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440 Hamilton Avenue
White Plains, NY 10601

April 18, 2001

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NO. 3 - ISSUANCE OF
AMENDMENT RE: MAIN FEEDWATER ISOLATION VALVE MODIFICATIONS
(TAC NO. MB0179)

Dear Mr. Kansler:

The Commission has issued the enclosed Amendment No. 207 to Facility Operating License No. DPR-64 for the Indian Point Nuclear Generating Unit No. 3 (IP3). The amendment is issued in response to the Power Authority of the State of New York application transmitted by letter dated September 7, 2000, as supplemented on April 2, 2001. On November 21, 2000, the operating license for IP3 was transferred to Entergy Nuclear Operations, Inc. (ENO). By letter dated January 26, 2001, ENO adopted requests associated with the operating license that were pending at the time of the license transfer.

The amendment revises Technical Specification 3.7.3 to reflect planned modifications to the main feedwater system. A copy of the related Safety Evaluation is enclosed.

A Notice of Issuance will be included in the Commission's next regular biweekly *Federal Register* notice.

Sincerely,

/RA/RLaufer for

George F. Wunder, Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-286

Enclosures: 1. Amendment No. 207 to DPR-64
2. Safety Evaluation

cc w/encls: See next page

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ACCESSION NO. ML010640142

*Safety Evaluation dated 02/02/01 was
provided and no major changes were made.

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Official Record Copy

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DATED: April 18, 2001

AMENDMENT NO. 207 TO FACILITY OPERATING LICENSE NO. DPR-64 INDIAN POINT
NUCLEAR GENERATING UNIT NO. 3

PUBLIC

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ENTERGY NUCLEAR OPERATIONS, INC.

DOCKET NO. 50-286

INDIAN POINT NUCLEAR GENERATING UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 207
License No. DPR-64

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Power Authority of the State of New York (the licensee before November 21, 2000) dated September 7, 2000, as supplemented on April 2, 2001, as adopted by Entergy Nuclear Operations, Inc. (the licensee) pursuant to a letter dated January 26, 2001 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. 207 , 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

/RA/

Maitri Banerjee, Acting Chief, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 18, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 207

FACILITY OPERATING LICENSE NO. DPR-64

DOCKET NO. 50-286

Replace the following pages of Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Page

iii
iv
v
3.7.3-1
3.7.3-2
3.7.3-3

Insert Page

iii
iv
v
3.7.3-1
3.7.3-2
3.7.3-3

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 207 TO FACILITY OPERATING LICENSE NO. DPR-59
ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NO. 3
DOCKET NO. 50-286

1.0 INTRODUCTION

By letter dated September 7, 2000, as supplemented on April 2, 2001, the Power Authority of the State of New York (the licensee before November 21, 2000) proposed to amend the Technical Specifications (TSs) for the Indian Point Nuclear Generating Unit No. 3 (IP3). The proposed TS changes reflect a main feedwater (MF) isolation design modification planned for refueling outage (RO) 11, which is scheduled to begin in May 2001. The MF isolation design modification will add a separate safety injection (SI) signal to the existing MF inlet isolation valves (MFIIV) and MF low flow bypass inlet isolation valves (MFBIIIV). These isolation valves would be automatically closed on an SI signal, and therefore isolate the feedwater lines as close as feasible to the MF regulation valves (MFRV) for a postulated main steamline break (MSLB) inside containment to limit the feedwater available to a faulted steam generator (SG). The proposed TS changes will provide TS control over the modified MF isolation design.

The April 2, 2001, supplement provided clarifying information that did not expand the application beyond the scope of the initial *Federal Register* notice, nor change the staff's initial proposed no significant hazards consideration determination.

On November 21, 2000, the operating license for IP3 was transferred to Entergy Nuclear Operations, Inc. (ENO). By letter dated January 26, 2001, ENO adopted requests associated with the operating license that were pending at the time of the license transfer.

2.0 BACKGROUND

The current plant design relies upon the MFRVs and the associated bypass valves (MFBVs) to close on an SI signal following an MSLB inside containment. If the MFRVs fail to close, current plant design relies upon the main boiler feed pump discharge valves (MBFPDVs) to close. The plant design requires the MFRVs and the associated MFBVs to close in 10 seconds or less and the MBFPDVs to close in 120 seconds or less.

By letter dated August 23, 1999, the licensee submitted a Licensee Event Report (LER) notifying the NRC that IP3 was outside the containment pressure design basis due to a non-conservative assumption for the analysis of an MSLB accident inside containment. The non-conservative assumption lies in the use of a low value for the non-isolable feedwater following a single failure of the MFRV on the faulted SG. The LER also asserted that the plant remained operable because a Cycle 10 MSLB analysis demonstrated that, with changes to the design

input assumptions consistent with current plant conditions, the calculated peak containment pressure would remain within the peak pressure identified on the docket.

Subsequently, the licensee performed an MSLB analysis for Cycle 11. To prevent a substantial return to power, the analysis credited a 2.9 percent shutdown margin and a boron concentration of 2300 ppm in the SI system piping, the boron injection tank (BIT), and upstream of the BIT. The results showed that the peak containment pressure for the worst case of a failure of feedwater isolation on the faulted SG at 102 percent power was below the design basis pressure, and the containment temperature remained below the value used for equipment qualification. Administrative controls are in place to sample the boron concentration in the BIT and to take the required actions if the boron concentration is not within required limits.

The planned MF isolation design modification will add a feature of automatic closure of the MFIIVs and MFBIIVs on an SI signal. This design modification is intended to resolve the issue of non-isolable feedwater as a result of a single failure of the MFRV or MFBV in the containment pressure analysis of the MSLB inside containment. Main feedwater isolation will be achieved whenever the MFRVs and MFBVs close or the MFIIVs and MFBIIVs close. The closure times of the MFIIVs and MFBIIVs will be 120 seconds or less. Closure of these isolation valves will isolate the water between the MBFPDVs and the MFIIVs and associated MFBIIVs, and therefore eliminate a large volume of water that would feed the faulted SG if the MFRV or MFBV fails to close following an MSLB. The licensee's safety evaluation regarding the MF isolation design modification, Attachment II to the licensee's application, states that the core load analysis for the cycle following RO 11 will assume that this water volume is not available and demonstrate that the plant need not consider boron in the SI lines and that a shutdown margin of 1.3 percent is acceptable whenever the average reactor coolant temperature exceeds 200 °F.

3.0 EVALUATION

Section III of Attachment II to the September 7, 2000, application states that the planned MF isolation design modification to add the feature of automatic closure of the MFIIVs and MFBIIVs on an SI signal will meet the same functional design criteria of the MBFPDVs to assure that the consequences of the MSLB accident do not increase, and no new or different kind of accident can be created. The MFIIVs, MFBIIVs, and valve operators will remain non-safety grade. However, motor operators for the MFIIVs and MFBIIVs will be added to the Generic Letter 89-10 program for motor-operated valves in order to assure proper operation. The non-safety MFIIVs and the MFBIIVs will be added to the Inservice Testing (IST) program as augmented components. The power supply to the motor operators for the MFIIVs and the MFBIIVs will be automatically loaded onto the emergency diesel generators (EDGs) following a loss of offsite power. (In a conference call with the staff on January 29, 2001, the licensee stated that their evaluation has shown that the EDGs have adequate margin to support this loading.) Electrical isolation will ensure that the safety-related power supply cannot be degraded by the non-safety components. In order to ensure that no single electrical failure can affect both sets of valves, the power supplies for the MFIIVs and associated MFBIIVs will be different from the power supplies for the MFRVs and associated MFBVs with which they are in series. The proposed TS specifies acceptance criteria for the closure times of these valves that will assure the assumptions in the MSLB inside containment analysis are met.

Though the MFIIVs, MFBIIVs, and valve operators will remain non-safety grade, the automatic closure of these isolation valves on a SI signal will be credited in the analysis for mitigation of an MSLB inside containment. The staff generally requires that only safety grade structure, systems, or components (SSC) can be credited in the design basis safety analysis. However, as specified in the Standard Review Plan (SRP), taking credit for non-safety related equipment in the safety analyses of MSLB accidents is acceptable. Section 15.1.5 of SRP states:

For postulated instantaneous pipe failures in seismically qualified portions of the main steam line (inside containment and upstream of the MSIVs [main steam isolation valves]), only safety grade equipment should be assumed operative. If, in addition, a single malfunction or failure of an active component is postulated, credit may be taken for use of a backup non-safety grade component to mitigate the consequence of the break.

This position is also discussed in NUREG-0138 in addressing Issue No. 1, "Treatment of Non-Safety Grade Equipment in Evaluation of Postulated Steam Line Break Accidents," which states:

... the staff believes that it is acceptable to rely on these non-safety grade components in the steam and feedwater systems because their design and performance are compatible with the accident conditions for which they are called upon to function. It is the staff position that utilization of these components as a backup to a single failure in safety grade components adequately protects the health and safety of the public.

Therefore, for the proposed change to add the MFIIVs and MFBIIVs to the TS, the staff concludes that these isolation valves have sufficient quality to provide backup protection in the event of a failure of the MFRV and MFBV to close in an MSLB event; and they can be credited in the analysis of an MSLB inside containment.

3.1 Proposed TS Changes

Title 10 of the *Code of Federal Regulations*, (10 CFR) Section 50.36 specifies four criteria for inclusion of a Limiting Condition for Operation (LCO) in the plant TS. Criterion 3 for TS inclusion is that an SSC that is part of the primary success path and which functions or actuates to mitigate a design-basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. Since the automatic closure of the MFIIVs and MFBIIVs on a SI signal will be credited for the MF isolation during an MSLB inside containment, the operability of these valves should be included in the TS.

The licensee's September 7, 2000, provided a description of the proposed changes to its then current TS, and also provided a markup of the proposed Improved TS (ITS) which were under NRC review at the time. Subsequently on February 27, 2001, the NRC issued Amendment 205 to IP3 which replaced the existing TS with the ITS. Attachment 3 to the licensee's April 2, 2001, supplemental submittal, provided updated ITS pages to reflect the changes described above.

TS 3.7.3 currently specifies the requirements for the MBFPDVs, MFRVs, and MFBVs. The proposed change revises TS 3.7.3 to include MFIIVs and MFBIIVs. The revised TS 3.7.3 designates the four MFBVs and the four MFBIIVs as eight MF low flow bypass valves with the four MFBVs designated as primary and the four MFBIIVs designated as secondary.

The staff has reviewed the proposed revisions to TS 3.7.3 with regard to the LCO, its applicability, the Action Statements, Completion Times, and Surveillance Requirements. The requirements for the components added to TS 3.7.3, MFIIVs and MFBIIIVs, are consistent with the requirements for the components currently in TS 3.7.3, and accurately reflect the planned MF isolation design change. The staff, therefore, finds the proposed TS changes acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, New York State official Mr. Jack Spath was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding (65 FR 69062). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 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 the amendment.

6.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Y. Hsii

Date: April 18, 2001