October 4, 1955

Dr. Leslie Joseph
4337 West Fort Street
Detroit, Michigan

Attention: Dr. Glanz

Dear Doctor Glanz:

We have sent containers for the collection of duplicate samples of blood and two separate voidings of urine, together with the instructions for collecting these samples from your patient, [redacted]. The containers will probably arrive before this letter, but since the instructions in the package are fairly complete, that should make little difference.

I write primarily to emphasize a point made in our telephone conversation, to the effect that if this man should have had any significant exposure to tetraethyl lead vapor in the course of his work, the clinical evidence of this would be found in the form of an acute cerebral intoxication. This form of lead intoxication was described by me in 1925 and later by my associate Willard Machle, who brought the information about it up to date as of the time of his article. There have been several articles since, mostly in foreign medical journals. I send a reprint of Machle's article which I believe will be of interest to you.

The disease owes its character to the fact that tetraethyl lead, an oily liquid with an appreciable vapor pressure at ordinary temperatures, is readily absorbed (through the skin and the respiratory apparatus), and is distributed in the body initially after the manner of a fat soluble compound. Hence it attacks the central nervous system, and causes an acute cerebral intoxication.

The compound is partially decomposed in the body, and is excreted fairly rapidly in the urine (and to some extent via the alimentary tract.) Analysis of the urine (and to a lesser extent, the blood) gives evidence of the excessive absorption and shows the relative severity of the exposure.

From what you have told me about Mr. [redacted] I doubt that he has had any very severe exposure, but the analyses will tell the story. It is difficult to convince some of these men (and their bosses, the contractors) that they should use adequate respirators at their work, and if we can find evidence of exposure, we can, I think, do something in that direction in this instance.

The reason I doubt that Mr. [redacted] suffered severe exposure to lead is that his symptoms seemed not to be more than mildly suggestive. In very severe

cases the onset comes in a few hours to two or three days after the exposure, gathering severity as it develops. In mild cases the symptoms may be delayed or retarded in their development, reaching the level of easy recognition only after eight or even ten days. If nothing happens for a week after a period of suspected or alleged exposure, one can be sure that the exposure was of minor consequence. I should say that Mr. Atkins will need to be reassured that he will suffer no significant damage, but he also needs warning that he should be protected by a satisfactory air line mask in the continuation of his work. There is, I believe, no reason why he should not return to it, if he is prepared to take suitable precautions.

I should point out that men who enter gasoline tanks may be intoxicated by gasoline vapor. Sometimes this is mistakenly thought to be tetraethyl lead intoxication, since the excitation due to gasoline, like that associated with the early stages of anaesthesia, may resemble tetraethyl lead intoxication to some slight extent. The rule-of-thumb difference lies in the fact that the cerebral symptoms in gasoline poisoning clear up fairly quickly, while those of tetraethyl lead poisoning persist and tend to increase in severity.

I shall report our analytical findings to you as soon as they are available and I should appreciate any information concerning Mr. Atkins' progress that you may pass on to me.

Cordially yours,

Robert A. Kehoe, M. D.

RAK of

Enc.

~~xTetraethyl Lead Poisoning xx Kehoex~~

P.S. I find that all of the reprints of Machle's article on Tetraethyl Lead Poisoning have been used up. The reference is as follows: Machle, Willard F., J.A.M.A. 105:578, 1935