75-000-003

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL

October 15, 1974

NATIONAL INSTITUTE FOR OCCUPATIONAL
SAFETY AND HEALTH
U.S. POST OFFICE AND COURTHOUSE
CINCINNATI, OHIO 45202

Mr.
S & S Corporation
Route 2, Box 7
Cedar Bluff, Virginia 24609

Dear

On July 29-30, 1974 representatives of the National Institute for Occupational Safety and Health conducted a survey of S & S Corporation's welding and fabrication operations. Primary emphasis was directed toward environmental sampling for iron oxide (Fe_2O_3) fumes in the Trailer, Frame, and Parts Departments. Personal and area samples were collected using a portable sampling pump in conjunction with a mixed cellulose filter with an 0.8u pore size at a flow rate of 1.7 liters per minute (lpm). Personal samples were collected at the employees' breathing zone, while area samples were collected in the near proximity of the work being performed. The sampling results are presented as Table I.

In addition to the above, samples were collected in the appropriate production departments for phosgene, oxides of nitrogen, ozone, carbon monoxide, perchloroethylene, and trichlorethylene using length of stain detector tubes. Detector tube results are presented as Table II.

Table I, concentrations of iron oxide, were well within the U.S. Department of Labor Standard with the exception of Sample #4873. The low concentrations are attributed to the fact that the large double doors on either side of the building were open, thereby providing adequate natural ventilation.

During the winter months, however, natural ventilation would be reduced considerably and an increase of iron oxide fumes in welding areas would be anticipated. Please notice that personal sample concentrations are significantly higher than area concentrations. This is due to the lack of local exhaust ventilation.

Table II, detector tube results, indicates that exposure to phosgene, ozone, carbon monoxide, and oxides of nitrogen were below U.S. Department of Labor Standards. Concentrations of perchloroethylene and trichloroethylene at degreasing tanks with lids open in the Electrical and Fabrication Departments were at or above the current standard. With the lids closed, concentrations were non-detectable. Ventilation should be used to reduce solvent vapor concentration at the degreasers when the lids are open. In addition, welding must not be performed in the near proximity of these degreaser tanks. (29 CFR 1910.252(f)(11)(ii)).

During the survey, welding operations were being performed in violation of U.S. Department of Labor Standards 29 CFR 1910.252(e)(2)(iii) as they pertain to employee protection from arc welding rays. Corrective action should be implemented immediately. I suggest you refer to Subpart Q of the Federal Standards to ensure that welding operations throughout the plant are in compliance.

At this time, and in view of the data presented, I do not feel that a resurvey would be necessary. When local ventilation is installed and utilized at the welding stations, a significant reduction in iron oxide fumes should be realized. If, however, you require assistance in the future, feel free to contact me.

Sincerely yours,

Joseph A. Seta

Joseph A. Seta
Industrial Hygiene Services Branch
Division of Technical Services

Enclosures - 2 Tables

TABLE I

Iron Oxide (Fe_2O_3) Concentrations

S & S Corporation
Cedar Bluff, Virginia

7/30/74

Filter No.	Type of Sample	Area	Fe_2O_3 Concentration (mg/M^3)
4859	Personal	Trailer Dept 31	3.4
4862	Personal	Trailer Dept 31	0.5
4861	Area	Trailer Dept 31	0.6
4863	Personal	Frame Dept 51	4.7
4864	Personal	Frame Dept 51	5.6
4865	Area	Frame Dept 51	0.5
4868	Personal	Parts Dept 41	6.4
4873	Personal	Parts Dept 41	10.6
4860	Area	Parts Dept 41	0.5

TABLE II

Length of Stain Detector Tube Results

S & S Corporation
Cedar Bluff, Virginia

7/30/74

DEPARTMENT	CONTAMINANT	CONCENTRATION (ppm)
Trailer	Phosgene	N.D.
Trailer	Oxides of Nitrogen	N.D.
Trailer	Ozone	N.D.
Trailer	Carbon Monoxide	5
Frame	Phosgene	N.D.
Frame	Ozone	N.D.
Frame	Oxides of Nitrogen	0.25
Frame	Carbon Monoxide	3
Parts	Phosgene	N.D.
Parts	Ozone	N.D.
Parts	Oxides of Nitrogen	4
Parts	Carbon Monoxide	30
Electrical	Perchloroethylene	190
Electrical	Trichloroethylene	250
Fabrication	Perchloroethylene	110
Fabrication	Trichloroethylene	100

N.D.=non detectable