



September 25, 1972

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LOCKET NO. 40-8027

REGULATORY OPERATIONS  
U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
ENVIRONMENTAL RESEARCH LABORATORIES

Silver Spring, Maryland 20910



Mr. J. E. Rothfleish  
Materials Branch, Directorate of Licensing  
U. S. Atomic Energy Commission  
Washington, D. C. 20545

Dear Mr. Rothfleish:

In reply to your request of August 24, 1972, the following are comments on the Kerr-McGee Corporation "Applicant's Environmental Report", November 1971 (Revised) and June 1972 (Supplemental).

It is our understanding that any effluents released to the free atmosphere will be through either a 150-ft stack or through roof-top vents. The former we would consider an elevated release taking into account the effective stack height as a result of plume rise and the latter a ground source taking into account the additional dilution because of the building wake effect.

The environmental surveillance program, and in particular, the four air samplers located at a radius of 1000 feet, appears to be wholly inadequate for the job intended; that is, effluent control to acceptable levels. For elevated releases, the maximum concentration, except in the case of very unstable vertical temperature profiles, will be well beyond 1000 feet downwind and thus not detectable by the air samplers. For ground sources, a large portion of the time the plume would go undetected because of a trajectory between samplers.

The applicant, in the gas dispersion calculations in table XXIII (page 80) and in the Appendix IV (Sequoyah Stack Diffusion Calculations - pages 1-7), has a completely erroneous analysis of what is meant to be an annual average dispersion estimate. The criterion taken from the proposed AEC "License Requirements for Measuring and Reporting of Effluents" applies to an annual or long-term average and, as such, should be used in the long-term modification of the gaussian diffusion equation as correctly stated in equation 6, page 5 of the Dames and Moore report in Appendix IV. The applicant used the short-term (about 1 hr average) equation as is obvious from the  $3.55 \times 10^{-5}$  value in table XXIII and as is shown on page 1 of the Sequoyah Stack Diffusion Calculations (first part of Appendix IV). It would seem that the applicant is not aware that what he calculated incorrectly was correctly done in the Dames and Moore Report.

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The labeling of table XXIII is very much in error. All "minimum" labels should read "maximum"; the maximum  $\Sigma Y/Q$  value for Condition A should be at a distance of 1000 feet, not 1800 feet; Conditions A through F should be labeled short-term concentrations; and the last line (1/3C, 1/3D and 1/3F) should be labeled long-term concentration. All values apply to the elevated release.

We are in agreement with the Dames and Moore analysis in Appendix IV. The Fort Smith wind data show a prevailing wind from the east as do the site data and therefore the diffusion analysis of the former is appropriately applied to the site. In comparison, the maximum concentration for an elevated release computed by Dames and Moore is  $5 \times 10^{-7} \text{ sec m}^{-3}$  towards the WSW at a distance of 805 m, while the applicant lists  $3.55 \times 10^{-5}$  on page 80 and  $3.35 \times 10^{-5} \text{ sec m}^{-3}$  on page 6, Appendix IV. This is a factor of 100 higher (more conservative) than the Dames and Moore values.

We do not understand what the applicant means on page 29 of the November 1971 report in the discussion on maximum exposure to airborne concentrations, assuming 100 percent deposition. If the latter is true, the airborne cloud would be completely depleted; that is, the material would be on the ground rather than in the air.

Sincerely yours,

*I. Van der Hoven*

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