C. Containment Temperature

1. The reactor shall not be taken above the cold shutdown condition unless the containment ambient temperature is greater than 50°F.

2. Containment ambient temperature shall not exceed 130°F when the reactor is above the cold shutdown condition.

   a. If the temperature is greater than 130°F, reduce the temperature to within the limit within 8 hours or be in hot shutdown within the next 6 hours and in cold shutdown within the following 30 hours.

3. Containment ambient temperature as specified in 3.6.C.1 and 3.6.C. 2 shall be the arithmetic average of temperatures measured at no fewer than 4 locations, at least once per 24 hours.

D. Containment Vent and Purge System

The reactor shall not be taken above the cold shutdown condition unless the containment vent isolation valves (PCV-1190, -1191, -1192) are closed or limited to a maximum valve opening of 60° (90° = full open) by mechanical means.

The reactor shall not be taken above the cold shutdown condition unless the containment purge supply and exhaust isolation valves (FCV-1170, -1171, -1172, -1173) are closed.

If the above conditions cannot be met within one hour, the reactor shall be in the hot shutdown condition within six hours and in the cold shutdown condition within the next 30 hours.

BASIS

The Reactor Coolant System conditions of cold shutdown assure that no steam will be formed and hence there would be no pressure buildup in the containment if a Reactor Coolant System rupture were to occur.

The shutdown margins are selected on the type of activities that are being carried out. The 10% Δ k/k shutdown margin when the head is off precludes criticality under any circumstances, even though fuel is being moved. When the reactor head is not to be removed, the specified cold shutdown margin of 1% Δ k/k precludes criticality in any occurrence.

Regarding internal pressure limitations, the containment design pressure of 47 psig would not be exceeded if the internal presssure before a major loss-of-coolant accident was as much as 5.8 psig. The containment design pressure also would not be exceeded if the internal pressure before a steam line break accident was as much as 5.4 psig. The containment can withstand an internal vacuum of 3psig. (1) The 2.0 psig vacuum specified as an operating limit avoids any difficulties with motor cooling.

The requirement of a 50°F minimum containment ambient temperature is to assure that the minimum service metal temperatures of the containment liner is well above the NDT +30°F criterion for the linear material.(2)

Limiting maximum containment ambient temperature will ensure that the peak containment pressure does not exceed applicable limits during steam line break and loss of coolant accidents. Environmentally and seismically qualified RTDs mounted on the crane wall above the containment fan cooler units inlet are normally used for measuring containment ambient temperature. Portable temperature sensing equipment may also be used, provided the criteria of 3.6.C.3 are met.

Table 3.6-1 lists non-automatic valves that are designated as part of the containment isolation function. (3) During periods of normal plant operations requiring containment integrity, valves on this Table will be open either continuously or intermittently depending on requirements of the particular protection, safeguards or essential service systems. Those valves to be open intermittently are under administrative control and are open only as long as necessary to perform their intended function. In all cases, however, the valves listed in Table 3.6-1 are closed during the post accident period in accordance with plant procedures and consistent with requirements of the related protection, safeguards or essential service systems.

The opening angle of the containment vent isolation valves is being limited as an analysis demonstrates valve operability against accident containment pressures provided the valves are limited to a maximum opening angle of 60°. The containment purge supply and exhaust isolation valves are required to be closed during plant operation above cold shutdown.

REFERENCES

(1) FSAR - Appendix 5A, Section 3.1.8
(2) FSAR - Section 5.1.1.1
(3) FSAR - Section 5.2

Table 4.1-1 (Sheet 5 of 5)

	Channel Description	Check	Calibrate	Test	Remarks
39.	High-Range Containment Radiation Monitoring (R25, R26)	D	R	Q	
40.	Core Exit Thermocouples	D	N.A.	N.A.	
41.	Overpressure Protection System (OPS)	D	R	R	
42.	Ambient Temperature Sensors Within Containment Building	D	R	R	

* To be effective after completion of all required modifications.
S - Each Shift
P - Prior to each startup if not done previous week
Q - Quarterly
NA - Not Applicable
D - Daily
W - Weekly
M - Monthly
R - Each Refueling Outage

ATTACHMENT II TO IPN-87-013
SAFETY EVALUATION FOR PROPOSED
TECHNICAL SPECIFICATION CHANGES
RELATED TO CONTAINMENT TEMPERATURE

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

I. Description of Changes

This application seeks to amend Sections 3.6.C and 4.1 of the Indian Point 3 Technical Specifications to include a provision for a containment ambient temperature of 130°F. This submittal supercedes the Authority's letter of September 18, 1985 which responded to a July 7, 1980 NRC letter. This July 7, 1980 letter required amending various sections of the Technical Specifications to be consistent, where appropriate and where possible, with portions of the Westinghouse Standard Technical Specifications (W-STS).

II. Evaluation of Changes

The purpose of these changes are to implement Technical Specifications related to containment ambient temperature. Limiting containment ambient temperature will ensure that the peak containment accident pressure does not exceed the design pressure of 47 psig during steam break or loss of coolant accidents.

The Authority contracted with Westinghouse (W) to perform an analysis which calculates the peak containment accident pressure for a postulated loss of coolant accident (LOCA), using an initial containment ambient temperature of 130°F. W used the digital computer code, COCO for this analysis. The LOCA was chosen to be analyzed since it is the limiting case in the FSAR for containment integrity (double ended pump suction guillotine break). Since the initial energy change in containment is the same for both the LOCA and steam line break accident the results were also applied to the steam line break accident. The results of the analysis for the LOCA show that the peak containment accident pressure increased to 41.2 psig, which is an increase of 0.6 psig over the value for an initial containment ambient temperature of 120°F. Applying this 0.6 psig increase to the steam line break analysis results in a peak containment accident pressure of 41.6 psig. The resulting peak containment accident pressures for both accidents are still below the containment design pressure.

The impact on the Indian Point 3 Equipment Qualification Program resulting from plant operation at containment ambient temperatures between 120°F and 130°F has been evaluated. The results show that no significant decrease in component life will occur. The results will be incorporated into Indian Point 3's Equipment Qualification Program.

III. No Significant Hazards Evaluation

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

Response

The proposed change does not increase the probability of an accident previously evaluated. The Authority has analyzed the effect raising the containment ambient temperature to 130°F has on peak containment accident pressure during a loss of coolant accident. The results show that the calculated peak containment accident pressure is less than the containment design pressure. Therefore, the consequences of an accident previously evaluated are unchanged.

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 change of increasing the containment ambient temperature to 130°F does not create the possibility of a new or different kind of accident than previously evaluated. Limiting containment ambient temperature ensures that the peak containment accident pressure will not exceed the design pressure during steam line break or loss of coolant accidents. The Authority has evaluated these accidents previously with a containment ambient temperature of 120°F. Therefore, this analysis is not creating the possibility of a new or different kind of accident.

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

Response

The proposed change of increasing the containment ambient temperature to 130°F does not involve a significant reduction in a margin of safety. The Authority performed an analysis which calculated the peak containment accident pressure using a containment ambient temperature of 130°F. The results of the analysis for the LOCA show that the peak containment accident pressure increased to 41.2 psig, which is an increase of 0.6 psig over the value for a containment ambient temperature of 120°F.

Applying this 0.6 psig increase to the steam line break analysis results in a peak containment accident pressure of 41.6 psig. Both resulting peak containment accident pressures are well below the containment design pressure of 47 psig.

The Authority considers that the proposed changes can be classified as not likely to involve significant hazards considerations since the proposed changes "constiture an additional limitation, restriction, or control not presently included in the Technical Specifications." (Example (ii), Federal Register, Vol. 48, No. 67 dated April 6, 1983, page 14870.)

IV. Impact of Change

This change will not adversely impact the following:

- ALARA Program
- Security and Fire Protection Programs
- Emergency Plan
- FSAR or SER Conclusions
- Overall Plant Operations and the Environment

V. Conclusion

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 for an accident or malfunction of a different type than evaluated previously in the Safety Analysis Report; c) will not reduce the margin of safety as defined in the basis for any Technical Specification; d) does not constitute an unreviewed safety question as defined in 10 CFR 50.59; e) involves no significant hazards considerations as defined in 10 CFR 50.92.

VI. References

a) IP-3 FSAR
b) IP-3 SER
c) Westinghouse Standard Technical Specifications (W-STS)