

July 30, 1942.

Mr. Andrew T. Dempster,
Assistant Sanitary Engineer,
Department of Health,
Detroit, Michigan.

Dear Mr. Dempster:

I have delayed a little answering your letter of July 17, in order to obtain a copy of the Sanitary Engineering Bulletin #1 of O.C.D. Having had a chance to look at it, I can now give you my reaction to the questions in your letter.

First, let me say that we are investigating the problem involved in the use of gasoline containers of all kinds for the transportation and storage of drinking water. This is being done by arrangement with the National Defense Research Committee, and we have not completed the job as yet. Consequently, what I shall say must be somewhat tentative. We shall have the answer in the reasonably near future, I hope, and then I shall be able to answer you more satisfactorily.

Gasoline drums, tanks, tank trucks, and tank cars have in them somewhat variable quantities of lead dependent upon two factors. First, as you doubtless know, gasoline base stocks are treated with a solution made up by mixing litharge and caustic soda. This material separates out for the most part in refinery storage tanks, but dependent upon the speed with which the gasoline is moved, small quantities may continue to settle out in intermediate, and finally in terminal, storage tanks. One never knows just how much sludge will be present in the bottom of the tank from this cause, but in general, the farther the gasoline is from the manufacturing plant, and the longer the time interval involved in transportation, the smaller will this quantity be. Second, there is a slow and almost imperceptible decomposition of tetraethyl lead in leaded gasoline, but tanks used over a period of time will contain small amounts of these decomposition products in the scale on the sides and at the bottom. In general, the scale which loosens and falls to the bottom is swept out of mobile equipment rather frequently, and for this reason, very little sludge is present. There is scale on the sides of the tank, however, and this scale continues to give up lead and other materials to water stored or transported in the container. In our opinion, this scale can not be removed completely or even satisfactorily by any known method of washing or cleaning, and, therefore, it is our opinion that water transported in tank trucks or tank cars will either have to be examined to determine whether or not it is

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safe for use as drinking water, or else it will have to be filtered in such a way as to remove the lead compounds that may be present. Where large volumes of water are available, it would be simpler to do a lead analysis than to filter the water.

We do not have comprehensive information that will enable us to say what quantities of lead may dissolve in these waters. We are investigating this matter, and I hope we shall be able to have this information within a reasonable period of time. We hope, of course, that the quantities of lead will be insignificant, but we would not be justified in saying that this is probably the case.

I think you will realize that what I have said above covers fairly well the adequacy of the instructions given in the O.C.D. bulletin. In our opinion, one can not be certain that these instructions are adequate. Frankly, I should prefer to drink water from tanks cleaned in that fashion rather than to go without. Moreover, I should not expect to be in any considerable danger from the use of such water in emergency. On the other hand, I am in sufficient doubt that I would not feel that this method of procedure could be followed with entire safety. We shall have to wait to obtain the facts before we can give any further advice on this problem.

Very truly yours,

Robert A. Kehoe, M. D.

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