FILE NAME: Chrysler (CHRY)

DATE: 0000

DOC#: CHRY121

DOCUMENT DESCRIPTION: Govt Letter RE Inspection Results

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

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Occupational Safety &
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March 23, 198

Mr. Carl Lancucki
Operations Manager
Chrysler Chemical Division
5437 West Jefferson72
Trenton, Michigan 48183

Dear Mr. Lancucki:

The preliminary analysis of results from the medical evaluation of the Chrysler Trenton Chemical Plant employees has been completed. The following report summarizes the tests conducted as well as preliminary results of these tests.

Methods of Assessment

The methods employed to assess worker exposures to asbestos and subsequent physical changes associated with exposure, included chest X-rays, pulmonary function tests, a respiratory/neurobehavioral questionnaire and, for all chemical products employees, blood samples for lead analysis.

Chest X-rays taken, were read by two radiologists (B-Readers) using the International System for Pneumoconioses. When the radiologists disagreed on the extant, size, or location of radiological signs of pneumoconioses, the X-ray was read by a third (O-Reader). Results were reported based upon agreement by two of the three radiologists.

Pulmonary function tests were conducted according to the criteria recommended by the American Thoracic Society. One-second forced expiratory volume (FEV1) and forced vital capacity (FVC) were measured, and predicted values were calculated using the Knudson equations.

The questionnaire was derived from the American Thoracic Society's standardized questions for assessing respiratory health. In addition, workers responded to questions about past work histories, length of employment at the company, smoking history, and specific self-reported medical conditions.

Results

One hundred seventy-one persons participated in the medical evaluation. The participants included 77% of the active workforce at this plant. Among the 171 participants were 39 management personnel and 17 retirees. Fifty-two percent of the workforce was employed in friction products, 32% of the workers were employed in the chemical division, and 16% of the workers split their work between friction products and chemical products.

Employee chest X-rays showed three persons with radiological signs consisten with pneumoconioses. One X-ray showed bilateral small rounded opacities in the middle and upper lung fields (asbestosis typically appears as irregular opacities in the middle and lower zones of the lung). Two X-rays showed pleural thickening: one of these X-rays showed pleural thickening along the diaphragm with circumscribed plaques along the chest wall, and the second X-ray showed pleural thickening involving the right costophrenic angle with circumscribed plaques along the chest wall.

Abnormal pulmonary function tests were recorded for 28 persons. Twenty two persons (13%) exhibited an obstructive pattern (seven of whom also had a possible restrictive effect), and 6 workers (3.5%) showed a restrictive pattern. Persons with obstructive airway disease have difficulty expelling air rapidly. The most common cause of an obstructive pattern is smoking. Persons with restrictive patterns have difficulty filling their lungs to capacity. Restrictive patterns would be expected for those exposed to high levels of dust or fibers such as asbestos.

Percent predicted FVC was used as a measure of restrictive pulmonary effect, and FEV1/FVC as a measure of obstructive effect. After correcting for age and smoking, neither percent predicted FVC nor FEV1/FVC was significantly associated with years work in friction procucts, years of work in chemical products, or years at Chrysler.

Blood lead samples collected from 28 Chemical plant operators showed one blood lead level, 43 ug/dl, greater than 40 ug/dl, indicating excessive exposure. The remaining 27 blood lead levels ranged from less than 5 to 22 ug/dl, within the expected distribution for a population not occupationally exposed to lead.

This letter constitutes an interim report of the medical analysis to date. If you have questions about these results, you may contact me at (513) 841-4386.

Sincerely yours,

Richard J. Driscoll

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