UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

ATLANTA, GEORGIA

DATE: JAN 10 1986

SUBJECT: NAAQS Modeling Procedure for the Duke and Carolina Power And Light (CP & L) TSP Emissions SIP Relaxation

FROM: Acting Chief
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Air, Pesticides & Toxics
Management Division

TO: Joseph Tikvart, Chief, Source-Receptor Analysis Branch
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Summary

EPA modeling procedure and policy have changed since the 1979 modeling submittal by the North Carolina Division of Environmental Management (DEM).

In order for the Region to process this TSP SIP relaxation, we are proposing the following air quality modeling procedure for your comment and concurrence in order to assure a minimum time for "Headquarters" approval.

Modeling Procedure

1. Compile an emission inventory within 50 kilometers of each power plant for the purpose of identifying sources to be included in the refined analysis. Include major sources beyond 50 kilometers that could affect the NAAQS analysis. Any source excluded from the refined analysis must be justified and documented.

2. Five years of meteorological data will be used in the analysis unless a five-year data base is not readily available.

3. A GEP analysis for each source must be consistent with the most recent EPA stack height regulations.

4. A downwash analysis must be done for each stack that is less than GEP. For modeling other than downwash, stacks in existence before 1970, and not modified after 1970, can be modeled at actual stack height.

5. The analysis must include modeling at 50, 75, and 100 percent load conditions to determine which load, in conjunction with other sources, produces the largest modeled ground level concentration. The modeling from the previous SO_2 SIP revision may be used to identify which load and which year was controlling if:

   a) The TSP sources are the same as those in the SO_2 analysis.

   b) The source(s) are not subject to downwash.

   c) The GEP formula height remains the same.

   d) Credit for merged plumes was not taken except where allowed for in the new GEP regulation.

6. Fugitive sources must be modeled, i.e., coal piles, conveyor belts, bag houses, etc.

7. The analysis must include in the modeling all sources within 10 kilometers of the power plant and all major sources identified in the emissions inventory, i.e., 1000 tons a year. For any emission point not included in the above analysis, the source or the State must provide justification and documentation to the Region as to why these sources were (1) modeled differently or (2) not explicitly included in the analysis. This portion of the analysis must be consistent with the requirements in the above procedure (number five).

8. Terrain must be incorporated into the analysis where appropriate.

9. Sources that require a downwash or fugitive source analysis must use the ISC model. If these sources also have terrain that does not exceed the height of the lowest stack, additional analysis may be necessary to determine whether the controlling factor is terrain, downwash, or fugitive emissions.

10. Sources located in complex terrain, or having complex terrain at only a few receptors will need to have an analysis with both a complex terrain model and a simple terrain model to determine which model and which type of receptor locators are controlling.

11. Sources requiring a complex terrain model must use the Valley model, unless on-site meteorology is available, i.e, the CP & L Skyland Plant.

12. The final analysis must be defined to the nearest 100 meters (simple terrain).

13. Allowable emissions must be used.

14. Block averages will be used.

15. A background value representing (1) distant manmade and natural sources and (2) sources within 50 kilometers not explicitly modeled must be added for each averaging period.

Action

Please review the modeling procedure and provide us with any changes, if necessary, by January 31, 1986.

Background

Region IV meeting with OAQPS and CPDD on December 16, 1985, to discuss modeling guidance.

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