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John C. Brons
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IPN-90-030

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, D.C. 20555

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Technical Specification Changes Regarding
Temperature Sensors in Primary Auxiliary Building

Reference: Letter, J.C. Brons to NRC, IPN-89-023, dated April 12, 1989, entitled "Proposed Technical Specification Changes Regarding Temperature Detection System in the Primary Auxiliary Building."

Dear Sir:

The referenced letter transmitted proposed changes to the Indian Point Unit 3 Technical Specifications and the associated Safety Evaluation. This letter transmits supplemental information regarding the new temperature sensors installed in the Primary Auxiliary Building (PAB) and a revised Safety Evaluation for the proposed Technical Specification change.

In order to avoid spurious alarm and actuation signals caused by localized hot spots in the immediate vicinity of the PAB temperature sensors located in the piping penetration area and the mini-containment area, it is necessary to raise the temperature setpoint of these sensors from 130°F to 140°F. This setpoint change does not affect the conclusions of the Safety Evaluation transmitted by the referenced letter, since it does not affect the sensors' capability to satisfy the detection requirements associated with a High Energy Line Break of the new Steam Generator Blowdown (SGBD) piping.

The High Energy Line Break analysis described in the referenced letter has been re-examined and it has been determined that raising the alarm and actuation setpoint of the sensors will not adversely affect the environmental qualification of safety-related equipment in the areas of the PAB where the new SGBD piping is located.

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A revised Safety Evaluation associated with the proposed Technical Specification changes transmitted by the referenced letter is provided as Attachment I. The revisions to the Safety Evaluation reflect the setpoint change, clarifying changes associated with this setpoint change, and other clarifying changes.

Should you or your staff have any questions regarding this matter, please contact Mr. P. Kokolakis of my staff.

Very truly yours,

John C. Brons
Executive Vice President
Nuclear Generation

cc: Resident Inspector's Office
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ATTACHMENT I TO IPN-90-030
SAFETY EVALUATION OF
PROPOSED TECHNICAL SPECIFICATION CHANGES
REGARDING THE TEMPERATURE DETECTION SYSTEM
IN THE PRIMARY AUXILIARY BUILDING
REVISION NO. 1

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

SAFETY EVALUATION OF PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING THE TEMPERATURE DETECTION SYSTEM IN THE PRIMARY AUXILIARY BUILDING REVISION NO. 1

Section I - Description of Changes

This application seeks to revise Appendix A of the Indian Point 3 Facility Operation License. Item 13 of Table 3.5-5 and Item 24 of Table 4.1-1 provide information regarding the temperature detection system in the Primary Auxiliary Building (PAB) of the Indian Point 3 Nuclear Power Plant. The proposed changes to the Technical Specifications revise these tables to reflect the sensor locations, and the operability and surveillance requirements of a new detection system. Also included is the reorganization of the existing Auxiliary Boiler Feedwater Pump Building temperature sensors. The proposed change incorporates all temperature sensors into Item 13.

Section II - Evaluation of Changes

As a result of the Steam Generator Blowdown System upgrade, the size of the blowdown lines were increased from two inches to four inches. A new High Energy Line Break (HELB) analysis of the Steam Generator Blowdown (SGBD) piping was performed to determine the environmental effects of postulated pipe ruptures. The results of this analysis indicate the need for earlier rupture detection and automatic isolation of the Steam Generator Blowdown lines to prevent harsh environments in the PAB. In addition, the system upgrade created the possibility of high energy line breaks in areas of the PAB which were not affected by the old blowdown system.

A line break in the steam generator blowdown piping is indicated by the presence of a high temperature condition in certain areas of the PAB. The upgraded Steam Generator Blowdown System requires automatic closing of the blowdown containment isolation valves upon detection of this high temperature condition in those areas of the PAB where the blowdown piping is located. The temperature sensors currently described in Table 3.5-5 and Table 4.1-1 of the Technical Specifications are qualified to detect line breaks of high energy lines in the piping penetration area only. As a result of the Steam Generator Blowdown System upgrade, these sensors can no longer satisfy the detection and mitigation requirements for a HELB. The Authority has installed new, environmentally qualified temperature sensors which satisfy the detection and mitigation requirements of high energy line breaks of the upgraded Steam Generator Blowdown piping. The proposed Technical Specification changes will permit the Authority to remove the old temperature detection system from service.

The new temperature detection system has a total of six temperature sensors in three areas of the PAB. There are a number of assorted high energy

lines located in these three areas of the PAB. These include RCS letdown, sample, and Auxiliary Steam lines in the piping penetration area, and the new blowdown lines in the piping penetration area, mini-containment area and heat excharger room. There are now two temperature sensors in the piping penetration area, two in the mini-containment area, and two in the steam generator blowdown heat exchanger room. One of the temperature sensors in each of these three areas will be required to be operable, therefore, assuring detection of a high temperature condition in areas where the new blowdown lines are located.

The new system utilizes two independent power supplies. This temperature detection system provides the redundant instrument loops necessary for the automatic closing of the blowdown containment isolation valves upon detection of a high temperature condition in the PAB. The sensors are electronically interlocked with the actuation circuitry for the SGBD containment isolation valves and will automatically close the valves upon detection of high temperature in any of the three areas previously mentioned. Therefore, if a pipe rupture were to occur, all blowdown lines would be isolated automatically to prevent harsh environments in the PAB. All high energy lines other than blowdown do not require automatic isolation. These lines will be manually isolated to prevent harsh environments in the PAB.

The new temperature sensors in the piping penetration area have alarm and actuation setpoints of 140°F. The setpoints of the new sensors combined with their shorter response time and automatic actuation circuitry provide earlier isolation capability than that provided by the piping penetration area temperature sensors they are replacing.

The improved features of the new temperature detection system advocate retirement of the old system. The proposed Technical Specification changes reflect the change in detection system and replaces the operability and surveillance requirements of the old system with those of the new system.

Section III - No Significant Hazards Evaluation

In accordance with the requirements of 10 CFR 50.92, the enclosed application is judged to involve no significant hazards based upon the following information:

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

   Response

   The proposed license amendment reflects changes resulting from improvements to the temperature detection system in the PAB. Changes to the system were required as a result of the Steam Generator Blowdown System Upgrade and consequent high energy line break analysis. The new temperature detection system serves the

same function as the old system since it continues to provide for detection of line breaks in the piping penetration area. Improvements in the system include the provision of redundant detection instrumentation with shorter response times than those of the old instrumentation. These improvements do not involve an increase in the probability or consequences of an accident previously evaluated.

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 license amendment reflects a change to the temperature detection system in the PAB. The change is necessary as a result of a new SGBD HELB analysis. The results of this analysis indicate the need for earlier rupture detection and automatic isolation of the Steam Generator Blowdown lines to prevent harsh environments in the PAB. The new temperature detection system satisfies these requirements by providing temperature sensors which have shorter response times and assist in the prevention of harsh environments by actuating closure of the blowdown isolation valves. These sensors are environmentally qualified and monitor the areas of the PAB where high energy lines are located. The sensors are not accident initiators. Hence, the possibility of a new of different kind of accident from any accident previously evaluated is not created.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response

The proposed license amendment reflects changes resulting from improvements to the temperature detection system which increase detection reliability and decrease response time. Hence, the new system does not involve a reduction in a margin of safety.

Section IV - Impact of Changes

These changes will not adversely impact the following:

1. ALARA Program
2. Security and Fire Protection Programs
3. Emergency Plan
4. FSAR or SER Conclusions
5. Overall Plant Operations and the Environment

Section V - Conclusions

The incorporation of this change: a) will not increase the probability nor the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the Safety Analysis Report; b) will not increase the possibility of an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report; c) will not reduce the margin of safety as defined in the bases for any Technical Specification; d) does not constitute an unreviewed safety question; and e) involves no significant hazards considerations as defined in 10 CFR 50.92.

Section VI - References

1) IP-3 FSAR
2) IP-3 SER