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

January 9, 1986

MEMORANDUM

SUBJECT: Comments on the Fluid Modeling Study of the B. L. England Station

FROM: Joseph A. Tikvart, Chief
Source Receptor Analysis Branch

TO: William Baker, Chief
Air Programs Branch, Region II

At your request the Model Clearinghouse has reviewed the documents you sent describing the fluid modeling study for the B. L. England Station in New Jersey. My staff discussed our comments with Ray Werner by telephone on December 13, 1985. A summary of these follows:

1. A rationale to justify the free stream wind speed of 17.2 m/s is needed. What is the 98th percentile wind speed from each of the three critical wind directions (198°, 270° and 90°) studied? It is unlikely to be the same for all three directions.

2. A topographic/plant layout map would be helpful to justify the assumption of homogeneous surroundings in all directions, i.e. justification for z_0 = 3cm, as well as to provide the building dimensions on which the "formula" GEP height of 117.3m was calculated.

3. It is unclear how the value of 30.3 mph at 60m height was derived in Table 5.1 and what importance it has in the study.

4. In several figures the ordinate is plotted as z/δ rather than $z-d/\delta$ as in the EPA power plant demonstration example. There should be an explanation for this deviation.

5. There are several typos: On page 24, line 6, downward should be downwind; the symbols are missing from the legend in Figure 5-10; and in Figure 5.14 the legend should read Full, In, 270°.

Aside from these comments the study appears to closely follow EPA's fluid modeling guidance. It does appear that the Company is trying to provide an "out" for itself by stating on page 31 that plume rise underestimates due to exaggeration of the Froude Number will lead to inaccurate mass concentration estimates for comparison with the NAAQS. This may require scrutiny later.

To receive stack height "credit" for the fluid modeled height of 143.6m that meets the "40 percent" criterion will next require meeting the "exceedance of a NAAQS or available PSD increment" criterion, using procedures in the stack height guideline. Otherwise, if using air quality data currently available shows a local nuisance, the physical stack height may be increased to the Equation 1 height of 117.3m without a NAAQS or PSD increment exceedance demonstration. Of course, when setting the source's final emission limit, dispersion modeling following current guidance is expected.

Finally, you should review the 1985 stack height regulation to ensure that the combining of separate stacks to one multi-flued stack does not conflict with the provisions regarding merged stacks. A demonstration/justification should be provided.

If you have further questions, please call Jim Dicke at 629-5681.

cc: R. Rhoads
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bcc: Regional Modeling Contact, Regions I, III-X