UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

AUG 11 1992

MEMORANDUM

SUBJECT: Use of ISC2 Direction-Specific Building Dimensions in Modeling for Alcoa

FROM: James W. Yarbrough
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TO: Edwin L. Meyer, Acting Chief
Source Receptor Analysis Branch (MD-14)

The purpose of this memo is to request the Model Clearinghouse's opinion on the proposed Region position concerning the use of the Huber-Snyder direction downwash algorithm in ISC2 regulatory modeling for a SIP revision in Texas.

The specific situation prompting this memo is as follows. Alcoa Corporation operates an aluminum mill in Milam County, Texas that must submit a SIP revision to justify increases in SO2 emissions from the facility. In its draft modeling protocol, Alcoa proposes to use ISC2 with Huber-Snyder downwash for the point sources (scrubbers) in the aluminum line process. Because of the stack configuration of these sources and dimensions of related buildings, I understand it is likely that the use of Huber-Snyder directional downwash will translate into lower predicted ground-level concentrations from these sources than would be the case if Huber-Snyder non-directional downwash were employed.

Although the ISC User's Guide (written, of course, for the original ISC model) makes reference to the possible use of Huber-Snyder directional downwash for further refinement of a modeling analysis, the ISC model could not automatically do this. The ISC2, which was adopted as the replacement for the original ISC in April 1992, permitted the use of directional building dimensions for Huber-Snyder downwash calculations. At this point, it seems that directional downwash for the Huber-Snyder calculations is an option that might be either accepted or rejected by the reviewing authority.

From a technical standpoint it seems clear that a directional downwash approach more accurately reflects reality than a non-directional approach which, in effect, assumes a downwashing

structure completely surrounds the affected stack. It is also evident that because the directional downwash capability for Huber-Snyder is now so prominently featured in ISC2, it is likely that, without further EPA clarification, it will be taken by the user community to be the recommended option over the non-directional downwash.

Region 6 wants to ensure a sufficiently conservative emission rate from Alcoa so as to guarantee maintenance of the NAAQS. However, we want Alcoa to use the most realistic EPA-sanctioned techniques available. Therefore, Region 6 proposes to recommend the use of Huber-Snyder directional downwash for appropriate stack-building configurations in the Alcoa case.

I would appreciate your review of our proposed position. Should you have questions concerning this issue, please contact me at 214-655-7232. Thank you.