ATTACHMENT A

PROPOSED TECHNICAL SPECIFICATION CHANGES

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
INDIAN POINT UNIT NO. 2
DOCKET NO. 50-247
JANUARY, 1994

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4.0 SURVEILLANCE REQUIREMENTS

4.0.1 Surveillance Interval Extension

Unless otherwise noted, each surveillance requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed 25 percent of the specified interval. Excluded from this provision are the following surveillances whose intervals are solely defined by the applicable Technical Specification paragraphs and cannot be extended.

4.4A Integrated Leakage Rate

4.4B Sensitive Leakage Rate

4.13 Steam Generator Tube Inservice Inspection.

Basis

Specification 4.0.1 establishes the limit for which the specified time interval for Surveillance Requirements may be extended. It permits an allowable extension of the normal surveillance interval to facilitate surveillance scheduling and consideration of plant operating conditions that may not be suitable for conducting the surveillance; e.g., transient conditions or other ongoing surveillance or maintenance activities. It also provides flexibility to accommodate the length of a fuel cycle for surveillances that are specified to be performed at least once each Refueling Interval. It is not intended that this provision be used repeatedly as a convenience to extend surveillance intervals beyond that specified for surveillances that are not performed once each Refueling Interval. Likewise, it is not the intent that Refueling Interval surveillances be performed during

3. Frequency

A sensitive leakage rate test shall be performed at a frequency of at least every other refueling but in no case at intervals of greater than 3 years.

C. AIR LOCK TESTS

1. The containment air locks shall be tested at a minimum pressure of 47 psig and at a frequency of every 6 months. The acceptance criteria is included in Specification 4.4.D.2.a.

2. Whenever containment integrity is required, verification shall be made of proper repressurization to at least 47 psig of the double-gasket air lock door seal upon closing an air lock door.

D. CONTAINMENT ISOLATION VALVES

1. Tests and Frequency

a. Isolation valves in Table 4.4-1 shall be tested for operability at every Refueling Interval (R#).

b. Isolation valves in Table 4.4-1 which are pressurized by the Weld Channel and Penetration Pressurization System shall be leakage tested as part of the Weld Channel and Penetration Pressurization System Test at every Refueling Interval (R#).

c. Isolation valves in Table 4.4-1 which are pressurized by the Isolation Valve Seal Water System shall be tested at every Refueling Interval (R#) as part of an overall Isolation Valve Seal Water System Test.

d. Isolation valves in Table 4.4-1 which are not pressurized will be tested at every Refueling Interval (R#).

e. Isolation valves in Table 4.4-1 shall be tested with the medium and at the pressure specified therein.

2. Acceptance Criteria

a. The combined leakage rate for the following shall be less than 0.5 L_a: isolation valves listed in Table 4.4-1 subject to gas or nitrogen pressurization testing, air lock testing as specified in Specification 4.4.C.1, portions of the sensitive leakage rate test described in Specification 4.4.B.1 which pertain to containment penetrations and double-gasketed seals.

b. The leakage rate into containment for the isolation valves sealed with the service water system shall not exceed 0.36 gpm per fan cooler.

c. The leakage rate for the Isolation Valve Seal Water System shall not exceed 14,700 cc/hr.

3. Containment isolation valves may be added to plant systems without prior license amendment to Table 4.4-1 provided that a revision to this table is included in a subsequent license amendment application.

E. CONTAINMENT MODIFICATIONS

Any major modification or replacement of components of the containment performed after the initial pre-operational leakage rate test shall be followed by either an integrated leakage rate test or a local leak detection test and shall meet the appropriate acceptance criteria of Specifications 4.4.A.2, 4.4.B.2, or 4.4.D.2. Modifications or replacements performed directly prior to the conduct of an integrated leakage rate test shall not require a separate test.

The testing of containment isolation valves in Table 4.4-1, either individually or in groups, utilizes the WC & PPS[4] or IVSWS[5] where appropriate and is in accordance with the requirements of Type C tests in Appendix J (issue effective date March 16, 1973) to 10 CFR 50, except for the surveillance frequency. The 25% increase in surveillance frequency allowed (from a maximum of 24 months to a maximum of 30 months) was compensated for by a proportionate increase in the margin between the specified allowable leakage and the maximum allowable leakage (the specified allowable leakage was decreased from 0.6 L_a to 0.5 L_a). The specified test pressures are ≥ the peak calculated accident pressure. 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 acceptance criterion of 0.5 L_a for the combined leakage of isolation valves subject to gas or nitrogen pressurization, the air lock, containment penetrations and double-gasketed seals accounts for possible degradation of the containment leakage barriers for a 30 month test interval.

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 offsite exposures due to leakage to insignificant levels relative to those calculated for leakage directly from the containment in the design basis accident.

These specifications have been developed using Appendix J (issue effective date March 16, 1973) of 10 CFR 50 and ANSI N45.4-1972 "Leakage Rate Testing of Containment Structures for Nuclear Reactors" (March 16, 1972) for guidance.

ATTACHMENT B

SAFETY ASSESSMENT

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
INDIAN POINT UNIT NO. 2
DOCKET NO. 50-247
JANUARY, 1994

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DESCRIPTION OF CHANGES

The current Indian Point Unit 2 Technical Specifications require leakage testing of the containment isolation valves listed in the Technical Specifications on a 2 year frequency (Section 4.4.D. "Containment Isolation Valves"). This requirement is necessary for compliance with the 10 CFR 50 Appendix J provision for type C testing which is to be performed at each refueling interval but in no case at intervals greater than 2 years.

It is proposed that the interval between tests of the containment isolation valves be revised from a maximum of 24 months to 24 months (+25%), to be consistent with an extended fuel cycle. Accompanying this amendment request is a request for exemption from the 10 CFR 50 appendix J provision limiting the interval between tests from 24 months to 24 months (+25%), which is the basis for the requested Technical Specification amendment.

This proposed change in the Technical Specifications and request for exemption to Appendix J are being made in accordance with the guidance contained in Generic Letter 91-04.

Starting with Cycle 12, Indian Point 2 extended operating cycles from the 18 month cycles utilized in the past to 24 month cycles. This request for an amendment is specifically to allow a 25% increase in the 24 month surveillance interval for containment isolation valve leak tests, so that the leak test intervals are compatible with the proposed and anticipated changes in Technical Specification surveillance intervals to accommodate a 24 month operating cycle. For those valves subject to Appendix J type C leak test requirements, the 25% increase in the surveillance interval will be compensated for by a 25% increase in the margin from the leakage limit to the allowable limit (L_a). The leakage limit is being reduced from 0.6 L_a to 0.5 L_a, thereby increasing the margin to the allowable limit (L_a) by 25%.

The containment isolation valves that are sealed with fluid from the Isolation Valve Seal Water System (IVSWS) are excluded from the combined leakage rate according to the requirements of 10 CFR 50 Appendix J (III)(C)(3). The Technical Specification leakage limit for these valves is determined based on the design limits of the IVSWS tank. Therefore, the justification for the increased surveillance interval for these valves is based on the design of the IVSW system and not containment leakage limits. The design of the IVSW System assumes a fixed amount of leakage equivalent to 5 times the maximum allowable isolation valve leakage from all of the containment valves and a leakage of 100 times the maximum allowable leakage from one isolation valve due to the failure of one of the valves to seat. This extremely conservative leakage number is used to determine the size of the IVSWS tank so that the fluid in the system will last for at least 24 hours. At least two independent sources of make-up water are available to supplement the fixed volume in the IVSW tank. The availability of make-up water will allow the system to function indefinitely. The Technical Specification leakage limit for the IVSW system is sufficiently conservative to ensure that the IVSW system will function as designed with an extended surveillance interval of 30 months.

The containment isolation valves contained in systems of the type described in Appendix J that are sealed by system fluid (i.e., Service Water and Residual Heat Removal) and are not exposed to containment atmosphere are not included in the combined leakage rate but have separately established Technical Specification system acceptance criteria. A review of past leak test data for these valves over the last 10 years indicates that only two tests (in 1989 and 1991) did not meet the allowable leakage limit due to excessive leakage from one valve. Maintenance was performed to correct the problem with that valve and the subsequent test passed with an "as-found" leakage of less than 8% of the allowable leakage. Therefore, the test failures were due to an isolated leakage path and were not indicative of a poor performance trend.

Additionally, a comparison of the as-found leakage rates based on the length of the surveillance interval found no evidence that the leakage for these isolation valves is a function of time.

BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Consistent with the requirement of 10 CFR 50.59, the enclosed application is judged to involve no significant hazards based on the following information:

1. A significant increase in the probability or consequences of an accident previously evaluated will not occur.

   It is proposed that the interval between leakage tests of the containment isolation valves listed in the Technical Specifications be revised from 24 months to 24 months (+25%), consistent with an exemption request to 10 CFR 50 appendix J for type C tests which requests an identical extension in the interval between tests.

   The proposed changes do not involve a significant increase in the probability or consequences of a previously analyzed accident. These changes propose extending the surveillance intervals for containment leakage testing. The changes do not involve any physical changes to the plant or alter the way equipment functions. Other system testing (e.g., on-line tests) provides assurance of system operability. An evaluation of past equipment performance provides additional assurance that the longer surveillance intervals will not degrade system performance. The 25% increase in the surveillance interval for type C leak rate testing is compensated for by a proportionate increase in the margin between specified leakage limit and the allowable leakage limit. Valves that are sealed with fluid are exempted from the 10 CFR 50, Appendix J leakage requirements. The Technical Specifications establish separate acceptance criteria for such cases bases on system design considerations. Additionally, in most cases, containment isolation valve redundancy (two valves in series) provides additional assurance that actual leakage would be lower than the test results would indicate.

2. The possibility of a new or different kind of accident from any accident previously evaluated has not been created.

   The proposed license amendment does not create the possibility of a new or different kind of accident. These changes propose extending the surveillance intervals for containment leakage testing. The changes do not involve any physical changes to the plant or alter the way equipment functions. Other system testing (e.g., on-line tests) provides assurance of system operability. An evaluation of past equipment performance provides additional assurance that the longer surveillance intervals will not degrade system performance. The 25% increase in the surveillance interval for type C leak rate testing is compensated for by a proportionate increase in the margin between specified leakage limit and the allowable leakage limit. Also, containment isolation valve redundancy (two valves in series) provides additional assurance, in most cases, that leakage would be lower than the test results would indicate.

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

   The proposed change does not involve a significant reduction in the margin of safety. These changes propose extending the surveillance intervals for containment leakage testing. Other system testing (e.g., on-line tests) provides assurance of system operability. An evaluation of past equipment performance provides additional assurance that the longer surveillance intervals will not degrade system performance. The 25% increase in the surveillance interval for type C leak rate testing is compensated for by a proportionate increase in the margin between specified leakage limit and the allowable leakage limit. Also, containment isolation valve redundancy (two valves in series),in most cases, provides additional assurance that leakage would be lower than the test results would indicate.

The proposed changes have been reviewed by both the Station nuclear Safety Committee and the Con Edison Nuclear Facilities Safety Committee. Both Committees concur that the proposed changes do not represent a significant hazards consideration.

Request for Exemption from Appendix J to 10 CFR 50

Currently, Appendix J to 10 CFR 50 requires that type C tests shall be performed during each reactor shutdown for refueling but in no case at intervals greater than 2 years. In lieu of the 2 year requirement, it is proposed that the interval between type C tests be extended to 2 years (+25%). This revised interval would be included in the Technical Specifications by means of the Technical Specification Amendment request which is being submitted simultaneously with this exemption request. This exemption request is being made consistent with the guidance contained in generic letter 91-04, to accommodate a longer fuel cycle, and to avoid unnecessary reactor shutdowns.

Starting with cycle 12, Indian Point 2 began extended operating cycles from 18 month cycles to 24 month cycles. This necessitates a change in the 24 month surveillance interval for type C leak tests.

10 CFR 50, Appendix J, III.D.3 requires that type C containment leak rate testing be performed at intervals of no greater than two years. These tests are also intended to be performed during reactor shutdowns for refueling. At Indian Point 2, leakage testing of the containment isolation valves and penetrations provides an assessment of potential leakage from containment in case of an accident that pressurizes the containment. The 24 month operating cycle at Indian Point 2 could result in exceeding the two years between performance of consecutive containment leak rate tests.

In Generic Letter 91-04, the NRC recognized the growing industry trend of shifting to two year operating cycles and the need for an exemption from 10 CFR 50, Appendix J, test frequency requirements in order to accommodate a 24 month operating cycle. Enclosure 3 to GL 91-04 indicated that two issues need to be addressed when requesting an exemption from Appendix J: (1) a possible reduction in the specified leakage limit (currently 0.6 L_a) proportional to the proposed increase in the surveillance interval, and (2) extrapolation of past leakage test results as a basis for concluding that containment leakage will remain within acceptable limits with a surveillance frequency of up to 30 months.

To address the first issue of GL 91-04, Enclosure 3, Con Edison is proposing to reduce the specified as-left leakage limit for type B and C leakage testing from 0.6 L_a to 0.5 L_a. This represents a 25% increase in the margin (from 40% to 50%) to the allowed leakage limit, L_a. The 25% increase in the margin is proportional to the 25% increase (from 24 to 30 months) in the surveillance interval. The reduction in the specified leakage limit should have little effect on plant operation because a review of past as-left leakage values show that these have always been below 0.5 L_a, usually only a small fraction of the specified limit. For example, the as-left values from the 1989 and 1991 refueling outages were 0.00512 L_a and 0.00803 L_a, respectively.

Leakage from containment isolation valves that are fluid sealed are excluded from the combined leakage rate in accordance with 10 CFR 50, Appendix J (III)(C)(3). Since these containment isolation valves are excluded from the leakage limits, an exemption from the requirements of 10 CFR 50, Appendix J is not required to extend their surveillance interval.

To address the second issue of GL 91-04, Enclosure 3, Con Edison reviewed past leak test data. A comparison of the "as-found" leakage rates based on the length of the surveillance interval found no evidence that leakage is a function of time. Eleven leak rate tests have been performed at IP2 since the beginning of commercial operation. The first three tests (in 8/76, 5/78 and 9/79) did not meet the allowable leakage limit due to excessive leakage from several valves which were subsequently repaired and re-tested. The "as-found" results of the next eight tests (from 5/81 to 4/93) were below the allowable leakage limit. There has been a noticeable downward trend in as-found valve leakage over the last seven years. In fact, the as-found value for the 1993 refueling outage was 0.093 L_a.

In addition, actual leakage from containment, in most cases, would be lower than the test results would indicate because the test measures maximum pathway leakage, without taking into account system redundancy (that is, two containment isolation valves in series). Accounting for redundancy, actual containment leakage could be substantially reduced. For example, in 1978, valve 867B leaked excessively, but the redundant valve, 869B, would have minimized leakage through this path.

The NRC may grant exemptions from the requirements of 10 CFR 50 provided that (1) the exemptions are authorized by law, will not present undue risk to public health and safety, and are consistent with the common defense and security; and (2) when special circumstances are present. According to 10 CFR 50.12(a)(2)(iii), special circumstances are present when "compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted..."

The NRC is authorized by law to grant this exemption, as evidenced by the recent granting of a similar exemption for the Calvert Cliffs Nuclear Power Plants (see Federal Register, 27 FR 4894) and Indian Point Unit 3 (NRC Letter dated January 12, 1993). The exemption will not present an undue risk to the public health and safety because the 25% increase in the surveillance interval is compensated for by a proportionate increase in the margin between the specified allowable leakage and the maximum allowable leakage. Containment leak rate testing is not considered in the common defense and security of the nation, so this exemption will not adversely affect the common defense and security.

Special circumstances exist because when the regulation was adopted a presumption was made that a two year test interval would easily accommodate performance of these tests during a refueling outage. However, new core designs (such as that currently being used by Indian Point 2) allow operating cycles of 24 months (or longer if there are outages during the cycle).

Strict compliance with the schedule required by the current regulations would require a plant shutdown or an extended outage, resulting in undue hardship or other costs that are significantly in excess of those contemplated when the regulations were adopted.