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DEC 21 1989

Mr. Charles M. Vaughan, Manager
Regulatory Compliance
Nuclear Fuel & Components
Manufacturing
General Electric Company
P.O. Box 780
Wilmington, NC 28402

Dear Mr. Vaughan:

This is in response to your letter of November 27, 1989, regarding the revised 10 CFR Part 20 currently under Commission consideration. The points discussed in your letter have been addressed by the NRC staff in briefings of the Advisory Committee on Reactor Safeguards, the Advisory Committee on Nuclear Waste, and the Commission. The issues were also addressed in the enclosures to SECY-88-315, the first Part 20 policy paper, particularly in Enclosure 9, the staff's response to NUMARC's comments, and in the most recent submission to the Commission (SECY-89-267). The latter paper transmitted the May 1989 NUMARC submission (in 10/11) to the Commission.

I should note that the revised Part 20 would permit the use of direct measurements, such as body burden or excretion data, in lieu of air concentration measurements for assessing dose and determining compliance. This position was stated in § 20.204(a) both in the proposed rule and in the final revised rule. In addition, the dose delivered following the intake of radioactive material is dependent upon the aerosol particle size and upon the individual's retention characteristics. Both the 1986 proposed Part 20 rule and the final revised Part 20 rule submitted to the Commission permit adjustments to be made to dose estimates to account for these factors (see § 20.204(c)). Moreover, both the proposed and revised Part 20 rules permit air concentration limits to be modified to reflect actual exposure conditions (with NRC review and approval).

The staff analysis of the NUMARC proposals was begun in February, shortly after a meeting with representatives of the nuclear fuel fabrication industry. The complete NUMARC May submittal was transmitted to the Commission as an enclosure to SECY-89-267 on August 28, 1989. The data and analyses submitted as a part of the May NUMARC proposal show that accounting for the actual particle sizes could alleviate, to some extent, the problem stemming from the decreased uranium air concentration limits. The Annual Limit Intake (ALI) values in the 10 CFR Part 20 rule are based upon a (1 um) particle size. The actual retention measurements in workers showed that the retention was lower and lung clearance was faster than predicted by the International Commission on Radiological Protection (ICRP) model, consistent with the larger measured particle size reported in the May NUMARC submittal. This does not mean that the ICRP model (for 1 um-particles) is incorrect. It would be inappropriate to

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use the 1 um model predictions when actual data for the larger particle sizes are available. The solution consistent with the ICRP committed dose equivalent model is to use the provisions of § 20.204(c) in the revised Part 20 rule to apply a different derived air concentration limit based upon the larger particle sizes.

Let me assure you that these issues and the proposal for a combined annual and committed dose system have been and will remain under consideration as the Commission completes its examination of the 10 CFR Part 20 rule revision package. We appreciate your efforts in providing data and in exploring alternative dose assessment models. If you have additional questions or information, please feel free to contact us.

Sincerely,

ORIGINAL SIGNED BY

Eric S. Beckjord, Director
Office of Nuclear Regulatory Research

cc: Chairman Carr
Commissioner Roberts
Commissioner Rogers
Commissioner Curtiss
Commissioner Remick
NUMARC - Thomas E. Tipton

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