

October 25, 1940

Mr. H. J. Fossett
The Associated Ethyl Company, Limited
1, Kingsway, London, W.C.2
England

My dear Fossett:

Bob has asked me to reply to your letter requesting information on the tank cleaning report.

You are quite right in your interpretation of the figures in the report. The lower mean values in the different categories of tanks in Table 20 were arrived at by computing the mean after exclusion of abnormally high results. We computed them in this fashion in order to bring out any small differences that might be present, but which would be obscured were the chance very high results included, as these latter would tend to increase the probable error of the mean and reduce the significance of any differences. This is quite a proper statistical artifice. What we found in the distribution of these samples was that if we had a group of 50 or 75, all but 3 or 4 would usually distribute themselves smoothly in one universe, while the remaining few would be very widely scattered in the extremely high values. To include them in the calculations, which we used in our attempt to demonstrate relationships and minor differences, would have had the effect of obscuring any differences that existed. On the other hand, it was necessary to include them to get the over-all picture of the hazard.

The use of the mean value for organic lead as a measure of the hazard in a tank is a questionable practice for two reasons. First, we have no way of predicting what the value for organic lead will be in any tank and consequently it won't be of much help to a workman, to know that the mean value is 0.042 when the tank which he is cleaning at the moment happens to contain very much more tetraethyl lead. Secondly, some recent studies of ours, not included in the report, demonstrate clearly that any amount of organic lead in tanks is dangerous provided the men breathe the air of the tank for a sufficient length of time. It has so happened that we have not encountered cases of poisoning where the concentration

10107
ALL

Mr. H. J. Fossett - (2) - October 25, 1940

of organic lead in sludge has been less than 0.1%, but that does not mean that it may not occur. I believe that the reason for this is that a number of variables have to be operating in a given direction at one time to create a situation in which poisoning must occur. There must first of all be a sufficiently high concentration of organic lead and the men must be in the tank for a sufficient length of time, the temperature must be high enough to volatilize the lead and the men must have failed to wear protective equipment. You have doubtless heard by now what organization and procedures we have adopted for dealing with this problem.

I have just heard that your family is not coming to the States. We regret that we will not have the opportunity to be of some slight assistance to you. Should you or any of your associates change their minds, please feel that we are all willing and ready, in fact anxious to provide the necessary accommodations.

We are in the throes of our national election now and it promises to be a very close one. The air is thick with political speeches and the rival parties have even gone to the length of dragging long-forgotten politicians out of the moth balls and dusting them off before putting them on the radio. We are however, agreed upon one thing and that is, we all want to help you people in your difficulty, although no one seems to be quite clear as to just what is the best way to go about it.

Please remember me most kindly to your associates and the best of luck to you all.

Cordially,

WM:vr

Willard Machle, M. D.