



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711
August 16, 1988

MEMORANDUM

SUBJECT: Review of Draft Memo on Centralia Power Plant Monitoring

FROM: Joseph A. Tikvart, Chief *J. Tikvart*
Source Receptor Analysis Branch, TSD (MD-14)

TO: Robert B. Wilson, Regional Meteorologist
Region X

In response to your request the Model Clearinghouse has reviewed your July 27, 1988 memorandum to George Abel regarding modeling procedures and proposed monitoring for the Centralia Power Plant. We offer the following comments on the draft.

Modeling

1. We agree with your position on most of the modeling issues including your position that calibration of RTDM would not be acceptable.
2. We could entertain an application of CTDM as you propose provided that: (1) an appropriate data base can be collected; and (2) an appropriate module for unstable case is integrated into CTDM. Our understanding is that the TTW group has decided that inclusion of the RTDM (refined) unstable module in CTDM might be acceptable in cases where a "3a" showing consistent with page 3-8 of the modeling guideline could be made, i.e., if the Centralia case can be shown to be similar to those cases where evaluation data for the combined CTDM/RTDM model are available.

Monitoring

1. We agree with your position that wind data should be collected at stack top (~150m) and that SODAR could be used for these purposes (provided the company is willing to take the risks on the 90 percent data recovery requirement). We also agree that using the standard deviation of wind variables measured at 10m would be appropriate for determining stability.
2. We are not comfortable with the use of acoustic sounder information to determine mixing height. One problem, as you point out, is the percentage data recovery. Another problem inherent in this system is that the data are frequently ambiguous, leading to subjective decisions on the mixing height. This could lead to polarized viewpoints if such data turn out to be critical to the design concentration.

3. We also have some concerns about the suggested use of a RASS system for obtaining a temperature profile. Firstly, the method of determining mixing height from the RASS profile is ambiguous, especially since, as you point out, the RASS may routinely reach only up to about 600 meters. Secondly, the RASS is still a very untested technology, and there have been serious questions raised concerning the accuracy of RASS measurements due to the difficulty in accounting for the effect of atmospheric water vapor on the speed of sound.

4. While the addition of a solar radiation instrument would be relatively minor, care should be taken in siting the instrument in a location that would not be subject to shadowing by the tower or other nearby structures.

5. Your comments on the inadequate number of SO₂ monitor sites are certainly in order. All sites should be selected on the basis of on-site meteorological data and preliminary estimates from the models under consideration if a performance evaluation is undertaken.

6. It would be pertinent to add a statement to your memorandum concerning the Meteorological Processor for Regulatory Models (MPRM) recently developed by EPA for use on a PC. The MPRM currently provides processing of on-site data for models such as MPTER which require RAMMET type data, and also supports the RTDM default screening model.

If you have any questions, please contact Roger Brode (FTS 629-5382) or Dean Wilson (FTS 629-5683).

cc: W. Keith
S. Reinders