



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

POWER AUTHORITY OF THE STATE OF NEW YORK

DOCKET NO. 50-286

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 18
License No. DPR-64

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Power Authority of the State of New York (the licensee) dated November 2, 1977, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations 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 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; 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.

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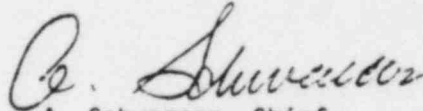
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility License No. DPR-64 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 18, 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 its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: November 6, 1978

ATTACHMENT TO LICENSE AMENDMENT NO. 18

FACILITY OPERATING LICENSE NO. DPR-64

DOCKET NO. 50-286

Revise Appendix A as follows:

Remove Pages

1-5 through 8
3.1-4
3.2-1 through 3.2-5
4.9-4

Insert Pages

1-5
3.1-4
3.2-1 through 3.2-5
4.9-4

1.11 QUADRANT POWER TILT RATIO

The quadrant power tilt ratio shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater. With one excore detector inoperable, the remaining three detectors shall be used for computing the average.

1.12 SURVEILLANCE INTERVAL

When Refueling Outage is used to designate a surveillance interval, the surveillance interval shall not exceed 18 months, except for the first fuel cycle. The first refueling outage surveillance testing will be performed during the first refueling outage.

Surveillance intervals, with the exception of refueling, shift and daily periods, are defined as the specified period plus or minus 25% of the specified period.

B. HEATUP AND COOLDOWN

Specifications

1. The reactor coolant temperature and pressure and system heatup and cooldown rates averaged over one hour (with the exception of the pressurizer) shall be limited in accordance with Figure 3.1-1 and Figure 3.1-2 for the first full power service period.
 - a. Allowable combinations of pressure and temperature for specific temperature change rates are below and to the right of the limit lines shown. Limit lines for cooldown rates between those presented may be obtained by interpolation.
 - b. Figure 3.1-1 and Figure 3.1-2 define limits to assure prevention of non-ductile failure only. For normal operation other inherent plant characteristics, e.g., pump heat addition and pressurizer heater capacity may limit the heatup and cooldown rates that can be achieved over certain pressure-temperature ranges.
2. The limit lines shown in Figure 3.1-1 and Figure 3.1-2 shall be recalculated periodically using methods discussed in the Basis and results of surveillance specimens as covered in Specification 4.2.
3. The secondary side of the steam generator shall not be pressurized above 200 psig if the temperature of the steam generator is below 70°F.
4. The pressurizer heatup and cooldown rates averaged over one hour shall not exceed 100°F/hr and 200°F/hr, respectively. The spray shall not be used if the temperature difference between the pressurizer and the spray fluid is greater than 320°F.
5. Reactor Coolant System integrity tests shall be performed in accordance with Section 4.3.

Basis

Fracture Toughness Properties

The fracture toughness properties of the ferritic materials in the

3.2 CHEMICAL AND VOLUME CONTROL SYSTEM

Applicability

Applies to the operational status of the Chemical and Volume Control System.

Objective

To define those conditions of the Chemical and Volume Control System necessary to ensure safe reactor operation.

Specification

- A. When fuel is in the reactor there shall be at least one flow path to the core for boric acid injection.
- B. The reactor shall not be brought above the cold shutdown condition unless the following requirements are met:
 1. Two charging pumps shall be operable.
 2. Two boric acid transfer pumps shall be operable one of which shall be operating to recirculate the contents of the Boron Injection Tank.
 3. The boric acid storage system shall contain a minimum of 4400 gallons of 11 1/2% to 13% by weight (20,000 ppm to 22,500 ppm of boron) boric acid solution at a temperature of at least 145°F.
 4. System piping and valves shall be operable to the extent of establishing one flow path from the boric acid storage system and one flow path from the refueling water storage tank (RWST) to the Reactor Coolant System and a recirculation flow path between the boric acid storage system and the Boron Injection Tank.
 5. The appropriate boric acid storage tank level indicator(s) and the Boron Injection Tank recirculation flow indicator shall be operating.
 6. Two channels of heat tracing shall be operable for the flow path from the boric acid storage system to the Reactor Coolant System.

7. City water piping and valves shall be operable to the extent required to provide emergency cooling water to the charging pumps and flush water for the concentrated boric acid piping from the outlet of the boric acid storage tanks to the charging pump suction.
- C. The requirements of 3.2.B may be modified to allow any one of the following components to be inoperable at any one time:
1. One of the two operable charging pumps may be removed from service provided a second charging pump is restored to an operable status within 24 hours.
 2. One boric acid transfer pump may be out of service provided the standby pump is immediately placed in service and the failed pump is restored to an operable status within 48 hours.
 3. The boric acid storage system may be inoperable provided that:
(a) the RWST is operable, (b) the requirements of specification 3.3.A.3.b are satisfied and (c) the boric acid storage system is restored to an operable status within 48 hours.
 4. One channel of heat tracing for the flow path from the boric acid storage system to the Reactor Coolant System may be out of service provided the failed channel is restored to an operable status within 7 days and the redundant channel is demonstrated to be operable daily during that period.
 5. The Boron Injection Tank recirculation flow indicator may be inoperable for 48 hours.
- D. If the Chemical and Volume Control System is not restored to meet the requirements of 3.2.B within the time period specified in 3.2.C, then:
1. If the reactor is critical, it shall be brought to the hot shutdown condition utilizing normal operating procedures. The shutdown shall start no later than at the end of the specified time period.
 2. If the reactor is subcritical, the reactor coolant system temperature and pressure shall not be increased more than 25°F and 100 psi, respectively, over existing values.

3. In either case, if the requirements of 3.2.B are not satisfied within an additional 48 hours, the reactor shall be brought to the cold shutdown condition utilizing normal operating procedures. The shutdown shall start no later than the end of the 48 hour period.

BASIS

The Chemical and Volume Control System⁽¹⁾ provides control of the Reactor Coolant System boron inventory. This is normally accomplished by using any one of the three charging pumps in series with either one of the two boric acid transfer pumps. An alternate method of boration will be to use the charging pumps taking suction directly from the refueling water storage tank. A third method will be to depressurize and use the safety injection pumps.

There are three sources of borated water available for injection through 3 different paths:

1. The boric acid transfer pumps can deliver the contents of the boric acid storage system to the charging pumps.
2. The charging pumps can take suction from the refueling water storage tank.
3. Injection of borated water from the boron injection tank and the refueling water storage tank with the safety injection pumps⁽²⁾.

The Chemical and Volume Control System also provides a means for assuring that the Boron Injection Tank remains filled with borated water having the proper boric acid concentration. This is accomplished by continuously recirculating the contents of the Boron Injection Tank with the contents of the boric acid storage system using a Boric Acid Transfer Pump as the driving force and by performing the surveillance requirements detailed in Section 4 of the Technical Specifications.

The quantity of boric acid in storage from either the boric acid storage system or the refueling water storage tank is sufficient to borate the reactor coolant in order to reach cold shutdown at any time during core life.

Continuous recirculation between the boric acid storage system and the boron injection tank, and operability of the heat tracing circuit of the recirculation line insures that a flow path exists from the boric acid storage system to the boron injection tank.

Approximately 4000 gallons of the 11 1/2% to 13% by weight (20,000 ppm to 22,500 ppm of boron) of boric acid are required to meet cold shutdown conditions. Thus, a minimum of 4400 gallons in the boric acid storage system is specified. An upper concentration limit of 13% (22,500 ppm of boron) boric acid in the boric acid storage system is specified to maintain solution solubility at the specified low temperature limit of 145°F. One channel of heat tracing is sufficient to maintain the specified low temperature limit. The second channel of heat tracing provides backup for continuous plant operation when one channel is inoperable. Should both channels of heat tracing become inoperable, the reactor will be shutdown and can easily be borated before the line temperature is reduced near the boric acid precipitative temperature.

The city water system is used as a source of water for emergency cooling of the charging pumps and as a source of flush water to remove concentrated boric acid from the piping between the outlet of the boric acid storage tanks and the inlet to the charging pumps in the unlikely event of a complete loss of electrical power and/or a complete loss of service water resulting from turbine missiles.

- References:
- 1) FSAR - Section 9.2
 - 2) FSAR - Section 6.2

4. Interval of Inspection

- a. The first inservice inspection of steam generators should be performed after six effective full power months but not later than completion of the first refueling outage.
- b. Subsequent inservice inspections should be not less than 12 or more than 24 calendar months after the previous inspection.
- c. If the results of two consecutive inspections, not including the preservice inspection, all fall in the C-1 category, the frequency of inspection may be extended to 40-month intervals. Also, if it can be demonstrated through two consecutive inspections that previously observed degradation has not continued and no additional degradation has occurred, a 40-month inspection interval may be initiated.

B. Corrective Measures

All leaking tubes and defective tubes should be plugged.

C. Reports

1. Following each inservice inspection of steam generator tubes, the number of tubes plugged in each steam generator shall be reported to the Commission within 15 days.
2. The complete results of the steam generator tube inservice inspections shall be reported on an annual basis for the period in which the inspection was completed. This report shall include:
 - a. Number and extent of tubes inspected.
 - b. Location and percent of wall-thickness penetration for each indication of an imperfection.
 - c. Identification of tubes plugged.

3. Results of steam generator tube inspections which fall into Category C-3 and require prompt notification of the Commission shall be reported pursuant to Specification 6.9.1 prior to resumption of plant operation. The written followup of this report shall provide a description of investigations conducted to determine cause of the tube degradation and corrective measures taken to prevent recurrence.

Basis

Inservice inspection of steam generators is essential in order to monitor the integrity of the tubing and to maintain surveillance in the event that there is evidence of mechanical damage or progressive