U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
CINCINNATI, OHIO 45202

HEALTH HAZARD EVALUATION DETERMINATION REPORT 73-45-102
WHEELING-PITTSBURGH STEEL CORPORATION
STEUBENVILLE, OHIO

DECEMBER 1973

I. TOXICITY DETERMINATION

Based on the results of an environmental evaluation conducted by the National Institute for Occupational Safety and Health (NIOSH) on September 5, 1973, it has been determined that carbon monoxide (CO) exposures were not hazardous to employees when the administrative controls were used at Wheeling-Pittsburgh Steel Corporation, Steubenville, Ohio.

Prior to the date of this evaluation, CO had been a hazard to the crane operators and the workers below the crane operators in the annealing furnace area. Wheeling-Pittsburgh Steel Corporation has initiated administrative controls endorsed by NIOSH and the Department of Labor on time limits for people exposed to certain concentrations of CO. These administrative controls may be reviewed in Appendix 1. The Corporation is also installing exhaust ventilation above the crane operators which will eliminate the build-up of CO.

II. DISTRIBUTION AND AVAILABILITY

Copies of this hazard evaluation determination are available upon request from the Hazard Evaluation Services Branch, NIOSH, U.S. Post Office Building, Room 508, 5th and Walnut Streets, Cincinnati, Ohio 45202. Copies have been sent to:

(a) Wheeling-Pittsburgh Steel Corporation
(b) Authorized Representative of Employees
(c) U.S. Department of Labor - Region V
(d) NIOSH - Region VIII

For the purpose of informing approximately 35 exposed employees, this report shall be posted in a prominent place readily accessible to workers for a period of at least 30 days.

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 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 National Institute for Occupational Safety and Health received such a request from the union representative, Local #1190, U.S.W.A., Steubenville, Ohio, to evaluate the potential hazards associated with the alleged exposures to CO in the work place.

IV. HEALTH HAZARD EVALUATION

A. Plant Process

This plant manufactures hot and cold rolled steel. Rolled steel is treated in annealing furnaces by applying additional heat. The annealing furnaces are heated by natural gas or by coke oven gas. CO levels are increased by various gas leaks in the annealing areas and by incomplete combustion of the gases.

B. Evaluation Design

The annealing furnace area was evaluated by measuring both breathing zone and general room air for CO concentrations.

C. Methods

CO samples were taken using Draeger detector tubes and also by use of an MSA portable battery-operated CO analyzer.

D. Evaluation Criteria

The occupational health standard relevant to the substance of this evaluation as promulgated by the U.S. Department of Labor (Federal Register, October 18, 1972) is as follows:

Substance	ppm
Carbon Monoxide.....	50

ppm - parts of vapor or gas per million parts of contaminated air by volume.

Occupational health standards are established at levels designed to protect individuals occupationally exposed to individual substances on an 8-hour per day, 40-hour per week basis over a normal working lifetime. NIOSH has forwarded to the Department of Labor a recommended criteria for exposure to CO of 35 ppm for an 8-hour day, 40-hour week.

E. Evaluation Results and Discussion

This evaluation was started and completed on September 5, 1973. The CO levels at the time of this evaluation were not extremely high (25-50 ppm). The Corporation has shown initiative in seeking help from NIOSH and the Occupational Safety and Health Administration, Department of Labor, in developing administrative controls until such time that an exhaust ventilation system is provided to eliminate CO exposure.

It is believed that strict adherence to the work-rest schedule presented in Appendix 1 will offer adequate protection to employees exposed to the concentrations of CO measured during this evaluation.

F. Recommendations

1. The employer should require strict adherence to the work-rest schedule to preclude adverse employee exposure to CO.

2. Monitoring of the annealing furnace area for carbon monoxide should be continued by management until a safe level of CO is documented.

V. AUTHORSHIP AND ACKNOWLEDGMENT

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APPENDIX 1

NIOSH RECOMMENDATIONS FOR A WORK-REST SCHEDULE FOR VARIOUS EXPOSURES TO CARBON MONOXIDE

Carbon Monoxide Concentration	Work-Rest Schedule
100 ppm	4 hours 15 minutes - WORK 2 hours 15 minutes - REST (free from carbon monoxide exposure) 1 hour 30 minutes - WORK