



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

December 20, 1990

Docket No. 70-1113
License No. SNM-1097

General Electric Company
ATTN: Mr. S. P. Murray, Manager
Nuclear Safety Engineering
P. O. Box 780
Wilmington, North Carolina 28402

Gentlemen:

This letter acknowledges your letter dated November 27, 1990, regarding your recent extremity monitoring studies. These monitoring studies were conducted to determine if routine extremity dose monitoring would be required by 10 CFR 20.202(a)(1) for operations at your facility. General Electric (GE) representatives had committed to such an evaluation during an August 27, 1990, Enforcement Conference.

Our review of your studies indicates that GE needs to conduct further studies in order to demonstrate that no GE personnel exceed the quarterly monitoring limit of 10 CFR 20.202(a)(1), and hence, do not need to be monitored. Your studies indicated two individuals were either above or near the quarterly monitoring limit. These additional studies can be limited to only the GE personnel likely to exceed the quarterly monitoring limit.

For the determination of the quarterly dose received, the portion of the skin receiving the maximum dose, which in selected operations at your facility is the fingertip, must be used for determining compliance. Monitoring with ring-mounted thermoluminescent dosimeters (TLDs) located at the first distal joint of the index finger and extrapolating to the fingertip with the use of appropriate extrapolation factors is acceptable. However, we believe that further studies need to be conducted to better define the extrapolation factors for specific job functions. These studies should include better statistical analysis of the variation from operation to operation and from week to week. In addition, more data should be obtained on the absolute dose rate of the pellet so that the validation of TLD measurements can be obtained.

In your letter, you discuss the conservatism of evaluating the dose through a thickness of 7 milligrams per square centimeter (mg/cm^2) for the skin thickness instead of the actual skin thickness of from 44 to 77 mg/cm^2 . You reference the July 20, 1990, letter from the Office of Nuclear Reactor Regulation to the NRC Regional Offices indicating that 7 mg/cm^2 must be universally applied to the skin on all parts of the body. Unless GE obtains an exemption to use another value, 7 mg/cm^2 must be used.

Your letter also states that the proposed revision₂ to 10 CFR 20.201 specifically allows averaging the dose to the skin over a 10 cm^2 area. In the present revision of 10 CFR 20.21 which is to be published soon, the value for averaging the dose to the skin is 1 cm^2 .

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Also, your letter states that because of the uranium pellet size, no more than about 0.85 cm² of the pellet can be touched or contacted by the fingertips. If you plan to use this factor in calculating dose limits for regulatory purposes, please provide additional substantiating information for our review.

In your letter, you state that GE is currently evaluating other methods of dose reduction techniques including remote handling devices, special "pusher" tools, and work station hand rests at certain locations. We strongly encourage your efforts in evaluating these methods.

If you have any questions or need further information, please call me at (301) 492-0405.

Sincerely,

Original Signed By

Edwin D. Flack
Uranium Fuel Section
Fuel Cycle Safety Branch
Division of Industrial and
Medical Nuclear Safety, NMSS

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