BEFORE THE UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
POWER AUTHORITY OF THE STATE OF NEW YORK	)	Docket No. 50-286
	)	
Indian Point 3 Nuclear Power Plant	)	

APPLICATION FOR AMENDMENT TO
OPERATING LICENSE

Pursuant to Section 50.90 of the regulations of the Nuclear Regulatory Commission (NRC), the Power Authority of the State of New York, as holder of Facility Operating License No. DPR-64, hereby applies for an Amendment to the Technical Specifications contained in Appendix A to this license.

The proposed changes to the Indian Point 3 Technical Specifications seek to supplement the changes previously proposed for Section 3.1 in the Authority's July 6, 1983 submittal regarding redundancy in decay heat removal capability pursuant to the Commission's October 15, 1984 letter.

The proposed changes to the Technical Specifications are presented in Attachment I to this Application. The Safety Evaluation is included in Attachment II.

POWER AUTHORITY OF THE STATE
OF NEW YORK

BY C.M. Wilverding
for C.A. McNeill, Jr.
Senior Vice President
Nuclear Generation

State of New York
County of Westchester

Subscribed and Sworn to before me this 3 day of Dec, 1984

Jeanne La Luna
Notary Public

JEANNE LA LUNA
NOTARY PUBLIC, STATE OF NEW YORK
NO. 60-4614305
QUALIFIED IN WESTCHESTER COUNTY
TERM EXPIRES MARCH 30th 19.85....

Attachment A to IPN-84-59

Additional Information Regarding

Proposed Technical Specification

Changes for Decay Heat Removal Capability

NEW YORK POWER AUTHORITY
INDIAN POINT UNIT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
December 3, 1984

Additional Information Regarding Proposed Changes to the Technical Specifications for Decay Heat Removal Capability

1. NRC Request:

"During startup and power operations, the Standard Technical Specifications (STS) require all reactor coolant loops to be operating, otherwise the plant must be brought to at least the hot standby mode within one hour. The STS also require verification of reactor coolant loop operation on a 12 hour basis. The intent of the STS requirement is to ensure the RC pumps and other associated equipment are monitored to detect degrading performance and safe plant operation. In your response to this item, you indicated that the reactor should not be operated at power above 10% rated power with less than 4 reactor coolant loops in operation, and when the reactor is critical and above 2% rated power, at least two RC pumps shall be in operation, which is supported by the analyses provided in Indian Point 3 FSAR that reactor heat equivalent to 10% of rated power can be removed with natural circulation. Thus the Indian Point 3 Technical Specifications requirements meets part of the STS intent, i.e., heat removal capability. However, the Indian Point 3's Technical Specifications (TS) do not have the above surveillance requirement and action item or their equivalent. Provide justification to demonstrate why the action item and the surveillance requirement are not necessary. For example, cite other surveillance procedures that would meet the STS's intent, otherwise propose suitable technical specifications meeting the STS intent."

NYPA Response:

The proposed T/S's for Section 3.1 (see T/S 3.1.A.1.g) have been modified to incorporate a requirement to bring the reactor to the hot shutdown condition within 1 hour in the event less than four reactor coolant pumps are operating when above 10% rated power or less than two reactor coolant pumps are operating when above 2% rated power, consistent with W-STS recommendations.

With respect to incorporation of the W-STS surveillance requirement to verify reactor coolant loop operation into the IP-3 T/S's, it should be noted that the status of the reactor coolant system is already monitored, in various ways, as part of the normal and routine operation of the plant. For instance, Table 4.1-1 ("Minimum Frequencies for Checks, Calibrations, and Tests of Instrument Channels") of the IP-3 T/S's requires checking of reactor coolant flow as well as reactor coolant temperature at least once every shift. Any indication of degrading performance would thus be detected during these checks.

In addition, there are a number of protective and annunciatory features in place to assure proper reactor coolant loop operation. The loss of flow in any one loop will cause a reactor trip above approximately 50% power (P-8) whereas the loss of flow in any two loops will cause a reactor trip above approximately 10% power (P-7). Further, a low flow alarm is actuated in the central control room for any reactor coolant loop should reactor coolant flow diminish below the alarm point, independent of any coincident or subsequent reactor trip resulting from low reactor coolant flow. This alarm requires operator action in accordance with Alarm Response Procedure (ARP) No. 3 ("Panel SAF-Reactor Coolant System"). As such, any indication of improper reactor coolant loop operation would become immediately apparent to the operators monitoring the status of the plant.

2. NRC Request:

"For hot standby operation the STS require that at least two reactor coolant loops shall be operable, including their associated RC pump and SGs and at least one of the RC loops to be operating. If these conditions are not met and corrective actions cannot restore the required loops to operable status within 72 hours, the reactor is to be in the hot shutdown mode within the next 12 hours. Boron dilution operations are to be stopped if a RC loop is not operating. In your response you indicate that only one RC pump is required to be operating for hot standby mode operation. Your TS do not specify that two RC loops must also be operable. Discuss how Indian Point 3 decay heat removal capability can meet the single failure criteria for the hot standby mode operation. We also point out that if your safety analyses (particularly rod withdrawal) assume 2 pumps are operational, your tech spec is also inconsistent with the safety analyses and should be corrected.

The STS also require periodic verification of the RC pump's operability once every 7 days; verification of the steam generator's operability once every 12 hours; and verification that at least one RC loop is operating once every 12 hours. The Indian Point 3 TS do not have these surveillance requirements. Provide justification as to why surveillance requirements are not necessary or propose suitable modifications to your Technical Specifications to meet the STS intent."

NYPA Response:

The W-STS hot standby mode of operation is not recognized as a condition of operation for IP-3. Rather, the IP-3 T/S's define the hot shutdown condition for which the W-STS hot standby mode of operation is essentially a subset. It should be noted, however, that the intent of the W-STS hot standby requirements is inherently met by existing IP-3 T/S 3.4.A.6, which requires two steam generators to be capable of performing their heat transfer function whenever the reactor coolant system T_{avg} is heated above 350°F. This existing requirement in conjunction with the proposed requirement to have one

reactor coolant pump operating whenever the reactor coolant system Tavg is greater than 350°F, provides adequate decay heat removal protection since the reactor coolant loops are not isolable and since the reactor can be cooled with natural circulation up to reactor heat equivalent to 10% rated power.

With respect to the noted inconsistency between the T/S's and certain of the FSAR hot zero power (HZP) transient safety analyses (specifically, the bank withdrawal from subcritical condition), the Authority is providing for short-term (interim) resolution of this matter by temporary incorporation of operational restrictions into applicable plant operating procedures. The Authority is investigating the feasibility of a long-term analytical solution which will show that the DNB design basis can be met for the subject limiting HZP transient based on one reactor coolant pump operating. Such a solution would preclude the need for a revision to the T/S's. The Authority will take appropriate action to provide for long-term resolution of this matter based on the results of these investigations.

With respect to incorporation of the indicated W-STS surveillance requirements into the IP-3 T/S's, a surveillance requirement to verify reactor coolant pump operability is not warranted since an associated reactor coolant pump operability T/S is not considered necessary. As discussed above, the existing and proposed IP-3 T/S requirements for conditions when the reactor coolant system Tavg is greater than 350°F are sufficient to

provide for adequate decay heat removal protection. With respect to the W-STS surveillance requirement to verify steam generator operability and reactor coolant loop operation, it should be noted that the status of the reactor coolant system is already monitored, in various ways, as part of the normal and routine operation of the plant, as indicated in the response to Item (1) above. For example, Table 4.1-1 ("Minimum Frequencies for Checks, Calibrations, and Tests of Instrument Channels") of the IP-3 T/S's requires checking of steam generator level, reactor coolant flow and reactor coolant temperature at least once every shift. Any indication of degrading performance would thus be detected during these checks.

Further, as indicated above, a low flow alarm is actuated in the central control room for any reactor coolant loop should reactor coolant flow diminish below the alarm point. This alarm requires appropriate operator action in accordance with ARP No. 3 ("Panel SAF-Reactor Coolant System").

3. NRC Request:

The STS for the hot shutdown mode require at least two loops that are capable of removing decay heat to be operable. Either two reactor coolant loops (including their associated SGs and at least one associated RC pump) or the two RHR loops or one of each loop must be operable, and one of the above loops must be operating. The STS further require that if the above conditions are not met and immediate corrective actions cannot restore the required loops to operable status, the reactor is to be in the cold shutdown mode within 24 hours and no boron dilution operations should take place if a reactor coolant loop is not operating. The Indian Point 3 TS meet all these requirements.

The STS also require periodic verification of the RC pump's operability once per 7 days; verification of the steam generator operability once per 12 hours; and verification that at least one RC loop or RHR loop is operating once every 12 hours. The Indian Point 3 TS do not have these surveillance requirements.

Provide justification as to why these surveillance requirements are not needed, or propose suitable modifications to your Technical Specification."

NYPA Response:

Incorporation of the W-STS surveillance requirements into the IP-3 T/S's to verify reactor coolant pump operability, steam generator operability, and reactor coolant or RHR loop operation is not warranted. While the normal coolant configuration utilized when the reactor Tavg is greater than 200°F and less than 350°F is via the RHR system, the requirement to have at least one reactor coolant pump in operation (in lieu of utilizing the RHR system) in addition to the fact that the reactor can be cooled with natural circulation up to reactor heat equivalent to 10% rated power preclude the need for a requirement to verify the operability of an additional non-operating reactor coolant pump. With

respect to the W-STS surveillance requirements to verify steam generator operability and reactor coolant or RHR operation, it should be noted that the status of the reactor coolant system is already monitored, in various ways, as part of the normal and routine operation of the plant, as indicated in the responses to Items (1) and (2) above. For example, Table 4.1-1 ("Minimum Frequencies for Checks, Calibrations and Tests of Instrument Channels") of the IP-3 T/S's requires checking of steam generator level, reactor coolant flow, and reactor coolant temperature at least once every shift. Any indication of degrading performance would thus be detected during these checks. In addition, the reactor coolant system subcooling margin monitor is available for use by the operator to detect any signs of degrading performance.

Further, a number of annuciatory features are in place to assure that proper action is taken to provide for adequate decay heat removal. If a reactor coolant pump is being used in the subject Tavg condition to provide for decay heat removal, a low flow alarm is actuated in the central control room for any reactor coolant loop should reactor coolant flow diminish below the alarm point, as indicated above. This alarm requires appropriate operator action in accordance with ARP No. 3 ("Panel SAF - Reactor Coolant System"). If an RHR pump is being used in the subject Tavg condition to provide for decay heat removal, inadequate cooling would be apparent by a number of annunciatory features. For example, if the operating RHR pump automatically tripped, an alarm would be actuated in the central control room indicative of a 480-volt switchgear motor

trip. Available RHR flow instrumentation in addition to the operator action required by ARP No. 11 ("Panel SHF-Electrical") in response to the alarm assure that adequate decay heat removal is provided. If RHR inlet stop valves 730 or 731 were not in their fully open position , an alarm would be actuated in the central control room indicative of inadequate suction flow to the operating RHR pump. This alarm requires appropriate action in accordance with ARP No.10 ("Panel SGF-Auxiliary Coolant System").

4. NRC Request:

"For the cold shutdown mode (Tave $\leq$ 200°F), the STS require that either two RHR loops be operable and one of the loops to be operating. Otherwise, immediate corrective action must be initiated to restore the require loops to operable status. The STS also require that any boron dilution operation be suspended if no RHR loop is operating. The STS further require that RHR operation be verified once every 12 hours. The Indian Point 3 TS do not explicitly require one RHR loop to be operating for cold shutdown mode operations. The TS also do not have the surveillance requirement to verify RHR operation. Provide justification as to why limiting condition for cold shutdown mode operation and the surveillance requirements are not included in the Indian Point TS, or propose suitable modifications to your Technical Specification."

NYPA Response:

The proposed T/S's for Section 3.1 (see T/S 3.1.A.1.d) have been modified to require at least one RHR pump (connected to the reactor coolant system) to be in operation when the reactor coolant system Tavg is less than 200°F, but not in the refueling operation condition, consistent with W-STS recommendations.

Incorporation of the W-STS surveillance requirement to verify RHR loop operation, however, is not warranted. The status of the reactor coolant system is already monitored, in various ways, as part of the normal and routine operation of the plant as indicated in the responses to Items (1), (2) and (3) above. For instance, Table 4.1-1 ("Minimum Frequencies for Checks, Calibrations, and Tests of Instrument Channels") of the IP-3 T/S's requires checking of reactor coolant temperature at least once every shift. Any indication of degrading performance would thus be detected during these checks. In addition, the reactor coolant system subcooling margin monitor

is available for use by the operator to detect any signs of degrading performance.

Further, as indicated above, a number of annunciatory features are in place to assure that proper action is taken to provide for adequate decay heat removal. For example, if an operating RHR pump automatically tripped, an alarm would be actuated in the central control room indicative of a 480-volt switchgear motor trip. Available RHR flow instrumentation in addition to the operator action required by ARP No. 11 ("Panel SHF-Electrical") in to the alarm assure that adequate decay heat removal is provided, as indicated above. If RHR inlet stop valves 730 or 731 were not in their fully open position, an alarm would be actuated in the central control room indicative of inadequate suction flow to the operating RHR pump. This alarm requires appropriate operator action in accordance with ARP No. 10 ("Panel SGF-Auxiliary Coolant System"), as indicated above.