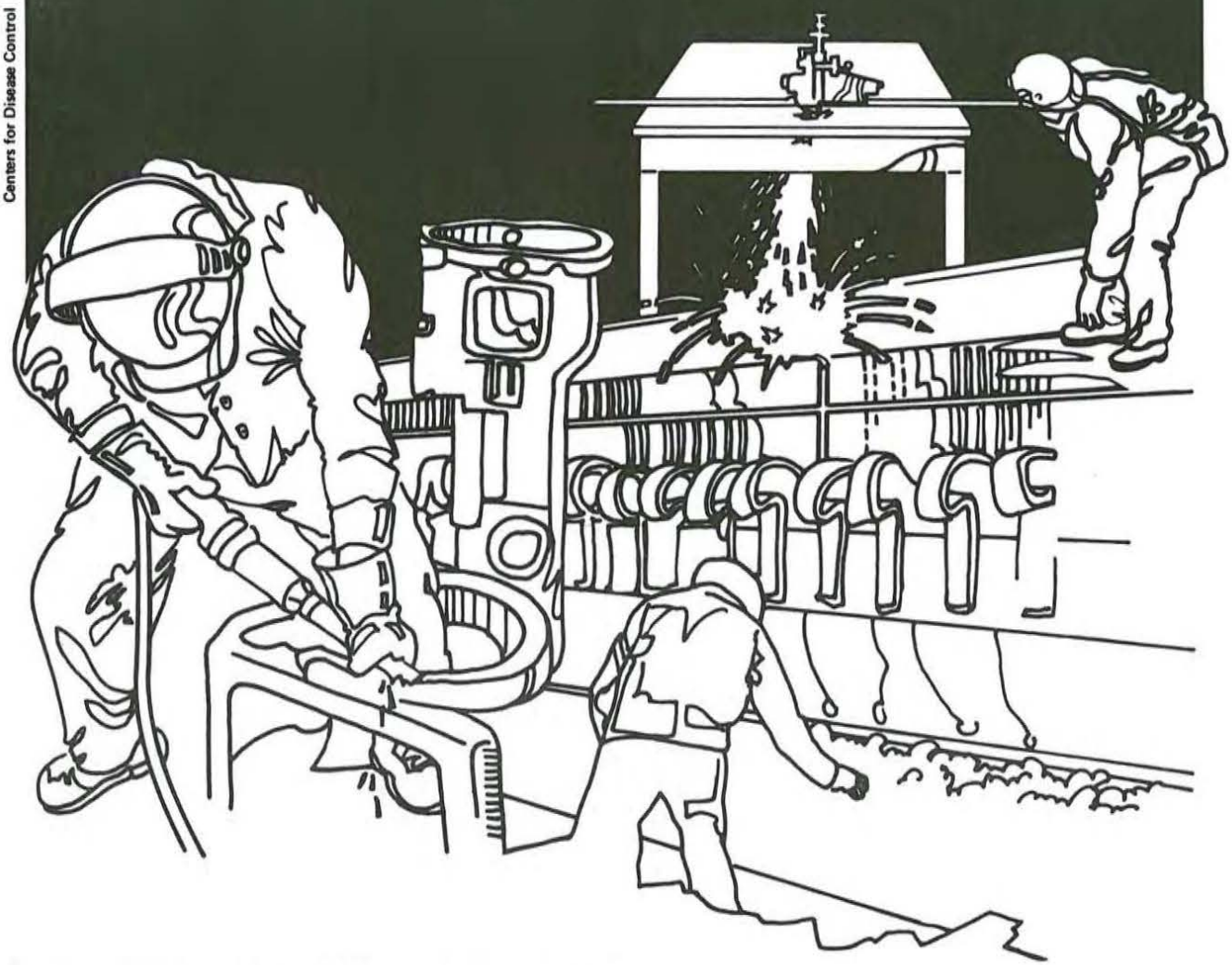
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES ■ Public Health Service
Centers for Disease Control ■ National Institute for Occupational Safety and Health

NIOSH



Health Hazard Evaluation Report

HETA 81-427-1043
UNITED STATES MAIN POST OFFICE
COLUMBUS, OHIO

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. 669(a)(6) which authorizes the Secretary of Health and Human Services, following a written request from any employer or authorized representative of employees, to determine whether any substance normally found in the place of employment has potentially toxic effects in such concentrations as used or found.

The Hazard Evaluations and Technical Assistance Branch also provides, upon request, medical, nursing, and industrial hygiene technical and consultative assistance (TA) to Federal, state, and local agencies; labor; industry and other groups or individuals to control occupational health hazards and to prevent related trauma and disease.

HETA 81-427-1043
FEBRUARY 1982
UNITED STATES MAIN POST OFFICE
COLUMBUS, OHIO

NIOSH INVESTIGATOR:
Raymond L. Ruhe

I. SUMMARY

In August 1981, the National Institute for Occupational Safety and Health (NIOSH) received a request for technical assistance from the Postmaster, United States Main Post Office, Columbus, Ohio, to investigate employees' exposures to airborne dust, possibly containing asbestos from brake shoes at the main sorting stations.

Industrial hygiene surveys were conducted by NIOSH on August 28 and October 22, 1981. The August 28 survey involved collection of ten bulk sample of settled dust samples for asbestos identification. No asbestos fibers were detected in these samples. The October 22 survey involved collection of ten personal breathing zone air samples for measurement of total airborne particulate. Analysis of the personal samples showed that total particulate concentrations ranged from 0.13 to 4.71 milligrams per cubic meter of air (mg/m^3). All of these exposures were below the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value for nuisance particulate of 10 mg/m^3 and below the Occupational Safety and Health Administration (OSHA) permissible exposure limit of 15 mg/m^3.

The ten mail sorting operators interviewed report no current health problems.

Based on the environmental data collected in this survey, NIOSH concludes that the workers at the mail sorting stations were not overexposed to total particulate concentrations. Asbestos fibers were not detected in settled dust samples obtained at the mail sorting stations.

KEYWORDS: SIC 3579 (Mailing Machines), United States Main Post Office, asbestos, and nuisance particulates.

II. INTRODUCTION

In August 1981, the National Institute for Occupational Safety and Health (NIOSH) received a request for technical assistance from the Postmaster, United States Main Post Office, Columbus, Ohio, to investigate employees' exposure to airborne dust possibly containing asbestos from brake shoes at the mail sorting stations. An industrial hygiene survey was conducted by NIOSH on August 28 and October 22, 1981. Preliminary findings of this evaluation were reported in letter reports in October and December 1981.

III. BACKGROUND

Description of Process

The letter sorting machine is a computerized system where letters are received in large trays. An employee hand picks the letters from the tray and positions them on the conveyor belt so that the zip code can easily be seen. As the letter moves past the operator, the operator reads and enters the zip code of each letter into the computer. The computer subsequently controls the conveyor belt causing each letter to fall into a specific slot on a master conveyor belt, which will take it to the appropriate destination. There are seven machines and 160 affected employees at the Main Post Office in Columbus, Ohio. The number in use at any given time depends on the mail load for that day.

In the sack shake-out operation, the loaded mail sacks are received via a conveyor belt. An operator manually shakes the sacks of mail in an upside-down position, causing the mail to fall onto a belt line, which takes the mail for sorting according to the zip code. The empty sacks are dropped into a mail crate to be taken to the sack spread operation. The employees alternate duties at this station.

IV. ENVIRONMENTAL EVALUATION DESIGN AND METHODS

Asbestos

A visual estimation of the percentage of asbestos was made on settled dust samples from catwalk, sorting machines, women's restroom, mezzanine, east tunnel, 175-unit belt, and overhead conveyor utilizing polarized light microscopy and dispersion staining techniques.

Total Nuisance Particulates

Ten personal samples for total particulates were collected at the mail sorting area on preweighed millipore M-5 PVC filters using MSA Model G personal sampling pumps operating at 1.7 liters per minute (LPM). The amount of particulate was determined by weight gain on the filter.

Ten mail sorting operators were interviewed by a NIOSH industrial hygienist to elicit symptomatology possibly related to health problems arising from their work environments.

V. EVALUATION CRITERIA

Total Particulates (as nuisance dust)

The particulate evaluated was considered to be primary paper dust and therefore it is treated as a nuisance dust.

Nuisance dusts have been associated with very little adverse health effects on the lungs and do not produce significant organic disease or toxic effects when exposures are kept under reasonable control. Extremely high concentrations may cause mechanical irritation to the eyes, ears, and nasal passages and can dangerously reduce visibility. Indirectly irritation can result from the rigorous skin cleansing procedure necessary for their removal. The ACGIH threshold limit value for nuisance particulate as total dust is 10 milligrams per cubic meter of air. The current OSHA standard is 15 mg/m^3 for total particulates. These exposure limits are time-weighted average concentrations for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effects.

Asbestos[1]

Available studies provide conclusive evidence that exposure to any of the commercial forms of asbestos causes cancer in man. Mesotheliomas, lung, and gastrointestinal cancers have all been shown to be excessive in occupationally exposed people.

VI. RESULTS AND CONCLUSIONS

Ten settled dust samples were taken in the mail sorting area from the conveyor catwalk, sorting machines, women's restroom, mezzanine, east tunnel, 175-unit belt, and overhead conveyor are presented in Table I. Asbestos was not detected in any of the samples.

In Table II, analysis of personal samples showed that total particulate concentrations ranged from 0.13 to 4.71 mg/m^3. The two highest total particulate concentrations (4.71 and 1.77 mg/m^3) were collected at the sack shake-out operation, where an operator manually shakes the sacks of mail in an upside-down position causing the mail to fall onto a belt line. The measured air concentrations were all below the corresponding ACGIH TLV (10 mg/m^3) and OSHA PEL (15 mg/m^3).

The 10 workers interviewed during the survey reported that they had no health problems at that time.

Based on the environmental sampling results and available toxicological information, NIOSH concludes that a health hazard did not exist at the time of this study.

VII. REFERENCE

1. Occupational Diseases: A Guide to Their Recognition. U.S. DHEW (NIOSH) Publication No. 77-181, June 1977.

VIII. AUTHORSHIP/ACKNOWLEDGEMENTS

Survey Conducted and Report Prepared By:
Raymond L. Ruhe
Industrial Hygienist
Industrial Hygiene Section

Originating Office:
Hazard Evaluations and Technical Assistance Branch
Division of Surveillance, Hazard Evaluations, and Field Studies

Report Typed By:
Debra A. McDonald
Clerk-Typist
Industrial Hygiene Section

IX. DISTRIBUTION AND ACKNOWLEDGEMENTS

Copies of this report are currently available upon request from NIOSH, Division of Standards Development and Technology Transfer, 4676 Columbia Parkway, Cincinnati, Ohio 45226. After 90 days, the report will be available through the National Technical Information Service (NTIS), 5285 Port Royal, Springfield, Virginia 22161. Information regarding its availability through NTIS can be obtained from NIOSH Publications Office at the Cincinnati address. Copies of this report have been sent to:

1. United States Main Post Office, Columbus, Ohio
2. American Postal Workers Union, Columbus, Ohio
3. NIOSH, Region V
4. OSHA, Region V

For the purpose of informing 160 affected employees, copies of this report shall be posted by the employer in a prominent place accessible to the employees for a period of 30 calendar days.

TABLE I

Analyses of Bulk Dust Samples for Asbestos

United States Main Post Office
Columbus, Ohio 43216

August 28, 1981

Sample Location	Analyses
J-5 Conveyor Catwalk	No Asbestos Detected
Letter Sorting Machine	No Asbestos Detected
Old 045 Unit	No Asbestos Detected
OCR Unit	No Asbestos Detected
M-4 Mezzanine	No Asbestos Detected
Ceiling Tile Women Restroom	No Asbestos Detected
L-5 East Tunnel	No Asbestos Detected
M-5 Mezzanine	No Asbestos Detected
FG-3 Overhead Conveyor	No Asbestos Detected
G-5 175 Unit Belt	No Asbestos Detected

TABLE II

Results of Personal Breathing Zone Samples for Total (Nuisance) Particulates

United States Main Post Office
Columbus, Ohio

October 22, 1981

Job/Location	Sample Time	Sample Volume Liters	Total Particulate mg/m^3*
MPLSM Operator	1330 - 2108	779	0.13
MPLSM Operator	1332 - 2110	728	0.18
Distribution Clerk	1429 - 2210	783	0.40
Clerk	1432 - 2212	782	0.33
Distribution Clerk	1434 - 2216	785	1.77
Distribution Clerk (Code 110)	1436 - 2214	779	4.71
Mail Handler	1449 - 2204	740	0.42
Clerk	1453 - 2206	736	0.49
Mail Handler	1501 - 2206	716	0.52
MPE Stack Sorter	1535 - 2230	705	0.20

*mg/m^3 - milligrams of dust per cubic meter of air sampled.

ACGIH TLV: 10 mg/m^3 8-hour TWA

OSHA Standard: 15 mg/m^3 8-hour TWA

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
CENTERS FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
ROBERT A. TAFT LABORATORIES
4676 COLUMBIA PARKWAY, CINCINNATI, OHIO 45226

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

Third Class Mail

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF HHS
HHS 396