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

SAFETY EVALUATION BY THE

OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 34 TO

FACILITY LICENSE NO. R-67

GA TECHNOLOGIES, INC.

DOCKET NO. 50-163

Introduction

By letter dated June 4, 1985, the licensee, GA Technologies, Inc. (GA) requested an amendment to operating license R-67 for their TRIGA Mark F non-power reactor. The requested amendment would change the maximum interval between thermal power calibration measurements from quarterly to semi-annually. The reason for the requested change is that the licensee is currently performing an experimental program involving in-core fueled components that do or may require continuous irradiation for more than three months, and thermal power calibrations for this convective-cooled reactor require major changes in reactor operating power level.

Evaluation

The licensee has supported his request for this amendment by discussing briefly the features of the in-core experiments that are currently a major program using this 1.5 megawatt TRIGA reactor.

The principal components under test contain fissile material that is raised to elevated temperatures during irradiation and must be maintained at various constant temperatures for extended periods of time to test the hypotheses of the experiments. If the reactor were shutdown for reasons other than to test certain experiment parameters, not only would the usefulness and validity of the experiments be decreased, but premature temperature changes in the fueled components could cause deleterious changes or non-reparable damage to these components. While such damage would not lead to release of radioactivity, it could lead to discarding such components and the consequent loss of data and an expensive repetition of measurements and extension of time for the program.

The TRIGA Mark F at GA is licensed to operate with natural convective-flow water cooling at thermal power levels up to 1.5 MW. With such a system, there is no feasible heat-balance method of measuring thermal power to calibrate the neutron power-level channels while the reactor continues to operate at constant power. The standard and well-established methods require shutdown of the reactor, and the use of non-isothermal calorimetric techniques.

The current license condition in the Technical Specifications, quarterly power calibration, therefore, leads to periodic shutdown of the reactor that in turn leads to premature cessation of irradiations.

The licensee employs several monitors of reactor power that provide continuous readouts that are both redundant and diverse in type. Therefore, there is reasonable assurance that the licensee would know at all times of reactor operation whether the thermal power level is within the licensed limit, and that corrective measures would be taken to maintain compliance with the regulations if significant changes in calibration were to occur.

The staff currently relies on ANSI/ANS 15.1, "The Development of Technical Specifications for Research Reactors" (1982) in considering acceptance of proposed Technical Specifications. This standard recommends that thermal power calibrations for research reactors licensed to operate at less than 2 MW be performed at annual intervals, so the licensee's proposed semi-annual interval is well within this guidance.

On the basis of the above considerations, the staff concludes that there is reasonable assurance that the requested semi-annual calibration continues to meet our acceptance criteria, and would pose no significant increase in hazard to the public.

Environmental Consideration

This amendment involves changes in the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and changes in inspection and surveillance requirements. The staff has determined that the amendment involves no significant hazards consideration (as discussed below), there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and there is no significant increase in individual or cumulative occupational radiation exposure. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

Conclusion

The staff has concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously evaluated, does not create the possibility of a new or different kind of accident from any accident previously evaluated, and does not involve a significant reduction in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed activities, and (3) such activities will be

conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Dated: June 13, 1985