers were set up outside the warehouse. The first was for administrative purposes and was well posted for asbestos hazard. A log was kept of persons entering and leaving the work site. The second trailer was partitioned into a change area and shower facilities. A plastic barrier door separated the shower room from the work area. Most openings from the warehouse, heating and ventilating ducts, windows and doors were sealed by covering with plastic.

The work force involved in the insulation removal consisted of a supervisor, 5 workers and 2 substitute workers. A training session concerning regulations, procedures and safety practices was held before the actual removal work was begun. Each worker had a pre-employment chest radiograph and physical exam. Personal protective equipment consisted of full body, disposable coveralls with hoods, disposable boots, rubber gloves and goggles. MSA Comfo II respirators with chemical cartridges were used. Also used were personal environment systems, hooded respiratory units with vortex cooling assemblies. Each man was responsible for maintenance of his respirator.

The insulation was wetted and removed by handfulls and dropped into a 18-inch funnel connected to an industrial vacuum cleaner equipped with a high efficiency particulate absolute (HEPA) filter. After gross removal by hand, the surface area was vacuumed. After a complete wall or section was completed, it was sprayed with a zinc based paint. The insulation material was packed in 4 mil plastic bags marked "Asbestos Hazard", and stored in one corner of the warehouse. The bags were to be delivered to an EPA approved disposal site.

IV. DISCUSSION AND CONCLUSIONS

The contractor made a concerted effort to insure the health of the workers during the insulation removal operations. However, some problems were noted.

Westvaco employees entered the worksite to obtain parts without proper instruction concerning asbestos hazard and safety practices. The parts were contaminated with fibers due to improper covering. All parts that were unable to be stored elsewhere during the stripping operations should have been covered with 6 mil plastic sheeting and taped in place. A door and some holes in the warehouse walls were not covered with plastic sheeting to prevent fugitive emmissions.

Another problem occurred with the use of respirators equipped with chemical cartridges. These chemical cartridges are necessary and effective for use in paint vapors, however, a NIOSH recommended particulate filter for asbestos must be used in conjunction with the chemical cartridges in order to protect the worker from asbestos fibers.(2)

V. RECOMMENDATIONS

(1) All openings and fixtures including, but not limited to, heating and ventilating ducts, sky lights, doors, windows, and lighting should be thoroughly sealed by taping polyethylene securely in place.

(2) Polyethylene sheets (6 mil minimum) should be used to cover the entire floor and wall surfaces.

(3) Workers should be provided with NIOSH approved dual purpose respirators for asbestos containing dusts and organic vapors. Each worker should be evaluated by a physician for ability to wear a respirator and instructed in the proper fitting, maintenance and cleaning of his respirator.(3)(4)

(4) Medical surveillance of the removal crew consisting of preplacement, annual, and termination chest X-rays (PA 14" x 17"), respiratory disease history and pulmonary function tests including FVC and $FEV_{1.0}$ should be conducted. Medical records should be retained a minimum of 20 years.

(5) The asbestos insulation material should be sprayed with water containing an additive to enhance penetration. The additive or wetting agent greatly reduces the amount of water needed for saturation, increases the cohesiveness of the fiber matrix, and increases the probability of individual fiber wetting, resulting in reduced fiber contamination within the work area. The wetting agent should be 50% polyethylene ester and 50% polyoxyetheylene ether at a concentration of 1 ounce per 5 gallons of water. (See Table I for commercially available wetting agents.)

(6) All insulation material, plastic sheeting, tape, cleaning material, and clothing should be packed into sealable plastic bags (6 mil minimum) marked asbestos hazard and placed into metal drums or skips for transport to an EPA approved waste disposal site. (1)

(7) Decontamination of the work site should consist of all surfaces and parts being cleaned with water and/or with a HEPA filtered vacuum. After a twenty-four hour period to allow for dust settlement, all surfaces should be cleaned again. (5)

(8) All heating, ventilation, and air conditioning system filters should be removed and packed into sealable plastic bags marked with asbestos warning and properly disposed of. (5)

VI. REFERENCES

1. Code of Federal Regulations, Title 40, Part 61.25.

2. NIOSH, Certified Equipment List as of July 1, 1978. USDHEW Publications No. (NIOSH) 79-107.

3. A Guide to Industrial Respiratory Protection. USDHEW Publications No. (NIOSH) 76-189.

4. Code of Federal Regulations, Title 29, Part 1910.134.

5. Code of Federal Regulations, Title 29, Part 1910.1001.

6. Asbestos: An Information Resource, USDHEW Publications No. (NIH) 79-1681.

VII. ACKNOWLEDGEMENTS

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TABLE I

COMMERCIALLY AVAILABLE WETTING AGENTS FOR WET REMOVAL OF ASBESTOS IN BUILDINGS[a]

Aquatrols Corp. of America
1400 Suckle Highway
Pennsauken, NJ 08110

Occidental Chemical Co.
Institutional Division
Box 198
Lathrop, CA 95330

Target Chemical Co.
1280 N. 10th St.
San Jose, CA 95112

Vineland Chemical Co.
Box 745
Vineland, NJ 08360

Leffingwell Chemical Co.
Box 188
Brea, CA 92921

Rohm and Haas Co.
Ag. Chemical Dept.
Independence Mall
W. Philadelphia, PA 19105

Thompson-Hayward Chemical Co.
Box 2383
Kansas City, KA 66110

[a]The inclusion of this information should not be construed as a product endorsement by NIOSH.

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5. Report Date
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6. NA

7. Author(s)
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8. Performing Organization Rept. No.
NA

9. Performing Organization Name and Address
Hazard Evaluation and Technical Assitance Branch, Division of Surveillance, Hazard Evaluations, and Field Studies, NIOSH, Cincinnati, Ohio

10. Project/Task/Work Unit No.
NA

11. Contract(C) or Grant(G) No.
(C)
(G)

12. Sponsoring Organization Name and Address
Same as Above

13. Type of Report & Period Covered
Health Hazard Evaluation
April 1981

14. NA

15. Supplementary Notes
NA

16. Abstract (Limit: 200 words)
Exposures to asbestos (1332214) were evaluated at the Piedmont Parts warehouse of the Westvaco, Corporation (SIC-4225) in Luke, Maryland on July 31, 1980. The evaluation was requested by a representative of the United Paper Industry Workers Union on behalf of Westvaco employees and the seven workers under contract to strip asbestos insulation from the warehouse. Insulation stripping processes were observed, but no air samples were collected. The seven workers from the contracted company received safety and work process training before the work was begun, underwent preemployment chest X-rays and physical examinations, and used protective clothing and equipment. The insulation was wetted and removed, the surface was vacuumed and sprayed with a zinc based paint, and the asbestos was packed in plastic bags for delivery to an approved disposal site. Westvaco employees entered the warehouse without proper instruction about asbestos hazards or safety procedures. Parts stored in the warehouse were contaminated with asbestos fibers due to improper covering, and some of the doors and holes in the warehouse walls had not been properly sealed to prevent fugitive emissions. The workers also used respirators that were not properly equipped for asbestos exposure. The author concludes that the contractor was operating in accordance with applicable regulations concerning the removal and disposal of asbestos, however deficiencies existed in the personal protective procedures of Westvaco employees. Recommendations are included for controlling asbestos exposure and for worksite decontamination.

17. Document Analysis a. Descriptors
Hazards-unconfirmed, Health-surveys, Asbestos-dusts, Insulation-workers, Dust-control, Occuaptional-health

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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