



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

GA TECHNOLOGIES, INC.

DOCKET NO. 50-163

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 35
License No. R-67

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to Facility Operating License No. R-67, filed by GA Technologies, Inc. (the licensee), dated August 26 and September 24, 1985, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's Regulations as set forth in 10 CFR Chapter I:
 - B. The facility will operate in conformity with the amended license, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied; and
 - F. Publication of notice of this amendment is not required since it does not involve a significant hazards consideration nor amendment of a license of the type described in 10 CFR Section 2.106(a)(2).

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2. Accordingly, the license is amended by changes to the technical specifications as indicated in the attachment to this license amendment, and paragraph 2.C.2 of License No. R-67 is hereby amended to read as follows:

Technical Specifications

The technical specifications contained in Appendix A, as revised through Amendment No. 35, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the technical specifications.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Cecil O. Thomas

Cecil O. Thomas, Chief
Standardization & Special
Projects Branch
Division of Licensing

Attachment:
Appendix A Technical
Specifications Changes

Date of Issuance: October 17, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 35

FACILITY OPERATING LICENSE NO. R-67

DOCKET NO. 50 163

Revised Appendix A technical specifications are as follows:

Remove Pages

6
7
14

Add Pages

6
7
14

Changes on the revised pages are identified by marginal lines.

6.0 CONTROL AND SAFETY SYSTEMS

6.1 Control Systems

6.1.1 The poison section of the control rods shall contain borated graphite or stainless steel, B_4C powder or boron or its compounds in solid form, cadmium, or the rare earth poisons in solid form clad with the materials authorized for fuel element cladding. The control rods may contain flux traps and may be equipped with fuel or non-fuel followers.

6.1.2 The number and position of operable control rods, at least one of which shall be a standard control rod, and their respective worths shall be such as to shut the reactor down by at least 10 cents when direct conversion experiments (section 10.2.6) are being conducted and by at least 50 cents at all other times, even with the most reactive rod stuck out. Period or rod drop measurements shall be used to verify minimum reactor shutdown when the estimated shutdown margin is less than 50 cents.

6.1.3 The maximum scram time for any fully withdrawn rod shall be two seconds from time of initiation of scram signal to full insertion of the rod. Verification shall be carried out at least semi-annually.

6.1.4 The control rods shall be visually inspected at least once every two years. If indication of significant deterioration or distortion is found, the rod(s) affected shall be replaced.

6.1.5 On each day that pulse mode operation of the reactor is planned, a functional performance check of the transient (pulse) rod system shall be performed.

Semiannually, at intervals not to exceed eight months, the transient (pulse) rod drive cylinder and the associated air supply system shall be inspected, cleaned and lubricated as necessary.

6.2 Safety Systems

6.2.1 The reactor safety systems and the associated instruments necessary to provide the scrams listed in Table 1 shall be operable during reactor operation.

6.2.2 During reactor operation, the applicable interlocks shown in Table II shall be operable.

6.2.3 The following monitoring systems shall be operable during reactor operation or when work is done on or around the reactor core. (For periods of time for maintenance to the radiation monitoring systems, the intent of this specification will be satisfied if the installed system is replaced as needed with alternative or portable gamma-sensitive instruments having their own alarms or which shall be kept under visual observation).

- (a) An area radiation monitoring system capable of activating the evacuation alarm.
- (b) A continuous monitoring system for airborne radioactivity having a readout and audible alarm which can be heard in both the reactor and control rooms.
- (c) The monitoring systems in (a) and (b) shall be calibrated annually and their set points verified weekly.

6.2.4 The reactor safety systems shall be verified to be operable at least once each day the reactor is operated, unless the operation extends continuously beyond one day, in which case the operability of the reactor safety system need only be verified prior to the extended operation.

6.2.5 The reactor power measuring channels shall be calibrated by the calorimetric or heat balance method semiannually but at intervals not to exceed seven and one-half ($7\frac{1}{2}$) months.

6.3 Following maintenance or modification of the control or reactor safety systems, the affected system shall be verified to be operable before commencing reactor operation.

7.0 FUEL STORAGE

7.1 All fuel elements or fueled devices shall be stored in a safe geometry (k_{eff} less than 0.8 under all conditions of moderation).

7.2 Irradiated fuel elements and fueled experiments shall be stored in an array which will permit sufficient natural convection cooling by water or air such that the temperature of the fuel element or fueled device will not exceed design values.

8.0 ADMINISTRATIVE REQUIREMENTS

8.1 The facility shall be under the supervision of the Physicist-in-Charge or his designated alternate, who shall be a licensed senior operator of the facility. He shall be responsible to a Vice President whose duties include responsibility for research and development, or his designated alternate, for safe operation of the reactor and its associated equipment. The Criticality Safeguards Committee shall review and approve safety standards associated with operation and use of the facility. The Criticality Safeguards Committee or a Subcommittee thereof must audit reactor operations at least quarterly.

- (d) The irradiation time for any one device shall not exceed 10,000 hours.
- (e) The reactor shall not be placed on a positive period of less than one second while any direct conversion device is present in the core.
- (f) The experiment safety systems and the associated instruments necessary to provide the following automatic scrams shall be operable:
 - (1) when devices are present in the core and reactor power exceeds 5 kilowatts (scram bypass is permissible during scram reset or maintenance operation):
 - (i) Reactor scram if the temperature of the primary containment tube exceeds 1000°C.
 - (ii) Reactor scram if the bus bar water coolant flow rate falls below that required to remove the resistance heat from the water cooled part of the bus bars and maintain the water coolant temperature below boiling. (This scram is applicable only where such cooling is required.)
 - (2) when devices are present in the core regardless of reactor power level:
 - (i) Reactor scram if the reactor room continuous air monitor registers 50,000 counts per minute or more (scram bypass is permissible during scram test or maintenance operations provided the reactor operator shall initiate a manual scram upon the occurrence of an equivalent signal from a specified alternative radiation monitor).
- (g) The following reactor room personnel warning systems, which if tripped require immediate personnel evacuation, shall be operable when devices having a purgeable secondary containment are present in the core:
 - (1) a pressure sensing device capable of indicating a leak in the purgeable secondary containment.
 - (2) a radiation monitor capable of indicating a gross leakage of fission products into the purgeable secondary containment.
- (h) The reactor shall be shut down if the dose rate either
 - (a) outside any wall of the reactor room resulting from direct conversion experiments, or
 - (b) in the control room due to all experiments, exceeds (1) a maximum of 20 mr/hr, or (2) 2.5 mr/hr continuously for more than one hour.

10.2.7 If an experiment fails and releases material which, in the judgment of the Physicist-in-Charge or his designated alternate, could damage the reactor fuel or structure by corrosion or other means, physical inspection shall be performed to determine the consequences and need for corrective action. The results of the inspection and any corrective action taken shall be reviewed by the Criticality Safeguards Committee and determined to be satisfactory before reactor operation is resumed.