ATTACHMENT I TO IPN-96-124

PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING ALLOWED OUTAGE TIME FOR ENGINEERED SAFETY FEATURE INITIATION INSTRUMENTATION

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

3.5.4 In the event of instrumentation channel failure or instrumentation testing permitted by specification 3.5.2, the Minimum Degree of Redundancy listed in Tables 3.5-2 through 3.5-4 may be reduced by one, but to not less than zero, and the Minimum Number of Operable Channels listed in these tables may be reduced by one, but not to less than one (except as noted in Table 3.5-3) while instrument channels or the logic train are tested. The instrumentation testing allowed here is that which places an analog channel or logic train in design bypass to perform Technical Specification required tests. The reduction in degree of redundancy or minimum number of operable channels for testing described above is allowed for a period of 8 hours. The failed channel may be blocked to prevent an unnecessary reactor trip during this time. In the case of three loop operation, the out-of-service channel is permitted to be bypassed during the test period.

3.5.5 The low pressurizer pressure safety injection trip shall be unblocked when the pressurizer pressure is $\geq$ 2000 psig.

3.5.6 At least one source range and one intermediate range nuclear instrument channel shall be operable prior to reactor start-up.

3.5.7 When the reactor is not in the cold shutdown condition, the instrumentation requirements as stated in Table 3.5-5 shall be met.

3.5.8 A minimum of two channels of containment pressure must be operable when T_{avg} is greater than 350°F.

INSTRUMENTATION OPERATING CONDITION FOR ENGINEERED SAFETY FEATURES

No. FUNCTIONAL UNIT	1 NO. OF CHANNELS	2 NO. OF CHANNELS TO TRIP	3 MIN. NUMBER OF OPERABLE CHANNELS	4 MIN. DEGREE OF REDUNDANCY	5 OPERATOR ACTION IF CONDITIONS OF COL. 3 OR 4 CANNOT BE MET (Note 6)
4. LOSS OF POWER					
a. 480v Bus Undervoltage Relay	2/bus	1/bus	1/bus	0	See Note 1
b. 480v Bus Degraded Voltage Relay	2/bus	2/bus	2/bus(See Note 2)	0	See Note 1
5. OVERPRESSURE PROTECTION SYSTEM (OPS)	3	2	2	1	See Note 7
6. ENGINEERED SAFETY FEATURE RELAY LOGIC(TRAIN)	2	1	2	1	Cold Shutdown

Note 1. If the 138KV and 13.8 KV sources of offsite power are available and the conditions of column 3 or 4 cannot be met within 72 hours, then the requirements of 3.7.C.1 or 2 shall be met. Implementation of this note supersedes Note 6.

Note 2. If one channel becomes inoperable, it is placed in the trip position and the minimum number of operable channels is reduced by one.

Note 3. Permissible to bypass if reactor coolant pressure is less than 2000 psig.

Note 4. Must actuate 2 switches simultaneously.

Note 5. The Minimum Number of Operable Channels and the Minimum Degree of Redundancy may be reduced to zero if the SI bypass is in the unblocked position.

Note 6. If the conditions specified in Columns 3 or 4 cannot be met within 6 hours, then the reactor shall be placed in the hot shutdown condition, utilizing normal operating procedures, within the following 6 hours. If the conditions of Columns 3 and 4 are not met within 24 hours of the occurrence, the reactor shall be placed in the cold shutdown condition, or the alternate condition, if applicable, within an additional 24 hours.

The above actions are modified by Specification 3.5.4 to allow testing for up to 8 hours.

Note 7. Refer to Specification 3.1.A.8. Implementation of this note supersedes Note 6.

Note 8. Main steam isolation valves may be closed in lieu of going to cold shutdown if the circuitry associated with closing the valves is the only portion inoperable.

ATTACHMENT II TO IPN-96-124

SAFETY EVALUATION OF

PROPOSED TECHNICAL SPECIFICATION CHANGES

REGARDING ALLOWED OUTAGE TIME FOR ENGINEERED

SAFETY FEATURE INITIATION INSTRUMENTATION

NEW YORK POWER AUTHORITY
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Safety Evaluation of Proposed Change to Technical Specifications Regarding Allowed Outage Time for Engineered Safety Feature Initiation Instrumentation

Section I - Description of Change

The proposed amendment to Table 3.5-3, "Instrumentation Operating Condition for Engineered Safety Features," will establish a 6 hour Allowed Outage Time (AOT) and extend the completion time for reaching hot shutdown to the following 6 hours by replacing Note 6 with the following:

> "If the conditions specified in Columns 3 or 4 cannot be met within 6 hours, then the reactor shall be placed in the hot shutdown condition, utilizing normal operating procedures, within the following 6 hours. If the conditions of Columns 3 and 4 are not met within 24 hours of the occurrence, the reactor shall be placed in the cold shutdown condition, or the alternate condition, if applicable, within an additional 24 hours.
>
> The above actions are modified by Specification 3.5.4 to allow testing for up to 8 hours."

The proposed change is based on the guidance provided by NUREG-1431, "Standard Technical Specifications," (Reference 1) and is supported by Westinghouse analyses which are discussed in the following section.

In addition, Specification 3.5.4 is revised to clarify the retention of the current 8 hour AOT for surveillance testing as well as for failures of the analog channels and logic trains, also supported by the Westinghouse analyses, relative to the new extended maintenance/repair AOT.

Similarly, Notes 1 and 7 of Table 3.5-3 are revised to clarify which note takes precedence when the conditions of columns 3 or 4 are not met for various functions and a new functional unit listing, "Engineered Safety Feature Relay Logic (Train)," is added to clarify the application of the AOT's when testing the Engineered Safety Feature (ESF) initiation logic in total (i.e. - when the separate functions are tested together as a single logic train).

Section II - Evaluation of Change

The ESF provide the operators sensing ability for the presence of accident conditions and initiating capability for operation of systems to limit the release of fission products. The ESF's are actuated by the ESF actuation channels with each coincidence network energizing an ESF actuation device, which operates the associated ESF equipment (e.g. - motor starters and valve operators). The channels are designed to combine redundant sensors, independent channel circuitry, coincident trip logic, and different parameter measurements into a reliable system to preclude a single failure defeating the protective function. The ESF instrumentation system provides actuation of the Safety Injection System, the Containment Isolation System, the Containment Air Recirculation System, and the Containment Spray System.

The current specification for dropping below the minimum number of operable channels or trains or minimum degree of redundancy requires that "... the reactor shall be placed in the hot shutdown condition, utilizing normal operating procedures, within 4 hours of the occurrence." Without an AOT the operators are effectively precluded from any repair attempts since the current completion time for the required action is even more restrictive then for Specification

3.0.3 of the Standard Technical Specifications (STS) which provides a 1 hour preparation period prior to initiating a controlled and orderly mode change within the subsequent 6 hours to hot shutdown. This lack of an AOT is more restrictive than the Limiting Conditions for Operation (LCO) action requirements established in NUREG-1431 for inoperable ESF actuation system instrumentation. The requirement to reach hot shutdown within 4 hours may pose challenges to plant safety systems and thermal stresses to reactor coolant system components that may be unnecessary if the defective channel or train can be restored to operability during an AOT and longer completion time.

To gain added operational flexibility and to minimize the number of safety system challenges, the proposed change to the Technical Specifications (TS) adopts a 6 hour AOT with a subsequent 6 hour completion time for reaching hot shutdown. The 6 hour AOT was one of the changes proposed by the Westinghouse Owners Group (WOG) in WCAP-10271, Supplement 2, "Evaluation of Surveillance Frequencies and Out of Service Times for the Engineered Safety Features Actuation System," Revision 1 (Reference 2). The resulting combined time of 12 hours for the AOT and completion time for reaching hot shutdown was approved by the NRC in a Safety Evaluation Report (SER) dated February 22, 1989 (Reference 3) and has since been incorporated into the STS as the guidance for standard industry practice at Westinghouse plants.

For plant specific application of this AOT/completion time in technical specification changes to the ESF actuation instrumentation, the NRC requires that the licensee confirm the applicability of the generic analyses performed in the WCAP. These Westinghouse analyses covered two, three, and four loop plants with either relay or solid state logic systems. In addition, the Westinghouse study and the resulting proposed technical specification changes from the study are based on a STS plant.

Indian Point 3 (IP3) is a four loop plant utilizing relay logic and is not a STS plant. However, the applicability of the WCAP analyses to IP3 was previously established in a TS change dated December 20, 1989 (Reference 4). In that previous submittal, the Power Authority requested an increase to the ESF actuation instrumentation surveillance intervals and also requested staff concurrence for allowing routine analog channel testing in a bypassed condition, if plant hardware supports this, instead of a tripped condition. Both of these changes were also proposed by the Westinghouse Owners Group in the WCAP. In its review of this submittal, the NRC concluded that the WCAP was applicable, and therefore, established the bases for the technical specification changes approved as Amendment 107, dated March 22, 1991 (Reference 5).

In the Safety Evaluation for Amendment 107, the NRC reviewed and accepted the small increase in Core Damage Frequency (CDF) when the WCAP was implemented in its entirety. This issue had been previously reviewed by the NRC and substantiated by an independent analysis of the WCAP by Brookhaven National Laboratory (discussed in Reference 3). The NRC had concluded that there was an upper boundary of 6% for any CDF increase resulting from a concurrent surveillance test interval and allowed outage time increase. The bulk of any CDF increase was attributed to the surveillance test interval increase (discussed in Reference 4) and any actual increase in CDF would most likely be substantially less.

While the WCAP provided for an overall AOT/completion time of 12 hours, which the NRC has determined to be acceptable based on its analyses and substantiated industry operating experience, the Power Authority did not include this in its TS change request of December 1989. This was based on the then plant "Off Normal Operating Procedures" which required that the bistable trip switches for the affected instrument channel be placed in the tripped position as one of the operator's "subsequent actions" for an instrument failure. This was considered a more conservative situation from a safety system availability standpoint than allowing the inoperable

channel to remain untripped for up to 6 hours. However, based on a review of surveillance results from the past two years, the Power Authority believes that the proposed increase in operational flexibility can be obtained without a significant reduction in conservatism. Historical data indicates the ESF actuation systems routinely pass the surveillance tests with only an occasional need for minor adjustments due to drift. In addition, the establishment of an AOT and an extended completion time, 12 hours verses 4 hours, will promote improved maintenance (i.e. - allow for better diagnosis) and less challenges to safety systems with a resulting increase in overall system reliability. Finally, the increased time interval from determination that there is a lack of redundancy in ESF actuation to reaching hot shutdown will reduce the possibility of future requests for discretionary enforcements resulting from insufficient time for completing repair activities.

Additional changes to the Technical Specifications included in this submittal are ancillary to the requested AOT and completion time extension. They include a clarification of Specification 3.5.4 regarding the current 8 hour AOT for surveillance purposes, a new Table 3.5-3 Functional Unit item to clarify applicability of the AOT/completion time to surveillance testing of the ESF actuation logic train, and clarification of two notes in Table 3.5-3 regarding their applicability relative to the revised Note 6 from this submittal.

The changes to Specification 3.5.4 are consistent with IP3's Licensing Basis as discussed in the NRC's Safety Evaluation Report (Reference 6). The present text of Specification 3.5.4 addresses the surveillance testing of failed instrument channels and provides an 8 hour AOT for the test/return to operability. During this interval the analog channel is placed in bypass, if applicable, for up to 8 hours, and the "Minimum Degree of Redundancy" and/or "Minimum Number of Operable Channels," may be reduced by one within specified constraints.

This specification should also cover testing of instrument channels which have not been previously determined to be inoperable. As noted in the Safety Evaluation Report (SER), IP3 is designed to permit testing of the ESF circuits during reactor operation by blocking certain circuits to prevent actuation of the associated ESF systems. From an availability standpoint, there is a similarity in testing an inoperable channel or performing a surveillance, both reduce the minimum degree of redundancy. It is, therefore, reasonable to conclude that if the minimum degree of redundancy and/or the minimum number or operable channels can be reduced by one (within specified guidelines) for a failed channel, up to 8 hours, while testing the remaining channels, then the same AOT can be applied when testing a functional channel or logic train without a failed channel. The clarification provided by the inclusion of the "logic trains" to Specification 3.5.4 is also consistent with the SER where the NRC notes that testing of the trains can only be performed one at a time since the train being tested is disabled (i.e. - blocked) to avoid automatic initiation of that train's ESF equipment.

The proposed clarification is consistent with the STS where a train or channel may be bypassed for surveillance testing provided another train or channel is Operable. The 8 hour AOT for performing a surveillance test, while greater than the value proposed in the STS, is consistent with the value determined by Westinghouse in its WCAP. The STS testing time in bypass, 4 hours, is shorter because it is based on each train having a built in testing device that can automatically test the decision logic matrix functions and actuation devices while at power. IP3's logic trains are relay based and require more time to perform a similar required TS surveillance. The intent of this clarification to Specification 3.5.4 is to support the revision to Note 6 of Table 3.5-3 which references this specification by clearly delineating the difference between the 8 hour AOT for surveillance testing and the new 6 hour AOT for maintenance/repair purposes.

The new functional unit item in Table 3.5-3 clarifies the requirements of the ESF actuation instrumentation during the performance of surveillances and is similar to an entry in Table 3.5-2, "Reactor Trip Instrumentation Limiting Operating Conditions," for Reactor Protection Relay Logic. The current wording of Table 3.5-3 does not specifically state what the requirements and limitations are when testing the ESF relay logic (i.e. - what AOT is entered when a logic train is bypassed to test its functionality so as to not inadvertently actuate the ESF during the test). The Licensing Basis for IP3 considers the inoperability of a logic train for purposes of performing surveillances to be similar to an instrument channel being inoperable for performance of its surveillance test provided there is another functional logic train that can perform the automatic actuation of one ESF train. In addition, as per the guidance provided by IEEE-279-1968 (Reference 7) the operators can also override the block and manually initiate the ESF train undergoing surveillance when necessary.

This clarification does not alter the method of testing IP3's ESF relay logic. The proposed change is consistent with the established licensing basis, consistent with the analytical model used in the WCAP, and also consistent with the NRC's position regarding the bypassing of a train for surveillance testing as noted in the STS.

The revision of Notes 1 and 7 by this submittal provide clarification of their applicability and supersession of Note 6. Table 3.5-3 is composed with Note 6 being applied to all of column 5 which means that when a function can not meet the requirements of columns 3 or 4 then operator action is required to achieve a specific objective (e.g. - cold shutdown, main steam isolation, etc.) within the guidelines of Note 6. However, in the case of either Notes 1 or 7, the notes themselves are the required operator action each with their own LCO's, AOT's, and specified action. In these cases Note 6 is not applicable and this clarification is intended to remove the possibility of a misinterpretation.

Section III - No Significant Hazards Evaluation

Consistent with the criteria of 10 CFR 50.92, the enclosed application is judged to involve no significant hazards based on the following information:

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

Response: Operation of Indian Point 3 in accordance with the proposed license amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The establishment of an Allowed Outage Time (AOT) of 6 hours and the increase of the subsequent action completion time to 6 hours for the Limiting Condition for Operation (LCO) is consistent with accepted Nuclear Regulatory Commission (NRC) guidelines incorporated as Standard Technical Specifications (STS). The revised combined AOT/completion time was first proposed in a Westinghouse Owners Group study and received NRC approval. To implement this modification, as well as the other issues covered by the Westinghouse Owners Group study, the NRC required confirmation of the applicability of the study to the plant requesting the change. This was established in a previous submittal which was approved by the NRC as Amendment 107. In that prior amendment request, the NRC acknowledged the possibility of a slight increase in core damage frequency (<6%) resulting from the implementation of the changes proposed by the Westinghouse Owners Group in its entirety. The increase in core damage frequency

was, however, considered small compared to the error in probabilistic estimates utilized in the analyses, and Amendment 107 was issued.

Therefore, implementation of this change is bounded by the previous assessment of the Westinghouse Owners Group study and does not constitute an increase in probability or consequence of an accident previously evaluated.

The changes to Table 3.5-3 and Specification 3.5.4, which are administrative/editorial in nature, are meant to provide clarification of existing requirements. They do not alter any existing requirements nor do they change the intent or performance of existing surveillance tests. Moreover, they do not change the intent of the original license or Safety Evaluation Report. Logic train testing online was always a licensed condition. These changes will not alter any structure, system, or component and, therefore, will not result in the possibility of an increase in probability or consequence 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 change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed change does not alter any existing system, structure or component. The proposed change does not alter the manner in which operation of the Engineered Safety Features provide plant protection. The possibility that a new or different kind of accident, from any accident previously evaluated, would result from implementing the proposed changes of the Westinghouse Owners Group study was reviewed and determined to be unlikely by the NRC in its approval and issuance of Amendment 107.

Indian Point 3's relay logic train testing online was always a licensed condition. Since the clarifications fostered by these administrative/editorial changes do not result in any structural, system, or component changes nor do they alter the intent or process of existing specification requirements; they will not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

Response: The proposed license amendment does not involve a significant reduction in a margin of safety.

The justification for the change requested by this submittal is based on a Westinghouse Owners Group study. A conclusion reached in this study, regarding implementation of its proposed changes, was a determination that there would be a slight increase in core damage frequency. This was independently verified by a Brookhaven National Laboratory review. Based on these analyses, the NRC concluded, in its approval of the Westinghouse Owners Group study, that implementation of the changes proposed in the study in their entirety, would result in increased core damage frequencies that are <6%. The NRC further concluded that this represented an upper bound and that given realistic testing strategies would result in increases that are substantially less, depending on other plant specific parameters. This was considered acceptable to the NRC based on an

overall improvement in safety provided by the other changes proposed in the Westinghouse Owners Group study.

Therefore, considering the NRC's approval of the Westinghouse Owners Group study with its postulated minor potential increase in core damage frequency and the acknowledgment of the overall gain in plant safety from implementing the owners group study and noting the prior discussion and acceptance of this concern in the safety evaluation for the issuance of Amendment 107, the proposed change from this submittal does not involve a significant reduction in a margin of safety.

Administrative/editorial changes to clarify an existing Technical Specification without altering its intent or required guidelines (i.e. - not altering Indian Point 3's licensing basis permitting relay logic train testing online) will not result in any reduction in a margin of safety.

Section IV - Impact of Change

The proposed changes will not adversely affect the following:

ALARA Program
Security and Fire Protection Programs
Emergency Plan
FSAR or SER Conclusions
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 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. NUREG-1431, "Standard Technical Specifications - Westinghouse Plants," Revision 1, dated April 1995.

2. WCAP-10271-A, Supplement 2, "Evaluation of Surveillance Frequencies and Out of Service Times for the Engineered Safety Features Actuation System," Revision 1, dated May 1989.

3. Safety Evaluation by the Office of Nuclear Reactor Regulation - Review of Westinghouse Report WCAP-10271 Supplement 2 and WCAP-10271 Supplement 2, Revision 1 on Evaluation of Surveillance Frequencies and Out of Service Times for the Engineered Safety Features Actuation System, dated February 1989.

4. Letter from Mr. J. C. Brons (NYPA) to Document Control Desk (NRC), "Proposed Changes to Technical Specifications Regarding Reactor Protection System and Engineering Safety Features Actuation System Surveillance Intervals, " IPN-89-071, dated December 20, 1989.

5. Letter from J. D. Neighbors (NRC) to Mr. J. C. Brons (NYPA), "Issuance of Amendment for Indian Point 3," dated March 22, 1991.

6. Safety Evaluation Report by the Director of Licensing USAEC in the Matter of ConEd of NY, Indian Point Nuclear Generating Unit No. 3, dated September 21, 1973, and Supplements.

7. IEEE-279-1968, "Proposed IEEE Criteria for Nuclear Power Plant Protection Systems," dated August 30, 1968