

August 19, 1988

- See Correction ltr of 8/25/88
- Document Replaced in its entirety

Docket No. 50-247

DISTRIBUTION

Mr. Stephen B. Bram
Vice President, Nuclear Power
Consolidated Edison Company
of New York, Inc.
Broadway and Bleakley Avenue
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Dear Mr. Bram:

SUBJECT: EMERGENCY AMENDMENT TO INCREASE THE DESIGN SERVICE WATER
TEMPERATURE LIMIT TO 90°F (TAC 69025)

The Commission has issued the enclosed Amendment No. 135 to Facility Operating License No. DPR-26 for the Indian Point Nuclear Generating Unit No. 2. The amendment consists of changes to the Technical Specifications (TS), the TS Basis, and the Updated Final Safety Analysis Report (UFSAR).

This amendment completes the Commission action initiated in our letters of August 5, 1988, "Temporary Waiver of Compliance," and August 12, 1988, "Modified Waiver of Compliance," in response to the Consolidated Edison application of August 4, 1988 as supplemented on August 5, 10, 16 and 18, 1988.

This amendment temporarily modifies TS 5.2.C, "Containment Systems," TS Basis page 3.3-10 and UFSAR Table 9.6-1, "Essential Service Water Requirements at 75°F River Water Temperature," by increasing the design inlet water temperature limit for the service water system from 85°F to 90°F.

On October 1, 1988 at 12:01 a.m., this temporary amendment shall expire and the design limit for maximum service water temperature shall revert to 85°F.

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,

as signed

David Langford, Acting Project Manager
Project Directorate I-1
Division of Reactor Projects, I/II

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Enclosures:

- 1. Amendment No. 135 to DPR-26
- 2. Safety Evaluation

cc: w/enclosures
See next page

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

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

DOCKET NO. 50-247

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 135
License No. DPR-26

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Consolidated Edison Company of New York, Inc. (the licensee) dated August 4, 1988, as supplemented August 5, 10, 16 and 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-26 is hereby amended to read as follows:

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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 135, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is temporary and shall be used only once. This amendment is effective as of the date of its issuance and shall be implemented immediately. At 12:01 a.m. on October 1, 1988, this amendment shall expire and 1) the Amendment No. 101 version of TS page 3.3-10 and 2) the Amendment No. 132 version of TS page 5.2-2 both shall be reinstated.

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

AMENDMENT NO. 135 TO FACILITY OPERATING LICENSE NO. DPR-26

DOCKET NO. 50-247

Revise Appendix A as follows:

Remove Pages

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Insert Pages

3.3-10

5.2-2

DO NOT REMOVE THE IDENTICAL PAGES ISSUED BY AMENDMENT NOS. 101 AND 132, RESPECTIVELY. They are to be reinstated upon expiration of the temporary changes issued herewith.

The requirement regarding the maximum number of SI pumps that can be energized when RCS temperature is less than or equal to 310°F is discussed under specification 3.1.A.

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. 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.

One of the five fan cooler units is permitted to be inoperable during power operation. This is an abnormal operating situation, in that the normal plant operating procedures require that an inoperable fan-cooler be repaired as soon as practical.

However, because of the difficulty of access to make repairs, it is important on occasion to be able to operate temporarily without at least one fan-cooler. Compensation for this mode of operation, is provided by the high degree of redundancy of containment cooling systems during a Design Basis Accident.

The Component Cooling System is different from the system discussed above in that the pumps are so located in the Auxiliary Building as to be accessible

2. The automatic Phase A containment isolation (trip) valves are actuated to the closed position either manually or by an automatically derived safety injection signal. The automatic Phase B containment isolation valves are tripped closed by automatic or manual containment spray actuation. The actuation system is designed such that no single component failure will prevent containment isolation if required.

C. Containment Systems

1. The containment vessel has an internal spray system which is capable of providing a distributed borated water spray of at least 2200 gpm. During the initial period of spray operation, sodium hydroxide would be added to the spray water to ⁽³⁾increase the removal of iodine from the containment atmosphere.
2. The containment vessel has an internal recirculation system which includes five fan cooler units (centrifugal fans and water cooled heat exchangers), with a total heat removal capability of at least 308.5 MBTU/Hr. under conditions following a ⁽⁴⁾loss of coolant accident and at service water temperature of 90°F. All of the fan cooler units are equipped with activated charcoal filters to remove volatile iodine following an accident.

References

- (1) FSAR Section 5.1
- (2) FSAR Section 5.1.2.7
- (3) FSAR Section 6.3
- (4) FSAR Section 6.4



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 135 TO FACILITY OPERATING LICENSE NO. DPR-26

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

INDIAN POINT NUCLEAR GENERATING UNIT NO. 2

DOCKET NO. 50-247

INTRODUCTION

By letters dated August 4, 5, 10, 16 and 18, 1988, Consolidated Edison Company of New York, Inc. (ConEd, the licensee) requested an emergency change to the plant Technical Specifications (TS) and Updated Final Safety Analysis Report (UFSAR) for Indian Point, Unit 2. The proposed amendment would modify TS 5.2.C, "Containment Systems," the TS Basis page 3.3-10 and UFSAR Table 9.6-1, "Essential Service Water Requirements at 75°F River Water Temperature," by increasing the design inlet water temperature limit for the service water system (ultimate heat sink) from 85°F to 90°F. The proposed change was prompted by the current drought and heat wave which have resulted in increased temperatures and reduced flow rates of the service water source, the Hudson River, thus causing the service water temperature to exceed the specified limit of 85°F. Though peak and average water temperatures in July and August 1988 have been 5°F to 10°F higher than expected, the licensee anticipates that peak water temperatures will be well below 85°F by October 1, 1988. Consequently, this change will remain in effect until 12:01 a.m. on October 1, 1988 at which point the temperature limit shall revert to 85°F.

EVALUATION

The service water system 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. UFSAR Section 9.6.1 describes the design basis of the service water system, and Table 9.6-1 lists the service water requirements for essential loads which includes both safety-related and nonsafety-related components cooled by the service water system. The licensee assessed the impact of the proposed higher service water temperature limit on each component listed in Table 9.6.1, which includes the containment fan cooling unit coils, component cooling water coolers, diesel generators, turbine oil coolers, seal oil coolers/steam generator feed pump oil coolers, radiation sample coolers, air compressor heat exchanger, service water pump strainer blowdown, and central control room air conditioner. In addition, the impact of the higher service water temperature on the containment fan cooling unit motor coolers was also assessed.

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Containment Fan Cooling Units

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 an earlier analysis, the licensee showed that the containment heat removal requirements for the fan coolers were reduced from the value specified in the UFSAR due to revised mass and energy release data for the postulated design basis LOCA. This revised analysis of containment heat removal requirements was reviewed and found acceptable by the staff in the Safety Evaluation Report transmitted to the licensee by letter dated June 29, 1988. In the licensee's current safety assessment, the previously approved heat removal analysis is used to demonstrate that the increase in service water flow requirements due to the increase in service water temperature is compensated for by the reduction in 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.

Component Cooling Water System

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 can be 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 1) to less than 105°F, the continuous rating for the reactor coolant pump thermal barriers, during normal operation, and 2) to less than 152°F during post-LOCA recirculation or alternate cooling sources would be needed to cool the safety injection pump seals. Consequently, the licensee has modified the associated normal and emergency operating procedures to provide guidance to the operators to ensure adequate CCW flow during normal operation and accident conditions. For normal operations, procedure requires the operator to restore CCW temperature to below 105°F within two hours of exceeding it by increasing the service water flow, which is normally throttled, to the CCW heat exchangers. The emergency operating procedure requires the isolation of CCW flow to the spent fuel pool heat exchanger during the recirculation phase of the loss of coolant accident if less than two component cooling water pumps are operable. This approach is acceptable as qualified spent fuel pool makeup is available thus ensuring that the spent fuel pool water level will be maintained. With these procedural changes, the licensee has demonstrated the ability to provide adequate cooling to the CCW system during normal and accident conditions with a service water temperature of 90°F.

Emergency Diesel Generators

Service water is provided to the emergency diesel generators (EDGs) to remove heat from its lube oil system, through the lube oil coolers, and subsequently, to cool the EDG's by removing combustion generated heat through the jacket water cooling system. ALCO, the manufacturer of the EDGs, has evaluated component performance data and determined that 90°F service water, provided to cool the

EDGs, will not adversely affect the EDGs at full rated load as the EDG lube oil will continue to adequately cool the EDG's bearings and sufficient heat removal capability shall continue to be provided by the jacket water cooling system to ensure that the EDG does not malfunction or trip due to over-temperature conditions.

MITIGATING FACTORS

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.

STAFF CONCLUSION

Based on the licensee's safety assessment for safety-related equipment cooling requirements at the higher service water system temperature, the staff concludes that the proposed emergency change to the Technical Specifications to increase the service water inlet temperature to 90°F to be acceptable on a temporary basis until October 1, 1988. The licensee's continuing detailed analysis is considered confirmatory and may be used to support an eventual permanent Technical Specification change.

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 only previously evaluated accidents possibility affected by this amendment are the LOCA and the loss of offsite A.C. power event. For a LOCA the 5°F increase to 90°F service water temperature could have the potential to affect 1) peak containment pressure by reducing the heat removal capability of the containment fan cooler units, 2) core reflood and fill by reducing CCW cooling to the safety injection pump seals, and 3) all safety equipment and functions powered by the EDGs due to the reduction in the heat removal capability of the EDG jacket water cooling system and lube oil cooler. The loads powered by the EDGs could be similarly affected for the loss of offsite A.C. power event. The licensee has evaluated the possibility of these effects and has determined that 1) peak containment pressure from a LOCA would not increase as the containment fan cooler units still retain the minimum heat removal capacity previously determined to be required, 2) with the previously specified revision to the EOPs, adequate CCW flow will continue to be provided to the safety injection pump seals to assure their continued operation, and 3) adequate heat removal capability is still provided to adequately cool the fully loaded EDGs and EDG lube oil to ensure that they will not malfunction or trip due to over-temperature conditions.

Additionally, the licensee's commitment to shutdown if service water temperature exceeds 90°F for more than two hours assures that these functions will not be seriously degraded or reduced during peak river temperature periods. Consequently, the NRC staff has determined that operation of the facility with a service water inlet temperature of 90°F will not involve a significant increase in the probability or consequences of any accident previously evaluated.

Similarly, the NRC staff has determined that this proposed amendment would not create the possibility of a new or different kind of accident from any previously evaluated as the systems affected by increasing service water temperature to 90°F still function as designed and no other changes to the plant design or operation are being made other than raising the service water temperature from 85°F to 90°F.

Finally, these proposed amendments do not involve a significant reduction in any margin of safety as peak containment pressure for a LOCA is unchanged and all safety and safety-related equipment affected still fully perform their intended functions.

STATEMENT OF EMERGENCY CIRCUMSTANCES

The service water system was designed to operate with a maximum temperature of 85°F. This water is removed directly from the Hudson River. Historically, the maximum river temperatures have occurred during July and August with an average peak temperature of 81°F. However, this year as a result of the prolonged drought and extended heat wave, with atmospheric temperatures running between 90°F and 100°F, the river water volume and flow rate have been reduced and the water temperatures have likewise increased. Furthermore, as the river volume has decreased, the temperature of the service water discharge has had a greater effect

upon the overall temperature of the river near the facility. Consequently, the average and peak river water temperatures the facility has experienced in July and August 1988 have been approximately 5°F to 10°F above normal. This increase has been dependent upon tidal variations which can cause the heated service water discharge to flow towards and be taken up by the service water intakes.

Upon determining the size and severity of these temperature increases, the licensee promptly informed the NRC staff of this problem and began analyses to justify operation with a service water temperature of 90°F.

The staff has concluded that an unavoidable emergency situation does exist that would unnecessarily cause the shutdown or derating of the facility due to these higher service water temperatures and as such, warrants the emergency amendment procedures provided by 10 CFR Part 50.91.

STAFF CONSULTATIONS

The appropriate representative of the State of New York was notified of this amendment.

ENVIRONMENTAL CONSIDERATION

This amendment involves a change to 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 and changes to the surveillance requirements. 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 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement nor 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) this emergency situation could not be avoided; (2) the licensee acted in a timely manner with respect to responding to this emergency, (3) the amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated, does not create the possibility of a new or different type of accident from any evaluated previously, and does not involve a significant reduction in margin of safety, (4) there is reasonable assurance that the health

and safety of the public will not be endangered by operation in the proposed manner; and (5) 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.

PRINCIPAL CONTRIBUTORS:

C. Y. Li
S. McNeil

Dated: August 19, 1988

TO: 145 USNRC/WASHINGTON
TRANSMITTAL NUMBER: 286929
PROCEDURE NUMBER: EI-4.3 SEQ NUMBER: DATE ENTERED: 082388
TITLE: EMERGENCY OPERATIONS FACILITY ACTIVATION

TRANSMITTAL: LISTED BELOW ARE NEW/REVISED PROCEDURES WHICH MUST BE IMMEDIATELY INSERTED INTO OR DISCARDED FROM YOUR PROCEDURES MANUAL. DIRECTIONS ACCOMPANY EACH ITEM.

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