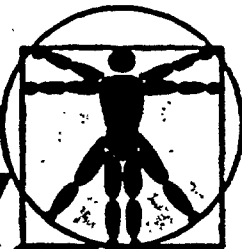


Health by Design



54th All-Ohio Safety Congress
& Exhibit, April 24, 25, 26, 1984

PLAINTIFF'S
EXHIBIT
BRK-104

Richard F. Celeste, Governor

Leonard T. Lancaster, Chairman, The Industrial Commission of Ohio
John A. Pompl, Superintendent, Division of Safety and Hygiene
Mary E. Horvath, Congress Coordinator

April 4, 1984

Industrial Commission of Ohio
Legal Section
246 North High Street
Columbus, Ohio 43215

Attn: Judy Spencer

RE: OD 20895-22
Beverly McGeorge
G.M.D. Van Plant
Lordstown, Ohio

Dear Ms. Spencer:

On February 9, 1984, a visit was made to the General Motors, Assembly Division Van Plant, located at Lordstown, Ohio, to investigate possible health hazards associated with MIG welding in the body shop at this operation. Personal air monitoring of the MIG welder occupation was carried out during a second visit on February 16, 1984. At your request, this report has been prepared based on information obtained during these visits, in addition to information supplied in the facsimile file which you have provided.

The above named claimant, who was first hired at General Motors in October of 1977, has been employed primarily as a welder, both in the Passenger Plant and in the Van Plant. His duties have involved resistance spot welding and MIG welding, with his most recent assignment, prior to the diagnosis of his illness on June 6, 1983, being a MIG welder in Department 26 of the Van Plant. He began these duties in mid March of 1983, immediately following recall from a layoff of slightly over one year.

It should be noted that although this claimant has been a G.M. employee since 1977, his work record has been rather sporadic over the two year period prior to his illness. From May of 1981 through May of 1983, this individual has worked approximately 27 weeks, while he has been on sick leave or layoff status for approximately 81 weeks. Work records prior to 1981 were not available during the plant visits.

The claimant alleges that his condition, which has been diagnosed as chronic obstructive lung disease, has resulted from contaminants he has experienced at work, specifically as a welder in the body shop (Department 26) of the Van Plant. Additional illnesses which have been diagnosed in this claimant, but not named by him on his claim application, include coronary heart disease, hypertension and diabetes.

Although the claimant has indicated that no air is available to remove welding fumes from the work area, local exhaust ventilation is available within a few feet of the surfaces being welded. In addition fresh air is supplied from behind and above the welders and moves the welding fumes into the direction of the exhaust ports. This push-pull type system appears to be doing an adequate job in removing possible contaminants from the work area.

An evaluation of personal exposures to welding fumes was carried out on February 16 at the claimant's former work site in the body shop of the Van Plant. In obtaining the air samples, two MIG welders wore battery operated sampling pumps which were equipped with cellulose ester membrane filters. Following as reported by an American Industrial Hygiene Association Accredited Lab are the results of analysis of these samples for metal fume:

MIG Welder	Air Contaminant	8-hr. TWA Concentration(mg/M ³)	ACGIH TLV(mg/M ³)
Driver Side	Iron Oxide Fume	0.76	5.0
	Zinc Oxide Fume	0.14	5.0
	Copper Fume	0.02	0.2
Passenger Side	Iron Oxide Fume	0.78	5.0
	Zinc Oxide Fume	0.24	5.0
	Copper Fume	0.14	0.2
Combined Average	Iron Oxide Fume	0.77	5.0
	Zinc Oxide Fume	0.19	5.0
	Copper Fume	0.08	0.2

TWA - Time-weighted average

TLV - Threshold Limit Value

mg/M³ - Milligrams per cubic meter of air sampled

ACGIH - American Conference of Governmental Industrial Hygienists

Reviewing the previous results of monitoring, it is indicated that concentrations of metal fumes from the welding operation are being maintained at levels below the exposure limits which have been suggested by the ACGIH. At exposure levels below the suggested TLVs, symptoms such as respiratory irritation and metal fume fever should not be experienced. In addition to the personal monitoring which was carried out, spot checks for concentrations of ozone, nitrogen dioxide, carbon monoxide, and total nitrous fumes were carried out with the use of Drager detector tubes. These possible contaminants either existed at trace levels or were not detected.

Regarding the toxicity of the three most expected contaminants in the welding fume, the following general information is provided in NIOSH (Publication 77-181), Occupational Diseases, A Guide to Their Recognition, and in the ACGIH - Documentation of TLVs:

Iron Oxide Fume - The inhalation of iron oxide fume may cause a benign pneumoconiosis called siderosis. Although not considered disabling, this condition, thought to be a pigmentation of the lungs, can produce x-ray findings which may be indistinguishable from fibrotic pneumoconiosis, a condition which can cause severe respiratory disability but is not associated with exposure to iron oxide. The TLV for iron oxide has been set at 5 mg/M³, a level believed to be sufficiently low to prevent the development of x-ray changes in the lungs on long-term exposure.

Zinc Oxide Fume - Exposure to zinc oxide fume may cause dryness and irritation of the throat accompanied by a dry cough. Several hours following an excessive exposure to zinc oxide fume, an individual may develop metal fume fever syndrome. This condition, which usually subsides in 24-48 hours, produces flu-like symptoms with shortness of breath, cough, general malaise and weakness, muscle pain and fever. The TLV has been established at 5 mg/M³, a level below which the incidence of metal fume fever will be low and any attacks which occur will be mild.

Copper Fume - Inhalation of copper fume may cause irritation of the upper respiratory tract and eyes, a metallic taste in the mouth, nausea and, as with zinc oxide, metal fume fever. A British study, cited in the Documentation of the TLVs, indicates that no ill effects from exposure to copper fumes were observed in exposures up to 0.4 mg/M³. The TLV for copper fume, because of its irritant effects, has been set at 0.2 mg/M³, a level considerably lower than the TLVs for iron oxide and zinc oxide.

Inasmuch as this claimant, up until June of 1983, when his illness occurred, had worked only 27 weeks in the preceding 25 month period, and the results of air monitoring at his former work site indicate contaminant levels which are within the TLVs suggested by the ACGIH, it has not been possible to relate his illness to excessive exposure to welding fume at work. It should also be noted that other than possible contaminants generated in welding, no other operations which could generate additional air contaminants are located near the claimant's former work site.

Threshold Limit Values refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect. Because of wide variations in individual susceptibility, however, a small percentage of workers may experience discomfort from some substances at concentrations at or below the

The claimant alleges that his condition, which has been diagnosed as chronic obstructive lung disease, has resulted from contaminants he has experienced at work, specifically as a welder in the body shop (Department 26) of the Van Plant. Additional illnesses which have been diagnosed in this claimant, but not named by him on his claim application, include coronary heart disease, hypertension and diabetes.

Although the claimant has indicated that no air is available to remove welding fumes from the work area, local exhaust ventilation is available within a few feet of the surfaces being welded. In addition fresh air is supplied from behind and above the welders and moves the welding fumes into the direction of the exhaust ports. This push-pull type system appears to be doing an adequate job in removing possible contaminants from the work area.

An evaluation of personal exposures to welding fumes was carried out on February 16 at the claimant's former work site in the body shop of the Van Plant. In obtaining the air samples, two MIG welders wore battery operated sampling pumps which were equipped with cellulose ester membrane filters. Following as reported by an American Industrial Hygiene Association Accredited Lab are the results of analysis of these samples for metal fume:

MIG Welder	Air Contaminant	8-hr. TWA Concentration(mg/M ³)	ACGIH TLV(mg/M ³)
Driver Side	Iron Oxide Fume	0.76	5.0
	Zinc Oxide Fume	0.14	5.0
	Copper Fume	0.02	0.2
Passenger Side	Iron Oxide Fume	0.78	5.0
	Zinc Oxide Fume	0.24	5.0
	Copper Fume	0.14	0.2
Combined Average	Iron Oxide Fume	0.77	5.0
	Zinc Oxide Fume	0.19	5.0
	Copper Fume	0.08	0.2

TWA - Time-weighted average
TLV - Threshold Limit Value
mg/M³ - Milligrams per cubic meter of air sampled
ACGIH - American Conference of Governmental Industrial Hygienists

Reviewing the previous results of monitoring, it is indicated that concentrations of metal fumes from the welding operation are being maintained at levels below the exposure limits which have been suggested by the ACGIH. At exposure levels below the suggested TLVs, symptoms such as respiratory irritation and metal fume fever should not be experienced. In addition to the personal monitoring which was carried out, spot checks for concentrations of ozone, nitrogen dioxide, carbon monoxide, and total nitrous fumes were carried out with the use of Drager detector tubes. These possible contaminants either existed at trace levels or were not detected.

CERTIFICATE OF AUTHENTICITY

I certify that the microphotographs on this roll of film or microfiche are true and accurate reproductions of records generated by or received by the Ohio Bureau of Workers' Compensation, an agency of the State of Ohio, as required by Ohio Revised Code Section 4123.52 and Section 9.01 which require optimum protection from hazards of accidental destruction of records.

It is further certified that the photographic processes used for microfilming the above records were accomplished in a manner and on microfilm which meets the requirements of the National Bureau of Standards for permanent photographic copy.

William D. Kelle
Supervisor, Microfilming Unit

Date Filmed: 1-3-85
By: John Frey
(Camera Operator)

BWC-6226 (11/82)
RS-25

0000 0421