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HEALTH HAZARD EVALUATION REPORT 72-5-9

HAZARD EVALUATION SERVICES BRANCH  
DIVISION OF TECHNICAL SERVICES

Establishment: General Motors Parts Distribution Center  
Cincinnati, Ohio

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

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HEALTH HAZARD EVALUATION REPORT 72-5  
GENERAL MOTORS PARTS DISTRIBUTION CENTER  
CINCINNATI, OHIO

JUNE 1972

SUMMARY DETERMINATION

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 an authorized representative of employees to evaluate the potential health hazards associated with exhaust gases being emitted from trucks involved in the transport of parts to and from the distribution center.

Based on information obtained during the survey, potential hazards to which workers could be exposed were: (1) carbon monoxide from gasoline engines, and (2) oxides of nitrogen and aldehydes from diesel engines.

Air sampling conducted on March 16, 1972 showed carbon monoxide concentration levels ranging from 5 to 30 ppm which are below the federal standard of 50 ppm promulgated by the U.S. Department of Labor (Federal Register, Part II, Section 1910.93, Table G-2). Interviews with employees indicated: (1) no symptoms of carbon monoxide poisoning, and (2) occasional incidents of eye and bronchial irritation consistent with exposure to diesel exhaust fumes. Recommendations have been made to management to obviate potential problems associated with the operations.

Copies of this Summary Determination, as well as the Full Report of the evaluation, are available upon request from the Hazard Evaluation Services Branch, NIOSH, 550 Main Street, Cincinnati, Ohio 45202. Copies of both have been sent to:

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- a) General Motors Parts Distribution Center
- b) Authorized representative of employees
- c) U.S. Department of Labor - Region V

For purposes of informing "affected employees," the employer will promptly either (1) "post" the Summary Determination in a prominent place near where affected employees work for a period of 30 days, or (2) provide a copy of the determination to each affected employee.

## I. 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 an authorized representative of employees of the General Motors Regional Parts Distribution Center at 11575 Reading Road, Cincinnati, Ohio 45241.

The Distribution Center receives, stocks, and distributes automobile parts. Parts are brought in by rail and truck and stored in bins, racks, shelves, etc., in a block building estimated to be 400' x 400' x 20'. Adjacent to the stocking area is the shipping area where parts are prepared for shipping. This area is estimated at 200' x 100' x 20'. Adjacent to this area is the truck dock and parking bays. This parking area can hold approximately 8 to 10 semi-trailers and tractors.

It is estimated that during a typical day 15 to 20 trucks, mostly gasoline powered, enter, are loaded, and leave. Outside doors in the parking area are left closed in cold weather since the parking area is heated. Doors between the parking area and the shipping area are left open to facilitate loading.

A typical shipping operation is as follows:

- 1) The outside door opens.
- 2) Truck backs into dock, shuts off engine.
- 3) Outside door is closed.
- 4) Truck is loaded.
- 5) Truck starts engine, runs at fast idle for 1 to 3 minutes to build up air pressure in brake system.
- 6) Door opens, truck departs.

## II. BACKGROUND HAZARD INFORMATION

The occupational health standards as promulgated by the U.S. Department of Labor (Federal Register, Part II, Section 1910.93, Tables G-1 and 2) applicable to substances of this evaluation are as follows:

<u>Substance</u>	<u>Standards</u>	
	<u>ppm<sup>a</sup></u>	<u>mg/M<sup>3</sup><sup>b</sup></u>
Carbon Monoxide	50	55
Nitrogen Dioxide	5	9

<sup>a</sup>Parts of vapor or gas per million parts of contaminated air by volume at 25°C. and 760 mm. Hg pressure.

<sup>b</sup>Approximate milligrams of contaminant per cubic meter of air.

### III. HEALTH HAZARD EVALUATION

An observational Hazard Evaluation survey was conducted on March 16, 1972, by National Institute for Occupational Safety and Health representatives David J. Burton, Robert N. Ligo, M.D., and Steven K. Shama, M.D. The purpose of the visit and the role of the National Institute for Occupational Safety and Health was explained to , Superintendent, Cincinnati Parts Distribution Center, and to , General Supervisor, Cincinnati Parts Distribution Center--Order Department. Both gentlemen aided in the completion of the NSN Part I questionnaire.

Accompanied by the authorized employee representative, the five above mentioned toured the facility.

The only manifestations of toxic effects from exposure to substances found in the work area, determined by employee interview, were mild and infrequent incidents of irritation to eyes and throat. Diesel exhaust gases which can contain aldehydes and oxides of nitrogen can produce such effects.

#### A. Environmental Findings

1. Carbon Monoxide - Results of sampling are shown in Table 1.
2. Oxides of Nitrogen - No environmental sampling was undertaken. NO<sub>2</sub>, however, is readily detectable at its threshold limit value due to its pungent, sweetish odor. During the survey, no odor could be detected.
3. Fork-lift exhausts. During the survey only electric powered fork-lifts were in use. Gasoline or propane operated fork-lifts are utilized only when the electric fork-lift trucks are being repaired.

#### B. Medical Findings

No symptoms compatible with carbon monoxide poisoning were reported by the workers interviewed. Some workers reported irritation of the eyes, nose, and throat when diesel trucks were allowed to run their motors longer than necessary in the loading and receiving areas.

### IV. RECOMMENDATIONS

Although Federal Standards for carbon monoxide were not exceeded during the survey, it is quite likely that carbon monoxide or oxides of nitrogen levels will rise above Federal Standards under certain circumstances (outside doors closed, several trucks at once building up air pressure, and inside exhaust fans shut off.) Therefore, the following recommendations are made:

1. Trucks should warm up, or bring up air pressure outside the parking dock area.
2. Regular use of gasoline or propane powered fork-lifts inside the building should be avoided.
3. Roof exhaust fans should be operated regularly to insure adequate air changes within the building.

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TABLE 1  
CARBON MONOXIDE CONCENTRATIONS, MARCH 16, 1972\*

Location	Time	ppm	% of TLV
Shipping L-4	2:50 p.m.	10	20%
Stock Room Aisle 40	3:00 p.m.	5	10%
Receiving Section 100	3:10 p.m.	5	10%
Receiving Truck Dock	3:15 p.m.	5	10%
Shipping Supt. Office	3:20 p.m.	5	10%
Shipping L-4	3:25 p.m.	5	10%
Dock No. 4 (Truck Leaving)	2:35 p.m.	30	60%
Dock No. 4 (Truck Entering)	2:40 p.m.	20	40%
Dock No. 4	2:45 p.m.	10	20%

\*MSA continuous monitoring CO meter--zeroed between readings.