

March 18, 1946

Mr. Alan C. Tully,
Ethyl Corporation,
Rhodes-Haverty Building,
Atlanta, Georgia.

Dear Mr. Tully:

As you are probably aware, I have a great sheaf of correspondence in connection with the problem of certain tanks of General American Tank Storage Terminals at Good Hope, Louisiana. It is a little difficult to follow through on all of this correspondence and to identify the various materials that we have examined in relation to a particular tank or tanks. This is especially true because the problem has been under consideration for some considerable period of time.

Some time ago we received samples of scale and sludge from a tank in Avondale, Louisiana, as forwarded to us by Mr. Barnes in his letter of January 14, 1946. I am sending copies of our analytical results on these materials, together with certain comments which appear hereafter.

Subsequently we received two samples of oil from a tank #80 at Good Hope, Louisiana. The results of the analysis of these samples are also forwarded with certain comments.

You will realize that it is not possible for us to make any very precise prediction as to what will happen to a given product if stored in a tank of the type represented in the samples of scale and sludge. We know that the material will be contaminated to some degree. Referring to the analytical results on the scale and sludge, you will note that the bottom sludge contained appreciable quantities of tetraethyl lead, somewhat smaller quantities of decomposition products of tetraethyl lead and a very considerable amount of inorganic lead, some of which may have been derived from tetraethyl lead, but which may have been largely or almost wholly litharge. You will also note that the side wall scale had little or no tetraethyl lead, only very small quantities of decomposition products, but an appreciable quantity of inorganic lead. The burning procedure quite obviously disposed of the volatile lead, but, as was to be expected, had no influence upon the concentration of inorganic lead. It is apparent, therefore, that the burning procedure is a satisfactory means of disposing of compounds that would vaporize. From the point of view of the contamination of any liquid introduced into the tank, the end result would depend primarily upon the solvent properties of the material and upon the total available quantity of lead compounds present. Obviously we have no way of forming an opinion concerning the probable extent

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of the contamination, unless we can determine roughly at least, the total quantity of lead so available. The mere concentration of lead in scale or sludge will not tell us anything. It is for this reason that we have insisted upon the necessity of testing the material stored in such a tank before and after a period of storage sufficient to permit solution of the materials to occur to an appreciable degree.

This brings us to the second series of results, the lube oil samples. Our letter forwarding these samples came from Mr. Cassard, Superintendent of the Good Hope, Illinois plant, and were apparently obtained with the assistance of Mr. Munniger at Baton Rouge. I anticipate that you will provide the necessary information to Mr. Cassard.

The quantity of lead found in either one of these samples is within the limits that might be expected in the case of such material. I might say that we have never, or hardly ever, found such materials to be free of lead. It is apparent that the lead content of the oil after three weeks of storage has not increased. Actually the results are identical, for all practical purposes, since the variation is within the limits of the analytical accuracy for quantities of this order of magnitude. I think I should point out that what happens to lube oil in one of these tanks has no necessary relation as to what would happen if another material was stored therein. It is not to be supposed that lube oil would dissolve much residual inorganic lead. On the other hand, vegetable oil with some free organic acid, or a vegetable extract with some free organic acid, or any other product with free organic or mineral acid would dissolve any available lead and thereby would be contaminated to whatever extent lead compounds are available for solution. I mention this fact because there was a suggestion in the correspondence that the lube oil was being used primarily as a means of determining whether the tank was clean from the viewpoint of lead. Actually the analyses prove nothing about the tank. They merely show that the lube oil did not take up any lead. For reasons which I discussed above this cannot be construed to mean that there was no lead there.

I trust that this is all clear, but if there are any questions to be raised before communicating with Mr. Cassard, do not hesitate to let me know.

Very truly yours,

Robert A. Kehoe, M. D.

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