ATTACHMENT I TO IPN-97-006

PROPOSED TECHNICAL SPECIFICATION CHANGES

REGARDING ADOPTION OF 10 CFR 50, APPENDIX J, OPTION B

PERFORMANCE BASED LEAKAGE-TEST REQUIREMENTS

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

4.4 CONTAINMENT TESTS

Applicability

Applies to containment leakage.

Objective

To verify that potential leakage from the containment is maintained within acceptable values.

Specification

A. Integrated Leakage Rate

Perform required visual examinations and leakage rate testing, except for containment air lock testing, in accordance with the Containment Leakage Rate Testing Program.

B. DELETED

C. Sensitive Leakage Rate

Verify the leakage rate for the Containment Penetration and Weld Channel Pressurization System is $\leq$ 0.2 percent of the containment free volume per day when pressurized to $\geq$ 43 psig and the containment pressure is atmospheric. The testing shall be performed at intervals no greater than 3 years.

D. Air Lock Tests

Perform required Containment Air Lock leak rate testing in accordance with the Containment Leakage Rate Testing Program.

E. Containment Isolation Valves

1. Verify the combined leakage rate for all containment bypass leakage paths, Table 4.4-1 lists required isolation valves, is $\leq 0.6L_a$ when pressurized $\geq P_a$, in accordance with the Containment Leakage Rate Testing Program.

2. Verify the leakage rate of water from the Isolation Valve Seal Water System is $\leq$ 14,700 cc/hr when pressurized $\geq$ 1.1 Pa, in accordance with the Containment Leakage Rate Testing Program.

3. Verify the leakage rate of water into the containment from isolation valves sealed with the service water system is $\leq$ 0.36 gpm per fan cooler unit when pressurized $\geq$ 1.1 Pa, in accordance with the Containment Leakage Rate Testing Program.

F. DELETED

G. DELETED

H. DELETED

Basis

The containment is designed for a pressure of 47 psig. [1] While the reactor is operating, the internal environment of the containment will be air at essentially atmospheric pressure and an average maximum temperature of approximately 130°F. The limiting peak containment temperature, based on LOCA containment response, is 261.5°F. [7] The peak containment pressure, also based on LOCA containment response, is approximately 42.39 psig. [7][8] The acceptance criteria was changed by amendment 98 to reflect analysis [4] done for the ultimate heat sink temperature increase. The acceptance criteria of 42.42 psig (based on the peak calculated pressure for a Main Steam Line Break analysis) is conservative with respect to the current LOCA peak pressure of 42.39.

Prior to initial operation, the containment was strength-tested at 54 psig and was leak-tested. The acceptance criterion for this pre-operational leakage rate test was established as 0.075 W/o (.75 L_a) per 24 hours at 40.6 psig and 263°F, which were the peak accident pressure and temperature conditions at that time. This leakage rate is consistent with the construction of the containment, [2] which is equipped with a Weld Channel and Penetration Pressurization System for continuously pressurizing the containment penetrations and the channels over certain containment liner welds. These channels were independently leak-tested during construction.

The safety analysis has been performed on the basis of a leakage rate of 0.10 W/o per day for 24 hours. With this leakage rate and with minimum containment engineered safeguards operating, the public exposure would be well below 10CFR100 values in the event of the design basis accident. [3]

Maintaining the containment operable requires compliance with the visual examinations and leakage rate test requirements of the Containment Leakage Rate Testing Program. Failure to meet air lock leakage limits specified in surveillance requirement 4.4.D does not invalidate the acceptability of these overall leakage determinations unless their contribution to overall Type A, B, and C leakage causes that to exceed limits. As left leakage prior to the first startup after performing a required 10 CFR 50, Appendix J, leakage test is required to be $<0.6\ L_a$ for combined Type B and C leakage, and $< 0.75\ L_a$ for overall Type A leakage. At all other times between required leakage rate tests, the acceptance criteria is based on an overall Type A leakage limit of $\leq 1.0\ L_a$. At $\leq 1.0\ L_a$ the offsite dose consequences are bounded by the assumptions of the safety analysis. Surveillance requirement frequencies are as required by the Containment Leakage Rate Testing Program. Thus, Specification 1.12 (which allows Frequency extensions) does not apply. These periodic testing requirements verify that the containment leakage rate does not exceed the leakage rate assumed in the safety analysis.

The Weld Channel and Containment Penetration Pressurization System (WCCPPS)[5] is in service continuously to monitor leakage from potential leak paths such as the containment personnel lock seals and weld channels, containment penetrations, containment liner weld channels, double-gasketed seals and spaces between certain containment isolation valves and personnel door locks. A leak would be expected to build up slowly and would, therefore, be noted before design limits are exceeded. Remedial action can be taken before the limit is reached. The sensitive leakage rate test of the WCCPPS demonstrates that pressurized containment penetrations and liner inner weld seams are within a leakage acceptance criteria that will allow the air receivers and the standby source of gas pressure, nitrogen cylinders, to provide a 24 hour supply of gas to the system. The WCCPPS is not credited for limiting containment isolation valve leakage and the sensitivity test is not used for demonstrating compliance with containment isolation valve leakage criteria. The frequency of the sensitive leakage test reflects an extension of 25 percent from the 24 month refueling cycle and, therefore, Specification 1.12 (which allows Frequency extensions) does not apply[10].

Maintaining containment air locks operable requires compliance with the leakage rate test requirements of the Containment Leakage Rate Testing Program. The surveillance requirement reflects the leakage rate testing requirements with regard to air lock leakage (Type B leakage tests). The acceptance criteria were established during air lock and containment OPERABILITY testing. The periodic testing requirements verify that the air lock leakage does not exceed the allowed fraction of the overall containment leakage rate. The Frequency is required by the Containment Leakage Rate Testing Program. Thus, Specification 1.12 (which allows Frequency extensions) does not apply. During normal plant operation, containment personnel lock door seals are continuously pressurized after each closure by the WCCPPS. Whenever containment integrity is required, verification is made that seals repressurize properly upon closure of an air lock door. The verification meets the intent of the 10 CFR 50 Appendix J requirements.[8]

The containment isolation valve surveillance requirement ensures that the combined leakage rate of all containment bypass leakage paths is less than or equal to the specified leakage rate. This provides assurance that the assumptions in the safety analysis are met. The leakage rate of each bypass leakage path is assumed to be the maximum pathway leakage (leakage through the worse of the two isolation valves, and, when pressurizing between valves, the total leakage of all the valves being tested) unless the penetration is isolated by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. In this case, the leakage rate of the isolated bypass leakage path is assumed to be the actual pathway leakage through the isolation device. If both isolation valves in the penetration are closed, the actual leakage rate is the lesser leakage rate of the two valves. The Frequency is required by the Containment Leakage Rate Testing Program. This surveillance requirement simply imposes additional acceptance criteria. The service water lines to the containment fan cooler units and the lines supplied water by the Isolation Valve Seal Water System (IVSWS)[6] have containment isolation valves that are hydrostatically tested. Surveillance of hydrostatically tested lines provides assurance that the calculation assumptions of offsite doses are met. The Frequency is required by the Containment Leakage Rate Testing Program. Sufficient water is available in the Isolation Valve Seal Water System, Primary Water System, Service Water System, Residual Heat Removal System, and the City Water System to assure a sealing function for at least 30 days. The leakage limit for the Isolation Valve Seal Water System is consistent with the design capacity of the Isolation Valve Seal Water supply tank. The seal water provided by these systems is credited with limiting containment leakage (the measured leakage is not considered part of the allowable containment leakage).

The 350 psig test pressure, achieved either by normal Residual Heat Removal System operation or hydrostatic testing, gives an adequate margin over the highest pressure within the system after a design basis accident. Similarly, the hydrostatic test pressure for the containment sump return line of 100 psig gives an adequate margin over the highest pressure within the line after a design basis accident. A recirculation system leakage of 2 gal./hr. will limit off-site exposures due to leakage to insignificant levels relative to those calculated for leakage directly from the containment in the design basis accident.

The maximum permissible inleakage rate from the containment isolation valves sealed with service water for the full 12-month period of post accident recirculation without flooding the internal recirculation pumps is 0.36 gpm per fan cooler.

REFERENCES

(1) FSAR - Section 5
(2) FSAR - Section 5.1.7
(3) FSAR - 14.3.5
(4) WCAP - 12269 Rev. 1, "Containment Margin Improvement Analysis for IP-3 Unit 3"
(5) FSAR - Section 6.6
(6) FSAR - Section 6.5
(7) SECL-92-131, Indian Point Unit 3 High Head Safety Injection Flow Changes Safety Evaluation, June 1992
(8) SECL-96-103, Indian Point Unit 3 Safety Evaluation of 24-Month Fuel Cycle Phase I Instrument Channel Uncertainties, June 1996
(9) Indian Point 3 Safety Evaluation Report, Supplement 2, December 1975.
(10) NRC Safety Evaluation Related to Amendment 129 to Operating License DPR-64.

TABLE 4.4-1 (Page 6 of 7)

CONTAINMENT ISOLATION VALVES			
Valve No.	Penetration Number[1]	Test Fluid[2]	Minimum Test Pressure (PSIG)[8]
SP-SOV-508	57	Gas[7]	43
SP-SOV-509	57	Gas[7]	43
SP-SOV-510	57	Gas[7]	43
SP-SOV-511	57	Gas[7]	43
SP-SOV-512	57	Gas[7]	43
SP-SOV-513	57	Gas[7]	43
SP-SOV-514	57	Gas[7]	43
SP-SOV-515	57	Gas[7]	43
SP-SOV-516	57	Gas[7]	43
IA-39	64	Gas	43
IA-PCV-1228	64	Gas	43
PS-7	65	Gas[7]	43
PS-10	65	Gas[7]	43
PS-8	65	Gas[7]	43
PS-9	65	Gas[7]	43
CB-1	69	Gas	43
CB-2	69	Gas	43
CB-3	69	Gas[7]	43
CB-4	69	Gas[7]	43
CB-5	68	Gas	43
CB-6	68	Gas	43
CB-7	68	Gas[7]	43
CB-8	68	Gas[7]	43
DW-AOV-1	70	Water[4]	47
DW-AOV-2	70	Water[4]	47

6.12.2 The requirements of 6.12.1 above, shall also apply to each high radiation area in which the intensity of radiation is greater than 1000 mrem/hr. In addition, locked doors shall be provided to prevent unauthorized entry into such areas and the keys shall be maintained under the administrative control of the Shift Manager on duty and/or the plant Radiological and Environmental Services Manager or his designee.

6.13 ENVIRONMENTAL QUALIFICATION

6.13.1 Environmental qualification of electric equipment important to safety shall be in accordance with the provisions of 10 CFR 50.49. Pursuant to 10 CFR 50.49, Section 50.49 (d), the EQ Master List identifies electrical equipment requiring environmental qualification.

6.13.2 Complete and auditable records which describe the environmental qualification method used, for all electrical equipment identified in the EQ Master List, in sufficient detail to document the degree of compliance with the appropriate requirements of 10 CFR 50.49 shall be available and maintained at a central location. Such records shall be updated and maintained current as equipment is replaced, further tested, or otherwise further qualified.

6.14 Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak Test Program, dated September 1995" as modified by the following exceptions:

a. ANS 56.8 - 1994, Section 3.3.1: WCCPPS isolation valves are not Type C tested.

b. ANS 56.8 - 1994, Section 6.2: Where the design provides for testing between containment isolation valves, testing is not in the direction of flow for all valves.

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 42.39 psig. The minimum test pressure is 42.42 psig.

The maximum allowable primary containment leakage rate, L_a, at P_a, shall be 0.1% of primary containment air weight per day.

Leakage acceptance criteria are:

a. Containment leakage rate acceptance criterion is $\leq 1.0\ L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60\ L_a$ for the Type B and C tests and $\leq 0.75 L_a$ for Type A tests;

b. Air lock testing acceptance criteria are :

   1) Overall air lock leakage rate is $\leq 0.05\ L_a$ when tested at $\geq P_a$,

   2) For each door, leakage rate is $\leq 0.01\ L_a$ when pressurized to $\geq P_a$.

c. Isolation valves sealed with the service water system leakage rate into containment acceptance criterion is ≤ 0.36 gpm per fan cooler unit

d. Isolation Valve Seal Water System leakage rate acceptance criterion is 14,700 cc/hr at $1.1P_a$.

The provisions of Specification 1.12 do not apply to the test frequencies specified in the Primary Containment Leakage Rate Testing Program. The provisions of Specification 4.1, "Applicability," as they relate to delay of 24 hours in applying an LCO following the discovery of a surveillance test not performed, are applicable to the Primary Containment Leakage Rate Testing Program.

ATTACHMENT II TO IPN-97-006

SAFETY EVALUATION AND IMPLEMENTATION PLAN OF PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING ADOPTION OF 10 CFR 50, APPENDIX J, OPTION B PERFORMANCE BASED LEAKAGE-TEST REQUIREMENTS

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

Section I - Description of Changes

This application for amendment to the Indian Point 3 Technical Specifications proposes to add several containment isolation valves to the Technical Specifications and to implement 10 CFR 50, Appendix J, Option B requirements for performance based surveillance frequencies for Type A, B, and C containment leakage testing. The proposed changes to implement Option B will revise IP3 Technical Specification 4.4.A to 4.4.H to reflect the format of the surveillance requirements of the Standard Technical Specifications (STS) for Westinghouse Plants (Reference 1) which were altered to reflect the IP3 design and the model developed by the NRC staff to serve as interim guidance for revising Technical Specifications when incorporating Option B (Reference 2) . The proposed Technical Specification changes are as follows:

- Specifications 4.4.A.1., 4.4.A.2. and 4.4.A.3., which discuss the integrated leakage rate testing and visual inspection, were deleted and a specification based on STS surveillance requirement 3.6.1.1 substituted. This change removed specific test methodology requirements which are no longer required because of commitments in the new Specification 6.14, Containment Leakage Rate Testing Program. The IP3 Basis was also revised to reflect the STS basis for that surveillance requirement and clarify that the containment leak rate test pressure was based upon a main steam line break.

- Specifications 4.4.C.1., 4.4.C.2. and 4.4.C.3., which discuss the testing of the Containment Penetration and Weld Channel Pressurization System (WCCPPS), were revised to reflect the STS format. There were no changes to the requirements because the WCCPPS is not credited with limiting containment leakage and therefore, the testing will not be included in the Containment Leakage Rate Testing Program. The Basis was also revised to clarify this.

- Specifications 4.4.D.1. and 4.4.D.2., which discuss the testing of the Containment Air Locks, were deleted and a specification based on STS surveillance requirement 3.6.2.1 substituted. This change removed specific test requirements which are no longer required because they are part of the commitments in the new Specification 6.14. The test pressure requirement of 43 psig was changed to P_a, a minor reduction in pressure for consistency with standard requirements. The WCCPPS is normally used for checking leakage at a pressure about 10 percent or more above P_a. The IP3 Basis was also revised to reflect the STS basis for that surveillance requirement.

- Specifications 4.4.E.1. and 4.4.E.2 (including the footnote indicated by "*"), which discuss the testing of containment isolation valves, were deleted and a specification based on STS surveillance requirement 3.6.3.11 substituted. The leakage rate acceptance criteria was changed from 0.5 (the criteria was previously changed from 0.6 to 0.5 in Amendment 129 for margin when incorporating the 24 month cycle) to 0.6 to reflect the acceptance criteria of Option B. The testing requirements for the isolation valves that are tested hydrostatically, they are supplied with seal water from the Isolation Valve Seal Water System (IVSWS) or the Service Water System, were also reformatted to reflect the STS. The IP3 Basis was revised to reflect the STS basis for the surveillance requirements and to clarify credit taken for seal water systems.

- Specification 4.4.F., which requires Type A, B or C testing, as appropriate, following a modification in accordance with 10 CFR 50 Appendix J, Section IV.A f, was deleted and the testing requirement will be added to the Containment Leakage Rate Testing Program based on the STS format.

- Specification 4.4.G., which requires reporting of test results after an outage in accordance with 10 CFR 50 Appendix J requirements, was deleted and the reporting requirement will be added to the Containment Leakage Rate Testing Program based on STS format.

- Specification 4.4.H was deleted since the visual examination requirements will be added to Specification 4.4.A and are part of the Containment Leakage Rate Testing Program.

- Technical Specification Table 4.4-1 (page 6) was revised to add Containment Isolation Valves CB - 5, 6, 7 and 8. This is an administrative change because these isolation valves are currently identified in the FSAR and are tested as Containment Isolation Valves.

- A new administrative Specification " 6.14 Containment Leakage Rate Testing Program" was added to describe the Containment Leakage Rate Testing Program that will be developed to administratively control implementation of Option B.

- The Table of contents was revised to reflect the above changes.

Section II - Evaluation of Changes

Adding Valves To Table 4.4-1

NYPA committed to add Containment Isolation Valves CB - 5, 6, 7 and 8 to the Technical Specifications (Reference 3). These valves are currently identified in the FSAR as Containment Isolation Valves (i.e., Table 5.2-3, item 63 and Figure 5.2-27) and are tested as required by 10 CFR 50 Appendix J. The valves provide the same function for the equipment hatch airlock as valves CB - 1, 2, 3 and 4, currently listed on Table 4.4-1, do for the personnel air lock. Valves CB - 5 and 6 are one inch, self actuating, normally closed valves located in series with no test connection between them. These valves open to relieve the pressure differential when entry is made into the airlock and close to provide containment isolation. Valves CB - 7 and 8 are manually operated ball valves that are sealed by the WCCPPS. These valves are interlocked to open/close with the handwheel for the associated airlock in order to equalize pressure. The administrative controls for the airlocks therefore control these valves. The addition of these valves to Table 4.4-1 is an administrative change to correct a discrepancy between the FSAR and the Technical Specifications. There are no changes to hardware or procedures to make this change.

Implementing 10 CFR 50, Appendix J, Option B

The testing requirements of 10 CFR 50, Appendix J, provide assurance that leakage through the containment, including systems and components that penetrate the containment, does not

exceed the allowable leakage values specified in the Technical Specification. The limitation of containment leakage provides assurance that the containment would perform the design function following an accident up to and including the plant design basis accident.

10 CFR 50, Appendix J, was revised, effective October 26, 1995, to allow licensees to choose containment leakage testing under Option A "Prescriptive Requirements" or Option B "Performance-Based Requirements." The Technical Specification currently requires testing based upon the prescriptive requirements of Option A. The proposed change to the Technical Specification is to remove the prescriptive requirements and adopt the performance based requirements since the Authority has elected to perform Type A, Type B and Type C containment leak testing on a performance basis.

The performance based requirements of Option B allow plants with a satisfactory integrated leak rate test (ILRT) performance history to reduce the Type A testing frequency from the prescribed three tests in ten years to a periodic interval based on the historical performance of the overall containment system. For Type B and C tests, the testing frequency can be reduced from the prescribed frequency based on the leak history of each component. To implement the performance based requirements of Option B, the Authority will implement a Containment Leakage Rate Testing Program in accordance with Regulatory Guide (RG) 1.163 (Reference 4) to control Option B testing using the testing methodology currently approved for Indian Point 3. Regulatory Guide 1.163, was issued as an acceptable method to implement the performance based requirements of Appendix J, Option B, Sections III.A and III.B. The RG approves the use of NEI 94-01 (Reference 5) and ANSI/ANS 56.8 - 1994 (Reference 6) subject to several regulatory positions. The Containment Leakage Rate Testing Program to implement performance based testing is being developed as discussed in the next section.

The detailed requirements (methods and techniques) for performing Type A, B and C testing are identified in RG 1.163 which approves ANSI/ANS 56.8 - 1994. To implement these requirements, the current procedures in use for Type A, B and C will be reviewed for any necessary changes during the preparation of the Containment Leakage Rate Testing Program. Exceptions to the ANSI/ANS 56.8 - 1994 requirements are identified in the implementation plan for the Containment Leakage Rate Testing Program, discussed in the next section, and are taken so that no plant design changes or changes to plant operations are required to implement Option B.

The Indian Point 3 plant has three systems that seal containment isolation valves with fluid from a seal system. The first is the Containment Penetration and Weld Channel Pressurization System (WCCPPS). No credit is taken for this system to limit leakage and the components served by this system are tested as part of containment isolation valve test. For this reason, the WCCPPS has not been incorporated into the Containment Leakage Rate Testing Program. The WCCPPS is tested in accordance with Technical Specification 4.4.C. The proposed change Technical Specification 4.4.C reformats the existing specification to adopt the STS format. The other two seal systems are the Isolation Valve Seal Water System (IVSWS) and the Service Water System to the fan cooler units. Leakage from the isolation valves sealed by these systems is not included in containment leak rate as allowed by 10 CFR 50 Appendix J. These systems will be incorporated into the Containment Leakage Rate Testing Program. Proposed

Technical Specification 4.4.E, for containment isolation valves, tests these systems using the current testing procedures, which meet the requirements of Appendix J, Section III.C.2 (i.e., valves shall be pressurized with air or nitrogen, to a pressure of P_a , unless sealed with fluid from a seal system, in which case they are to be pressurized with that fluid to a pressure not less than 1.10 P_a) which will be modified as necessary to address the Containment Leakage Rate Testing Program requirements.

Proposed Technical Specification 4.4.D for determining containment air lock leakage will be implemented by the current testing procedure which will be modified as necessary to address the Containment Leakage Rate Testing Program requirements.

Proposed Technical Specification 4.4.E.1 for containment isolation valve testing will be implemented by the current testing procedure which will be modified as necessary to address the Containment Leakage Rate Testing Program requirements (e.g., the specific allowable leakage limits).

Although the adoption of a performance-based containment leakage rate testing program does not alter the basic method by which Appendix J leakage rate testing is performed, it will alter the frequency of measuring primary containment leakage. The tests will continue to be performed, in accordance with existing leak testing requirements, at the peak calculated containment pressure (P_a) or greater with plant specific limits for allowable leakage rates (L_a) and approved NRC exemptions. Frequency will be based upon an evaluation which looks at the as found leakage and other factors discussed in the implementation plan. The proposed changes to test frequency do not directly result in an increase in containment leakage. However, decreasing the test frequency can increase the probability that a large increase in containment leakage could go undetected for an extended period of time. NUREG-1493, "Performance-Based Containment Leak-Test Program, Final Report," (Reference 7) made the following observations with regard to decreasing the test frequency:

- Reducing the Type A (ILRT) testing frequency from the current three per ten years to one per twenty years was found to lead to an imperceptible increase in risk. The estimated increase in risk is small because ILRTs identify only a few potential leakage paths that cannot be identified by Type B and C testing, and the leaks that have been found by Type A tests have been only marginally above the existing requirements. Given the insensitivity of risk to containment leakage rate, and the small fraction of leakage detected solely by Type A testing, increasing the interval between ILRT testing had minimal impact on public risk.

- While Type B and C tests identify the vast majority (greater than 95%) of all potential leakage paths, performance-based alternatives to current local leakage testing requirements are feasible without significant risk impacts. The risk model used in NUREG-1493 suggests that the number of components tested could be reduced by about 60% with less than a three-fold increase in the incremental risk due to containment leakage. The NUREG also indicates that extending Type C tests to the full test interval results in less than a fourfold increase in risk. Since leakage contributes less than 0.1 percent of overall risk under exiting requirements, the overall effect is very small.

During the first testing following implementation of Option B testing, the plant specific limit for the allowable leakage rate (L_a) at required test pressure (P_a) is not changed. The proposed Technical Specification change revises the current L_a for Type B and C testing from 0.5 to $0.6L_a$. The $0.5\ L_a$ was added to the Technical Specification to support an exemption to Appendix J, Sections III.D.2 and III.D.3 requirements for Type B and C testing every 2 years (References 8, 9 and 10). The evaluations supporting Option B show that this reduction is not necessary for a performance based testing program. Since the exemption is not being retained and a $0.5L_a$ is not required to support Option B, the allowable leakrate for Type B and C tests during the first testing following implementation of Option B is changed to $0.6L_a$. After the first test, the required test pressure and allowable leak rate are combined as discussed in the proposed Technical Specification 6.14 "Containment Leakage Rate Testing Program."

The guidance issued for implementation of Option B indicates that approved exemptions to 10 CFR 50, Appendix J, Option A remain in effect unless specifically revoked by the NRC. The exemptions taken to Appendix J have been reviewed. The exemption from those portions of 10 CFR 50, Appendix J which relate to performance of a reduced pressure leak test based on conducting future periodic containment leakrate tests at peak pressure (Reference 11) remains in effect and is identified in the Basis to Specification 4.4. The one time exemption to the testing intervals specified for the containment isolation valves in the footnote on Technical Specification page 4.4-4 is no longer needed and the proposed Technical Specification change deletes this note.

III. Appendix J, Option B Implementation Plan

The Authority commits to the development of a Containment Leakage Rate Testing Program and implementing procedures that will establish the administrative controls to implement 10 CFR 50, Appendix J, Option B. The administrative controls will conform with Regulatory Guide 1.163, dated September 1995, including the approved documents NEI 94-01, dated July 26, 1995, and, with two exceptions (discussed in the administrative Technical Specification for the Option B Implementation Plan), ANSI/ANS 56.8 -1994. The Containment Leakage Rate Testing Program, procedures for performing testing per the new standard, procedures for tracking test results and acceptance criteria will be completed and issued for implementation prior to extending any test interval (implementation of Option B for Type A testing may proceed separately from Type B and C implementation). Completion of these activities and implementation of procedures may take place prior to receipt of the Technical Specification change since they will not be used until the outage and may always be withdrawn if the change is not approved. Completion of some portions of these activities and implementation of procedures may take place after the implementation of the Technical Specification change since the existing test procedures, acceptance criteria and test frequency remain in place until implementation and these are consistent with the revised Technical Specification.

The two exceptions to ANSI/ANS 56.8 - 1994 are based upon design. Relief requests associated with the inservice testing program which may be required for implementation are not relief requests and will be requested if identified. The exceptions are:

- "ANSI/ANS 56.8 - 1994, Section 3.3.1 identifies boundaries not requiring Type C testing. This should include Containment Penetration and Weld Channel Pressurization System (WCCPPS) valves that isolate the WCCPPS from the penetrations, liner weld seams and other spaces supplied with WCCPPS gas. During initial Type C testing, these valves were excluded based on the welding of the weld channel to the same code as the containment (Reference 12). The exclusion is consistent with the design of the WCCPPS whose isolation valves are manual and normally open. The WCCPPS boundary valves will not be included in Type C testing.

- ANSI/ANS 56.8 - 1994, Section 6.2 requires test pressure to be applied in the same direction as that which would occur during the loss of coolant accident. Exception is taken to this requirement where the design provisions for testing at Indian Point 3 require pressurization between valves (e.g., the WCCPPS channels are used for testing isolation valves). This testing configuration results in the Maximum Pathway Leakage Rate (MXPLR) and the Minimum Pathway Leakage Rate (MNPLR) for each pathway being equivalent to the leakage rate through all the valves tested and therefore the as found leakage as well as the test frequency will be determined conservatively with respect to the acceptance criteria for individual valves. In cases where leakage exceeds criteria, attempts will be made to identify the responsible valve(s)."

The current implementation plan to establish administrative controls is to develop a site procedure that contains the Containment Leakage Rate Testing Program and to develop implementing procedures for that program. The procedures will contain the following:

1. Testing Methodologies For Type A, B, and C Tests

   The requirements document for the performance of Type A, B and C tests is ANSI/ANS - 56.8 - 1994. There will be exceptions and clarifications required because ANSI/ANS - 56.8 - 1994 is not performance based. These exceptions and clarifications will include: an exception to the test intervals of ANSI/ANS - 56.8 - 1994 per Regulatory Guide 1.63 position C.1; exceptions to venting and draining identified in NEI 94-01, Section 8 (implementing procedures will include specific venting and draining requirements with required precautions and limitations and references to source documents); and, clarification that the leakage savings value is not used as identified in NEI 94-01, Section 8.

   Prior to initiating a Type A test, a general visual examination of the accessible interior and exterior surfaces of the containment and components will be conducted for structural problems. The Type A testing methodology will identify allowable exceptions to the vent and drain requirement in ANSI/ANS 56.8 - 1994 (e.g., system important to shutdown safety, ALARA concerns).

2. Acceptance Criteria For Type A, B, and C Tests

   The requirements for determining the acceptance criteria for Type A, B, and C tests will be included in the site procedure. Implementing procedures will provide for documentation of

the results of surveillance and determinations of compliance with Technical Specification acceptance criteria as well as the subsequent surveillance intervals. Type A, B, and C testing intervals determined based on performance may be extended by up to 25 percent of the test interval, not to exceed 15 months,

Administrative limits will be required for each Appendix J component and a component's measured leakage will be compared against its administrative limit to evaluate the As-found test results on a performance basis. Two limits, a warning limit and an alarm limit, will be specified for each component. A component should be repaired if the As-Found leakage rate is above the warning limit, but below the alarm limit. If repaired based on the warning limit, an As-Left test will be conducted and the As-Found test is not counted as a performance failure. If a component's leakage rate is greater than the alarm limit, then the component shall be repaired, and an As-Left test conducted and the As-found test is counted as a performance failure. This approach allows for a low leakage setpoint to trigger component repairs to maintain containment in good condition. It also allows for the alarm limits to be set high enough that a Type B or C As-Found test need not be counted as a failure unless the component is found in a seriously degraded condition.

Although administrative limits are used to maintain the containment in good condition, it should be noted that the sum of the As-Left Maximum Pathway Leakage Rates (MXPLR) for all Appendix J barriers must be less than 0.6 L_a per plant Technical Specifications (TS) prior to entering a mode requiring primary containment integrity. In past instances where leakage from one or more components have exceeded administrative limits, and correcting this condition would have either been very difficult or costly, a total containment leakage evaluation was performed and documented. If the evaluation concluded that the additional leakage posed no significant safety impact, and the TS limit of O. $6L_a$ was not exceeded, the component(s) was(were) allowed to continue to leak in excess of the individual valve leakage administrative limit until repairs could be made. The test is still considered to be a failure because the administrative alarm limit was exceeded. The Authority reserves the option to continue use of this criteria when the alarm limit is exceeded, only on a critical as needed basis.

The plant administrative limits will be reviewed and compared against consistent limits set by the Maintenance Rule Expert Panel. The expert panel will review and approve administrative leakage rate limits since the proper setting of these limits is extremely important under the performance-based rule. Comparison of a components As-Found leakage against the administrative limits will determine if a test passed or failed , thus, the values chosen will affect each component's Type B or C testing frequency.

Type A tests

Performance leakage rate is calculated as the sum of the Type A Upper Confidence Limit (UCL), determined by the Total Time or Point-to-Point containment leakage rate testing methodology of ANSI/ANS 56.8 -1994, and As-left Minimum Pathway Leakage Rate (MNPLR) leakage rate for all Type B and C pathways that were in service, isolated or not lined up in their test positions (i.e., drained and vented to containment atmosphere) prior to

the Type A test. Any leakage pathways that were isolated during the test will be factored into the performance determination. If the leakage can be determined by a local leakage rate test, the As-found and As-left leakage rate must be determined within 24 months prior to the test or as part of the test and the As-found MNPLR for that leakage path must be added to the Type A leakage rate UCL to determine the overall L_a. If leakage cannot be determined by local leakage rate testing, the performance criteria are not met.

The performance criteria do not include total leakage savings (i.e., addition of the positive differences between the As-found MNPLR and the As-left MNPLR for each pathway tested and adjusted prior to Type A testing). The total leakage savings are identified through performance of Type B and C testing.

Following any containment modification or repair that could affect containment integrity, testing shall be performed (Type A, B or C as appropriate) prior to returning the containment to operation. The repairs and modifications that do not require retest will be based on the guidance of NEI 94-01, Section 9.2.4.

The containment visual inspection frequency is at least three times every ten years. The inspections will be conducted prior to every Type A test and during two other refueling outages before the next Type A test.

Type B and C tests

Performance leakage rate is determined for individual components using the requirements of ANSI/ANS 56.8 - 1994 except for isolation valves supplied by the IVSWS and Service Water System. The procedures for those tests will be reviewed to determine if provisions of ANSI/ANS 56.8 - 1994 are applicable. The total leakage rate must meet the Technical Specification requirements and be evaluated against the administrative requirements described above. A running tabulation summation of the Type B and C leakage rates will be maintained so that the combined as-left leakage (determined on a MXPLR basis) can be verified against the $0.6L_a$ criteria when changing modes from a refueling outage where only Type B and C testing is done. The tabulation shall also demonstrate that the As-found leakage rates, determined on a MNPLR basis when performing Type B and C tests while containment integrity is required, are less than the $0.6L_a$ criteria when summed with the As-left MNPLR leakage rates of other penetrations.

3. Determining Performance Based Test Intervals

The requirements for determining the performance based test intervals will be included in the procedure. Implementing procedures will provide for documentation of the results of surveillance and determinations of compliance with Technical Specification acceptance criteria as well as the subsequent surveillance intervals. Type A, B, and C testing intervals determined based on performance may be extended by up to 25 percent of the test interval, not to exceed 15 months.

Type A tests

The surveillance frequency for Type A testing shall be at least once per 10 years based on an acceptable performance history (i.e., two consecutive periodic Type A tests at least 24 months apart where the calculated performance leakage rate was less than $1.0L_a$) and consideration of the performance factors in NEI 94-01, Section 11.3.

When procedures are complete, a determination of the initial surveillance interval will be made using the last two ILRTs completed on July 27, 1987 and December 2, 1990. Both ILRTs were performed using the absolute method of testing. The 1987 ILRT, computed using the Total Time method, had an as found leakage of 0.34 percent of the contained mass per day at 59.89 psia and the 1990 ILRT, computed using the Mass Point method, had an as found leakage of 0.032 percent of the contained mass per day at 44.79 psig. Based upon these results, if the Technical Specification change is approved, a ten year test interval will be established and no ILRT will be performed during the 1997 refueling outage.

If the future As-found Type A test results are not acceptable, corrective action will be initiated using the Deviation Event Reporting system and corrective action should be taken as described below.

Type B tests

The surveillance frequency for Type B tests, except containment airlocks, shall be at least once per 30 months until acceptable performance can be demonstrated. The demonstration shall require two consecutive periodic As-found Type B tests performed within 24 months (or nominal test interval such as refueling cycle) whose results are within the allowable administrative limits. The test interval can be extended to a range of frequencies up to 120 months based on an acceptable performance history, consideration of the performance factors in NEI 94-01, Section 11.3, and additional considerations such as service life, environment, design, system application, special service conditions, and risk from failure. If subsequent Type B test results are not acceptable (this includes failures of Type B penetrations detected during Type A tests), corrective action will be initiated using the Deviation Event Reporting system and corrective action should be taken as described below. Type B penetration performance shall be evaluated following the implementation of administrative limits and procedures.

The surveillance frequency for Type B tests for containment airlocks shall be at least once per 30 months and prior to Type A tests. Airlock door seals shall be tested within 7 days after each containment entry. For periods of multiple entry (access with a frequency greater than 7 days) door seals may be tested once per 30 days. Testing airlock door seals can be accomplished by repressurization with the WCCPPS and verification that the seals properly repressurize. This is normally accomplished shortly after entry. Following maintenance on an airlock pressure retaining boundary, the airlock or the affected area or component shall be tested to a pressure of at least P_a. If subsequent airlock Type B test results are not

acceptable, corrective action will be initiated using the Deviation Event Reporting system and corrective action should be taken as described below.

Type C tests

The surveillance frequency for Type C tests shall be at least once per 30 months until acceptable performance can be demonstrated. The demonstration shall require two consecutive periodic As-found Type C tests performed within 24 months (or nominal test interval such as refueling cycle) whose results are within the allowable administrative limits. The test interval, except for containment purge and vent valves, can be extended beyond 30 months in a range of frequencies up to 60 months based on an acceptable performance history, consideration of the performance factors in NEI 94-01, Section 11.3, and additional considerations such as service life, environment, design, system application, special service conditions, and risk from failure. If subsequent Type C test results are not acceptable (this includes failures of Type C penetrations detected during Type A tests), corrective action will be initiated using the Deviation Event Reporting system and corrective action should be taken as described below. Type C penetration performance shall be evaluated following the implementation of administrative limits and procedures.

An as found Type C performance test shall be performed prior to any maintenance, repair modification or adjustment activity if it could affect leaktightness. An As-left Type C test shall be performed after the work unless an alternate testing method or analysis is used to provide reasonable assurance that the work did not affect leaktightness and the valve would still perform its intended function.

4. Failures, Repairs/Adjustments, and Corrective Actions

If Type A performance leak rate test results are not acceptable, then a determination will be performed to identify the cause of unacceptable performance and determine appropriate corrective actions. Once the cause has been determined, and corrective actions have been completed, acceptable performance should be reestablished by performing a Type A test within 48 months following the unsuccessful Type A test. Following a successful Type A test, the surveillance frequency may be returned to once per 10 years.

Type B or C component failures discovered during performance of the Type A test will be considered as failure of a Type B or C test for purposes of cause determination and corrective action. This includes failures of Type B and/or C components that were not previously identified by a Type B or C test. Type B and C component failures will require that testing frequency be set at the baseline test interval of 30 months. A cause determination will be performed and corrective actions identified that focus on those activities that can eliminate the identified cause of failure and prevent recurrence. Once the cause determination and corrective actions have been completed, acceptable performance should be reestablished and the testing frequency returned to the extended interval in accordance with the NEI 94-01 guidance.

In addition to the periodic As-Found Type B and C test, an As-Found test shall be performed prior to maintenance, repair, modification, or adjustment activity if the activity could adversely affect the penetration leak tightness. An As-Left Type B or C test shall be performed following those activities, unless engineering analysis shows reasonable assurance that such work does not affect the leak tightness of the penetration and that it can still perform its intended function. Specifically for Type C tests, an alternative method or analysis can be used to provide reasonable assurance that such work does not affect a valve's leak tightness and a valve will still perform its intended function. If As-Found and As-Left Type B and/or C results are both less than the allowable administrative limit, a change in testing frequency is not required. If the results are unacceptable, testing shall continue at initial test intervals until adequate performance history is reestablished.

5. Record Keeping

A post outage report will be prepared present the results of any Type B or C tests performed during the prior cycle and any Type A, B, or C tests performed during the outage. The technical contents of the report are generally described in ANSI/ANS 56.8 - 1994. The report will be made available onsite for inspection in accordance with 10 CFR 50, Appendix J, Section V.

The site procedure for the Containment Leakage Rate Testing Program and implementing procedures will establish the means for documenting the results of tests, the assessment of test results and the establishing of test frequencies. The document will be sufficient to independently review the implementation of Option B.

IV. Evaluation of Significant Hazards Consideration

The Authority has evaluated the proposed Technical Specification using the criteria of 10 CFR 50.92 and found no significant hazards for the following reasons:

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

The addition of existing Containment Isolation Valves into the Table of Containment Isolation Valves in the Technical Specifications does not change the design, operation or testing of the plant. The valves are currently tested and identified in the Final Safety Analysis Report as Containment Isolation Valves. The addition of the valves is an administrative change with no effect on the probability or consequences of an accident.

The proposed Technical Specification is intended to incorporate a rule change, i.e., 10 CFR 50, Appendix J, Option B. Incorporation of the rule change into the Technical Specifications affects the test requirements and frequency by which the containment and containment penetrations are tested to verify that the containment boundary will maintain leakage within the limits assumed in accident analyses. The testing of the containment structure and penetrations under Option B does not increase the probability of an accident previously

evaluated. No equipment changes are required for the adoption of Option B so modifications to equipment cannot be an accident initiator. The proposed testing provisions and testing frequency are based on Regulatory Guide 1.63 which endorses the provisions of NEI 94-01 and, by incorporation, ANSI/ANS 56.8. These provisions do not change the way that the plant is operated. Testing is not performed on the containment during plant operations and penetrations are tested in accordance with approved procedures so they are not tested during plant operations if they could initiate an accident. Testing frequency changes do not require physical changes to the plant or alter the manner in which the plant is operated so changed frequencies do not contribute to initiation of an accident. The testing of the containment structure and penetrations under Option B does not increase the consequences of an accident previously evaluated. The test frequency for Type A integrated leak rate testing may be reduced up to ten years and the frequency of Type B and C tests, excluding airlocks, may be reduced up to 3 years. NUREG 1493, a technical basis for the rule adding Option B, assessed the risk associated with increasing the frequency for Type A, B and C testing for a period greater than allowed by Option B. The study concluded that there was a small increase in risk associated with extending the Type A test because the integrated leak rate tests identify only a few leakage paths (i.e., as small percentage of the leakages) and that most leaks have marginally above allowable requirements. Given the insensitivity of risk to the containment leak rate and the small fraction of leakage detected solely by Type A testing, increasing the Type A test interval has minimal effect on the public. The NUREG-1493 assessment found that performance based leakage testing would have a small incremental effect on risk even though the majority of leakage was found by Type B and C testing. From the above, NYPA concluded that the proposed change does not involve a significant 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?

Changing the list of containment isolation valves for consistency with the Final Safety Analysis Report without changing design, operation or testing of the plant cannot create a new or different type of accident.

The incorporation of 10 CFR 50, Appendix J, Option B, into the Technical Specifications affects the test requirements and frequency by which the containment and containment penetrations are tested. There are no physical changes made to the plant and there are no changes to the operation of the plant so no new failure modes will be introduced and the ability to perform accident mitigating functions will not be altered. The change will not create 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?

The addition of four isolation valves to the Table of Containment Isolation Valves in the Technical Specifications has no effect on any margin of safety because the change is strictly to reflect current design, operation and testing of the plant.

The incorporation of 10 CFR 50, Appendix J, Option B, into the Technical Specifications affects the test requirements and frequency by which the containment and containment penetrations are tested. The study in NUREG-1493, a generic study providing technical support for Option B, determined that the effect of increasing surveillance intervals resulted in minimal increased the risk to public. NUREG-1493 found the design containment leakage rate contributes about 0.1 percent to the individual risk. The decreased frequency of Type A and B testing has minimal effect on this risk since most (about 95 percent) potential leakage paths are detected by Type A testing. The model of component failure with time identified in NUREG-1493 indicates that the number of components tested could be reduced by 60 percent with less than a threefold increase in risk. The extension of Type C tests beyond the current 30 month interval requires successful completion of two consecutive leakage rate tests. NUREG-1493, Appendix A, indicates that a component which does not fail within two operating cycles will have further failures governed by random failure. Table 1 in Appendix A to the NUREG also indicates that, for a representative PWR, extending Type C tests to the full test interval results in less than a fourfold increase in risk that was originally less than 0.03 percent of the total risk. The change will not involve a significant reduction in the margin of safety because there is a minimal increase in public risk.

IV. Impact of Changes

These changes will not adversely affect the ALARA program because testing will be less frequent and there will be no plant modifications. The Security and Fire Protection Programs will not be affected because there are no plant modifications and, while the testing activities being performed are to new criteria and involve some change in methodologies, these changes are related to draining and pressurizing penetrations so they are not of a type to affect plant security provisions or fire protection program features. The Emergency Plan is not affected since the testing does affect components or plant areas required for plan implementation. Overall plant operations and the environment are not affected because the operation of the plant is not being changed, there are no plant discharges or wastes being generated from the testing that are different from prior testing. There are no affects on the conclusions of the FSAR or SER.

V. Conclusions

The incorporation of these changes: a) will not involve a significant increase in the probability or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the Safety Analysis Report; b) will not create the possibility of a new or different kind of accident from any accident previously evaluated in the Safety Analysis Report; c) will not reduce the margin of safety as defined in the bases for any technical specification; and d) involves no significant hazards considerations as defined in 10 CFR 50.92.

VI. References

1. NUREG-1431, "Standard Technical Specification Westinghouse Plants," Revision 1.

2. Christopher Grimes, Chief of USNRC Technical Specifications Branch, letter to David Modeen, Director of NEI Operations and Management, dated November 2, 1995.

3. NYPA Letter to the NRC regarding a Safety Evaluation of Inservice Testing Program Relief Requests, IPN-95-095, dated September 13, 1995.

4. Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," September 1995.

5. NEI 94-01, "Nuclear Energy Institute Industry Guideline For Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," Revision 0, July 26, 1995.

6. American National Standard ANSI/ANS - 56.8 - 1994, "Containment System Leakage Testing Requirements."

7. NUREG-1493, "Performance-Based Containment Leak-Test Program," Final Report, September 1995.

8. NYPA Letter to the NRC regarding Extending Containment Systems Testing to Accommodate a 24 Month Operating Cycle, dated July 17, 1992.

9. NYPA Letter to the NRC regarding Extending Containment Systems Testing to Accommodate a 24 Month Operating Cycle, dated December 23, 1992.

10. NRC letter to NYPA Issuing Technical Specification Amendment 129, dated April 9, 1993) to allow for the 24 month cycle.

11. NRC Safety Evaluation Report, Supplement 2, Section 6.2.5, dated December 12, 1975.

12. NRC Inspection Report No. 75-11

ATTACHMENT III TO IPN-97-006

COMMITMENTS ASSOCIATED WITH

PROPOSED TECHNICAL SPECIFICATION CHANGES

REGARDING ADOPTION OF 10 CFR 50, APPENDIX J, OPTION B

PERFORMANCE BASED LEAKAGE-TEST REQUIREMENTS

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

Attachment III
List of Commitments

Number	Commitment	Due
IPN-97-006-01	The Authority commits to the development of a Containment Leakage Rate Testing Program and implementing procedures that will establish the administrative controls to implement 10 CFR 50, Appendix J, Option B. The administrative controls will conform with Regulatory Guide 1.163, dated September 1995, including the approved documents NEI 94-01, dated July 26, 1995, and, with two exceptions (discussed in the administrative Technical Specification for the Option B Implementation Plan), ANSI/ANS 56.8 -1994. The Containment Leakage Rate Testing Program, procedures for performing testing per the new standard, procedures for tracking test results and acceptance criteria will be completed and issued for implementation prior to extending any test interval (implementation of Option B for Type A testing may proceed separately from Type B and C implementation). Completion of these activities and implementation of procedures may take place prior to receipt of the Technical Specification change since they will not be used until the outage and may always be withdrawn if the change is not approved. Completion of some portions of these activities and implementation of procedures may take place after the implementation of the Technical Specification change since the existing test procedures, acceptance criteria and test frequency remain in place until implementation and these are consistent with the revised Technical Specification.	Prior to use