

August 11, 1989

Docket No. 50-286

DISTRIBUTION

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

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OGC ACRS (10)  
DHagan BGrimes  
EJordan TMeek (4)  
NRC & Local PDRs CMcCracken  
WButler

Dear Mr. Brons:

SUBJECT: ISSUANCE OF AMENDMENT (TAC NO 73834)

The Commission has issued the enclosed Amendment No. 87 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 dated August 4, 1989.

The amendment revises Technical Specification 3 to permit the plant to operate with a service water temperature above 90°F at containment air temperatures up to 130°F for up to seven hours before reaching the hot shutdown condition via normal operating procedures.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance and Final Determination of No Significant Hazards Consideration and Opportunity for Hearing will be included in the Commission's next regular bi-weekly Federal Register notice.

Sincerely

Original signed 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. 87 to DPR-64
- 2. Safety Evaluation

cc: w/enclosures  
See next page

\* See previous concurrence

PDI-1 <i>cc</i>	PDI-1 <i>gon</i>	SPLB*	OGC*	PDI-1 <i>pol</i>	Acting ADR
CVogan	JNeighbors/bah	CMcCracken		RCapra	WButler
8/10/89	8/10/89	8/8/89	8/9/89	8/10/89	8/10/89

*Received concurrence from Jim Wiggins, RI, on 8/10/89*

*DF01*

*CP-1 cc*

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PDI-1 w PDI-1 *PH* for SPL  
CVogan JNeighbors/bah for CMcCracken  
8/9/89 8/8/89 8/8/89

OGC *PH* PDI-1 Acting ADR  
RCapra WButler  
8/9/89 8/ /89 8/ /89

*Please make changes as indicated*  
*PH*

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

Indian Point Nuclear Generating  
Unit No. 3

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. 87  
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 August 4, 1989 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:

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PDR DOCK 05000286  
P PDC

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 87, 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



Walter R. Butler, Acting Assistant Director  
Project Directorate I-1  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulations

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: August 11, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 87

FACILITY OPERATING LICENSE NO. DPR-64

DOCKET NO. 50-286

Revise Appendix A as follows:

<u>Remove Pages</u>	<u>Insert Pages</u>
3.1-1	3.1-1
3.3-17	3.3-17
4.4-7	4.4-7

### 3. LIMITING CONDITIONS FOR OPERATION

For the case where no exception time is specified for inoperable components, this time is assumed to be zero.

In the event, that service water temperature exceeds 90°F the unit shall be placed in at least hot shutdown within the next seven hours, and be in at least cold shutdown within the following thirty hours unless service water temperature is reduced to 90°F or less within these time intervals as measured from initial discovery or until the reactor is placed in a condition where this service water temperature is not applicable.

#### 3.1 REACTOR COOLANT SYSTEM

##### Applicability

Applies to the operating status of the Reactor Coolant System; operational components; heatup; cooldown; criticality; activity; chemistry and leakage.

##### Objective

To specify those limiting conditions for operation of the Reactor Coolant System which must be met to ensure safe reactor operation.

##### Specification

#### A. OPERATIONAL COMPONENTS

##### 1. Coolant Pumps

- a. When a reduction is made in the boron concentration of the reactor coolant, at least one reactor coolant pump or one residual heat removal pump (connected to the Reactor Coolant System) shall be in operation.
- b. When the reactor coolant system  $T_{avg}$  is greater than 350°F and electrical power is available to the reactor coolant pumps, and as permitted during special plant evolutions, at least one reactor coolant pump shall be in operation. All reactor coolant pumps may be de-energized for up to 1 hour provided no operations are permitted that would cause dilution of the reactor coolant system boron concentration, and core outlet temperature is maintained at least 10°F below saturation temperature.
- c. When the reactor coolant system  $T_{avg}$  is greater than 200°F and less than 350°F, and as permitted during special plant evolutions, at least one reactor coolant pump or one residual heat removal pump (connected to the Reactor Coolant System) shall be in operation. All reactor coolant pumps may be de-energized with RHR not in service for up to 1 hour provided no operations are permitted that would cause dilution of the reactor coolant system boron concentration, and core outlet temperature is maintained at least 10°F below saturation temperature.
- d. When the reactor coolant system  $T_{avg}$  is less than 200°F, but not in the refueling operation condition, and as permitted during special plant evolutions, at least one residual heat removal pump (connected to the Reactor Coolant System) shall be in operation.

The containment cooling and iodine removal functions are provided by two independent systems: (a) fan-coolers plus charcoal filters and (b) containment spray with sodium hydroxide addition. During normal power operation, the five fan-coolers are required to remove heat lost from equipment and piping within containment at design conditions (with a cooling water temperature of 90°F). (4) In the event of a Design Basis Accident, any one of the following combinations will provide sufficient cooling to reduce containment pressure at a rate consistent with limiting off-site doses to acceptable values: (1) five fan-cooler units, (2) two containment spray pumps, (3) three fan-cooler units and one spray pump. Also in the event of a Design Basis Accident, three charcoal filters (and their associated recirculation fans) in operation, along with one containment spray pump and sodium hydroxide addition, will reduce airborne organic and molecular iodine activities sufficiently to limit off-site doses to acceptable values. (5) These constitute the minimum safeguards for iodine removal, and are capable of being operated on emergency power with one diesel generator inoperable.

If off-site power is available or all diesel generators are operating to provide emergency power, the remaining installed iodine removal equipment (two charcoal filters and their associated fans, and one containment spray pump and sodium hydroxide addition) can be operated to provide iodine removal in excess of the minimum requirements. Adequate power for operation of the redundant containment heat removal systems (i.e., five fan-cooler units or two containment spray pumps) is assured by the availability of off-site power or operation of all emergency diesel generators.

Due to the distribution of the five fan cooler units and two containment spray pumps on the 480 volt buses, the closeness to which the combined equipment approaches minimum safeguards varies with which particular component is out of service. Accordingly, the allowable out of service periods vary according to which component is out of service. Under no conditions do the combined equipment degrade below minimum safeguards.

### Basis

The containment is designed for a pressure of 47 psig.<sup>(1)</sup> While the reactor is operating, the internal environment of the containment will be air at essentially atmospheric pressure and an average maximum temperature of approximately 130 °F. With these initial conditions, the temperature of the steam-air mixture at the peak accident pressure of 40.6 psig is 263°F.<sup>(4)</sup>

Prior to initial operation, the containment was strength-tested at 54 psig and was leak-tested. The acceptance criterion for this pre-operational leakage rate test has been established as 0.075 W/o (.75 L<sub>a</sub>) per 24 hours at 40.6 psig and 263°F, which are the peak accident pressure and temperature conditions. This leakage rate is consistent with the construction of the containment,<sup>(2)</sup> which is equipped with a Weld Channel and Penetration Pressurization System for continuously pressurizing both the penetrations and the channels over all containment liner welds. These channels were independently leak-tested during construction.

The safety analysis has been performed on the basis of a leakage rate of 0.10 W/o per day for 24 hours. With this leakage rate and with minimum containment engineered safeguards operating, the public exposure would be well below 10CFR100 values in the event of the design basis accident.<sup>(3)</sup>

The performance of a periodic integrated leakage rate test during plant life provides a current assessment of potential leakage from the containment in case of an accident that would pressurize the interior of the containment. In order to provide a realistic appraisal of the integrity of the containment under accident conditions, the containment isolation valves are to be closed in the normal manner and without preliminary exercising or adjustments.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 87 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 July 24, 1989, the Power Authority of the State of New York (the licensee) requested a license amendment to revise the Technical Specifications to increase the design basis water inlet temperature of the Indian Point 3 Service Water System (SWS) from 85°F to 95°F and to incorporate an allowable containment air temperature of 130°F. On July 27, 1989, the licensee requested that the July 24, 1989 licensee amendment request be issued as an emergency Technical Specification (TS) amendment. Since the staff has not completed its review of the request for 95°F, the licensee, on August 4, 1989 requested an emergency amendment for a limit of 90°F using the same basis as Amendment 82 issued on August 19, 1988. The reason for this request for emergency action was that the river water temperature had peaked above 82°F and was projected to peak above 85°F in a couple of days. The river water temperature had already peaked above 85°F at Indian Point 2.

On July 28, 1989, the NRC issued a Temporary Waiver of Compliance which permitted operation with SWS temperatures equal to or less than 90°F with containment air temperature up to 130°F. This Temporary Waiver of Compliance is superseded by issuance of this amendment.

EVALUATION

The NRC staff's review of the licensee's July 24, 1989 submittal has not progressed sufficiently to approve the request for operation with 95°F water inlet temperature to SWS. However, a similar situation (SWS inlet temperature exceeding 85°F and corresponding high containment air temperatures) occurred during July and August 1988. On August 19, 1988, the staff issued Corrected License Amendment No. 82 for operation of Indian Point Unit 3 at up to 100% rated thermal power with service water inlet temperatures of up to 90°F and with containment air temperatures of up to 130°F. The licensee's August 4, 1989 letter states that (1) the plant heat loads have not changed, (2) the extensive analyses of equipment and systems precluded earlier submission of the proposed TS changes, and (3) to complete these extensive analyses, confirmatory testing was completed during the refueling outage which ended June 24, 1989.

The staff concluded that although its review has not progressed sufficiently to approve operation with 95°F SWS inlet water temperature, the staff could approve operation SWS inlet water temperature of up to 90°F based upon the review performed for License Amendment No. 82. Therefore, approval is restricted to operation of Indian Point 3 with SWS inlet water temperature of up to 90°F and with containment air temperature of up to 130°F, the same approval as was granted in Licensee Amendment No. 82.

To ensure that adequate heat removal capability is provided to the containment fan cooling units, the CCW system and the EDGs, the licensee has committed to performing an orderly plant shutdown to hot shutdown, utilizing normal plant operating procedures, if service water inlet temperature exceeds 90°F over a two hour period. The plant shall be placed in hot shutdown within seven hours from the point in time whence the service water temperature initially exceeded 90°F.

Furthermore, the licensee has committed to monitoring service water temperature at least once per hour and CCW temperature at least once every two hours when the service water inlet temperature exceeds 85°F. This monitoring will ensure that, during normal plant operations, adequate cooling is provided to the reactor coolant pump thermal barriers by CCW to prevent these thermal barriers from being damaged by exceeding their continuous rating of 105°F or their two hour rating of 125°F.

The staff has not yet approved the licensee's request to increase the SWS allowable inlet water temperature to 95°F since the staff's review has not progressed sufficiently to approve that request. However, based on the staff's safety evaluation performed for License Amendment No. 82 (issued August 19, 1988), the staff again finds that a change to increase the allowable SWS inlet water temperature to 90°F and the containment air temperature to 130°F is acceptable. These changes were temporarily approved for License Amendment No. 82 and, since the safety aspects of their changes have not changed, the same changes are again being approved.

#### FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulation, 10 CFR 50.92, states that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility in accordance with the amendment would not:

- 1) involve a significant increase in the probability or consequences of an accident previously evaluated; or
- 2) create the possibility of a new or different kind of accident from any accident previously evaluated; or
- 3) involve a significant reduction in a margin of safety.

The NRC staff reviewed the Final No Significant Hazards Consideration Determination that was made in support of Licensee Amendment No. 82 and has concluded that the same determination (which follows) is again valid for the current proposed change.

- (1) Does the proposed license amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response:

This change will not increase the probability of an occurrence or consequences of accident or malfunction of equipment important to safety previously evaluated in the FSAR. Plant operation at service water temperatures up to 90°F will not result in peak accident containment pressure in excess of the containment design pressure nor above the maximum pressure at which containment and associated pressure containing components have been periodically tested. The component cooling system has been periodically tested. The component cooling system and the equipment cooled by it will remain operable to perform their safety related function during and following a design basis event. The addition of an LCO providing shutdown requirements when 90°F service water temperature is exceeded adds restrictions to plant operations in an area where no previous specification existed and does not impact accidents previously evaluated. Accordingly, neither the probability of an occurrence nor the consequences of an accident or malfunction of equipment important to safety will be increased.

- (2) Does the proposed license amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response:

The proposed changes, as analyzed, do not involve new or different kinds of accidents, from those previously evaluated. Plant operation at service water temperature up to 90°F does not create the possibility of an accident or malfunction of any type other than those previously evaluated in the FSAR...

- (3) Does the proposed amendment involve a significant reduction in a margin of safety?

Response:

A significant reduction in a margin of safety is not involved. Containment integrity was reanalyzed for operation with service water temperature of 90°F at an initial containment temperature of 130°F. The increase in service water temperature to 90°F impacts the heat removal ability of the containment Fan Cooler Units and results in a slight increase in the peak containment pressure (less than 1.5 psi) to

40.73 psig. The design case for an initial containment temperature of 120°F and service water temperature of 87°F was evaluated. For this case, peak containment pressure was shown to remain below 40.6 psig, the peak pressure stated in the basis of the Technical Specifications for the original containment integrity analysis. In both cases, the peak pressure is well below the containment design pressure of 47 psig. Containment leak rate testing has been performed at pressures in excess of the 40.73 psig peak containment accident pressure calculated for 90°F service water temperature and 130°F containment temperature.

The component cooling loop has been evaluated for a service water supply temperature of 90°F. The loop will provide sufficient cooling to enable continued sump and core recirculation following a LOCA. All safety-related heat loads served by Component Cooling during the recirculation phase have been evaluated at a service water temperature of 90°F. In each case all required equipment is shown to remain operable at the elevated temperature of 90°F over the time period for which it must function.

Based on the foregoing, the Commission has concluded that the standards of 10 CFR 50.92 are satisfied. Therefore, the Commission has made a final determination that the proposed amendment does not involve a significant hazards consideration.

#### STATEMENT OF EMERGENCY CIRCUMSTANCES

The licensee's August 4, 1989 letter presents, in part, the following with regard to justification of the emergency consideration of the amendment.

Based on the river water temperatures recorded in the summer of 1988, the authority initiated efforts to permanently review the Technical Specifications. This effort resulted in the July 24, 1989 submittal. Extensive analyses of equipment and systems were required to be performed over many months and, thus, precluded earlier submission of the proposed Technical Specification changes. In addition, in order to complete the analyses, confirmatory testing was completed during the refueling outage which ended June 24, 1989.

River water temperature is peaking above 82°F on a daily basis and is projected to peak above 85°F. Until the high temperature conditions subside, IP3 can be expected to cycle down and up in power each day unless this relief in specifications is granted.

We conclude that failure to grant the emergency license amendment would require shutdown of Indian Point Unit 3.

Based upon the above, we conclude that the licensee has adequately addressed the standards of 10 CFR 50.91(a)(5) with regard to demonstrating the need for an emergency license amendment. We further conclude, based on our frequent monitoring of the licensee's activities leading to the requested amendment, that the licensee has not abused the emergency provision by failing to make timely application for the amendment.

#### CONSULTATION WITH STATE

The State of New York was informed by telephone on August 1, 1989 of the staff's intention to issue this amendment. The State of New York contact had no comments.

#### ENVIRONMENT CONSIDERATION

This amendment involves a change in 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 to 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: August 11, 1989

#### PRINCIPAL CONTRIBUTOR:

J. Neighbors