

ETHYL CORPORATION

INTER-OFFICE CORRESPONDENCE

TO Dr. Robert A. Kehoe ADDRESS Cincinnati
FROM R. K. Scales ADDRESS New York
SUBJECT DATE December 5, 1966

I attach a copy of a page from a confidential report to the Pennsylvania State Chamber of Commerce Pollution Abatement Committee for their use in their deliberations on November 17, 1966. The entire document was entitled "Background Material for Ambient Air Quality Criteria Developed by Council of Technical Advisors - for Pennsylvania Air Pollution Commission Meeting - 11/14/66."

We had a meeting over at the LIA offices this morning and Don Diggs gave me a copy of this report. You will note that the section on lead describes the basis on which they used your testimony at the Muskie Hearings in June to arrive at their criteria of 5 ug/M³.

There will be a meeting of the Health and Safety Committee of LIA this Friday, December 9, which will be attended by both Don Diggs and Harold Hesselberg. I just tried to reach Hess by telephone but he was not in the Labs. I did, however, dictate the section on lead to my secretary and asked her to pass this on to Hess if he should come in this afternoon and in turn to request him to read this to you over the phone so that you would be aware of the basis for the proposed 5 ug/M³ criteria. We are hopeful that by getting this information to you as quickly as possible you would be able to review it and make some preliminary comments as to what you might visualize as a rebuttal to this reasoning.

Rather than have several people get in touch with you on this, we agreed that it would be desirable to have Hess handle this with you and for him to take the responsibility for reporting back to the Health and Safety Committee meeting on December 9 as to your views.

I am sending this by mail in case Hess does not get in touch with you this afternoon and in the hopes that it would reach you by tomorrow morning so that you would have it for reference if Hess is delayed in phoning you until tomorrow.

Best regards.

R. K. Scales
Richard K. Scales / signed by ec.

RKS/ec
attch.

N 7540

KE 0006249

2. Settled Particulates

a. Air Basin Average

The maximum air basin average (arithmetic mean) criterion, $1.0 \text{ mg/cm}^2/30\text{d}$ ($29\text{T/mi}^2/\text{mo}$), was arrived at by consideration of the air basin averages for settled particles in each of ten air basins studied, or under study, by the Department. These range from about $0.6 \text{ mg/cm}^2/30\text{d}$ for the Lewistown area to about $2.2 \text{ mg/cm}^2/30\text{d}$ for the Beaver Valley. It was the subjective opinion of those making these studies that a value of $1.0 \text{ mg/cm}^2/30\text{d}$, as a single month air basin average was the maximum acceptable. For the sake of easy reference this value is roughly equivalent to a three-month air basin average of about $0.7 \text{ mg/cm}^2/\text{mo}$ ($20\text{T/mi}^2/30\text{d}$) or an annual air basin average of $0.6 \text{ mg/cm}^2/30\text{d}$ ($17\text{T/mi}^2/\text{mo}$).

The sliding scale value, $(C_a + 0.3)/2 \text{ mg/cm}^2/30\text{d}$ was derived in a similar way as the sliding scale for suspended particulates to take into account land use. The formula requires a "rollback" for settled particles of a factor of two (above average background of $0.3 \text{ mg/cm}^2/30\text{d}$), except for the most extreme cases where the maximum of $1.0 \text{ mg/cm}^2/30\text{d}$ applies and a rollback of somewhat more than a factor of two will be required.

b. Single Point Measurement

The maximum single point criterion, $3.0 \text{ mg/cm}^2/30\text{d}$ ($86\text{T/mi}^2/\text{mo}$), was derived so as to avoid extremely high values at any one sampling station, which might be possible even although the air basin average criterion is met. The value chosen allows for a three-fold variation from the basin average. It is one-third lower than the calculated maximum single point value used in N. Y. State, (3) i.e., $4.5 \text{ mg/cm}^2/30\text{d}$ (equivalent to a median of $1.5 \text{ mg/cm}^2/30\text{d}$).

3. Lead

Recent testimony by Dr. Robert Kehoe (4) indicates that a total of 0.5 mg/day of lead can be ingested regularly without any risk, so long as there is no significant increase in the intake of lead from the atmosphere. Dr. Kehoe estimates that the average amount taken in from the atmosphere is between 0.2 and 0.3 mg/day . He also estimates that about 10% of the amount ingested is absorbed and 50% of that inhaled is absorbed.

Using these figures the total allowable absorbed dose is about 0.03 mg/day . Since the average amount of lead absorbed from ingestion is about 0.03 mg/day , this leaves about 0.05 mg/day permissible absorption from the air. Using the 50% absorption figure and a daily respiration rate of 20 M^3 (for the "standard man") the calculated average daily concentration which will lead to 0.05 mg/day absorption from the air is 5 ug/M^3 .

This calculation is based on average conditions which will be most nearly duplicated over a long time period such as a month. Furthermore, in this range of absorption, lead has only long term cumulative effects. Daily fluctuations, by even a wide margin, would not be expected to have any demonstrable ill effects. Consequently, the criterion of 5 ug/M^3 was established as a 30 day average concentration, without regard to daily variations.