

October 30, 1936

Dr. R. R. Sayers
Office of Industrial Hygiene
and Sanitation
U. S. Public Health Service
Washington, D. C.

Dear Dr. Sayers:

From time to time I have reported to you cases of complaints or of alleged injuries from the handling and use of leaded gasoline. The purpose of this letter is to make a report on a series of cases of poisoning which occurred in connection with the cleaning of a blending tank at the Savannah refinery of the Standard Oil Company of Kentucky. We have made a rather detailed study of this situation, and I will provide you with the details of our study when all of the work has been completed. For your present information, however, it seems desirable to acquaint you with the circumstances.

On August 18th, seven men were sent in to clean a tank which had been used for leaded gasoline and in which leaded gasoline had been blended. The tank had been steamed for ninety-six hours, cooled for forty-eight hours and then aired out by forced circulation of air for thirty-six hours in addition. The regulations which we have issued were not followed in carrying out the cleaning activities. These activities required four to six hours during which time the men made no complaints of subjective symptoms. One man showed evidences of illness after twenty-four hours and the others became ill in from forty-eight to sixty-two hours. The symptoms developed slowly, reaching their peak eight to ten days later, at which time three of the men succumbed to an acute central nervous system intoxication, the other four slowly recovering until they are now apparently entirely well.

Because of the peculiarity of the initial symptoms, these cases were not reported to us for some days, but my associate, Dr. Kitzmiller, arrived on the scene at the height of the acute illness and shortly before the death of one of the men. Necropsies were performed on the three fatal cases and excretory studies were made on all of the men. The materials from the tank were obtained for analysis in order to determine,

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Dr. Sayers (cont)

if possible, the precise cause of the acuteness of the intoxication. It is apparent from the incomplete analyses that these men were heavily exposed to lead compounds of an organic type, while the clinical course of their illness was such as definitely to justify that diagnosis.

Cases of this type have been reported to you before by us and we have been aware for some time of the hazards associated with the cleaning of these tanks. However these are the first fatal cases although not the first severe ones which we have seen. Without going into details as to the background of this last occurrence, we have come to the conclusion that the handling of this hazard is not adequate in the hands of the distributing companies, and that we ourselves will have to take a hand in the supervision of this operation. Accordingly, with the assistance of technical representatives of the Ethyl Gasoline Corporation, we have undertaken to make a thorough investigation of the entire problem. We are making a complete survey of conditions in the field with reference to the number of tanks involved, their location, their previous use and their entire history. We expect to obtain representative samples of material from the sides of the tanks and from the sludge at the bottom in order to assure ourselves in relation to the histories of use of these tanks as to what are the factors which give rise to decomposition of tetraethyl lead in the gasoline, and what quantities of lead are involved. We are not certain that the hazard is of any moment in connection with tanks which have been used for storage alone. However we are making no assumptions and we expect to spend the next several months in determining the facts. On the basis of such facts we will be in position to make recommendations as to what should be done throughout the field in caring for this problem. I may say at this point that if general refinery regulations are enforced and if the regulations which we have made with reference to loaded gasoline storage tanks are followed, there should be no cases of poisoning. However, we do not feel at present that we can count on the application of regulations now in existence, and we shall attempt to set up a mechanism which will bring this about. Incidentally we are beginning the latter process by putting a metal warning sign on all tanks which have been used for blending gasoline containing lead. We expect to study all tanks which are cleaned for some time to come not only through the analysis of materials from the tanks, but also by the determination of the dust concentrations which occur in the atmosphere in such tanks at the time of cleaning.

If you have any suggestions to offer or if you wish any further information at this time, do

KE 0009217

Dr. Sayers

not hesitate to write to me. For my part I shall keep you in touch with the information which develops out of our study, and I shall confer with you on the methods which we will ultimately employ in the solution of this disturbing problem. The worst difficulty, of course, is associated with the infrequency and irregularity of the cleaning operations. There is also the problem, of which you are well aware, of the wide variation in safety methods in the refineries. Some of them operate on very rigid rules, while many of them have very little in the way of safety organizations and practices.

Within a few days I shall be sending you some further information on cases of complaint, and particularly on a case which recently came to a hearing in the Federal Court in Wilson, North Carolina.

With kindest personal regards,

Cordially yours,

RAK:ls

Robert A. Kehoe, M.D.

cc Dr. Edgar

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