UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

STATE UNIVERSITY OF NEW YORK AT BUFFALO

DOCKET NO. 50-57

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 22
License No. R-77

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to Facility Operating License No. R-77, filed by the State University of New York at Buffalo (the licensee), dated May 10, 1994, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the regulations of the Commission 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 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 regulations of the Commission;

   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 regulations of the Commission and all applicable requirements have been satisfied; and

   F. Prior notice of this amendment was not required by 10 CFR 2.105(a)(4) and publication of notice for this amendment is not required by 10 CFR 2.106(a)(2).

2. Accordingly, the license is amended by changing license condition 2.C.1 of license R-77 to read as follows:

   (1) Maximum Power Level

   The licensee shall not operate the facility at steady state power levels in excess of 250 kilowatts (thermal).

3. 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. R-77 is hereby amended to read as follows:

   2. Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 22, are hereby incorporated in the license. The license shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Seymour H. Weiss

Seymour H. Weiss, Director
Non-Power Reactors and Decommissioning
Project Directorate
Division of Operating Reactor Support
Office of Nuclear Reactor Regulation

Enclosure:
Appendix A Technical
Specifications Changes

Date of Issuance: May 26, 1994

ENCLOSURE TO LICENSE AMENDMENT NO. 22

FACILITY OPERATING LICENSE NO. R-77

DOCKET NO. 50-57

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the areas of change.

Remove	Insert
5-14	5-14
5-26	5-26

response to coincident alarms from the building air monitor and the bridge monitor or in response to a manual signal.

(5) A charcoal filter shall be maintained in the emergency exhaust duct and the modulating damper in the exhaust duct and its controller shall be operable.

(6) The leak rate of the containment vessel shall not exceed 3.3 lps (7 cfm) standard air at a negative differential of 1.27 cm of water (½ in. water).

Bases: Specification 3.4.1(1) ensures that all openings in the containment vessel other than air ducts will be closed during operation, so that uncontrolled escape of confinement air is prevented.

Specification 3.4.1(2) ensures that fans capable of maintaining a negative pressure in the building under both normal and emergency conditions are operating.

Specification 3.4.1(3) ensures that any air leakage between the containment vessel and the environment will be inward.

Specification 3.4.1(4) ensures operability of the emergency dampers in the event of an accidental release of radioactivity within containment.

Specification 3.4.1(5) ensures that, under accident conditions, the containment will be vented in a controlled manner through an activated charcoal filter to the stack.

Specification 3.4.1(6) ensures that the leak rate of the containment building will not be greater than the 5% free air volume per day as used in the analysis of the design-basis accident.

3.5 Primary Coolant Conditions

Applicability: These specifications apply to the primary coolant purity, radioactivity, and flow distribution.

Objectives: The objectives of these specifications are (1) to ensure that coolant conditions are such that corrosion to the fuel and pool components is minimized, (2) to minimize the concentration of dissolved materials subject to neutron activation, and (3) to ensure that coolant does not bypass the fuel.

Specifications:

(1) The primary coolant pH shall be maintained between 5.0 and 7.5.

(2) The resistivity of the primary coolant when the reactor is operating shall be no less than 200,000 ohm-centimeter , averaged over a period of 2 weeks.

(3) During forced convection operation, grid plate holes not occupied by fuel must be blocked by plugs, reflector elements, or experiments.

Bases: A small rate of corrosion continuously occurs in a water-metal system. To limit this rate and, thereby, extend the longevity and integrity of the fuel

from the containment through a 15½-cm (6-in.) duct containing an absolute filter and an activated charcoal filter and exhausts it out the steam plant stack duct.

5.4 Primary Coolant System

The primary coolant system consists of the reactor tank, a N-16 decay tank, a pump, heat-exchanger, and various support systems. The reactor tank is 8.8 m (29 ft) deep, aluminum lined and holds approximately 51,850 l (13,700 gal) of water. The remainder of the system contains approximately 21,803 l (5,760 gal) of water and is fabricated of either aluminum or stainless steel. Valves are located at points that permit isolation of the reactor tank or each of the other major components.

Two demineralizer systems are available; one provides pure water for makeup to the system, and the other is in a continuously circulating cleanup loop.

An emergency pool fill system is available for adding city water to the pool should this be desired. In the event of a gross leak from the reactor tank, a manual valve can be opened to supply water directly from the municipal water supply.

5.5 Fuel and Reflectors

Fuel assemblies are 8 cm (3.15 in.) x 6.96 cm (2.74 in.) in cross section and 96.5 cm (38 in.) long. Each assembly contains 25 pins in a 5 x 5 array. The pins are positioned by aluminum grids at each end. The end grids each contain 25 holes of 0.63-cm (¼-in.) diameter for coolant passage. The lower end of the assembly consists of an aluminum nosepiece that mates with the grid plate. The top of the assembly contains a bail for handling purposes. The center box portion is made of 0.152-cm (0.060-in.) zircaloy.

Each fuel pin is made up of a zircaloy tube 1.194 cm (0.47 in.) O.D. and 0.047 cm (0.0185 in.) minimum wall, containing a stack 60.96 cm (24 in.) long of sintered uranium dioxide pellets. Welded caps form the closure for the tube ends. Pellets are 1.067-cm (0.42-in.) diameter and have a minimum density of 10.2 g per cubic centimeter. Enrichment is to 6% in U-235.

Typical composition of a fuel assembly is as follows:

Uranium-235	= 0.768 Kg (1.69 lb)
Uranium	= 12.83 Kg (28.29 lb)
Uranium dioxide	= 14.56 Kg (32.1 lb)
Complete Fuel Assembly	= 20.37 Kg (45 lb)

The reactor may be reflected by normal water, graphite, lead, aluminum or voids.

5.6 Reactivity Control

Reactivity control is provided by six neutron absorbing blades. Each is composed of 80% silver, 15% indium, and 5% cadmium. The blades are 12.32 cm (4.85 in.) wide by 0.457 cm (0.180 in.) thick by 73.7 cm (29 in.) long. The blades are plated with 0.0076-cm (0.003-in.) nickel.