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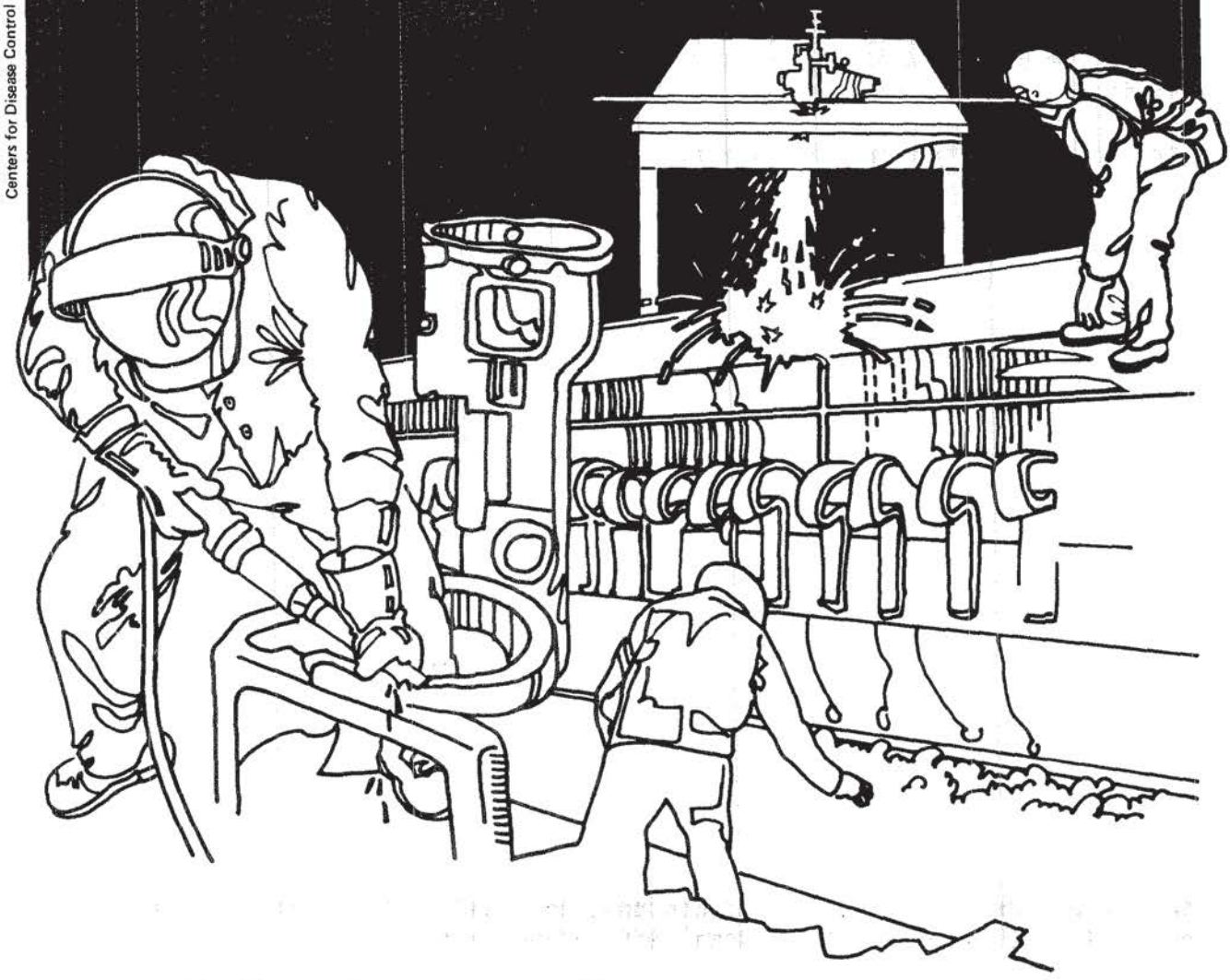

Health Hazard Evaluation Report

HETA 81-307-893
FEDERAL OFFICE BUILDING
CINCINNATI, 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 81-307-893
June 1981
Federal Office Building
Cincinnati, Ohio

NIOSH Investigators:
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I. SUMMARY

In May, 1981, the National Institute for Occupational Safety and Health (NIOSH) received a request for an office air quality investigation from the Cincinnati Facilities Division of the General Services Administration (GSA). Two employees of the U.S. Department of Housing and Urban Development were reporting adverse health effects that they attributed to working in a recently constructed computer room on the west side of the ninth floor of the Federal Office Building in Cincinnati, Ohio.

Environmental sampling and employee interviews were conducted by NIOSH on May 8, 1981. Both employees reported a variety of local and systemic symptoms which were temporally related to use of the word processing terminal in the computer room. Symptoms included eye, nose, and throat discomfort; unilateral facial swelling; headache; chest discomfort; muscle aches; nausea; lightheadedness; disorientation; irritability; and a feeling of depression. Symptoms occurred whether or not the air conditioner was operating. Both reported having used the same word processor in the past with no similar problem. Past locations of the word processor included the current room before insulation and soundproofing was installed. Neither employee has a history of allergy.

Short-term colorimetric detector tubes were used in the computer room to measure ozone, carbon monoxide, carbon dioxide, and formaldehyde. All levels were below the limits of detection.

Two bulk air samples were taken on charcoal tubes in the computer room for analysis of total organic vapors. The samples were drawn by battery-powered sampling pumps operating at 1.5 liters per minute (lpm) for 2 hours, and later analyzed by gas chromatography/mass spectrophotometry (GC/MS). Branched alkanes in the C_9-C_{11} region were detected at about 0.2 milligrams per cubic meter (mg/M^3). These concentrations are over a thousand times lower than any current occupational health criteria and are, therefore, considered insignificant.

On May 18, NIOSH again interviewed one of the two employees (the other was absent), who reported that neither of them had experienced similar health problems since the air conditioner was corrected for erratic temperature control on May 8th (after our initial visit).

No health hazards due to air quality were found by NIOSH. The cause of the employees' illnesses remains unknown, but they were not likely due to chemicals generated by the equipment then in the computer room.

NIOSH recommends that air circulation be increased for employee comfort.

KEYWORDS: SIC 9199, office building, office workers, office air quality, carbon monoxide, carbon dioxide, ozone, formaldehyde and alkanes.

II. DISCUSSION

Some of the employees' symptoms could be due to non-occupational causes, such as flu-like respiratory infection. Any of the symptoms could be the result of exposure to irritant or otherwise toxic chemicals. The relative severity and abrupt onset of the illnesses, and the almost simultaneous occurrence in two employees, however, argue against a manifestation of chronic toxicity. Furthermore, the spectrum of symptoms is not suggestive of illness due to concentrations of any substance that might reasonably be generated by routine use or minor malfunction of a word processing terminal or by a slowly leaking air conditioner.

III. RECOMMENDATIONS

NIOSH recommends that air circulation within the computer room be increased for employee comfort. The door to the room should be left open as frequently as possible during the day to provide fresh air and to minimize the feeling of "confinement" in the relatively small room (about 1500 cubic feet). Employees should also refrain from smoking in the computer room.

IV. AUTHORSHIP AND ACKNOWLEDGEMENTS

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V. DISTRIBUTION AND AVAILABILITY OF REPORT

Copies of this report are currently available, upon request, from NIOSH, Division of Technical Services, Information Resources and Dissemination Section, 4676 Columbia Parkway, Cincinnati, Ohio 45226. After 90 days the report will be available through the National Technical Information Services (NTIS), Springfield, Virginia 22161.

Copies of this report have been sent to:

1. U.S. Department of Housing and Urban Development
2. Cincinnati Facilities Division of GSA
3. OSHA, Region V
4. NIOSH, Region V

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