U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
CENTER FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
CINCINNATI, OHIO 45226

HEALTH HAZARD EVALUATION DETERMINATION
REPORT NO. HE 79-54-578

HORIZON HOUSE INSTITUTE FOR RESEARCH AND DEVELOPMENT
PHILADELPHIA, PENNSYLVANIA

APRIL, 1979

I. TOXICITY DETERMINATION

It has been determined, based on environmental evidence, that a hazard to the health of employees exposed to unknown odors did not exist at the Horizon House Institute for Research and Development (HHIRD) Philadelphia, Pennsylvania, during the period of a Health Hazard Evaluation conducted by NIOSH on February 27 and 28, 1979.

The evaluation revealed some workplace conditions such as high temperatures, low relative humidity, a non-functioning exhaust fan, and marginally inadequate lighting which could be causing the reported complaints of headaches, dry mouth and nausea.

Environmental sampling for possible airborne contaminants; carbon monoxide (CO), carbon dioxide (CO_2), oxides of nitrogen (NO_x), ozone (O_3), sulfur dioxide (SO_2), and total organic vapors revealed that the substances were not detected or were well below toxic concentrations.

Recommendations are included in this report to help improve the working environment.

II. DISTRIBUTION AND AVAILABILITY OF DETERMINATION REPORT

Copies of this Determination 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 Service (NTIS), Springfield, Virginia. 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:

a) Horizon House Institute for Research and Development, Philadelphia, Pennsylvania 19144
b) Authorized Representative of Employees, Horizon House Institute for Research and Development, Philadelphia, Pennsylvania 19144
c) U.S. Department of Labor, Region III
d) NIOSH, Region III

For the purpose of informing the approximately 5 "affected employees" the employer shall promptly "post" for a period of thirty calendar days, this Determination Report in a prominent place(s) near where exposed employees work.

III. INTRODUCTION

Section 20 (a)(6) of the Occupational Safety and Health Act of 1970, 29 U.S.C. 669 (a)(6), authorizes the Secretary of Health, Education, and Welfare, following a written request by an 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 National Institute for Occupational Safety and Health (NIOSH) received such a request from an authorized employee representative regarding worker exposures to an unknown substance(s). The request stated that employees had been experiencing headaches, dry mouth, and dizziness for about six months.

IV. HEALTH HAZARD EVALUATION

A. Facility Description

HHIRD is located on the first floor of a multi-story apartment building and occupies 4 separate apartment areas (L-3, L-4, L-8, L-95). The apartments are being utilized for offices. The offices are heated by water heatolators located along the base of the exterior walls. There is no ventilation except for an exhaust vent in the restroom and kitchen. Each room is fully carpeted.

B. Process Description

HHIRD conducts mental health education research and training. The majority of the work is sponsored by grants, some of which are received from the National Institute for Mental Health. The employees are primarily social workers, librarians and clerical staff. There are about 28 full-time employees most of whom work variable hours in the offices. The chief supervisor is a psychologist.

C. Environmental Evaluation

Environmental testing for possible airborne contaminants was conducted utilizing direct reading instruments. Drager* indicator tube samples for CO, CO_2, NO_x, O_3, SO_2 and total hydrocarbons were obtained in the L-3 area apartment where the health complaints had originated. Measurements to screen for total airborne organic vapors were made with an Organic Vapor Analyzer (OVA). Temperature, relative humidity and illumination measurements were also obtained in the office areas. The workplace was inspected and the kitchen exhaust duct's airflow was qualitatively evaluated with smoke tubes. A member of the building maintenance department was contacted for relevant information.

D. Medical Evaluation

Each employee was given the opportunity to complete non-directive medical questionnaires.

E. Environmental Criteria

The following occupational exposure criteria were used in evaluating the environmental airborne contaminants found at the time of the surveys: (1) National Institute for Occupational Safety and Health (NIOSH), Recommended Criteria for Occupation Exposures, (2) American Conference of Governmental Industrial Hygienists (ACGIH), Threshold Limit Values for Substances and Physical Agents in the Workroom Environment and Supporting Documentation, and (3) U.S. Department of Labor, Occupational Safety and Health Administration (OSHA). Standards (29CFR 1910.1000, Tables Z1, Z2, and Z3). Table I contains the current airborne single substance exposure criteria. These criteria are designed to protect most workers for an eight to ten hour day, forty-hour week, during a normal working lifetime. However, there are numerous factors that may influence an individual's response to a particular substance such as; age, sex, health status, smoking and alcohol habits, etc. Also, these criteria are based on single substance inhalation exposures; thus, effects from exposures to combination of substances may be additive or synergistic when the substances elicit similar physiological responses.

* Mention of manufacturer's name does not constitute a NIOSH endorsement.

F. Results and Discussion

The results of the environmental and medical evaluation are contained in Table I. As the results indicate there were no toxic exposures to CO, CO_2, SO_2, NO_x, O_3 or hydrocarbons and only a few employees had reported experiencing adverse health effects.

The evaluation found that the kitchen exhaust ventilation was not functioning thus allowing odors, etc., to be able to downdraft into the work area. Also, the gas stove pilot lights were evoking a slight gas odor. A 5-gallon can half full of paint was also found in this area which could potentially add to the odors which periodically affect the employees. The temperature was relatively high (80°F+) and the relative humidity low (∿15%), conditions which could cause dry mouths and throats. The heat, lack of airflow, possible odor infusions and borderline inadequate lighting (45-60 footcandles) could all be factors in producing the reported headaches.

IV. CONCLUSIONS/RECOMMENDATIONS

A. Conclusions

It has been found that no toxic agents were present to account for the alleged health effects but environmental conditions (ventilation, temperature, relative himidity, lighting, etc.) were found which could contribute to producing the reported symptoms.

B. Recommendations

1. The exhaust ventilation in the L-3 area needs to be repaired so that it actually exhausts. This would also help the general room air circulation.

2. The can of paint should be removed.

3. The temperature should be lowered 10°F. and this would help increase the relative himidity 5-10%. Additional humidity could be added by a small portable humidifier.

4. If further incidences occur, the building maintenance department should be contacted immediately. Also, the local health department could be contacted for an inspection to determine if local housing, plumbing and ventilation codes are in compliance.

5. Additional or brighter lighting should be considered.

V. ACKNOWLEDGEMENTS

Report Prepared By:

Gary L. White, M.S.
Industrial Hygienist
Industrial Hygiene Section
Hazard Evaluation and
Technical Assistance Branch
Cincinnati, Ohio

Originating Office:

Jerome P. Flesch
Acting Chief
Hazard Evaluation and
Technical Assistance Branch
Cincinnati, Ohio

Report Typed By:

Marlene Hamilton
Secretary
Office of the Director
Division of Surveillance, Hazard
Evaluations, and Field Studies
Cincinnati, Ohio

TABLE 1

Environmental Measurement and Medical Questionnaire Results
Horizon House Institute for Research and Development
Philadelphia, Pennsylvania
HE 79-54

February 27,28, 1979

A. Environmental Conditions: Indoors, Temperature 80°F., Relative Humidity ∿15%, 0900 HR

Description	Results (ppm)*					
	CO[1]	CO_2[2]	NO_x[3]	O_3[4]	SO_2[5]	Total Organic
L-3 offices	5	<0.1%	N.D.**	N.D.	N.D.	10
L-3 kitchen	5	<0.1%	N.D.	N.D.	N.D.	20

B. Environmental Criteria

NIOSH	35	0.1%	1	--	0.5	--
OSHA	50	0.5%	5	0.1	5	--
ACGIH	50	0.5%	5	0.1	2	--

---

* parts per million
** not detected
1. carbon monoxide
2. carbon dioxide
3. oxides of nitrogen
4. ozone
5. sulfur dioxide
6. "<" denotes less than

C. Medical Questionnaire Results

1) Total employment ∿ 28 plus there are several part-time students/trainees
2) # of employees completing questionnaire - 5*
3) # of employees with symptoms - 3 (60%)
4) # of employees without symptoms - 2 (40%)

* Employees outside of the L-3 area chose not to participate as did one L-3 employee

D. Frequency Distribution of Symptoms

Symptom	No. of Employees Reporting Symptom
Dry mouth	3
Headaches	2
Nausea	1
Dizziness	0