

January 24, 1990

Docket No. 50-286

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Mr. John C. Brons
 Executive Vice President - Nuclear Generation
 Power Authority of the State of New York
 123 Main Street
 White Plains, New York 10601

Dear Mr. Brons:

SUBJECT: ISSUANCE OF AMENDMENT (TAC NO. 67606)

The Commission has issued the enclosed Amendment No. 91 to Facility Operating License No. DPR-64 for the Indian Point Nuclear Generating Unit No. 3. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated March 15, 1988.

The amendment revises the Technical Specifications to allow plant operation with one or more inoperable main steam line safety valves provided that the power range high neutron flux setpoint is reduced to a specified value.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular bi-weekly Federal Register notice.

Sincerely,

ENCLOSED BY:

Joseph D. Neighbors, Senior Project Manager
 Project Directorate I-1
 Division of Reactor Projects - I/II
 Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 91 to DPR-64
2. Safety Evaluation

cc: w/enclosures
 See next page

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| DATE | : 12/5/89 | : 12-5-89 | : 1-5-90 | : 12/20/89 | : 1/24/90 | : 12/26/89 | : 1/4/28/89 |

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Mr. John C. Brons
Power Authority of the State
of New York

Indian Point 3 Nuclear Power Plant

cc:

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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. 91
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 March 15, 1988, 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.
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 Operating 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. 91, 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 and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Robert A. Capra, Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 24, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 91

FACILITY OPERATING LICENSE NO. DPR-64

DOCKET NO. 50-286

Revise Appendix A as follows:

| <u>Remove Pages</u> | <u>Insert Pages</u> |
|---------------------|---------------------|
| -- | v |
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| 3.4-2 | 3.4-2 |
| 3.4-2a | -- |
| 3.4-3 | 3.4-3 |
| -- | 3.4-4 |
| Table 3.4-1 | Table 3.4-1 |

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| 3.5-2 | Reactor Trip Instrumentation Limiting Operating Conditions |
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3.4 STEAM AND POWER CONVERSION SYSTEM

Applicability

Applies to the operating status of the Steam and Power Conversion System.

Objective

To define conditions of the turbine cycle steam-relieving capacity. Auxiliary Feedwater System operation is necessary to ensure the capability to remove decay heat from the core.

Specification

- A. The reactor shall not be heated above 350°F unless the following conditions are met:
- (1) A minimum ASME Code approved steam-relieving capability of twenty (20) main steam valves shall be operable (except for testing). With up to three of the five main steam line safety valves per steam generator inoperable, heat-up above 350°F and power operation is permissible provided:
 - a) Within four hours,

the inoperable valve(s) is restored to operable status.
 - or
 - the Power Range Neutron Flux High Trip Setpoint is reduced per Table 3.4-1.
 - b) Otherwise the reactor shall be in hot shutdown within the next six hours and in cold shutdown within the following 30 hours.
 - (2) Three out of three auxiliary feedwater pumps must be operable.
 - (3) A minimum of 360,000 gallons of water in the condensate storage tank.
 - (4) System piping and valves directly associated with the above components operable.
 - (5) The main steam stop valves are operable and capable of closing in five seconds or less.
 - (6) Two steam generators capable of performing their heat transfer function.
 - (7) City water system piping and valves directly associated with providing backup supply to the auxiliary feedwater pumps are operable.

- B. Except as modified by D. below, if during power operations any of the conditions of 3.4-A above, except Items (1) & (2), cannot be met within 48 hours, the operator shall start to shutdown and cool the reactor below 350°F using normal operation procedures. If Item (2) cannot be met within 72 hours, the reactor shall be in hot shutdown within the next 12 hours.
- C. The gross turbine-generator electrical output at all times shall be within the limitation of Figure 3.4-1 or Figure 3.4-2 for the application conditions of turbine overspeed setpoint, number of operable low pressure steam dump lines, and condenser back pressure as noted thereon.
- D. The reactor shall not be heated above 350°F unless both valves in the single auxiliary feedwater supply line from the Condensate Storage Tank are open. If, during power operations, it is discovered that one or both of the valves are closed, the following action shall be taken:
- 1) Immediately place the auxiliary feedwater system in the manual mode,
 - 2) Within one hour either:
 - a) reopen the closed valve(s),
 - or
 - b) open the valves to the alternate city water supply,
 - and
 - 3) Once a water supply has been restored, return the system to the automatic mode.

If the above action cannot be taken, then:

- a) maintain the plant in a safe stable mode which minimizes the potential for a reactor trip,
- and
- b) continue efforts to restore water supply to the auxiliary feedwater system,
- and
- c) notify the NRC within 24 hours regarding planned corrective action.

3.4-2

Basis

A reactor shutdown from power requires removal of core decay heat. Immediate decay heat removal requirements are normally satisfied by the steam bypass to the condensers. Thereafter, core decay heat can be continuously dissipated via the steam bypass to the condenser as feedwater in the steam generator is converted to steam by heat absorption. Normally, the capability to feed the steam generators is provided by operation of the turbine cycle feedwater system.

The twenty main steam safety valves have a total combined rated capability of 15,108,000 lbs/hr. The total full power steam flow is 12,974,500 lbs/hr. Therefore, twenty (20) main steam safety valves will be able to relieve the total steam flow if necessary. The total relieving capacity of the twenty main steam line safety valves is 116% of the total secondary steam flow at 100% rated power (3025 Mwt). The specified valve lift settings and relieving capacities are in accordance with the requirements of Section III of the ASME Boiler and Pressure Code, 1971 Edition. The operability of the twenty main steam line safety valves ensure that the secondary system pressure will be limited to within 110% of the design pressure of 1085 psig during the most severe anticipated system operational transient.

Startup and/or power operation with inoperable main steam line safety valves is allowable within the limitations of Table 3.4-1. Operation with less than five safety valves operable for each steam generator is permissible if the reactor power level is limited to the relief capacity of the remaining safety valves. This is accomplished by restricting the reactor power level such that the energy transfer to the most limiting steam generator is not greater than the available relief capacity in that steam generator. The reduction in reactor power level is achieved by reducing the power range neutron flux high setpoint. The reactor trip setpoint reductions are derived on the following basis:

$$SP = \frac{(X) - (Y)}{X} (V) \times (109)$$

Where:

- SP = Reduced reactor trip setpoint in percent of rated power
- V = number of inoperable safety valves per steam line (most limiting steam generator).
- (109) = Power Range Neutron Flux-High Trip Setpoint for (4) loop operation
- X = Total relieving capacity of all safety valves per steam line (3,777,000 lbs/hr).
- Y = Maximum relieving capacity of any one safety valve (823,000 lbs/hr).

In the unlikely event of complete loss of electrical power to the station, decay heat removal would continue to be assured by the availability of either the steam-driven auxiliary feedwater pump or one of the two motor-driven auxiliary steam generator feedwater pumps and steam discharge to the atmosphere via the main steam safety valves and atmospheric relief valves. One motor-driven auxiliary feedwater pump can supply sufficient feedwater for removal of decay heat from the plant. The minimum amount of water in the condensate storage tank is the amount needed for 24 hours at hot shutdown. When the condensate storage supply is exhausted, city water will be used.

Two steam generators capable of performing their heat transfer function will provide sufficient heat removal capability to remove core decay heat after a reactor shutdown.

The limitations placed on turbine-generator electrical output due to conditions of turbine overspeed setpoint, number of operable steam dump lines, and condenser back pressure are established to assure that turbine overspeed (during conditions of loss of plant load) will be within the design overspeed value considered in the turbine missile analysis. (2) In the preparation of Figures 3.4-1 and 3.4-2, the specified number of operable L.P. steam dump lines is shown as one (1) greater than the minimum number required to act during a plant trip. The limitations on electrical output, as indicated in Figures 3.4-1 and 3.4-2, thus consider the required performance of the L.P. Steam Dump System in the event of a single failure for any given number of operable dump lines.

TABLE 3.4-1

| MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINT WITH INOPERABLE STEAM LINE SAFETY VALVES | |
|---|--|
| Number of Inoperable Safety Valves Per Limiting Steam Generator* | Maximum Allowable Power Neutron Flux High Set-Point (Percent of Rated Power) |
| 1 | 85 |
| 2 | 61 |
| 3 | 37 |

*Limiting Steam Generator is that Generator with greatest number of inoperable safety valves.

Amendment No. 91



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 91 TO FACILITY OPERATING LICENSE NO. DPR-64

POWER AUTHORITY OF THE STATE OF NEW YORK

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

DOCKET NO. 50-286

INTRODUCTION

By letter dated March 15, 1988, the Power Authority of the State of New York (the licensee) requested an amendment to Facility Operating License No. DPR-64 for the Indian Point Nuclear Generating Plant Unit No. 3 (Indian Point 3). The amendment would revise the Technical Specifications to allow plant operation with up to three inoperable main steam line safety valves per steam line.

BACKGROUND AND EVALUATION

The licensee states that the existing Technical Specification 3.4.A requires that all of the twenty ASME code approved main steam line safety valves be operable when the RCS temperature is above 350°F. The allowable out of service time for these safety valves is 48 hours. The proposed revision to Technical Specification 3.4.A and its associated Bases would allow plant operation with up to three inoperable main steam line safety valves per steam line provided the power range neutron flux high setpoint is reduced per proposed Table 3.4-1.

Each main steam line has five safety valves; one 8-inch valve and four 10-inch valves with relief capacities ranging from 540,000 lbm/hr to 823,000 lbm/hr. There are four main steam lines with a total relieving capacity of 15,108,000 lbm/hr. Each line has a relieving capacity of 3,777,000 lbm/hr. The total steam flow at full power is 12,974,500 lbm/hr. Therefore, the total relieving capacity of the 20 valves is 116% of the secondary steam flow at 100% rated power. The licensee states that the ASME Code requires that the steam generators have the capacity to remove 110% of the design steam flow rate. The Loss of External Electrical Load Transient poses the greatest challenge to the main steam line safety valves. The worst case Loss of Load Transient analyzed in the FSAR results in the relief of 69% of the steam flow at 100% rated power. The reduction in power level compensates for the reduction in steam relief capability with inoperable main steam safety valves. The ASME relief capability requirements are satisfied by reducing the power range neutron flux high setpoint per Technical Specification Table 3.4-1.

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The Westinghouse Standard Technical Specifications provide a formula for determining the required reductions in power range neutron flux high setpoint. The reactor trip setpoints are derived on the following basis:

$$SP = \frac{(X) - (Y) (V)}{X} \times (109)$$

Where:

- SP = Reduced reactor trip setpoint in percent of RATED THERMAL POWER
- V = Maximum number of inoperable safety valves per steam line
- (109) = Power Range Neutron Flux-High Trip setpoint for (4) loop operation
- X = Total relieving capacity of all safety valves per steam line (3,777,000 lbs/hr)
- Y = Maximum relieving capacity of any one safety valve (823,000 lbs/hr)

The calculated reductions in power range neutron flux high setpoint for a specified number of inoperable safety valves are provided in proposed Technical Specification Table 3.4-1. The reductions are based on the conservative assumption that each safety valve has a relief capacity equivalent to the maximum relief capacity. Therefore, the calculated setpoint reductions are not dependent upon which safety valves are inoperable. The reductions in the setpoints ensure that the requirement for relief capability of 110% of design steam flow rate will not be violated.

The proposed provisions for the allowable out of service time for the inoperable safety valves, the allowable power range neutron flux high trip setpoint reduction time, and the shutdown times are consistent with the applicable Westinghouse Standard Technical Specifications Action Statement.

The Proposed Technical Specifications will reduce the thermal cycling of plant equipment by no longer going to hot shutdown because of inoperable safety valves.

We have reviewed the proposed Technical Specifications and conclude that the relieving capacity is adequate for the number of valves inoperable with the reduced power and that the change is consistent with the applicable Westinghouse Standard Technical Specifications Action Statement. We, therefore, conclude that this change is acceptable.

ENVIRONMENTAL CONSIDERATION

This amendment involves a change in a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment

involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 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

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) 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.

Dated: January 24, 1990

PRINCIPAL CONTRIBUTOR:

J. D. Neighbors