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May 22, 1981

TO: T. L. SCHRENK

FROM: PAUL THISTLETON

DISPERSION CALCULATIONS FOR C-8

I reviewed J. G. Loschiavo's 5/12/81 letter requesting dispersion calculations with R. I. Wevodau on 5/19/81. We agreed that the following calculations should be made.

- Annual average concentration at each receptor (specified location).
- Highest 8-hour average concentration at each receptor.
- 8-hour average concentration distribution at each receptor. This will be reported as the number of days per year exceeding specified values.
- + Receptors will be locations specified in Loschiavo's letter (other locations can be added) and a grid of receptors arranged in polar coordinates (at various distances from the source and at bearings at 10 degree intervals).
- + Wevodau has Parkersburg weather data for 1970 - 74 on magnetic tape. It is hourly observations of temperature, wind direction and speed, etc. which allows atmospheric stability to be determined. The computer program will calculate concentrations at each receptor for all the weather data and average the results. This will eliminate the uncertainty in converting from one-hour to eight-hour averages in the preliminary calculations.

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- + Calculations will be made for two cases.

Case 1 - Same as specified in Loschiavo's 4/24/81 letter to Wevodau which is operation of both fine powder dryers after the May shutdown (15 feet added to the dryer stacks).

Case 1A - Same as Case 1 except the dryer stacks will be the height before the May shutdown.

- + Computer programs are available and similar calculations have been made for other sites. Some results for sulfur dioxide emissions at the East Chicago Plant are attached. They show annual average concentrations and highest 24-hour average concentration at each receptor. Numbers in parentheses are the day on which highest 24-hour average occurred using 1975 weather data.
- + Similar calculations can be made for other materials for any site where weather data is available. I plan to inquire about weather data for Dordrecht and Shimizu.
- + Wevodau expects to start work after Memorial Day and some results should be available in the first week of June. This work may exceed the EWR (\$1500) which is circulating.

Attachment

PT/nsw

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