UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

DATE: OCT 20 1989

SUBJECT: Interpretation of On-Site Meteorological Data Requirements and the Use of RTDM for a PSD Source

FROM: Raymond Werner, Chief
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TO: Air Programs Branch

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This is to request Model Clearinghouse interpretation of two issues regarding the modeling of a proposed source on the island of Puerto Rico. Pfizer, Inc. is planning to construct a new facility in Puerto Rico on the southeast portion of the island. The project will involve the installation of three 25,000 lb/hr boilers, an incinerator, and several process units. The project will likely be PSD affected, so Pfizer has submitted a PSD modeling protocol to EPA for review.

The first issue involves the applicant's request that a nearby meteorological station be considered on-site. The second issue involves the applicant's proposed use of the Rough Terrain Dispersion Model (RTDM) in their modeling demonstration. We have described each of the issues in more detail below.

On-site Meteorological Data

The proposed Pfizer facility will be locating in a terrain situation and their air quality consultant has proposed to model receptors above the height of the stack with RTDM. The Guideline on Air Quality Models (Revised, 1986) indicates that modeling demonstrations using RTDM should be performed with on-site meteorology. Pfizer is proposing to use meteorological data collected at the Aguirre station as on-site (Attachment I). The Aguirre Meteorological station, approximately six kilometers away has been operating since 1987. The station will continue operation through at least 1990. Quality assurance, maintenance, and operating procedures have been approved by the Environmental Protection Agency (EPA). Wind speed and direction and sigma theta are monitored at 10 and 100 meter levels. Plume height from the facility will be closest to the 100 meter level.

Pfizer has requested that the Regional Office consider the Aguirre meteorological data as on-site. Pfizer is proposing to use meteorology from 1987, 1988 and 1989. They believe that the Aguirre data should be considered on-site because:

- o the station is in close proximity to the proposed facility;
- o of the extreme persistence of the easterly trade-winds in

Puerto Rico (Attachment II);

- o the existing data is quality assured based on EPA approved plans.

We have wrestled with the applicant's arguments for considering the Aguirre data as on-site. We note that because of the tower's 100 meter height, the similarity of the geography of the two sites, the extreme persistence of the wind (which is evident throughout Puerto Rico) that we would expect the meteorological data to be very similar at the two sites. However, we also recognize that the model as a predictive tool functions best when strict adherence to on-site data requirements are maintained.

Notwithstanding these observations, there is no way we know of to prove that the two sites are identical and perhaps this is the reason the guidance so clearly articulates the on-site requirement. The Aguirre station is clearly not on-site. Therefore, notwithstanding any similarity of meteorological data collected at the two sites, we propose to disapprove the Aguirre data for use with an RTDM modeling demonstration. We interpret the modeling guidance as providing no flexibility in this matter. I request your confirmation of this interpretation.

RTDM

On a related issue, we recently learned that Source Receptor Analysis Branch (SRAB) is questioning the validity of the RTDM model. David DiMarcello, of my staff, participated in a September 25, 1989 conference call with the Technology Transfer Workgroup (TTW) in which the results of a model evaluation of the Complex Terrain Dispersion Model (CTDM) were discussed. Apparently, a study of the effectiveness of several complex terrain models indicated that RTDM consistently underpredicted concentrations compared to CTDM and others. These results prompted several workgroup members to recommend that proceedings be initiated to "de-Guideline" RTDM in the coming months.

We support the efforts of the TTW and the SRAB for identifying and reacting quickly to the RTDM problem. However, we are also concerned that this quick reaction may leave the regional offices without adequate guidance in the interim, until CTDM becomes a Guideline model. Specifically, Region II is now involved in two PSD projects where modeling with RTDM is either proposed or currently being applied. The first is the Pfizer project described previously. The second, and possibly more critical, is the proposed Halfmoon Power Plant locating in Upstate New York in which the applicant has already performed some initial modeling with RTDM.

It is important that EPA establish some consistent interim procedures to address each of these situations; those sources proposing

RTDM in support of their PSD applications. Should EPA suggest applicants use COMPLEX I or even CTDM instead of RTDM? What if permit applicants challenge the use of CTDM as not yet Guideline? Will applicants who are already relying on RTDM and have invested significant resources in their modeling demonstrations be "grandfathered" from any near term changes in guidance? If so, at what stage of the permit process will grandfathering be allowed? I look forward to your advice with respect to these issues. These questions need to be addressed as changes to the Guideline are considered.

Attachments

cc: W. Baker, 2AWM-AP
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