

March 12, 1953

CONFIDENTIAL

Mr. L. A. Lohman
Superintendent- Administrative
Wood River Refinery
Shell Oil Company
P. O. Box 262
Wood River, Illinois

Dear Mr. Lohman:

Pursuant to your letter of March 9, we shall analyse the sample of scale referred to as a matter of providing the actual evidence which you require. We do this only because it appears that some of your men have developed some anxiety concerning their safety, and under these circumstances it seems wise to supply specific information which is not subject to skepticism. We, in this Laboratory, have always been prepared to obtain evidence in matters related to the safety of the personnel involved in any occupational hazard arising out of the use of tetraethyl lead, and we shall continue in that attitude.

I should point out to you for your own information, and quite apart from your specific request, (with which, as I indicated, we shall comply) that the answer to your problem is available without any further analyses. We have examined a large number of samples of scale from a variety of sources and we know what they will yield in way of analytical results. The scale is not a problem, from any other aspect than that of its ability in the dry state to give rise to dust. The lead content of the scale in that part of the tank which comes in contact with the gasoline (i.e. sides and bottom) is very low (a few hundredths of one per cent) and is composed of non-volatile lead compounds. No tetraethyl lead is present except that minute trace which is the result of contact with gasoline containing tetraethyl lead. The scale which occurs on parts of the tank above the gasoline level contains no lead or only the most minute traces, unless the metal has been painted with a lead-containing paint, in which case the paint is actually incorporated into the scale to some extent.

From this information, which I'm sure will be confirmed by the present analysis, you will recognize that the removal of the scale in a moist state from the tank in question, involved no hazard to the men, after the tank had once been thoroughly cleaned. It is the sludge in these tanks that is the source of

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the hazard, since, under appropriate circumstances it (the sludge) may contain appreciable quantities of tetraethyl lead. The concentration of tetraethyl lead in the sludge is low, under any other circumstances than that provided by an improper type of mixing operation in which the antiknock compound, added too rapidly without proper mixing, sinks to the bottom of the tank under the water bottom. But even if it is low, the total quantity of tetraethyl lead within the sludge may be sufficient to create a significant hazard. This hazard is utterly removed when the sludge has been removed, and when all of the parts of the tank that have been in contact with sludge have been cleaned thoroughly. The hazard that remains, when there is a considerable amount of scale on the sides of the tank, is that of the creation of a dust if the scale is dislodged by scraping or wire-brushing or by any other means in the dry state, for even the very low concentration of lead, suspended in the atmosphere as a dust and breathed, may bring about undue absorption of lead. This we have guarded against by advising that the sides of such a tank be kept wet while the scale is being removed, or that masks be worn continuously if, for any reason, the scale must be removed in a dry state.

You will receive the analytical report, with an interpretation, in due course. Meanwhile my comments will serve to allay any anxiety which you may have for the safety of your men. I think it is fair to say that the safety representatives of either Ethyl Corporation or Du Pont will give sound advice on the handling of the customary problems faced in the field. On the other hand, unusual situations arise from time to time, and these in general are submitted to us. There is no reason why you or others who may be concerned about the safety of your employees should not ask for advice or help from this Laboratory. It is our business to know the answers, or if we do not, to obtain them by investigation, whether we are asked to do so by Ethyl Corporation, by Du Pont or by other interested persons, including government authorities.

Very truly yours,

Robert A. Kehoe, M. D.

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