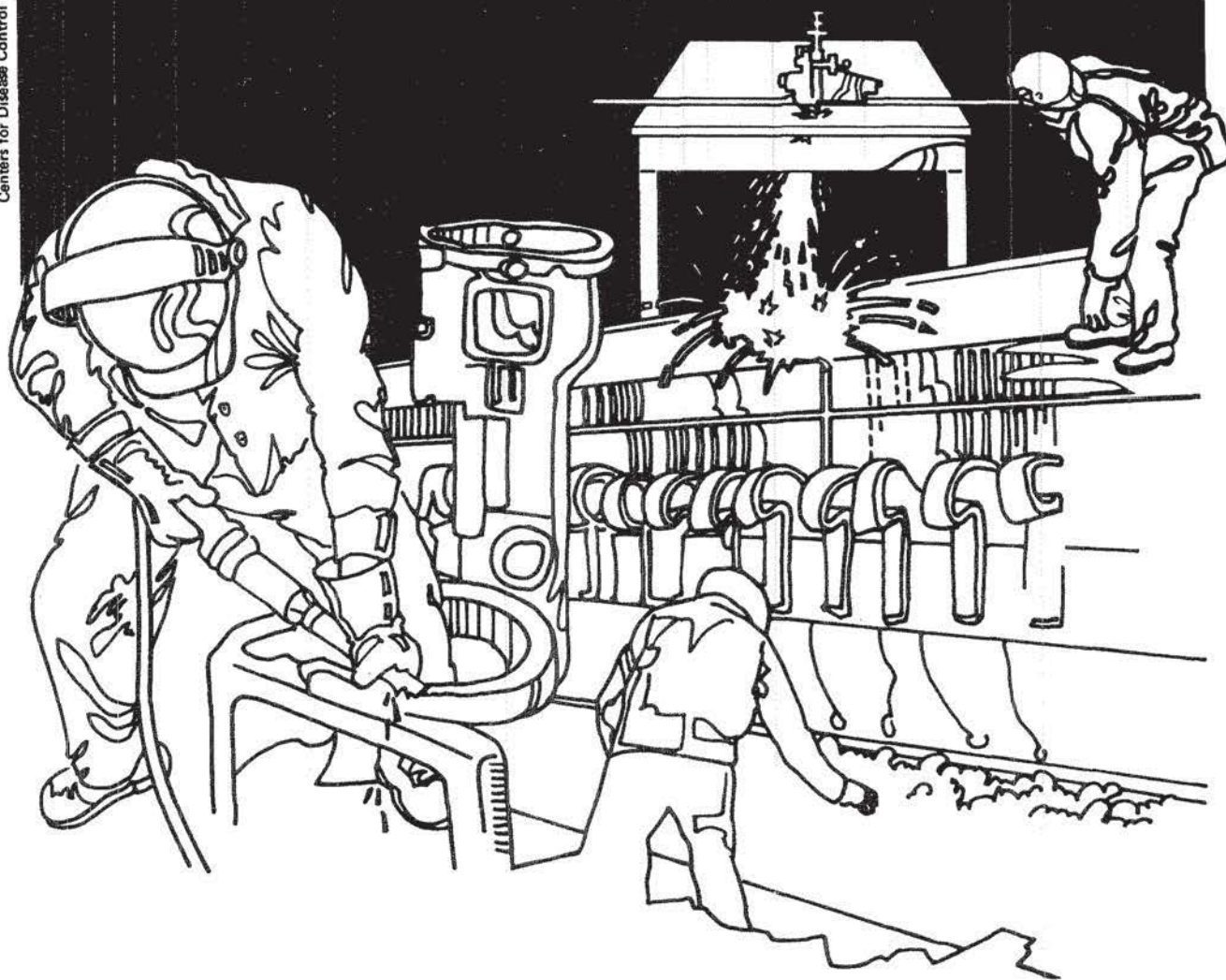


# NIOSH



## Health Hazard Evaluation Report

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NATIONAL INSTITUTE  
OF MENTAL HEALTH  
ROCKVILLE, MARYLAND

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## 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.

Mention of company names or products does not constitute endorsement by the National Institute for Occupational Safety and Health.

## I. SUMMARY

On October 10, 1981, the National Institute for Occupational Safety and Health (NIOSH) received a request from the National Institute of Mental Health, to evaluate possible health hazards in their office facilities occupying the C wing of the 10th floor in the Parklawn Building, Rockville, Maryland.

Employees of the Institute had complained of increased frequency of headaches, short-term memory loss, frequent transposition of numbers, general congestion, a systemic feeling of malaise, and other illnesses. The suspected etiologic agents were carbon dioxide and other unknown gases, fungi, or molds.

On February 18, 1982 a NIOSH investigator conducted an environmental survey. Area air samples for non-specific volatile organic compounds were collected. Detector tube measurements for carbon monoxide, formaldehyde, and ozone were taken. The ventilation system was evaluated using smoke tubes. Other environmental measurements included: temperature, humidity, and illumination.

Analysis of the samples for non-specific volatile organic compounds showed higher-chain C<sub>9</sub>-C<sub>12</sub> alkanes to be present in or at concentrations of approximately 3.5 milligrams per cubic meter (mg/M<sup>3</sup>). Carbon monoxide was measured at 3 parts per million (ppm). No ozone or formaldehyde was detected. The average dry bulb office temperature was 74°F. Relative humidity was 24% at 74°F. Illumination on desk surfaces ranged from 70 to 100 foot-candles.

Higher-chain alkanes in the concentrations measured here are frequently found in office environments, usually resulting from residual cleaning fluids. The low carbon monoxide levels are considered background levels. NIOSH recommends that exposures be less than 35 ppm on the basis of an 8 hour time-weighted average. Relative humidity was low for an office environment, the recommended level being 30%. Below that level, problems may arise with mucous membrane dryness and skin irritation resulting from dryness. The self-administered questionnaires indicated 11 of 20 workers reporting eye irritation, 19 of 20 skin irritation and 8 of 20 nasal congestion. These symptoms may all be associated with low humidity levels. Other reported symptoms are described in Table I. Illumination levels were adequate for the work situation observed in the offices. At least 65 footcandles are recommended for routine, non-detailed desk work. In addition, environmental data was reviewed which determined that hazardous microbial contamination by bacteria and fungi was not present during a previous survey conducted by other investigators during December 1978. Ventilation sufficiency in the offices was difficult to accurately assess without a detailed ventilation survey because the original office area has been subdivided by partitions.

On the basis of the environmental survey conducted February 18, 1982, NIOSH concludes that no health hazards due to the suspected contaminants existed at the time of the survey. Relative humidity was measured to be at levels less than comfortable and air flow patterns were interrupted by room partitions. A ventilation engineer should be enlisted to determine the adequacy of supply and exhaust air for the offices in question.

KEYWORDS: SIC 9100 (Federal Government) Office Environment

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III. DISTRIBUTION AND AVAILABILITY OF REPORT

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. National Institute of Mental Health, Rockville, Maryland
2. NIOSH, Region III
3. OSHA, Region III

For the purpose of informing 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.