

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II

DATE: JUN 10 1993

SUBJECT: Calculating Plume Rise for Stacks with Horizontal Releases or Rain Caps

FROM: Ken Eng, Chief
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The New Jersey Department of Environmental Protection and Energy (NJDEPE) will soon be reviewing a modeling analysis for a paint production facility, Cookson Pigment, located in Newark, New Jersey. This facility will have significant lead emissions from horizontal stacks. In addition, the facility has some stacks with rain caps.

The source proposes to use the ISC and SCREEN models. To accurately model the horizontal and capped releases, NJDEPE proposes to modify the plume rise equations to account for the reduced momentum from these type of stacks. This would be done by setting the stack exit velocity to a nominal 0.1 m/s and inputting an adjusted stack diameter into the models in order to maintain the volumetric flow rate. I have enclosed NJDEPE's letter and the derivation of the equation for the adjusted stack diameter.

We believe the approach is technically sound and our Region would like to support the proposal. We ask for the Model Clearinghouse concurrence. If you have any questions, please contact Annamaria Colecchia of my staff at (212) 264-4939. We look forward to your response.

Enclosure

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