

St. Joseph Lead Company
Josephville (Monaco), Pa.

COPY

INDUSTRIAL HYGIENE FOUNDATION OF AMERICA, INC.

MELLON INSTITUTE, 4400 FIFTH AVENUE

PITTSBURGH, PA. 15213
May 13, 1965

Mr. Paul W. Gabagan
Assistant Chief Engineer
St. Joseph Lead Company
P. O. Box A
Monaca, Pennsylvania 15061

Dear Mr. Gabagan:

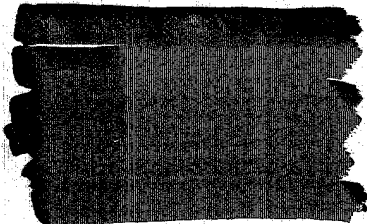
On March 30, 1965, Dr. R. A. Kehoe, Director of the Kettering Laboratory, University of Cincinnati, accompanied me in a visit to the St. Joseph Lead Zinc Smelter at Monaca for the purpose of evaluating a lead exposure problem.

According to Messrs. Conklin and Kunkle, Plant Safety and Industrial Hygiene Engineers, respectively, the fact that a potential hazard from excessive exposure to lead exists in several areas in the leach and roast plants has been confirmed by atmospheric sampling and analysis. Furthermore, the employees working in these plants have been followed for a period of about eight years with urine analysis for lead every six weeks, and several appear to have been consistently excreting excessive amounts of lead in their urine. No diagnosis of lead poisoning has ever been made in the work force although the employees are examined periodically by Dr. Mitchell, who serves part time as plant physician. No blood lead determination had been made, and it was considered essential, in Dr. Kehoe's opinion, to determine if the work force was actually absorbing excessive quantities of lead before suggesting specific changes in the existing industrial hygiene practices. It was noted that approved respirators were provided and apparently properly used and maintained where known potential hazard from inhalation of lead existed. On the other hand, around the work site in both leach and roaster plants there was excessive accumulation of dust, said to have significant lead content (up to 10%), and it was common practice for workers to smoke, chew gum, and drink coffee in the work area. Although a clean, attractive and convenient plant cafeteria is available and used by many employees, some bring lunches to work and eat at or near the job site. It was readily apparent to Dr. Kehoe and me that the opportunity for hazardous exposure to lead by ingestion was definitely present, and that the measures to prevent inhalation of lead dust and fume by use of approved respiratory protection could be only partially successful. Similarly, the shower and change facilities appeared adequate and in excellent condition. These undoubtedly help limit continued exposure to lead from contaminated skin and clothing off the job; they cannot, however, offset the possibility of lead ingestion on the job. A thorough occupational medical evaluation of a sample of exposed workers thus appeared mandatory.

KE 00184'9

Mr. Paul W. Gahagan
May 18, 1965
Page 2

On April 29, 1965, the following St. Joseph Lead Company employees were examined by me at the Falk Clinic, Pittsburgh:



Routine hematological and urinary laboratory tests, chest X-rays and the following specialized laboratory determinations were performed:

Urinary coproporphyrin
Urinary lead analysis
Blood lead analysis

A complete report of findings will be made in the near future. The purpose of this letter is to confirm in writing the interpretation of the medical findings which have been given over the phone in the past two weeks as laboratory reports have been received.

Inorganic lead poisoning in adult workers today, according to R. F. Johnstone, is mainly characterized by severe abdominal colic. Neurological changes (encephalopathy, wrist and ankle drop, and tremors) are not now usually associated with lead colic, and Johnstone dispels the older belief of sequelae of lead poisoning under present day usual conditions of exposure on the basis of sound epidemiological studies.

In none of the above six men who were examined and carefully questioned concerning abdominal colic was its presence elicited, nor was there evidence of wrist or ankle drop, or gross tremor. In one [redacted] there was definite cyanosis of the gums adjacent to areas of extensive pyorrhea, but a well defined lead line was not noted. The others had no clinical findings whatsoever suggestive of leading poisoning.

The hematological study revealed that only Matthews and Cavender have stippled erythrocytes, although all were noted to have occasional polychromatic red blood cells. Again, [redacted] and [redacted] were the only ones whose hemoglobin was less than 15 gms., both having 13.8 gm. which represents anemia only relatively, in comparison with the other workers. Hematocrit levels, also indicative of degree of anemia were lower in [redacted] and [redacted]

Mr. Paul W. Gahagan

May 18, 1965

Page 3

(both 43 as compared with 46-49 for the others). Routine urinalyses were not remarkable and appeared within normal limits in every case.

Chest X-rays were interpreted by the radiologist without benefit of comparison with previous films. There were no findings of significance and the reports and films will be supplied to Dr. Mitchell.

The urinary coproporphyrin determinations showed that only Summers could be considered negative or entirely normal. [redacted] and [redacted] had slight elevation, [redacted] and [redacted] moderate, and [redacted] had an extremely high elevation. (This information regarding [redacted] was supplied to Mr. Gahagan by my office on May 3 by phone.)

The results of the blood and urine analyses for lead were not received until April 13. These indicated that [redacted] blood lead is grossly elevated and well into the range which may be associated with symptoms. Further exposure to excessive lead should be prevented and he should be kept under medical surveillance with repeated determinations of blood lead periodically to ensure satisfactory control of exposure and progressive recovery. The concentrations of lead in the blood of [redacted] and [redacted] are in the high normal range, but that of Summers is only moderately above the mean concentration of the unexposed population.

The concentration of lead in all of the urine samples are above the normal range, excepting Schreiner and Summers.

There is thus no doubt of the exposure of these employees to excessive amounts of lead in somewhat varying degrees. [redacted] personal habits are better than the others.

Based upon the above findings, it is essential that [redacted] excessive exposure to lead be controlled, as rapidly and effectively as possible, both on and off the job. As a matter of policy, eating, drinking and smoking on the job should be prohibited at least until development of improved housekeeping and engineering controls, where needed, and demonstration of a downward trend in lead absorption. This policy must, of course, be enforced to be effective. Periodic medical evaluation of these and other exposed workers will allow a check on the effectiveness of these procedures. Additional details of a follow-up program incorporating recommendations by Dr. Kehoe will be supplied at a later date.

Sincerely yours,

Robert T. deTreville
Robert T. P. deTreville, M.D.
Managing Director

deT:arm

cc: Mr. Charles D. Henderson

Dr. H. F. Mitchell Dr. R. A. Kehoe

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