



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

JAN 8 1981

DOCKET NO: 70-398

APPLICANT: U. S. Department of Commerce, National Bureau of Standards

SUBJECT: REVIEW OF LICENSE AMENDMENT APPLICATION FOR AUTHORIZATION
TO USE ONE MILLIGRAM OF PLUTONIUM AND ONE GRAM OF U-235
IN THE MASS SPECTROMETER ROOMS

REVIEWER: A. L. Soong

I. Background

The licensee's existing license authorizes the use of up to 250 gms of U-235 and 10 gms of plutonium in any form for various types of experiments. When the license was renewed in 1979, the licensee requested authorization to use only 10 milligrams of enriched uranium in the mass spectrometer area and did not request similar authorization for plutonium.

By letter dated November 24, 1980, and its supplement dated December 19, 1980, the licensee requested authorization to use up to one mg. of plutonium and up to one gram of U-235 in the mass spectrometer complex rooms. The experiment consists of depositing about two nanograms of Pu or two micrograms of U-235 on a filament and transferring them to the mass spectrometer for analysis.

II. Radiological and Nuclear Safety

The experiment is conducted in a laboratory hood, and the hood is maintained at a face velocity of 100 linear feet per minute. The potential contaminated air inside the hood, therefore, will be blown away from the experimenter. The hood was equipped with double filters and the exhausted air is monitored for radioactivity. Gloves and laboratory coats are worn during filament loading to minimize the experimenter's body contamination.

The Health Physicist checks routinely the hood face velocity and conducts a weekly surface survey in the working areas; if the measured level was found above the 20 dpm/100 cm² action level, the experiment will be ceased until the decontamination is completed.

Since the total amount of SNM to be used in the experiment is less than two gms, it is insufficient to achieve accident criticality.

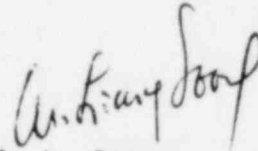
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III. IE Comments

On December 15, 1980, this amendment application was discussed with Mr. P. Clemons of Region I, IE. He foresaw no safety-related problems with the licensee's application.

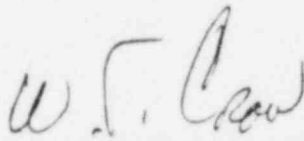
IV. Conclusion

Based on the discussion above, I believe that the amendment can be granted without undue risk to the experimenters and the public. Therefore, I recommend approval of the application for license amendment.



A. L. Soong
Uranium Process Licensing Section
Uranium Fuel Licensing Branch
Division of Fuel Cycle and
Material Safety

Approved by:



W. T. Crow, Section Leader