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Behind the Scenes IN SAFETY AND HEALTH

PLAINTIFF'S EXHIBIT BRK-20

January 22, 1986

Ms. Judy Spencer
Legal Section
Industrial Commission of Ohio
246 North High Street
Columbus, Ohio 43215

RE: OD 22918-22
George Schumacker
Inland Div-GM
Dayton, Ohio

Dear Ms. Spencer:

On December 10, 1985 I visited the Inland Division-GM complex to conduct an occupational disease investigation as filed by the aforementioned claimant. As part of this investigation, Freedom of Information requests were made to OSHA and to the National Institute for Occupational Safety and Health for any pertinent or related information that might be helpful to the investigation of this claim. The claimant has filed for TDI-Induced asthmatic bronchitis.

WORK HISTORY:

The claimant was hired in 1970 as a millwright. He has remained in this position throughout his job tenure at Inland Division-GM (Atch 1). As a millwright his assigned job tasks required his presence throughout the Inland Division-GM complex of plants located both in Dayton and Vandalia, Ohio. The job description of a millwright is enclosed for your information (Atch 2).

INVESTIGATION AND FINDINGS:

The claimant was not an isocyanate worker. That is, he was not involved routinely in any workprocesses where toluene disocyanate (TDI) or Methylene bisphenyl isocyanate (MDI) were used in the manufacture of automobile parts, i.e. seat cushions, dashboards. The company reported he would not have done any

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maintenance work where there could of been any chance exposure--that the manufacturing line would have been turned off before hand. That the foam containing TDI or MDI would have solidified with no vapors being given off. Further, there is nothing in Inland Company records relating to two incidents mentioned by the claimant in the facsimile file. That is, exposure to TDI on the roof of Building 13 from a "roof steam heater or exhaust fan." Secondly, the mention of "working in Plant 870 (meaning Dept. 870) repairing mold lines and changing TDI pumps." I cannot prove or disprove these statements, nor has Inland any air sampling data for such incidents even though the TDI pumps are reportedly changed on an apparent regular maintenance basis.

Review of the OSHA and NIOSH inspections or evaluations reveals there have been some direct worker exposure to isocyanates in the manufacturing process. The NIOSH Final Report Phase II Health Hazard Evaluation Project No. HE78-39, Inland Division, GMC, Vandalia, Ohio, July 1980, in their conclusion states:

> "A health hazard appeared to be present at general Motors Corporation Plant at Vandalia, Ohio in the past. Current industrial hygiene measurements were within recommended NIOSH threshold limit value. Apparently, a significant number of improvements have recently been made in the medical surveillance and safety procedures at the plant to reduce exposure and identify affected workers. the high prevalence of asthma and bronchitis symptoms among previously and currently exposed workers and the significantly high percentage of workers transferred from isocyanate jobs because of pulmonary reasons in the past strongly suggest that a hazard to isocyanate exposure was present at some time in the past."

Toxicolgy:

The American Conference of Governmental Industrial Hygienist Threshold Limit Value for Toluene diisocyanate has been formally lowered to .005 ppm based on an eight hour time-weighted average with a STEL of .02 ppm recently. The STEL is defined as, "a 15 minute time-weighted average exposure which should not be exceeded at any time during a workday even if the eight-hour time-weighted average is within the threshold limit value. Exposures at the STEL should not be longer than 15 minutes and should not be repeated more than four times per day. There should be at least 60 minutes between successive exposures at the STEL. An averaging period other than 15 minutes may be recommended when this is warranted by observed biological effects."

The OSHA permissible exposure limit (PEL) has not changed. The reasons for the disparity in these levels between the two organizations is that the ACGIH reviews and updates their TLV's yearly based on "the test available information from industrial experience, from experimental human and animal studies, and, when possible, from a combination of the three." OSHA at its inception adopted the TLV concept and promulgated them into law around 1970 using the term "PEL" instead of "TLV." The have never been updated, nor were they intended to be used as "pass or fail" as OSHA uses them. Hence, it should be easily understood that the ACGIH is the most current, up-to-date, exposure recommendation. The preface to the ACGIH TLV Concept states:

> "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 threshold limit; a smaller percentage may be affected more seriously by aggravation of a pre-existing condition or by development of an occupational illness. The TLV-TWA should be used as guides in the control of health hazards and should not be used as fine lines between safe and dangerous concentrations."

Review of the ACGIH Documentation of TLV's(1) reveals the following rationale regarding the lowering of the TLV value for Toluene diisocyanate. It states:

> The previous TLV of 0.02 ppm, which has been unchanged for over 15 years, appears to have been a compromise between the findings of Homa, on the one hand, and Elkins et al. on the other. More recent studies, especially by Peters' group, indicate that even a 0.01 ppm limit is to hihg. NIOSH, in its criteria document for TDI, published in 1973, after a thorough review of the literature available at that time, recommended a workplace environmental standard of 0.005 ppm, as a TWA, with a 20-minute ceiling of 0.02 ppm.. The most recent report by wegman et al indicates a threshold of response at about 0.002 ppm and, even this low value, may not protect sensitized workers."

Currently, the National Institute for Occupational Safety and Health has recommended the permissible exposure level of 0.02 per million ceiling for toluene diisocyanate be lowered to 0.005 parts per million with a ceiling exposure of 0.02 parts per million allowed for 20 minutes. It has yet to be promulgated into a standard however. The American Conference of Governmental

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Industrial Hygienists proposed a similar change in the Threshold Limit Values for Chemical Substances and Physical Agents in the Workroom environment with Intended Changes for 1980, and which is now the current TLV. The philosophy of recommended lowering of the toluene diisocyanate permissible exposure limit is explained in the NIOSH Criteria for a Recommended Standard . . . Occupational exposure to Diisocyanates, Pub #78-215, dtd September, 1978.

Research of other selected references reveal that such asthmatic responses is common to workers exposed to toluene diisocyanate. One reference states, the onset of symptoms of sensitization may be insidious, becoming progressively more pronounced with continued exposure over a period of days to months; initial symptoms are often nocturnal dyspnea and/or nocturnal cough with progression to asthmatic bronchitis. Often when the respiratory illness has become incapacitating and the worker has been hospitalized or otherwise removed from the worksite, a return to work causes an acute and severe asthmatic attack almost immediately or within a few hours. In another pattern of sensitization response, a worker who has had only minimal upper respiratory symptoms or no apparent effects from several weeks of low level exposure may suddenly develop an acute reaction to the same or slightly higher level. The asthmatic reaction may be severe.

CONCLUSIONS:

The claimant has worked in the Vandalia plant for a total of about four weeks since 1970 as reported by Inland. This is the only place where the claimant could have apparently experienced any direct exposure to isocyanates. Of further interest to this case is the apparent negative methacholine provocation test administered to the claimant (Ltr dtd April 18, 1984) at the Cleveland Clinic. With the limited, if any, exposure and the negative challenge test I find it difficult to support a cause and effect relationship even though the NIOSH study(s) suggest an isocyanate health hazard was present in past years. I would take this statement to mean a health hazard to workers directly involved, on a routine basis, with the manufacturing processes involving isocyanates--not those of an incidental nature.

Respectfully,

Glenn L. Davis
Industrial Hygienist

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Reference

1. American Conference of Governmental Industrial Hygienists Documentaion of the TLV's, 4 Edit., 1980.

RECORDS
CERTIFICATION

I, the undersigned, an employee of the Bureau of Workers' Compensation, do hereby certify that the microfilm images on this reel of microfilm or microfiche are complete and accurate reproductions of the original records of the S+H as accumulated during the regular course of business, and that it is the established procedure of this department to microfilm its records for permanent file and to dispose of the original records after microfilm reproductions have been made.

William D. Kaye
SUPERVISOR, Microfilming Unit

John Fry
Name (Camera Operator)

10/27/86
Date

10-27-86
Date