

C. Plant

Porter & Ritchie

July 9, 1932

Messrs. Porter and Ritchie
Barristers, Etc.
St. John, New Brunswick

Dear Sirs:

We have your letter of June 25th referred to us by the Ethyl Gasoline Corporation. In answer to your first question, I am sending you under separate cover today a copy of Dr. Kehoe's report of the most recent investigation on the hazards associated with Ethyl gasoline, and call your attention to the fact that the possibility of poisoning from lead tetra-ethyl is an entirely different consideration than the possibility of poisoning from Ethyl gasoline. Exposure to lead tetraethyl is limited to relatively few men employed in the manufacture and blending of the compound and has no relation to the general public. Ethyl gasoline, on the other hand, represents a form in which lead tetraethyl is distributed and contains a maximum of 3 c.c. of lead tetraethyl per gallon (U.S.) of gasoline.

All of our work, as can be seen from the reprint of Dr. Kehoe's, has shown no evidence that individuals exposed to Ethyl Gasoline have absorbed appreciable quantities of lead as a result of their exposure. In other words, lead poisoning as a result of Ethyl Gasoline exposure is unknown to us.

In the particular situation with which you are dealing, the possibility of ingestion of Ethyl Gasoline introduces another quantitatively much more important factor; namely gasoline. As little as 15-30 grams ($1/2$ - 1 ounce) of gasoline taken by mouth have been fatal in humans in four hours. As this amount of gasoline would contain less than 2 decigrams of lead, it can be seen that the amount of lead present in Ethyl Gasoline is of no importance in cases of Ethyl Gasoline ingestion.

In answer to question 3, lead tetraethyl will remain in solution in gasoline in the presence of water, but in the presence of inorganic salts and soil exposed to light and air, is soon converted to inorganic lead salts which may go into solution in the ground water, depending upon its reaction (acidity or alkalinity).

In answer to your last question, any intoxication from lead in gasoline as far as our knowledge goes, would be most likely to produce symptoms resembling those of Painter's Colic.

Your picture of corrosion of the mouth and illness in a child strongly suggests the result of gasoline ingestion but this can best be determined by analysis of the contents of the well.

It would seem that you have two factors to consider and evaluate in your handling of this case. First, the possibility of gasoline intoxication from gasoline in well water. Second, the possibility of lead intoxication in the leaching action of water on soil previously contaminated by lead deposits. In any event, the occurrence of either type of poisoning would depend on the opportunity for exposure, and this could best be determined by analytical examinations of the well water, both for gasoline which is somewhat soluble in water, as well as for lead.

Another point in an examination for the possibility for exposure, is the amount of gasoline spillage. At the present concentrations of lead tetraethyl in gasoline, it would require a spillage of considerable amounts to supply enough lead to contaminate a well some hundreds of yards away, assuming this well to be a driven well.

I can think of no better way of getting at the facts of this case than by an examination of the well water. If gasoline is present either free or in solution, then there are very definite opportunities for poisoning by gasoline. The same holds true if lead salts are present in concentrations greater than 2 milligrams per liter. If both are absent then there can be no possibility of injury from the causes mentioned.

We shall be glad to conduct the analytical examination for you or check any which you have already had done, if you will send samples per instructions.

If we can be of any further service to you, do not hesitate to let us know.

Very truly yours,

WM:IS

P.S. Samples are best obtained in chemically clean one gallon glass jugs, closed with cork stopper and covered and sealed with paper. Two one gallon jugs of the water will be adequate for our purposes. These may be sent express to Dr. Robert A. Kehoe Department of Applied Physiology, College of Medicine, Cincinnati, Ohio.

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