

August 19, 1988

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:

The Commission has issued the enclosed Amendment No. 82 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 August 16, 1988, as supplemented August 18, 1988.

The amendment revises Technical Specification 3 to permit the plant to operate with a service water temperature above 90°F for up to seven hours before reaching the hot shutdown condition via normal operating procedures. This Technical Specification will expire on October 1, 1988.

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-monthly Federal Register notice.

Sincerely,

~~Original signed by:~~

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

Enclosures:

1. Amendment No. 82 to DPR-64
2. Safety Evaluation

cc: w/enclosures
See next page

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

Indian Point Nuclear Generating
Unit No. 3

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Indian Point 3

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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. 82
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 16, 1988, as supplemented August 18, 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. 82, 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



Bruce A. Boger, Assistant Director
for Region I Reactors
Division of Reactor Projects, I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: August 19, 1988



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

ATTACHMENT TO LICENSE AMENDMENT NO. 82

FACILITY OPERATING LICENSE NO. DPR-64

DOCKET NO. 50-286

Revise Appendix A as follows:

Remove Pages

3.1-1

3.3-17

Insert Pages

3.1-1

3.3-17

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 85°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.

* A cooling water temperature of 90°F is in effect until 0001 hours, October 1, 1988.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 82 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 August 16, 1988, the Power Authority of the State of New York (the licensee) requested changes to Facility Operating License No. DPR-64 which would revise the Technical Specifications to permit the plant to operate with a service water temperature above 90°F for up to seven hours before reaching the hot shutdown condition via normal operating procedures.

On August 11, 1988, the licensee made a request for a similar amendment using a service water temperature of 87°F. A corresponding waiver of compliance was issued by the NRC on August 11, 1988. That waiver of compliance was to be in effect until the NRC processed the requested amendment. That waiver and the August 11, 1988 amendment request are superseded by issuance of this amendment. This Technical Specification will expire on October 1, 1988.

DISCUSSION AND EVALUATION

The service water system (SWS) is designed to supply cooling water from the Hudson River to safety-related and nonsafety-related components necessary for normal plant operation and for post-accident safe shutdown conditions. The licensee assessed the impact of the proposed higher service water temperature limit on each component cooled by the SWS, which includes the containment fan cooler unit (FCU), component cooling (CCW) water system, diesel generators, FCU motor coolers, and central control room air conditioner.

The higher service water inlet temperature to the containment fan coolers results in an increase in the service water flow requirements in order to maintain design basis containment heat removal capability. In the initial bounding analysis, the licensee showed that the containment heat removal requirements for the fan coolers were reduced from the value specified originally due to revised mass and energy release data for the postulated design basis LOCA. In the licensee's current safety assessment, it is indicated that the increase in service water flow requirements due to the increase in service water temperature is compensated for by the reduction in

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the heat removal requirement due to the change in mass and energy releases following a design basis LOCA. The licensee's assessment showed that adequate containment heat removal capability is provided and the design basis containment pressure has not been exceeded due to the elevated service water temperature of 90°F.

Westinghouse performed an assessment for the licensee of the impact of the elevated service water temperature on the component cooling water (CCW) system performance following an accident and during normal operation. The analysis confirmed that adequate cooling of essential components served by the CCW system is provided with the 90°F service water system temperature. However, it was determined that for a service water temperature of 90°F, operator actions are required to limit the CCW temperature to less than 152°F during post-LOCA recirculation. Therefore, the licensee modified the emergency operating procedures to provide guidance to the operators for ensuring adequate CCW flow.

During normal operation, the licensee's analysis indicated that with a service water (SW) temperature of 90°F, the CCW temperature can be greater than 105°F which exceeds the recommended limit for the reactor coolant pump thermal barrier. Therefore, in order to maintain a suitable temperature, the licensee indicated that the existing operating procedures require the operator to increase the service water flow to the CCW system to limit it to a maximum temperature of 100°F. The CCW temperature is normally monitored in the control room by the plant process computer. CCW temperature alarms are provided on the control panel at 120°F, and in the computer at 102°F and 105°F. In addition, during the current abnormal SWS temperature conditions, the licensee committed to monitor CCW temperature once every two hours when the service water inlet temperature is above 85°F and the plant process computer is out of service. As further assurance that normal plant operation can be properly maintained at elevated SWS temperatures, the licensee committed to monitor the SW temperature once every hour when the SW temperature is above 85°F.

The licensee has also provided information which demonstrates that the diesel generators will remain operable with service water supply temperatures up to 90°F for the maximum loading combination associated with the injection and recirculation phases of a design basis event.

The licensee's TS paragraph 3 requires the plant to be in a hot shutdown condition within seven hours when the service water temperature exceeds 90°F. This proposed TS does not specify how soon after exceeding the limit to commence shutdown. The Standard Technical Specifications require action be initiated within 1 hour when a Limiting Condition for Operation is not met. The licensee indicated that one hour may not be sufficient because the thermal phenomenon affecting SW temperature is tidal dependent and may therefore require additional time to ensure an accurate reading. Therefore, the licensee committed that when the service water temperature is measured to exceed 90°F, if the service water temperature has not decreased below 90°F within two hours, Indian Point 3 will initiate shutdown activities and be in hot shutdown within the following five hours and in cold shutdown within the following thirty hours.

FINDING ON EXISTENCE OF EMERGENCY SITUATION

10 CFR 50.91(a)(5) provides the necessary requirements for issuing an amendment when the Commission finds that an emergency situation exists and failure to act in a timely way would result in derating or shutdown of a nuclear plant. The Commission expects its licensees to: apply for license amendments in a timely fashion; not abuse the emergency provisions by failing to make a timely application for the amendment and thus itself creating the emergency; provide an explanation as to why the emergency situation occurred; and why it could not have been avoided.

The licensee provided the following explanation which led to the request for the amendment on an emergency basis:

- (1) "...failure to act in a timely way would result in derating or shutdown, or in prevention of either resumption of operation or of increase in power output up to the plant's licensed power level,..."

Failure to approve this emergency change to the Technical Specifications will result in the derating or shutdown of the plant whenever service water temperature exceeds 90°F. River water is peaking above 87°F on a daily basis during tide changes. Until the current heat wave and its effects subside, IP-3 can be expected to cycle down and up in power each day unless this relief in specifications is granted.

- (2) "...a licensee requesting an amendment must explain why this emergency situation occurred and ..."

This emergency situation occurred due to a protracted heat wave in the Northeast causing river water temperature to exceed the 85°F cooling water temperature described in basis of the Technical Specifications.

- (3) "...why it could not avoid this situation,..."

The short notice required by this emergency changes could not have been avoided. The length and degree of the current heat wave could not have been foreseen. This region is on record pace for the number of 90°F plus air temperature days for one summer. Early on when it became apparent that a significant break in the weather might not occur, the Authority initiated an engineering review to evaluate the impact on the IP-3 accident analyses of elevated cooling water temperatures. This three-to-four week effort culminated in a safety evaluation for an increase to a 90°F service water temperature.

Based on the above, the Commission has determined that the licensee has not abused the emergency provisions of 10 CFR 50.91(a)(5); failure of the Commission to act on the licensee's request would result in a unit shutdown; and therefore, the request should be processed under the emergency provisions of 10 CFR 50.91(a)(5).

FINAL NO SIGNIFICANT HAZARDS CONSIDERATION

The Commission has provided standards for determining whether a significant hazards consideration exists (10 CFR 50.92(c)). A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed 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 an accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

The following evaluation, by the licensee and with which we agree, demonstrates that the proposed amendment does not involve a significant hazards consideration.

- (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 have 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 kind 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. The containment integrity analysis 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.

CONSULTATION WITH STATE

The State of New York was informed by telephone on August 19, 1988 of the staff's no significant hazards consideration determination. The State of New York contact had no comments.

ENVIRONMENTAL 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. Accordingly, this 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 this amendment.

CONCLUSION

We have concluded on the consideration discussed above, that: (1) these amendments will not (a) significantly increase the probability or consequences of accidents previously evaluated, (b) create the possibility of a new or different accident from any previously evaluated or (c) significantly reduce a margin of safety and, therefore, the amendments do not involve significant hazards considerations; (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

PRINCIPAL CONTRIBUTORS:

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D. Langford

Dated: August 19, 1988