



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711
September 20, 1989

MEMORANDUM

SUBJECT: Stack Located Within 5L of Dam
FROM: *James L. Dicke*
James L. Dicke, Chief
Techniques Evaluation Section (MD-14)
TO: Lewis Nagler, Regional Meteorologist
Region IV

In response to your request to Dean Wilson, the Model Clearinghouse has reviewed the situation you presented where a power plant stack is located within 5L (where L is the lesser dimension, height or projected width, of nearby structures) of the Saluda Dam in South Carolina. The Clearinghouse position is that the large lateral extent of the lake and dam preclude consideration of the structure as a building and thus should be treated as "rolling" terrain in ISC.

Guidance contained in Section 3.6 of the "Guideline for Determination of Good Engineering Practice Stack Height..." is applicable if the source wishes to justify a stack height for modeling greater than that given by Equation 1 due to nearby terrain, i.e., not further than 0.8 km from the stack. It appears from the information you presented that the GEP stack height given by Equation 1 is 202.5 feet. From your diagram, the height of the dam with a road on top is greater than $0.4 H_G$ (81 feet) and is closer than 0.8 km to the stack. This case appears similar to Figure 13(b) in the stack height guideline. The extent of the dam and lake appears to be greater than 2 miles or $10 H_T$, thus meeting the fluid modeling criteria for nearby terrain.

Thus, the source has the option to perform fluid modeling to ascertain whether a GEP stack height greater than 202.5 feet can be justified. In the absence of such a justification the source should be modeled at 202.5 feet, or at actual stack height if the stack can be grandfathered; in either case, downwash is assumed not to be occurring and building dimensions should not be input to ISC.

Incidentally, we were unable to reconcile the 162 feet height of the dam in your figure with the handwritten figures on the terrain map. These figures indicate that the dam top is 377 feet MSL while the stack base is 201.5 feet MSL. The simple difference of these two numbers suggests that the dam height should be 175.5 feet.

If you have any further questions, please contact me.

cc: D. Grano, AQMD (MD-15)
D. Wilson, TSD (MD-14)

FY 89 MODEL CLEARINGHOUSE MEMORANDA

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11/07/88	VI	Compilation of Most Recent, Available 5-Year Meteorological Data By Texas
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* 5/11/89	I - X	Issues Associated with Modeling Background Sources
6/8/89	III	Policy Interpretation - Modeling for Intermediate Terrain
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08/16/89	VIII	Review of the Utah PM ₁₀ Draft SIP (your memo 8/1/89)
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