



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

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MEMORANDUM

SUBJECT: On-Site Meteorological Data Collected at Ashland Oil Refinery in Catlettsburg, Kentucky

FROM: Desmond Bailey, Meteorologist *Desmond Bailey*  
Techniques Evaluation Section, SRAB (MD-14)

TO: Jewell Grubbs, Chief  
Northern Planning, Grants & Monitoring Section  
EPA-Region IV

In response to your request, the Model Clearinghouse has reviewed the material provided in your June 4, 1991 memorandum describing the nature of the 1978/79 meteorological data collected at the refinery. In addition the Clearinghouse has reviewed previous correspondence on this subject, and has had discussions with Brenda Johnson (June 11 phone call from Dr. Bailey). Based on this information, the Clearinghouse has serious concerns about data quality and is unconvinced that the Ashland meteorological data would be acceptable for use in a regulatory modeling evaluation using the RTDM model. These concerns are discussed in the following:

Based on past correspondence, we understood that the 1978/79 meteorological monitoring program at Ashland consisted of four 10-meter towers and one 30-meter tower. However, based on the material provided in your June 4, 1991 transmittal, it would appear that the meteorological towers referred to in previous correspondence were actually poles with the instruments mounted on top. The four 10-meter towers were apparently 5-foot (1.5-meter) poles and the 30-meter tower was apparently a 50-foot (15-meter) pole. That the towers were probably poles is not a problem. The greater concern is the measurement height for wind direction and wind speed. For example, wind measurements at a height of only 1.5 meters (above ground) would not be acceptable for use in modeling sources of the type identified at Ashland.

Two samples of the digitized data from the "Met 3 station" were provided with your June 4, 1991 transmittal. The first sample (hourly data for February 15, 1978) reports an indeterminate wind direction for 10 out of 24 hours. The second sample (hourly data for March 30, 1978) reports an indeterminate wind direction for 12 out of 24 hours. Supposedly, wind direction and wind speed from the Met 3 station would be used for modeling transport and dilution with the RTDM model. However, assuming the two samples are

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representative of the entire data base, valid wind directions would be available for only 44 percent (21 out of 48 hours) of the hours. This alone would render the data base unsuitable for use in regulatory modeling.

Your question, therefore, "is 89 percent data retrieval sufficient ...?" is moot since it appears that the percentages reported in Table III-3 for wind direction do not correctly reflect what would be considered valid data for modeling.

Please contact Dean Wilson or me if you have questions.

cc: G. Blais  
B. Johnson

bcc: Regional Modeling Contact, Regions I-X, with copy of incoming memorandum and list of FY-91 Clearinghouse memoranda