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New York Power Authority

John C. Brons
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December 6, 1988
IPN-88-052

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, D.C. 20555

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Inservice Inspection Hydrostatic Test Program;
Relief from System Pressure Test Requirements

Dear Sir:

This letter requests relief from the Section XI system pressure and hydrostatic test requirements of the ASME Boiler & Pressure Vessel Code editions applicable to the first and second 10-year inspection intervals of the Indian Point 3 Hydrostatic Test Program. Pursuant to 10 CFR 50.55a, relief is proposed from system pressure testing at Indian Point 3 (IP-3) for the first and second 10-year inservice inspection intervals.

Attachment I provides relief requests from the ASME Boiler and Pressure Vessel Code, 1974 Edition through Summer 1975 Addenda. These relief requests apply to hydrostatic tests conducted at IP-3 during the first 10-year inservice inspection interval, August 31, 1976 to August 31, 1986. The final inspection period of this interval extended into 1987 based on an interval extension of one year as allowed by paragraph IWA-2400(a) of the ASME Code, 1974 Edition. The extension permitted inspections to be concurrent with a scheduled plant outage. This final inspection period ended September, 1987, with the conclusion of the Cycle 5/6 refueling outage.

Attachment II requests relief from ASME Section XI, 1983 Edition with Addenda through Summer 1983 Addenda. It applies to the IP-3 Hydrostatic Test Program for the second 10-year inspection interval (August 31, 1986 through August 31, 1996).

A047 1/1 w/check $150 # 373014

In accordance with 10 CFR 170.12, a check in the amount of $150.00 is enclosed as payment of the application fee for the review of these proposed relief requests from inservice testing required by 10 CFR 50.55a(g).

Should you or your staff have any questions regarding this letter please contact Mr. P. Kokolakis of my staff.

Very truly yours,

John C. Brons
Executive Vice President
Nuclear Generation

Attachments

cc: U.S. Nuclear Regulatory Commission
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ATTACHMENT I TO IPN-88-052

RELIEF REQUESTS

ASME B & PV CODE, SECTION XI

1974 EDITION THROUGH SUMMER 1975 ADDENDA

1ST 10-YR HYDROSTATIC TEST PROGRAM

AUGUST 31, 1976 - AUGUST 31, 1986

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

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 1

1. **COMPONENTS**

   a. Name: All components subject to the hydrostatic test provisions of IWC-5200.

   b. Function: Various

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   The system hydrostatic test pressure shall be at least 1.25 times the system design pressure and conducted at a test temperature not less than 100°F except as may be required to meet the test temperature requirements of IWA-5230. (IWC-5220)

3. **BASIS FOR RELIEF**

   Relief is requested from the referenced temperature requirement to use a temperature as determined by the alternate examination criteria.

   The imposition of the minimum 100 degree temperature presents considerable hardship and excessive cost on the testing program since there is no existing direct means of heating the large volume of water required for performing the hydro testing. Per ASME Code Case N-288, (expired August 25, 1983) the 100 degree minimum temperature was waived for those systems composed entirely of austenitic material. For those composed all, or in part, of ferritic steel, test temperatures are required to meet requirements specified by fracture prevention criteria. In addition to this Code case, the 1977 Edition ASME Section XI through Summer 1978 Addenda and later editions provide relief from the 100 degree temperature limit for Class 2 systems (Paragraph IWC-5230).

4. **ALTERNATE EXAMINATION**

   The test temperature of systems containing ferritic steel components shall meet the requirements for fracture prevention criteria. If fracture prevention criteria are neither specified nor required in component construction the Power Authority shall determine the minimum test temperature. For those systems composed entirely of austenitic stainless steel, no limit on system test temperature is required. This agrees with the testing requirements of ASME Section XI Code, 77/S78 and subsequent editions.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 2

1. **COMPONENTS**

   a. Name: All components subject to the hydrostatic test provisions of IWA-5000, IWB-5000, IWC-5000, and IWD-5000.

   b. Function: Various

   c. ASME Section XI Code Classes: 1, 2, and 3.

2. **REFERENCE CODE REQUIREMENTS**

   The pressure-retaining components shall be visually examined while the system is under the hydrostatic test pressure and temperature. The test pressure and temperature shall be maintained for at least four hours prior to performance of the examination. (IWA-5210)

3. **BASIS FOR RELIEF**

   Relief is proposed from the minimum hold time for visual inspection of non-insulated systems and components and instead apply the 10 minute hold criteria of IWA-5213(d) [1983 ASME Code].

   The imposition of the four-hour hold time for uninsulated components and piping presents considerable hardship and time loss particularly in light of reduced hold times in later editions of Section XI of the Code. The intent of the Code appears to be to provide sufficient time for significant leakage of the test medium to seep through any piping insulation or otherwise escape such that it could be discovered by the inspector. IWA-5213 (1983 ASME) recognizes this and has reduced the hold time for non-insulated piping and components to 10 minutes.

4. **ALTERNATE EXAMINATION**

   The test pressure will be maintained for a minimum of four (4) hours as required by IWA-5210(a) where areas of examination are insulated. For uninsulated piping or components where areas are exposed for inspection, the test pressure will be maintained for at least 10 minutes prior to inspection.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 3

1. **COMPONENTS**

   a. Name: All components subject to the hydrostatic test provisions of IWC-5000.

   b. Function: Various

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   The system hydrostatic test pressure shall be at least 1.25 times the system design pressure. [IWC-5220(a)]

3. **BASIS FOR RELIEF**

   Relief is proposed to limit the referenced test pressure to 1.25 times design at the lowest point of elevation in the system.

   In several instances unisolable system portions within the test boundary are configured such that the static head within the piping causes pressure variations in excess of six percent of the test pressure. It is the Power Authority's desire to limit the test pressure imposed on system components to 106% of the specified pressure (as required by Paragraph IWA-5265(b) of the 1983 edition of Section XI). Thus, due to the effects of static head, portions of piping at higher elevations may be subjected to a test pressure lower than that specified. There is no practical method for isolating all piping segments to achieve the required test pressure at all elevations.

   Portions of systems at higher elevations will normally see lower operating pressures as well.

4. **ALTERNATE EXAMINATION**

   Hydrostatic testing of Class 2 system piping and associated components will be conducted at a nominal pressure equivalent to at least 1.25 times the system design pressure at the lowest point in the system.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 4

1. **COMPONENTS**

   a. Name: All components subject to the hydrostatic test provisions of IWD-5000.

   b. Function: Various

   c. ASME Section XI Code Class: 3

2. **REFERENCE CODE REQUIREMENTS**

   The system test pressure shall be at least 1.10 times the system design pressure. [IWD-5200(a)]

3. **BASIS FOR RELIEF**

   Relief is proposed to limit the referenced test pressure to 1.10 times design at the lowest point of elevation in the system.

   In several instances unisolable system portions within the test boundary are configured such that static head within the piping causes pressure variations in excess of six percent of the test pressure. It is the Power Authority's desire to limit the test pressure imposed on system components to 106% of the specified pressure (as required by Paragraph IWA-5265(b) of the 1983 edition of Section XI). Thus, due to the effects of static head, portions of piping at higher elevations will be subjected to a test pressure lower than that specified. There is no practical method for isolating the piping segments to achieve the required test pressure at all elevations.

   Portions of systems at higher elevations will normally see lower operating pressures as well.

4. **ALTERNATE EXAMINATION**

   Hydrostatic testing of Class 3 system piping and associated components will be conducted at a nominal pressure equivalent to at least 1.10 times the system design pressure at the lowest point in the system.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 5

1. **COMPONENTS**

   a. Name: Pumps and discharge piping including branches to the first isolation valve subject to the hydrostatic test provisions of IWC-5000.

   b. Function: Various

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

The system hydrostatic test pressure shall be at least 1.25 times the system design pressure and conducted at a test temperature not less than 100 degrees except as may be required to meet the test temperature requirements of IWA-5230. [IWC-5220(a)]

3. **BASIS FOR RELIEF**

Relief from the referenced test pressure requirement for centrifugal pump discharge piping is requested. Application of the 1983 Code criteria for suction piping is proposed as stated in the alternate examination.

Centrifugal pump discharge piping up to the first isolation valve cannot be isolated from the pump suction piping. Thus, if the discharge piping were pressurized to the full required test pressure, the suction piping may be subjected to a pressure in excess of its specified test pressure with the resultant potential for damage to piping and components.

In support of this position, ASME Section XI, Paragraph IWA-5224(d) (1983 Ed.) provides relief for this specific case. This paragraph states:

> "Where the respective system primary pressure ratings on the suction and discharge sides of system pumps differ, the system test boundary shall be divided into two separate boundaries (such as suction side and discharge side test boundaries). In the case of positive displacement pumps, the boundary interface shall be considered as the pump. In the case of centrifugal pumps, the boundary interface shall be the first shut-off valve on the discharge side of the pump."

The 1983 Edition of ASME Section XI has been approved by the NRC. Therefore, the Power Authority's proposed testing is consistent with current requirements.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 5

4. **ALTERNATE EXAMINATION**

Paragraph 5224(d) of the 1983 ASME Code shall apply to the test pressure for centrifugal pump discharge and associated piping extending to the first shut-off valve on the discharge side of the pump. That is test pressure shall be the same as that required for the piping and components on the suction side of the pump. The system test boundary for the pump suction piping shall likewise extend to the first shut-off valve on the discharge side of the pump and shall be the same as that required for the piping and components on the suction side of the pump.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 6

1. **COMPONENTS**

   a. Name: Buried components and components made inaccessible for examination by high radiation fields, congestion of components and closed piping tunnels.

   b. Function: Various

   c. ASME Section XI Code Class: 1, 2 and 3.

2. **REFERENCE CODE REQUIREMENTS**

   ASME Section XI 1974 through Summer 1975 addenda, Paragraph IWA-5240 provisions regarding examination.

3. **BASIS FOR RELIEF**

   Relief is requested to add the provisions of IWA-5244 of the 1983 ASME Code to buried components subject to the referenced code requirements. Relief is further proposed to extend the buried component provisions of IWA-5244 and the inaccessible component provisions of IWA-5241(b) and IWA-5242(b) [1983 Code] to components made inaccessible by reason of high radiation fields, congestion of components and closed piping tunnels. In addition, Paragraph IWA-5244 shall be applied to both redundant and non-redundant systems.

   The 1974 Code does not include later code provisions such as are addressed in the 1983 Code, Paragraph IWA-5244, Buried Components. These provisions were developed in recognition of the fact that inaccessible components which preclude direct visual examination require alternate examination such as pressure loss or flow changes. These later provisions, however, are limited to buried components only and do not take into account equally compelling conditions which preclude examination, such as extremely high radiation areas and closed piping tunnels. In these cases, the alternate examination provisions should also apply. To avoid confusion, Paragraph IWA-5244 will apply to both redundant and non-redundant systems. Where pressure drop testing of IWA-5244 is impractical, the indirect visual examination provisions of IWA-5241(b) and IWA-5242(b) provide adequate verification of component integrity.

4. **ALTERNATE EXAMINATION**

   When practical, the provisions of Section XI 83/S83, IWA-5244 which relate to examination of buried components will apply and be extended to cases where components are made inaccessible for inspection due to high radiation fields, congestion of components and closed piping tunnels. In certain cases, where buried or inaccessible pipe segments cannot be isolated for pressure drop testing, indirect visual examination for evidence of leakage as stated in the 1983 Code provisions of IWA-5241(b) and IWA-5242(b) shall apply (i.e., leakage at penetration seals or collection at elevation low points of congested piping). In addition, Paragraph IWA-5244(a), which currently is limited to non-redundant systems, shall also apply to redundant systems.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 7

1. **COMPONENTS**

   a. Name: All components subject to the hydrostatic test provisions of IWD-5200(b) and IWD-5200(c).

   b. Function: Various

   c. ASME Section XI Code Class: 3

2. **REFERENCE CODE REQUIREMENTS**

   In the case of storage tanks, the nominal hydrostatic pressure developed with the tank filled to its design capacity shall be acceptable as the system test pressure [IWD-5200(b)]. Open-ended portions of a system (e.g.,suction line from a storage tank) extending to the first shut-off valve may be exempted from the test requirements of IWD-5200. [IWD-5200(c)]

3. **BASIS FOR RELIEF**

   Relief is requested to apply the 1983 ASME Code to storage tanks and open-ended piping. It is further proposed to extend this application to suction piping of non-closed systems.

   The 83/S83 Code Paragraphs IWD-5223(b) through IWD-5223(e) contain numerous clarifications and details reflecting the latest Code evolutions and industry experience. The earlier 74/S75 Code in many areas does not provide such clarifications. The use of the 83/S83 Code provisions stipulated above will provide clearer guidelines for performing the tests.

   However, even the 83/S83 Code provisions do not address criteria to be used for Class 3 non-closed systems on the suction side such as the Service Water System taking suction from the river. Applying the criteria of Paragraph IWD-5223(d) to the open ended portions of the service water suction lines up to the first shut-off valves will establish the criteria to be used in this case.

4. **ALTERNATE EXAMINATION**

   The provisions of Section XI 83/S83 IWD-5223(b) through IWD-5223(e) shall be applied to all Class 3 components as discussed in these requirements. In addition, the provisions of Section XI 83/S83 IWD-5223(d) shall be applied to open ended portions of non-closed system suction lines up to the first shut-off valve.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 8

1. **COMPONENTS**

   a. Name: All components subject to the hydrostatic test provisions of IWC-5220(c) and IWC-5220(d).

   b. Function: Various

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   In the case of storage tanks, the nominal hydrostatic pressure developed with the tank filled to its design capacity shall be acceptable as the system test pressure. [IWC-5220(c)]

   Open-ended portions of a non-closed system (e.g., suction line from a storage tank) extending to the first shut-off valve may be exempted from the test requirements of IWC-2510. [IWC-5220(d)]

3. **BASIS FOR RELIEF**

   Relief is requested to apply the 1983 ASME Code to storage tanks and open-ended piping. It is further proposed to extend this application to suction piping of non-closed systems.

   The 83/S83 Code Paragraphs IWC-5222(d) through IWC-5222(e) contain numerous clarifications and details reflecting the latest Code philosophy and industry experience. The earlier 74/S75 Code does not provide such clarifications. The use of the 83/S83 Code provisions stipulated above will provide clearer guidelines for performing the tests.

   The 83/S83 Code provisions do not address criteria to be used for Class 2 non-closed systems on the suction side such as the Recirculation Pumps taking suction from the Reactor Building sump. Footnote 1 of related criteria IWD-5223 states that discharge lines to tanks, sumps and basins that are open to the atmosphere (inside or outside containment) are considered open ended. Applying Paragraph IWC-5222(d) to the open ended portions of the recirculation suction (as well as discharge) lines up to the first shut-off valves will establish the criteria to be used in this case.

4. **ALTERNATE EXAMINATION**

   The provisions of Section XI 83/S83 IWC-5222(b) through IWC-5222(e) will be applied to all Class 2 components as discussed in these requirements. In addition, the provisions of Section XI 83/S83 IWC-5222(d) will be applied to open ended portions of non-closed system suction lines up to the first shut-off valve.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 9

1. **COMPONENTS**

   a. Name: Line segments identified below

   b. Function: Safety Injection

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   The system hydrostatic test pressure shall be at least 1.25 times the system design pressure and conducted at a test temperature not less than 100 degrees except as may be required to meet the test temperature requirements of IWA-5230. [IWC-5220(a)]

3. **BASIS FOR RELIEF**

   Relief is requested from the test pressure and boundary requirements of IWA-5230 and IWC-5220(a) for those Class 2 portions of the Safety Injection System which cannot be isolated from the Reactor Coolant System and apply the test pressure requirements as stated in the alternate examination.

   Certain portions of the Safety Injection System classified as ISI Class 2 cannot be positively isolated from the Reactor Coolant System. Testing these line segments to their Class 2 requirements would subject the RCS to a pressure greater than that specified by the Code, with the potential of damaging components (Class 1) within the RCS. Since these line segments are designed to the same piping specifications as those in the Reactor Coolant System, testing them as ISI Class 1 will give reasonable assurance that the verification of structural integrity intended by the Code will be achieved.

4. **ALTERNATE EXAMINATIONS**

   Each line segment listed below, which is non-isolable from the Reactor Coolant System, will be tested in conjunction with the Class 1 hydrostatic test of the Reactor Coolant System at the Class 1 hydrostatic test pressure.

Line No.	From Check Valve	To Isolation Valve/Line
16	857J	856C
16A	857K	856D

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 9

4. **ALTERNATE EXAMINATIONS** (continued)

Line No.	From Check Valve	To Isolation Valve/Line
56	857H	856B
56A	857A	856A
753	857L	856E
754	857M	856F
843	857P	856G
844	857Q	856H
845	857S	856J
846	857U	856K
351	895A	894A, 839A (Line 607)
352	895B	894B, 839C (Line 605)
353	895C	894C, 839E (Line 606)
350	895D	894D, 839G (Line 31)
355/359	838A	899B, 899A
356	838B	Line 355
358	838C	899A
361	838D	Line 358

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 10

1. **COMPONENTS**

   a. Name: Steam Generator (secondary side) and connecting, non-isolable main steam, blowdown, sampling and feedwater piping and valves.

   b. Function: Steam generator and associated sampling, blowdown, and feedwater services.

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   The system hydrostatic test pressure shall be at least 1.25 times the system design pressure and conducted at a test temperature not less than 100 degrees except as may be required to meet the test temperature requirements of IWA-5230. [IWC-5220(a)]

3. **BASIS FOR RELIEF**

   The Power Authority is requesting one time relief from the test pressure requirements of these components based on general practicability and operational impact.

   Due to the configuration of the IP3 plant and concern by the safety valve manufacturer that gagging the safety valves could damage the valves, in order to meet the Code prescribed test pressure, the main steam safety valves must be plugged.

   Tube sheet differential pressure restrictions will require plant heat-up (pump heat only) to approximately 300°F then performance of the test. Following this and subsequent plant cool down, the main steam safety relief valve plugs would be removed. This evolution is time consuming and, in addition, adds the potential for human error during safety valve reassembly activities.

   The steam generators (primary and secondary sides) were designed in accordance with the of ASME B & PV Code Section III Class A (1965 Edition), the same requirements as the Indian Point Unit 3 reactor vessel and pressurizer. The design pressures of the Steam Generators and connecting piping/components are as follows:

Steam Generators -	1085 psig
Feedwater Piping -	1440 psig
Other Piping -	1085 psig

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 10

Applying Class 2 hydrostatic test requirements, the required test pressure is 1.25 times 1085 or 1355 psig (cold) or, using the provisions of IWC-5220(b), 1.05 times 1085 or 1145 psig at temperatures greater than 500°F. During full power operation, the steam generator pressure is approximately 700 psig, increasing to approximately 1000 psig when power level is reduced to less than 5 percent. The proposed test pressure of 1030 psig is greater than full power operating pressure by at least 40 percent. (Note: The test will be performed at greater than 500°F).

Considering the fact that all four steam generators are scheduled for replacement followed by a Code hydrostatic test during the next refueling outage, it is reasonable and prudent to perform this one hydrostatic test at the requested conditions.

4. **ALTERNATE EXAMINATIONS**

Each steam generator and associated, non-isolable connecting piping will be tested in accordance with the Code at a nominal test pressure of 1030 psig as measured in the Steam Generator or main steam lines and at a temperature above 500°F.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 11

1. **COMPONENTS**

   a. Name: Service Water System Supply and Discharge Headers.

   b. Function: Supply river water for cooling.

   c. ASME Section XI Code Class: 3

2. **REFERENCE CODE REQUIREMENTS**

   a. IWD-5200(a) - The test pressure shall be at least 1.10 times the system design pressure.

3. **BASIS FOR RELIEF**

   Relief is requested to perform an alternate examination on portions of the Service Water system at nominal operating pressure rather than the referenced test pressure requirements.

   The Service Water System removes heat from various components in all modes of plant operation. The supply and discharge headers are a non-redundant single loop system and, as such, cannot be isolated long enough for testing without interrupting cooling water supply to critical plant equipment. There is no time when these lines can readily be removed from service for the period of time required to perform pressure tests.

4. **ALTERNATE EXAMINATION**

   Portions of the Service Water System supply and discharge headers which cannot be isolated for practical considerations, will be tested at nominal operating pressure during an inservice operational test.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 12

1. **COMPONENTS**

   a. Name: Component Cooling System Return Header.

   b. Function: Supply Component Cooling Water.

   c. ASME Section XI Code Class: 3

2. **REFERENCE CODE REQUIREMENTS**

   a. IWD-5200(a) - The test pressure shall be at least 1.10 times the system design pressure.

3. **BASIS FOR RELIEF**

   Relief is requested to test portions of the Component Cooling System as specified in the alternate examination at nominal operating pressure in lieu of the referenced pressure requirements.

   The Component Cooling System removes heat from various components in all modes of plant operation. The return header is a non-redundant single loop system and cannot be isolated long enough for testing without interrupting cooling water to critical plant components and equipment. There is no time when this line can readily be removed for the period of time required to perform pressure tests.

4. **ALTERNATE EXAMINATION**

   Those portions of the Component Cooling System header which cannot be isolated for practical considerations, will be tested at nominal operating pressure during an inservice operational test.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 13

1. **COMPONENTS**

   a. Name: Isolation Valve Seal Water System

   b. Function: Seal containment isolation valves

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   The system hydrostatic test pressure shall be at least 1.25 times the system design pressure and conducted at a test temperature not less than 100 degrees except as may be required to meet the test temperature requirements of IWA-5230. [IWC-5220(a)]

3. **BASIS FOR RELIEF**

   Relief is requested from the test pressure requirements of IWC-5220(a) for those non-isolable portions of the Isolation Valve Seal Water System (IVSWS) and apply those test pressure conditions as stated in the alternate examination.

   The IVSWS cannot, in all cases, be positively isolated from the systems it serves. Since many of these systems have lower design pressures than the IVSWS, testing to the full design pressure could damage associated piping or components.

   Indian Point Unit 3 is designed to ANSI/ASME B31.1-1967. Initial hydrostatic test instructions from the 1980 Edition of that Code, Paragraph 137.3.4 state in part: "The hydrostatic test pressure...shall not exceed the maximum allowable test pressure of any non-isolated components, such as vessels, pumps or valves." Paragraph 137.3.6 discussed further instructions for later hydro tests at lower pressures and inspections done on them similar to those the Power Authority will do in accordance with Section XI requirements.

   The 1980 Edition to ANSI/ASME B31.1 with addenda to the Summer of 1981 gives further guidance for pneumatic leak tests. Paragraph 137.4.8 states: "Examination for leakage detected by a soap bubble or equivalent method shall be made on all joints and connections. The examination shall be performed at the design pressure or 100 psig, whichever is less."

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 13

The Power Authority proposes to perform the pneumatic leakage examination at the pressure specified in the Code to which the plant is designed. The pressure for the nitrogen test will be greater than twice the normal operating pressure for the IVSWS and tests on water sections will be performed at a pressure equal to three or more times the operating pressure.

4. **ALTERNATE TESTING**

The IVSWS will be segmented into individual tests, to the extent practical, and tested at a pressure related to the design pressure of the most limiting component or non-isolable system.

The nitrogen portion of the IVSWS will be pressurized to a test pressure of at least 100 psig and inspected for leaks.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 14

1. **COMPONENTS**

   a. Name: Line segments of line Nos. 16 and 56 as identified below.

   b. Function: Safety Injection

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   The system hydrostatic test pressure shall be at least 1.25 times the system design pressure and conducted at a test temperature not less than 100 degrees except as may be required to meet the test temperature requirements of IWA-5230. [IWC-5220(a)]

3. **BASIS FOR RELIEF**

   Relief is requested to perform a visual examination on line segments 16 and 56 during an inservice test as described in the alternate examination rather than the hydrostatic test required by the referenced code paragraphs.

   Check valves 852A and 852B preclude pressurization of those line segments from the piping downstream. The piping upstream of valves 851A and 851B cannot be isolated from the safety injection pump discharge and suction lines. Therefore, the maximum pressure to which these piping segments can be pressurized corresponds to the maximum pump discharge pressure. A visual examination during an inservice test at maximum pump discharge is considered sufficient to demonstrate pressure boundary integrity. The pressure during the inservice test is normally about 1500 psig which is approximately 107% of the design pressure (1400 psig at 600°F) for these piping segments.

4. **ALTERNATE EXAMINATION**

   The line segments identified below shall be visually examined for leakage during an inservice test per Section XI 83/S83, Paragraph IWA-5211(c).

Line No.	From Isolation Valve	To Check Valve
16	851B	852B
56	851A	852A

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 15

1. **COMPONENTS**

   a. Name: Line segments of line Nos. 15 and 51 as identified below.

   b. Function: Containment Spray

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   The system hydrostatic test pressure shall be at least 1.25 times the system design pressure and conducted at a test temperature not less than 100 degrees except as may be required to meet the test temperature requirements of IWA-5230. [IWC-5220(a)]

3. **BASIS FOR RELIEF**

   Relief is requested from the referenced code requirements and instead perform a visual inspection as described in the alternate examination.

   Check valves 867A and 867B preclude pressurization of those line segments from the piping downstream. The piping upstream of valves 866A and 866B cannot be isolated from the containment spray discharge and suction lines. Therefore, line segments from 866A to 867A and 866B to 867B can only be pressurized from the pump side to maximum pump discharge pressure.

   A visual examination during an inservice test at maximum pump discharge is considered sufficient to demonstrate continued pressure boundary integrity. The test pressure during the inservice test is nominally 200 psig. Note that the highest pressure to which this line can be pressurized is approximately 210 psig, the shut off head of the Containment Spray Pumps.

4. **ALTERNATE EXAMINATION**

   The line segments identified below shall be visually examined for leakage during an inservice test conducted in accordance with IWC-5221, 1983 ASME Code.

Line No.	From Isolation Valve	To Check Valve
15	866B	867B
51	866A	867A

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 16

1. **COMPONENTS**

   a. Name: Line segment of Line No. 155 as identified in Alternate Examination.

   b. Function: Residual Heat Removal

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   The system hydrostatic test pressure shall be at least 1.25 times the system design pressure and conducted at a test temperature not less than 100 degrees except as may be required to meet the test temperature requirements of IWA-5230. [IWC-5220(a)]

3. **BASICS FOR RELIEF**

   Relief is requested from the referenced code requirement and instead perform a visual examination as described in the alternate examination.

   Check valve SI 881 precludes pressurization of the segment between SI 881 and SI 882 from the downstream piping. The piping upstream at valve SI 882 is the safety injection pump suction line from the Refueling Water Storage Tank (RWST). This segment between SI 881 and SI 882 can only be pressurized from the RWST side. Inspecting this segment during the safety injection pump suction line test (from RWST) is the only practical method and is considered sufficient to demonstrate continued pressure boundary integrity.

4. **ALTERNATE EXAMINATION**

   The line segment identified below shall be visually examined for leakage with an inservice test of the safety injection pump suction line (#155) conducted in accordance with IWC-5221.

Line No.	From Isolation Valve	To Check Valve
155	SI-882	SI-881

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 17

1. **COMPONENTS**

   a. Name: Spray Additive Tank No. 31 and Connecting Piping/ Components

   b. Function: Stores sodium hydroxide solution for Containment Spray Pump injection.

   c. ASME Section XI Code Class: 3

2. **REFERENCE CODE REQUIREMENTS**

   The system test pressure shall be at least 1.10 times the system design pressure. [IWD-5200(a)]

3. **BASIS FOR RELIEF**

   Relief is requested to apply test pressure requirements from the 1983 ASME Code to the Spray Additive Tank as stated in the alternate examination.

   The Spray Additive Tank is designed for an internal pressure of 250 psig with limiting test pressure based on attachment piping with a design pressure of 150 psig. Based on this, the test pressure required by the Code is 188 psig.

   Under normal plant operating and upset conditions this tank is pressurized to less than 5 psig with the maximum pressure limited by the tank relief valve which will be set at 25 psig. (Note: The existing pressure relief valve is set at 275 psig, but is planned to be replaced with one set at 25 psig when available). Pressurizing this tank, which is filled with concentrated sodium hydroxide, to a test pressure of 188 psig would create an acute and undue hazard to plant personnel which is highly undesirable.

   The 1983 Edition of ASME B&PV Code, Section XI, Paragraph IWD-5223(a) allows hydrostatic testing at more reasonable pressures related to system/component operational pressure and relief valve settings. This states:

   > "The system hydrostatic test pressure shall be at least 1.1 times the system pressure, *Psv*, for systems with design temperatures of 200°F or less, where *Psv* is the lowest pressure setting among the number of safety or relief valves provided for overpressurization within the boundary of the system to be tested."

4. **ALTERNATE EXAMINATION**

   The Spray Additive Tank and associated nonisolable piping will be hydrostatic tested at a pressure of 1.1 x *Psv* (25 psig) based on Paragraph IWD-5223(a) of the 1983 Edition of the Code.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 18

1. **COMPONENTS**

   a. Name: Line Segment #1070 from Valve CT-6 to LCV-1158-1 and CT-64

   b. Function: Auxiliary Feedwater Pump suction from Condensate Storage Tank

   c. ASME Section XI Class: 3

2. **REFERENCE CODE REQUIREMENTS**

   The system test pressure shall be at least 1.10 times the system design pressure [IWD-5200(a)]. The design pressure is 150 psig, therefore the required test pressure is 165 psig.

3. **BASIS FOR RELIEF**

   Relief is requested from the referenced code requirements to perform a hydrostatic test as stated in the alternate examination.

   The pressure for the test of this segment and the remainder of the Auxiliary Feedwater Pump Suction Header is introduced at Valve CT-82-1. As previously experienced, test pressure cannot be developed due to excess leakage through CT-6 into the Condensate Storage Tank. The maximum pressure that can be maintained is 100 psig.

   Valve CT-6 is designed to seal primarily in the direction from the tank and, based on discussions with the vendor, leakage is expected when pressurizing in the opposite direction.

   Due to the configuration of the system, under normal operation, this piping is not subjected to an pressure (from elevation) in excess of 38 psig at the lowest point (near the auxiliary feedwater pumps). This pressure is equivalent to the head of water in the condensate storage tank when filled to its maximum level.

4. **ALTERNATE TESTING**

   This segment of piping will be hydro-tested and inspected at a pressure of 100 psig.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 19

1. **COMPONENTS**

   a. Name: Piping and Components in Line #10 between Valves 730 and 731.

   b. Function: RHR Supply from the Reactor Coolant System to the RHR Pump Suction.

   c. ASME Section XI Class: 1

2. **REFERENCE CODE REQUIREMENTS**

The design pressure of this piping is 2580 psig and the defined required test pressure would be (1.02 to 1.10) x normal operating pressure of 2235 psig. (IWB-5222)

3. **BASIS FOR RELIEF**

Relief is proposed to test this line segment at the maximum pressure allowed by normal operations (i.e., 400 psig) in lieu of the referenced required test pressure. Operating procedures, interlocks and design features of the RHR suction isolation valves which act to prevent pressurizing this line above 400 psig, also prevent safely testing this piping segment above 400 psig.

The RCS hydro was conducted during the final phase of the outage. Plant heat-up and depressurization was conducted in the course of evolutions involved in normal ascension to power. Test conditions were expected to be approximately 2500 psig at 500°F with a bubble in the pressurizer. Under these conditions it is not desirable to pressurize this line segment for the following reasons:

   a. Only one valve, Valve 730, would provide isolation of the RHR suction piping from the high pressure of the RCS. Any inadvertent opening of Valve 730 or disc failure could result in a LOCA condition.

   b. This section of piping is normally isolated from the RCS at pressures above 400 psig by normally shut Valve 731.

Pressurizing this line segment during the RHR suction piping inservice pressure test with a hydrostatic pressure of 750 psig (1.25 x Pd, Pd = 600 psig) is precluded by a drilled passage in the inboard disc of Valve 731. The drilled passage is used for over pressure protection for the line segment between valves 730 and 731.

4. **ALTERNATE TESTING**

This section of piping will be inspected at approximately 400 psig prior to removing the RHR System from operation.

First Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 20

1. **COMPONENTS**

   a. Name: Line Segment of Line #10 between Valves 885A and 885B

   b. Function: Residual Heat Removal

   c. ASME Section XI Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   The system hydrostatic test pressure shall be at least 1.25 times the system design pressure and conducted at a test temperature not less than 100 degrees except as may be required to meet the test temperature requirements of IWA-5230. [IWC-5220(a)]

3. **BASIS FOR RELIEF**

   Relief is requested from the referenced code requirement to perform a hydrostatic test as stated in the alternate examination.

   Valve 885A is a spring-loaded double-disc gate valve. To preclude forming a pressure lock between 885A and 885B, a passage is drilled through the inboard disc (from Containment) to vent the piping between those valves to the Containment sump. Thus, this section of piping cannot be pressurized to the test pressure corresponding to design pressure (600 psig).

   Because of this drilled passage, the maximum accident pressure to which the pipe segment can be pressurized is peak Containment Accident Pressure (Pa) which is equal to 52 psig.

4. **ALTERNATE EXAMINATIONS**

   The subject pipe segment will be pressurized and leak tested in conjunction with Appendix J testing of Valve 885B. This is a hydrostatic test performed at a pressure of 100 psig.

ATTACHMENT II TO IPN-88-052

RELIEF REQUESTS

ASME B & PV CODE, SECTION XI

1983 EDITION THROUGH SUMMER 1983 ADDENDA

2ND 10-YR HYDROSTATIC TEST PROGRAM

AUGUST 31, 1986 - AUGUST 31, 1996

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

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 1

1. **COMPONENTS**

   a. Name: Open ended portions of non-closed system suction lines subject to the hydrostatic test provisions of IWD-5223.

   b. Function: Various

   c. ASME Section XI Code Class: 3

2. **REFERENCE CODE REQUIREMENTS**

   a. IWD-5223(d) - For open ended portions of discharge lines beyond the last shutoff valve in non-closed systems (e.g., service water systems), confirmation of adequate flow during system operation shall be acceptable in lieu of system hydrostatic test.

3. **BASIS FOR RELIEF**

   Relief is requested to extend the provisions of IWD-5223(d) to non-closed system suction lines in lieu of the hydrostatic test provisions of IWD-5223.

   The 83/S83 Code provisions do not address criteria to be used for Class 3 non-closed systems on the suction side such as the Service Water System taking suction from the river. Applying the criteria of Paragraph IWD-5223(d) to the open ended portions of the service water suction lines up to the first shut-off valves will establish the criteria to be used in this case.

4. **ALTERNATE EXAMINATIONS**

   The provisions of Section XI 83/S83 IWD-5223(d) shall be applied to open ended portions of non-closed system suction lines up to the first shut-off valve.

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 2

1. **COMPONENTS**

   a. Name: Open ended portions of the suction lines on non-closed systems subject to the hydrostatic test provisions of IWC-5222.

   b. Function: Various

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   a. IWC-5222(d) - For open ended portions of discharges lines beyond the last shutoff valve in nonclosed systems (e.g., containment spray header), demonstration of an open flow path test shall be performed in lieu of the system hydrostatic test.

3. **BASIS FOR RELIEF**

   Relief is requested to extend the provisions of IWC-5222(d) to non-closed system suction lines in lieu of the hydrostatic test provisions of IWC-5222.

   The 83/S83 Code provisions do not address criteria to be used for Class 2 non-closed systems on the suction side such as the Recirculation Pumps taking suction from the Reactor Building sump. Footnote 1 of related criteria IWD-5223 states that discharge lines to tanks, sumps and basins that are open to the atmosphere (inside or outside containment) are considered open ended. Applying Paragraph IWC-5222(d) to the open ended portions of the recirculation suction (as well as discharge) lines up to the first shut-off valves will establish the criteria to be used in this case.

4. **ALTERNATE EXAMINATIONS**

   The provisions of Section XI 83/S83 IWC-5222(d) will be applied to open ended portions of non-closed system suction lines up to the first shut-off valve.

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 3

1. **COMPONENTS**

   a. Name: Line segments identified below

   b. Function: Safety Injection

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   a. IWA-5224(a): The boundary subject to test pressurization during a system hydrostatic test [IWA-5211(d)] shall be defined by the system boundary (or each portion of the boundary) within which the components have the same minimum required classification and are designed to the same primary pressure rating as governed by the system function and the internal fluid operating conditions, respectively.

   b. IWC-5222(a): The system hydrostatic test pressure shall be at least 1.10 times the system pressure P_{sv} for systems with Design Temperature of 200°F or less, and at least 1.25 times the system pressure P_{sv} for systems with Design Temperature above 200°F.

3. **BASIS FOR RELIEF**

   Relief is requested from the test pressure and boundary requirements of IWC-5222(a) and IWA-5224(a) for those Class 2 portions of the Safety Injection System which cannot be isolated from the Reactor Coolant System and apply the test pressure requirements as stated in the alternate examination.

   Certain portions of the Safety Injection System classified as ISI Class 2 cannot be positively isolated from the Reactor Coolant System. Testing these line segments to their Class 2 requirements would subject the RCS to a pressure greater than that specified by the Code, with the potential of damaging components (Class 1) within the RCS. Since these line segments are designed to the same piping specifications as those in the Reactor Coolant System, testing them as ISI Class 1 will give reasonable assurance that the verification of structural integrity intended by the Code will be achieved.

4. **ALTERNATE EXAMINATIONS**

   Each line segment listed below, which is non-isolable from the Reactor Coolant System, will be tested in conjunction with the Class 1 hydrostatic test of the Reactor Coolant System at the Class 1 hydrostatic test pressure.

Line No.	From Check Valve	To Isolation Valve/Line
16	857J	856C
16A	857K	856D

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 3

4. **ALTERNATE EXAMINATIONS** (continued)

Line No.	From Check Valve	To Isolation Valve/Line
56	857H	856B
56A	857A	856A
753	857L	856E
754	857M	856F
843	857P	856G
844	857Q	856H
845	857S	856J
846	857U	856K
351	895A	894A, 839A (Line 607)
352	895B	894B, 839C (Line 605)
353	895C	894C, 839E (Line 606)
350	895D	894D, 839G (Line 31)
355/359	838A	899B, 899A
356	838B	Line 355
358	838C	899A
361	838D	Line 358

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 4

1. **COMPONENTS**

   a. Name: Service Water System Supply and Discharge Headers.

   b. Function: Supply river water for cooling.

   c. ASME Section XI Code Class: 3

2. **REFERENCE CODE REQUIREMENTS**

   a. IWD-5223(a): The system hydrostatic test pressure shall be at least 1.10 times the system pressure P_{sv} for systems with Design Temperature of 200°F or less, and at least 1.25 times the system pressure P_{sv} for systems with Design Temperature above 200°F.

3. **BASIS FOR RELIEF**

   Relief is requested to perform an alternate examination on portions of the Service Water system at nominal operating pressure rather than the referenced test pressure requirements.

   The Service Water System removes heat from various components in all modes of plant operation. The supply and discharge headers are a non-redundant single loop system and, as such, cannot be isolated long enough for testing without interrupting cooling water supply to critical plant equipment. There is no time when these lines can readily be removed from service for the period of time required to perform pressure tests.

4. **ALTERNATE EXAMINATION**

   Portions of the Service Water System supply and discharge headers which cannot be isolated for practical considerations, will be tested at nominal operating pressure during an inservice operational test.

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 5

1. **COMPONENTS**

   a. Name: Component Cooling System Return Header.

   b. Function: Supply Component Cooling Water.

   c. ASME Section XI Code Class: 3

2. **REFERENCE CODE REQUIREMENTS**

   a. IWD-5223(a): The system hydrostatic test pressure shall be at least 1.10 times the system pressure P_{sv} for systems with Design Temperature of 200°F or less, and at least 1.25 times the system pressure P_{sv} for systems with Design Temperature above 200°F.

3. **BASIS FOR RELIEF**

   Relief is requested to test portions of the Component Cooling System as specified in the alternate examination at nominal operating pressure in lieu of the referenced pressure requirements.

   The Component Cooling System removes heat from various components in all modes of plant operation. The return header is a non-redundant single loop system and cannot be isolated long enough for testing without interrupting cooling water to critical plant components and equipment. There is no time when this line can readily be removed for the period of time required to perform pressure tests.

4. **ALTERNATE EXAMINATION**

   Those portions of the Component Cooling System header which cannot be isolated for practical considerations, will be tested at nominal operating pressure during an inservice operational test.

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 6

1. **COMPONENTS**

   a. Name: Isolation Valve Seal Water System

   b. Function: Seal containment isolation valves

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   a. IWA-5224(a): The boundary subject to test pressurization during a hydrostatic test [IWA-5211(d)] shall be defined by the system boundary (or each portion of the boundary) within which the components have the same minimum required classification and are designed to the same primary pressure rating as governed by the system function and the internal fluid operating conditions, respectively.

   b. IWC-5222(a): The system hydrostatic test pressure shall be at least 1.10 times the system pressure P_{sv} for systems with Design Temperature of 200°F or less, and at least 1.25 times the system pressure P_{sv} for systems with Design Temperature above 200°F.

3. **BASIS FOR RELIEF**

Relief is requested from the test pressure and boundary requirements of IWC-5222(a) and IWA-5224(a) for those non-isolable portions of the Isolation Valve Seal Water System (IVSWS) and apply those test pressure conditions as stated in the alternate examination.

The IVSWS cannot, in all cases, be positively isolated from the systems it serves. Since many of these systems have lower design pressures than the IVSWS, testing to the full design pressure could damage associated piping or components.

Indian Point Unit 3 is designed to ANSI/ASME B31.1-1967. Initial hydrostatic test instructions from the 1980 Edition of that Code, Paragraph 137.3.4 state in part: "The hydrostatic test pressure...shall not exceed the maximum allowable test pressure of any non-isolated components, such as vessels, pumps or valves." Paragraph 137.3.6 discussed further instructions for later hydro tests at lower pressures and inspections done on them similar to those the Power Authority will do in accordance with Section XI requirements.

The 1980 Edition to ANSI/ASME B31.1 with addenda to the Summer of 1981 gives further guidance for pneumatic leak tests. Paragraph 137.4.8 states: "Examination for leakage detected by a soap bubble or equivalent method shall be made on all joints and connections. The examination shall be performed at the design pressure or 100 psig, whichever is less."

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 6

The Power Authority proposes to perform the pneumatic leakage examination at the pressure specified in the Code to which the plant is designed. The pressure for the nitrogen test will be greater than twice the normal operating pressure for the IVSWS and tests on water sections will be performed at a pressure equal to three or more times the operating pressure.

4. **ALTERNATE TESTING**

The IVSWS will be segmented into individual tests, to the extent practical, and tested at a pressure related to the design pressure of the most limiting component or non-isolable system.

The nitrogen portion of the IVSWS will be pressurized to a test pressure of at least 100 psig and inspected for leaks.

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 7

1. **COMPONENTS**

   a. Name: Line segments of line Nos. 16 and 56 as identified below.

   b. Function: Safety Injection

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   a. IWA-5224(a): The boundary subject to test pressurization during a system hydrostatic test [IWA-5211(d)] shall be defined by the system boundary (or each portion of the boundary) within which the components have the same minimum required classification and are designed to the same primary pressure rating as governed by the system function and the internal fluid operating conditions, respectively.

   b. IWC-5222(a): The system hydrostatic test pressure shall be at least 1.10 times the system pressure P_{sv} for systems with Design Temperature of 200°F or less, and at least 1.25 times the system pressure P_{sv} for systems with Design Temperature above 200°F.

3. **BASIS FOR RELIEF**

   Relief is requested to perform a visual examination on line segments 16 and 56 as identified in the alternate examination rather than the hydrostatic test required by the referenced code paragraphs.

   Check valves 852A and 852B preclude pressurization of those line segments from the piping downstream. The piping upstream of valves 851A and 851B cannot be isolated from the safety injection pump discharge and suction lines. Therefore, the maximum pressure to which these piping segments can be pressurized corresponds to the maximum pump discharge pressure. A visual examination during an inservice test at maximum pump discharge is considered sufficient to demonstrate pressure boundary integrity. The pressure during the inservice test is normally about 1500 psig which is approximately 107% of the design pressure (1400 psig at 600°F) for these piping segments.

4. **ALTERNATE EXAMINATION**

   The line segments identified below shall be visually examined for leakage during an inservice test per Section XI 83/S83, Paragraph IWA-5211(c).

Line No.	From Isolation Valve	To Check Valve
16	851B	852B
56	851A	852A

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 8

1. **COMPONENTS**

   a. Name: Line segments of line Nos. 15 and 51 as identified below.

   b. Function: Containment Spray

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   a. IWA-5224(a): The boundary subject to test pressurization during a system hydrostatic test [IWA-5211(d)] shall be defined by the system boundary (or each portion of the boundary) within which the components have the same minimum required classification and are designed to the same primary pressure rating as governed by the system function and the internal fluid operating conditions, respectively.

   b. IWC-5222(a): The system hydrostatic test pressure shall be at least 1.10 times the system pressure P_{sv} for systems with Design Temperature of 200°F or less, and at least 1.25 times the system pressure P_{sv} for systems with Design Temperature above 200°F.

3. **BASIS FOR RELIEF**

   Relief is requested from the referenced code requirements and instead perform a visual inspection as described in the alternate examination.

   Check valves 867A and 867B preclude pressurization of those line segments from the piping downstream. The piping upstream of valves 866A and 866B cannot be isolated from the containment spray discharge and suction lines. Therefore, line segments from 866A to 867A and 866B to 867B can only be pressurized from the pump side to maximum pump discharge pressure.

   A visual examination during an inservice test at maximum pump discharge is considered sufficient to demonstrate continued pressure boundary integrity. The test pressure during the inservice test is nominally 200 psig. Note that the highest pressure to which this line can be pressurized is approximately 210 psig., the shut off head of the Containment Spray Pumps.

4. **ALTERNATE EXAMINATION**

   The line segments identified below shall be visually examined for leakage during an inservice test.

Line No.	From Isolation Valve	To Check Valve
15	866B	867B
51	866A	867A

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 9

1. **COMPONENTS**

   a. Name: Line segment of Line No. 155 as identified in Alternate Examination.

   b. Function: Residual Heat Removal

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   a. IWA-5224(a): The boundary subject to test pressurization during a system hydrostatic test [IWA-5211(d)] shall be defined by the system boundary (or each portion of the boundary) within which the components have the same minimum required classification and are designed to the same primary pressure rating as governed by the system function and the internal fluid operating conditions, respectively.

   b. IWC-5222(a): The system hydrostatic test pressure shall be at least 1.10 times the system pressure P_{sv} for systems with Design Temperature of 200°F or less, and at least 1.25 times the system pressure P_{sv} for systems with Design Temperature above 200°F.

3. **BASICS FOR RELIEF**

   Relief is requested from the referenced code requirements and instead perform a visual examination as described in the alternate examination.

   Check valve SI 881 precludes pressurization of the segment between SI 881 and SI 882 from the downstream piping. The piping upstream at valve SI 882 is the safety injection pump suction line from the Refueling Water Storage Tank (RWST). This segment between SI 881 and SI 882 can only be pressurized from the RWST side. Inspecting this segment during the safety injection pump suction line test (from RWST) is the only practical method and is considered sufficient to demonstrate continued pressure boundary integrity.

4. **ALTERNATE EXAMINATION**

   The line segment identified below shall be visually examined for leakage with an inservice test of the safety injection pump suction line (#155) conducted in accordance with IWC-5221.

Line No.	From Isolation Valve	To Check Valve
155	SI-882	SI-881

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 10

1. **COMPONENTS**

   a. Name: Line Segment #1070 from Valve CT-6 to LCV-1158-1 and CT-64

   b. Function: Auxiliary Feedwater Pump suction from Condensate Storage Tank

   c. ASME Section XI Class: 3

2. **REFERENCE CODE REQUIREMENTS**

   a. IWA-5224(a): The boundary subject to test pressurization during a system hydrostatic test [IWA-5211(d)] shall be defined by the system boundary (or each portion of the boundary) within which the components have the same minimum required classification and are designed to the same primary pressure rating as governed by the system function and the internal fluid operating conditions, respectively.

   b. IWD-5223(a): The system hydrostatic test pressure shall be at least 1.10 times the system pressure P_{sv} for systems with Design Temperature of 200°F or less, and at least 1.25 times the system pressure P_{sv} for systems with Design Temperature above 200°F.

3. **BASIS FOR RELIEF**

   Relief is requested from the referenced code requirements to perform a hydrostatic test as stated in the alternate examination.

   The pressure for the test of this segment and the remainder of the Auxiliary Feedwater Pump Suction Header is introduced at Valve CT-82-1. As previously experienced, test pressure cannot be developed due to excess leakage through CT-6 into the Condensate Storage Tank. The maximum pressure that can be maintained is 100 psig.

   Valve CT-6 is designed to seal primarily in the direction from the tank and, based on discussions with the vendor, leakage is expected when pressurizing in the opposite direction.

   Due to the configuration of the system, under normal operation, this piping is not subjected to an pressure (from elevation) in excess of 38 psig at the lowest point (near the auxiliary feedwater pumps). This pressure is equivalent to the head of water in the condensate storage tank when filled to its maximum level.

4. **ALTERNATE TESTING**

   This segment of piping will be hydro-tested and inspected at a pressure of 100 psig.

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 11

1. **COMPONENTS**

   a. Name: Piping and Components in Line #10 between Valves 730 and 731.

   b. Function: RHR Supply from the Reactor Coolant System to the RHR Pump Suction.

   c. ASME Section XI Class: 1

2. **REFERENCE CODE REQUIREMENTS**

   The design pressure of this piping is 2580 psig and the defined required test pressure would be (1.02 to 1.10) x normal operating pressure of 2235 psig. (IWB-5222)

3. **BASIS FOR RELIEF**

   Relief is proposed to test this line segment at the maximum pressure allowed by normal operations (i.e., 400 psig) in lieu of the referenced required test pressure. Operating procedures, interlocks and design features of the RHR suction isolation valves which act to prevent pressurizing this line above 400 psig, also prevent safely testing this piping segment above 400 psig.

   The RCS hydro was conducted during the final phase of the outage. Plant heat-up and depressurization was conducted in the course of evolutions involved in normal ascension to power. Test conditions were expected to be approximately 2500 psig at 500°F with a bubble in the pressurizer. Under these conditions it is not desirable to pressurize this line segment for the following reasons:

   a. Only one valve, Valve 730, would provide isolation of the RHR suction piping from the high pressure of the RCS. Any inadvertent opening of Valve 730 or disc failure could result in a LOCA condition.

   b. This section of piping is normally isolated from the RCS at pressures above 400 psig by normally shut Valve 731.

   Pressurizing this line segment during the RHR suction piping inservice pressure test with a hydrostatic pressure of 750 psig (1.25 x Pd, Pd = 600 psig) is precluded by a drilled passage in the inboard disc of Valve 731. The drilled passage is used for over pressure protection for the line segment between valves 730 and 731.

4. **ALTERNATE TESTING**

   This section of piping will be inspected at approximately 400 psig prior to removing the RHR System from operation.

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 12

1. **COMPONENTS**

   a. Name: Line Segment of Line #10 between Valves 885A and 885B

   b. Function: Residual Heat Removal

   c. ASME Section XI Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   a. IWA-5224(a): The boundary subject to test pressurization during a system hydrostatic test [IWA-5211(d)] shall be defined by the system boundary (or each portion of the boundary) within which the components have the same minimum required classification and are designed to the same primary pressure rating as governed by the system function and the internal fluid operating conditions, respectively.

   b. IWC-5222(a): The system hydrostatic test pressure shall be at least 1.10 times the system pressure P_{sv} for systems with Design Temperature of 200°F or less, and at least 1.25 times the system pressure P_{sv} for systems with Design Temperature above 200°F.

3. **BASIS FOR RELIEF**

   Relief is requested from the referenced code requirements to perform a hydrostatic test as stated in the alternate examination.

   Valve 885A is a spring-loaded double-disc gate valve. To preclude forming a pressure lock between 885A and 885B, a passage is drilled through the inboard disc (from Containment) to vent the piping between those valves to the Containment sump. Thus, this section of piping cannot be pressurized to the test pressure corresponding to design pressure (600 psig).

   Because of this drilled passage, the maximum accident pressure to which the pipe segment can be pressurized is peak Containment Accident Pressure (Pa) which is equal to 52 psig.

4. **ALTERNATE EXAMINATIONS**

   The subject pipe segment will be pressurized and leak tested in conjunction with Appendix J testing of Valve 885B. This is a hydrostatic test performed at a pressure of 100 psig.

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 13

1. **COMPONENTS**

   a. Name: Buried components and components made inaccessible for examination by high radiation fields, congestion of components and closed piping tunnels.

   b. Function: Various

   c. ASME Section XI Code Class: 1, 2 and 3.

2. **REFERENCE CODE REQUIREMENTS**

   ASME Section XI 1983 through Summer 1983 addenda, Paragraph IWA-5244 provisions regarding examination of buried components.

3. **BASIS FOR RELIEF**

   Relief is proposed to extend the buried component provisions of IWA-5244 and the inaccessible component provisions of IWA-5241(b) and IWA-5242(b) to components made inaccessible by reason of high radiation fields, congestion of components and closed piping tunnels. In addition, Paragraph IWA-5244 shall be applied to both redundant and non-redundant systems.

   The provisions of IWA-5244 were developed in recognition of the fact that inaccessible components which preclude direct visual examination require alternate examination such as pressure loss or flow changes. IWA5244 however, is limited to buried components only and does not take into account equally compelling conditions which preclude examination, such as extremely high radiation areas and closed piping tunnels. In these cases, the alternate examination provisions should also apply. To avoid confusion, Paragraph IWA-5244 will apply to both redundant and non-redundant systems. Where pressure drop testing of IWA-5244 is impractical, the indirect visual examination provisions of IWA-5241(b) and IWA-5242(b) provide adequate verification of component integrity.

4. **ALTERNATE EXAMINATION**

   When practical, the provisions of Section XI 83/S83, IWA-5244 which relate to examination of buried components will apply and be extended to cases where components are made inaccessible for inspection due to high radiation fields, congestion of components and closed piping tunnels. In certain cases, where buried or inaccessible pipe segments cannot be isolated for pressure drop testing, indirect visual examination for evidence of leakage as stated in IWA-5241(b) and IWA-5242(b) shall apply (i.e., leakage at penetration seals or collection at elevation low points of congested piping). In addition, Paragraph IWA-5244(a), which currently is limited to non-redundant systems, shall also apply to redundant systems.

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 14

1. **COMPONENTS**

   a. Name: All components subject to the hydrostatic test provisions of IWC-5000.

   b. Function: Various

   c. ASME Section XI Code Class: 2

2. **REFERENCE CODE REQUIREMENTS**

   a. IWC-5222(a): The system hydrostatic test pressure shall be at least 1.10 times the system pressure P_{sv} for systems with Design Temperature of 200°F or less, and at least 1.25 times the system pressure P_{sv} for systems with Design Temperature above 200°F.

3. **BASIS FOR RELIEF**

   Relief is proposed to limit the referenced test pressure to 1.10 P_{sv} and 1.25 $P_{sv,}$ respectively, at the lowest point of elevation in the system.

   In several instances unisolable system portions within the test boundary are configured such that the static head within the piping causes pressure variations in excess of six percent of the test pressure. It is the Power Authority's desire to limit the test pressure imposed on system components to 106% of the specified pressure (as required by Paragraph IWA-5265(b) of the 1983 edition of Section XI). Thus, due to the effects of static head, portions of piping at higher elevations may be subjected to a test pressure lower than that specified. There is no practical method for isolating all piping segments to achieve the required test pressure at all elevations.

   Portions of systems at higher elevations will normally see lower operating pressures as well.

4. **ALTERNATE EXAMINATION**

   Hydrostatic testing of Class 2 system piping and associated components will be conducted at a nominal pressure equivalent to at least 1.10 P_{sv} (<200°F) and 1.25 P_{sv} (>200°F) at the lowest point in the system.

Second Ten Year ISI Interval Hydrostatic Testing

RELIEF REQUEST NO. 15

1. **COMPONENTS**

   a. Name: All components subject to the hydrostatic test provisions of IWD-5000.

   b. Function: Various

   c. ASME Section XI Code Class: 3

2. **REFERENCE CODE REQUIREMENTS**

   a. IWD-5223(a): The system hydrostatic test pressure shall be at least 1.10 times the system pressure P_{sv} for systems with Design Temperature of 200°F or less, and at least 1.25 times the system pressure P_{sv} for systems with Design Temperature above 200°F.

3. **BASIS FOR RELIEF**

   Relief is proposed to limit the referenced test pressure to 1.10 P_{sv} and 1.25 $P_{sv,}$ respectively, at the lowest point of elevation in the system.

   In several instances unisolable system portions within the test boundary are configured such that static head within the piping causes pressure variations in excess of six percent of the test pressure. It is the Power Authority's desire to limit the test pressure imposed on system components to 106% of the specified pressure (as required by Paragraph IWA-5265(b) of the 1983 edition of Section XI). Thus, due to the effects of static head, portions of piping at higher elevations will be subjected to a test pressure lower than that specified. There is no practical method for isolating the piping segments to achieve the required test pressure at all elevations.

   Portions of systems at higher elevations will normally see lower operating pressures as well.

4. **ALTERNATE EXAMINATION**

   Hydrostatic testing of Class 3 system piping and associated components will be conducted at a nominal pressure equivalent to at least 1.10 P_{sv} (<200°F) and 1.25 P_{sv} (>200°F) at the lowest point in the system.