ATTACHMENT I TO IPN-89-023
PROPOSED TECHNICAL SPECIFICATION CHANGES
REGARDING TEMPERATURE DETECTION SYSTEM
IN THE PRIMARY AUXILIARY BUILDING

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

TABLE 3.5-5 *(Sheet 1 of 3)*

TABLE OF INDICATORS AND/OR RECORDERS AVAILABLE TO THE OPERATOR

PARAMETER	1 NO. OF CHANNELS AVAILABLE	2 MIN. NO. OF CHANNELS REQUIRED**	3 INDICATOR/ RECORDER**
1) Containment Pressure	6	2	INDICATOR
2) Refueling Water Storage Tank Level	2	1	INDICATOR
3) Steam Generator Water Level (Narrow Range)	3/Steam Generator	*	INDICATOR
4) Steam Generator Water Level (Wide Range)	1/Steam Generator	*	RECORDER
5) Steam Line Pressure	3/steam line	1/steam line	INDICATOR
6) Pressurizer Water Level	3	2	INDICATOR/ONE CHANNEL IS RECORDED
7) RHR Recirculation Flow	4	3	INDICATOR
8) Reactor Coolant System Pressure (Wide Range)	1	1	RECORDER
9) Cold Leg Temperature (Tc) (Wide Range)	4	1	RECORDER
10) Hot Leg Temperature (Th) (Wide Range)	4	1	RECORDER
11) Containment Sump Water level (Narrow Range, Analog)+	2	1	INDICATOR/ RECORDER
12) Recirculation Sump Water Level (Narrow Range, Analog)+	2	1	INDICATOR/ RECORDER
13) Temperature Sensors in: a. Piping Penetration Area b. Mini-Containment Area c. Steam Gen. Blowdown Heat Exchanger Room d. Auxiliary Boiler Feedwater Pump Bldg.	2/area	1/area	ALARM

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TABLE 3.5-5 *(Sheet 2 of 3)*

PARAMETER	1 NO. OF CHANNELS AVAILABLE	2 MIN. NO. OF CHANNELS REQUIRED**	3 INDICATOR/ RECORDER**
14) Level Sensors in Lower Level of Turbine Building	2	1	ALARM
15) Reactor Coolant System Subcooling Margin Monitor	1	1	RECORDER
16) PORV Position Indicator (Acoustic Monitor)	1/Valve	1/Valve	INDICATOR
17) PORV Position Indicator (Limit Switch)	1/Valve	1/Valve****	INDICATOR & ALARM
18) PORV Block Valve Position Indicator (Limit Switch)	1/Valve***	1/Valve	INDICATOR
19) Safety Valve Position Indicator (Acoustic Monitor)	1/Valve	1/Valve	INDICATOR
20) Auxiliary Feedwater Flow Rate	1/Pump	1/Pump	INDICATOR
21) Containment Water Level (Wide Range)	2	1	INDICATOR/ RECORDER
22) Containment Hydrogen Monitor	2	1	INDICATOR/ RECORDER
23) High-Range Containment***** Radiation Monitors (R25 R26)	2	1	ALARM
24) Core Exit Thermocouples	4/quad-rant	2/quadrant	INDICATOR
25) Reactor Vessel Level Indication System (RVLIS)	2	1	INDICATOR

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TABLE 3.5-5 *(Sheet 3 of 3)*

* One level channel per steam generator (either wide range or narrow range) with at least two wide range channels.

** Columns 2 and 3 may be modified to allow the instrument channels to be inoperable for up to 7 days and/or the recorder to be inoperable for up to 14 days.

*** Except at times when valve operator control circuit is de-energized.

**** Except when the respective block valve is closed.

***** If the high-range containment radiation monitor is determined to be inoperable when the reactor is above the cold shutdown condition, then restore the monitoring capability within 7 days,

and

a) Initiate an alternate monitoring capability as soon as practical, but no later than 72 hours after identification of the failure of the monitor. If the monitor is not restored to operable status within 7 days,

then

b) Submit a Special Report to the NRC pursuant to Technical Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperabiblity and the plans and schedule for restoring the system.

\+ If both narrow range analog monitor channels are determined to be inoperable, at least one channel will be restored to operable status within 30 days or the plant will be brought to hot shutdown within the next 12 hours.

With the exception of the High Range Containment Radiation Monitors, if the minimum number of channels required are not restored to meet the above requirements within the time periods specified, then:

1. If the reactor is critical, it shall be brought to the hot shutdown condition utilizing normal operating procedures. The shutdown shall start no later than at the end of the specified time period.

2. If the reactor is subcritical, the reactor coolant system temperature and pressure shall not be increased more than 25°F and 100 psi, respectively, over existing values.

3. In either case, if the requirements of Columns 2 and 3 are not satisfied within an additional 48 hours, the reactor shall be brought to the cold shutdown condition utilizing normal operating procedures. The shutdown shall start no later than the end of the 48 hour period.

TABLE 4.1-1 (Sheet 3 of 5)

Channel Description	Check	Calibrate	Test	Remarks
23. Temperature Sensor in Auxiliary Boiler Feedwater Pump Building	N.A.	N.A.	R	
24. Temperature Sensors in Primary Auxiliary Building				
a. Piping Penetration Area	N.A.	N.A.	R	
b. Mini-Containment Area	N.A.	N.A.	R	
c. Steam Generator Blowdown Heat Exchanger Room	N.A.	N.A.	R	
25. Level Sensors in Turbine Building	N.A.	N.A.	R	
26. Volume Control Tank Level	N.A.	R	N.A.	
27. Boric Acid Makeup Flow Channel	N.A.	R	N.A.	
28. Auxiliary Feedwater:				
a. Steam Generator Level	S	R	M	Low-Low
b. Undervoltage	N.A	R	R	
c. Main Feedwater Pump Trip	N.A	N.A.	R	
29. Reactor Coolant System Subcooling Margin Monitor	D	R	N.A.	
30. PORV Position Indicator	N.A.	R	R	Limit Switch
31. PORV Position Indicator	D	R	R	Acoustic Monitor
32. Safety Valve Position Indicator	D	R	R	Acoustic Monitor
33. Auxiliary Feedwater Flow Rate	N.A.	R.	N.A.	

ATTACHMENT II TO IPN-89-023
SAFETY EVALUATION OF PROPOSED
TECHNICAL SPECIFICATION CHANGES
REGARDING TEMPERATURE DETECTION SYSTEM
IN THE PRIMARY AUXILIARY BUILDING

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
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SAFETY EVALUATION OF PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING TEMPERATURE DETECTION SYSTEM IN THE PRIMARY AUXILIARY BUILDING

Section I - Description of Changes

This application seeks to revise Appendix A of the Indian Point 3 Facility Operating 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 temperature 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 plans to replace the temperature sensors currently described in the Technical Specifications by new, environmentally qualified temperature sensors which will

allow for earlier detection and automatic mitigation of high energy line breaks of the upgraded Steam Generator Blowdown piping.

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 exhanger 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 old temperature detection system alarms in the Control Room before the temperature in the piping penetration area reaches 150°F. The new detection system also alarms in the Control Room but has a lower setpoint (130°F) and shorter response time than that of the old system to allow for earlier detection of a high temperature condition indicative of a pipe rupture.

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 signficant 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 (HELB) 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 a lower setpoint and shorter response time than that of the old system. 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 annunciate at a lower setpoint 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 or 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 - Conclusion

The incorporation of these changes: 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 for 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