

December 16, 1954

Mr. Robert D. MacPhee, Chemical Engineer
Air Pollution Control District
County of Los Angeles
5201 Santa Fe Avenue
Los Angeles 58, California

Dear Mr. MacPhee:

Thank you for your letter of December 7 in reply to my letter of November 24, addressed to Mr. Gordon P. Larson.

I am in general agreement with your comments concerning the concentrations of lead which one can expect to find in the atmosphere. The concentrations of 42 and 34 micrograms lead/ M^3 , however, are so unusual that they must be considered as spurious results. For the record, it might be of interest to note that the value of 14 micrograms/ M^3 , which you quote from Dr. Foter's report, is from our analysis of materials collected in a co-operative investigation by the Laboratory and the U. S. Public Health Service.

As you no doubt know, we have been determining for SCAFF, among other pollutants, the concentrations of lead in the suspended matter of the Los Angeles area. We have analyzed, spectrographically, 100 consecutive large volume samples (24-hour) collected at each of two stations in the area during the recent inversion season (August 9 through November 19). In addition to the 24-hour large volume samples, we have collected hourly filter paper spot samples in a continuous 24-hour sampling program at the same two stations and have completed at this writing the analysis of about 800 samples, each of which corresponds to a collection period of two hours. This part of the program was designed to obtain information concerning the peak concentrations of lead which can occur at different hours of the day as a result of changes in the meteorological conditions and in the pattern of the motor traffic. These samples were analyzed by a very sensitive and precise dithizone method. The ranges of concentration of lead on the 24-hour high volume samples for the 100 day period were:

<u>Station</u>	<u>Micrograms Pb/M^3</u>
#3 (Los Angeles)	1.4-14.8
#4 (Pasadena)	1.1-12.8

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The average concentrations have not been calculated for the full 100 day period, but inspection of the data indicates that the daily average concentration for Station #3 will be between 5 and 7.5 micrograms lead/M³, and between 3 and 5 micrograms lead/M³ for Station #4. In the case of the spot filter paper samples, the ranges of the lead concentration are: Station #3, <0.5-16.9 micrograms lead/M³ and Station #4, <0.5-12 micrograms lead/M³.

We feel that the single high value given in your report, and the 34 micrograms/M³, reported in your letter, are so far beyond the upper limits of the ranges of concentration which have been found by us and others in continuous studies of Los Angeles and other American communities that they would undoubtedly be discarded in any statistical analysis of the data. It was unfortunate that the isolated high result of 42 micrograms/M³ was included in your report, since this is likely to lead to some bizarre interpretations of the finding.

The query concerning the 150 micrograms lead/M³ was prompted by a paragraph in Consumers' Research Bulletin for August 1954, where it was stated: "ONE OF THE CITY HEALTH PROBLEMS is contaminated air. In two cities where studies are being made, paper filters coated with samples of air pollutants show that at rush hours the lead content from automobile exhausts is near the limit of human tolerance."

This is in complete variance with our data which show peak concentrations of approximately 1/10 of the accepted threshold limit. Our experience in other communities indicates that this finding is not peculiar to Los Angeles, and that the average concentration of lead which one can expect to find in the atmosphere of most large American cities will fall between 1/75 and 1/30 of the threshold limit (2-5 micrograms lead/M³). I have quoted the paragraph from the Bulletin in case it has escaped your notice, and also in the hope that if you were aware of it, you might be able to shed some light on the work which led to the statement.

Best regards for the Holiday Season and the New Year.

Very truly yours,

J. Cholak

JC:ma

cc: Mr. Gordon P. Larson

Dr. R. A. Kehoe

Mr. J. B. MacCauley

} Omitted from Mr. Larson's copy.

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