



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

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

DOCKET NO. 50-184

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 7
License No. TR-5

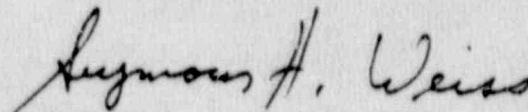
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment to Facility Operating License No. TR-5 filed by the National Institute of Standards and Technology (the licensee), dated July 27, 1990, as supplemented on August 1, 1990, complies with the standards 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 application, the provisions of the Act, and the 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 set forth in 10 CFR Chapter I;
 - 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; and
 - 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.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the enclosure to this license amendment, and paragraph 2.C (2) of License No. TR-5 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 7, 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 the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Seymour H. Weiss, Director
Non-Power Reactors, Decommissioning
and Environmental Project Directorate
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosure:
Changes to the Technical
Specifications

Date of Issuance: October 9, 1990

ENCLOSURE TO LICENSE AMENDMENT NO. 7

FACILITY OPERATING LICENSE NO. TR-5

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Replace the following page of the Appendix A Technical Specifications with the enclosed page. The revised page is identified by Amendment number and contains a vertical line indicating the area of change.

Remove Page

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Insert Page

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6.0 DESIGN FEATURES

6.1 Site Description

The reactor shall have a minimum exclusion radius to the nearest site boundary of 400 m. The reactor facility complex shall be located within NBS grounds and access to the reactor shall be controlled.

Basis: The location and ownership of the reactor site ensures necessary auxiliary services such as fire and security protection are available. The exclusion radius of 400 m is the distance on which all upper limit dose calculations are based (FSAR, NBSR 9, Addendum 1, Sections 2 and 3, Nov. 1980). Should this value decrease for any reason, a recalculation of upper limit doses would be necessary. Access to the reactor facility complex is controlled either by the facility staff or by a guard. In addition, access to the entire NBS campus is restricted at other than normal working hours.

6.2 Reactor Coolant System

The reactor coolant system shall consist of a reactor vessel, a single cooling loop, containing heat exchangers, and appropriate pumps and valves. All materials, including those of the reactor vessel, in contact with primary coolant (D_2O), shall be aluminum alloys or stainless steel, except gaskets and valve diaphragms. The reactor vessel shall be designed in accordance with the American Society of Mechanical Engineers (ASME) Code for Unfired Pressure Vessels. It shall be designed for 50 psig and 250°F. Heat exchangers shall be designed for 100 psig and a temperature of 150°F. The connecting piping shall be designed for 125 psig and a temperature of 150°F.

Basis: The reactor coolant system has been described and analyzed in the FSAR as a single loop system containing heat exchangers. Materials of construction, being primarily aluminum alloys and stainless steel, are chemically compatible with the D_2O coolant. The stainless steel pumps are heavy-walled members and are in areas of low stress, so they should not be susceptible to chemical attack or stress corrosion failures. The failure of the gaskets and valve bellows, although undesirable, would not result in catastrophic failure of the primary system; hence, strict material limitations are not required for technical specifications. The design, temperature, and pressure of the reactor vessel and other primary system components provide adequate margins over operating temperatures and pressures. It is believed prudent to retain these margins to further reduce the probability of a primary system failure. The reactor vessel was designed to Section VIII, 1959 Edition, of the ASME Code for Unfired Pressure Vessels. Subsequent changes should be made in accordance with the most recent edition of this Code.

Because the safety analysis is based on the reactor coolant system as presently designed and with the present margins, it is considered necessary to retain this design and these margins or to redo the analysis.