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March 9, 1990  
IPN-90-013

U.S. Nuclear Regulatory Commission  
Mail Station P1-137  
Washington, D.C. 20555

Attn: Document Control Desk

Subject: **Indian Point 3 Nuclear Power Plant**  
**Docket No. 50-286**  
**Additional Information On Inservice**  
**Inspection Program For Second Ten Year Interval**

References:

1. NYPA letter, J. C. Brons to NRC, " Inservice Inspection; Second 10 Year Interval," dated February 10, 1989 (IPN-89-010).
2. NYPA letter, J. C. Brons to NRC, " Inservice Inspection Hydrostatic Test Program; 1st 10 Year Interval Relief Requests," dated October 30, 1989 (IPN-89-052).

Dear Sir:

The purpose of this letter is to provide additional information on the Second 10 Year Interval Inservice Inspection Program and relief requests. This information was requested in a conference call between the Power Authority and the NRC regarding the 1st 10 year Hydrostatic Test Program. The requested information is included in Attachments I and II. Attachment I includes the response to questions A to O. Attachment II includes the Second 10 Year Interval Inservice Inspection Program, Boundary Drawings which define the ASME Code Class 1, Class 2 and Class 3 system boundaries, Ultrasonic Testing Calibration Block Report and the Inservice Inspection Procedures.

The additional information requested by the NRC regarding relief request questions P to V for the Second 10 Year Interval Hydrostatic Test Program is identical to that requested for the First 10 Year Program. This information was submitted to the NRC in Reference 2.

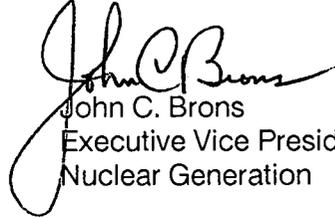
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If you have any questions regarding this matter, please contact Mr. P. Kokolakis of my staff.

Very truly yours,

  
John C. Brons  
Executive Vice President  
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cc: U. S. Nuclear Regulatory Commission  
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Note: Attachment II to J. D. Neighbors only

ATTACHMENT I TO IPN-90-013

ADDITIONAL INFORMATION ON INSERVICE  
INSPECTION FOR SECOND TEN YEAR INTERVAL

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

## RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

### NRC Item A

Table 4.0 of the ISI Program Plan was reviewed. Although the table shows the total number of welds to be examined, the specific welds to be examined during the second 10-year interval are not listed. Please provide information (i.e., weld numbers and isometric and/or component drawings) that will enable the staff to determine if the correct welds have been selected for examination during the second 10-year interval.

### NYPA Response

The Second Ten-Year Interval In-Service Inspection Program, which provides additional details such as specific welds, supports and sketches, is attached.

### NRC Item B

Provide the staff with boundary diagrams which define the ASME Code Class 1, Class 2, and Class 3 boundaries for the systems in the Indian Point Power Plant Unit 3, Second 10-Year Interval ISI Program Plan.

### NYPA Response

Boundary drawings which define the ASME Code Class 1, Class 2 and Class 3 boundaries for the systems in the Indian Point Nuclear Power Plant Unit 3 are attached. It should be noted that these drawings have not been updated for the recent 1989 Refueling Outage in which major modifications were performed to the ISI class systems. However, the Item A submittal (ISI Program), has been updated to reflect the recent modifications performed during the 1989 refueling outage.

### NRC Item C

Provide a list of the ultrasonic calibration standards being used during the second 10-year interval ISI at Indian Point Unit 3. This list should include the calibration standard identifications, material specifications and sizes.

### NYPA Response

The Indian Point Unit 3 ISI Ultrasonic Testing Calibration Block Reports, which provide the requested information, are attached. The first report identifies the existing ISI calibration blocks and the second report identifies four (4) additional calibration blocks which are presently being manufactured. It is anticipated that these four calibration blocks will be available for use during the next refueling outage scheduled for Fall 1990.

### NRC Item D

Provide a listing of the NDE examination procedures being used during the second 10-year interval at Indian Point Unit 3.

### NYPA Response

The ISI examination procedures that are being used during the second 10-year inservice inspection interval at Indian Point Unit 3 are attached.

NRC Item E

With regard to limitations due to metallurgical properties of cast stainless steel (SA351 Grade CFSA), the staff has continued to monitor the development of new or improved examination techniques. As improvements in these areas are achieved, the staff is requiring that these new techniques be made part of the ISI examination procedures. Discuss the ISI examination procedures for the ultrasonic examination of the Indian Point Unit 3 Primary Coolant System and, in particular, any improved examination techniques which may have been incorporated.

NYPA Response

The Indian Point Unit 3 reactor coolant pipes that have cast stainless steel are the 90° elbows. INT-ISI-206, Rev. 1 utilizes a 41° RL fixture to examine these cast stainless steel elbows. This technique has been demonstrated to be satisfactory during examinations. An additional technique utilizing a longitudinal 45° pitch catch technique will be investigated for suitability as a joint research and development program with the inservice inspection engineering services contractor. Other limitations such as surface preparation and scanning distance may determine the feasibility of this ultrasonic pitch catch examination technique.

NRC Item F

Address the augmented examinations for high energy piping designated as break exclusion by NUREG-0800, Section 3.6.1, "Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment," (Branch Technical Position ASB 3-1).

NYPA Response

NUREG-0800, Section 3.6.1, is not an ASME Section XI requirement, and is not covered under the Authority's ISI Weld and Support Examination Program.

NRC Item G

The cover letter of the Licensee's February 10, 1989 submittal of the ISI Program for the second 10-year inspection interval states: "The final inspection period of the first 10-year interval overlapped with the first inspection period of the second 10-year interval. This overlap ended September 1987 with the conclusion of the Cycle 5/6 refueling outage." Verify that credit for the examinations performed has not been taken for both intervals.

NYPA Response

As referenced in the Indian Point Unit 3 1st and 2nd Ten Year Inspection Programs and the Indian Point Unit 3 September 1987 Report, the examinations credited to the Second Ten Year ISI Interval 1st Period, and not credited to the third period of the First Ten Year Interval during the 1987 Refueling Cycle were examinations performed by the Westinghouse Remote Reactor Vessel Examination Tool which are provided below:

<u>Code Item</u>	<u>Area Examined</u>
B 1.30	Vessel to flange weld 1 from 40° clockwise to 106.67°; 133.35° clockwise to 183.3° and 253.46° clockwise to 316.8°
B 3.90	Loop 31 weld 23, loop 32 weld 22, loop 33 weld 26 and loop 34 weld 27 outlet nozzle to vessel welds
B 3.10	Loop 31-23 Inner Radius (IR), loop

	32-22 IR, loop 33-26 IR, loop 34-27 IR outlet nozzle inside radius sections
B 5.10	Loop 31-weld 1DM, loop 32-weld 1DM, loop 33-weld 1DM outlet nozzle to safe-end butt welds
B 6.40	Threads in flange around stud holes 21 thru 30; 35 thru 42; 53, 54 and 1 thru 7
B 9.11	Loop 31 - weld 2, loop 32 - weld 2, loop 33 - weld 2 and loop 34 - weld 2 Reactor Coolant Pipe Circumferential Butt Welds

#### NRC Item H

Relief Request 3 (ISI Program): Relief is requested from examining 100% of the Code-required volume of the reactor pressure vessel closure and bottom head meridional welds. The licensee states that as required by the Code 100% of "accessible length of one weld" will be examined during the second interval. Please provide an estimate of the percentage of the weld that can and will be volumetrically examined. Discuss the possibility of examining portions of additional meridional welds to obtain a larger percent coverage if 100% of the one weld is not being examined.

#### NYPA Response

The length of the meridional welds on the bottom of the reactor vessel head at Indian Point Unit 3 are approximately 58" for each of the six welds. Accessible length of examination will be approximately 29" (50%) as performed by the Westinghouse Remote Reactor Vessel Examination Tool. In addition, although not identified in the 2nd ten-year ISI program, and not required by ASME Section XI-1983 Edition up to and including summer 1983 addenda, the reactor vessel closure head meridional welds 2, 3, 4, 5, 6 & 7 (approximately 26" each; Sketch 1-1300 in the ISI Program) are examined during the 2nd ten year interval, in conjunction with the reactor vessel closure head flange, Code item B 1.40, by ultrasonic manual techniques. These examinations will be identified and listed in each final ISI outage report following their examinations. By including this additional 156" on the reactor vessel closure head, more than 100% of the Code required inspection of one weld (58") chosen for examination for Code item B 1.22 will be examined.

#### NRC Item I

Relief Requests 5 and 15 (ISI Program): These are generic relief requests without a listing of specific welds/components for which relief is requested. The regulations do not provide for granting generic relief requests. Therefore, the staff requests the following information with regard to requests for relief 5 and 15:

1. A list of the specific welds for which relief is requested;
2. For each weld listed a description of the obstructions or limitations encountered during the course of the examination(s); and
3. An estimate of the percentage of the Code-required examination(s) that can be performed for each of the welds listed.

### NYPA Response

Due to the ASME Code upgrade, welds selected during the 2nd ten-year ISI interval are subject to examination areas and extent of volume inspections that were not previously required.

Information obtained previously during the first ten-year ISI interval cannot be readily adapted to determine the limitations that may occur during the 2nd ten-year examination interval. In addition, there are welds in the 2nd ten-year ISI interval that will be examined for the first time due to ASME Code upgrades. These are the reasons that the limitations for each individual weld cannot be accurately determined until a 2nd ten-year interval examination is actually performed. As stated in the relief request, each individual weld that has a limitation is documented. A sketch is drawn showing limitations and the limitations are recorded in detail in the final outage report following each refueling outage.

### NRC Item J

Relief requests 6 and 10 (ISI Program): Please list the specific welds for which relief is requested. Verify that the remote volumetric examination performed from the ID surface includes the entire weld volume and heat affected zone instead of only the inner one-third of the weld. Also, confirm that the ultrasonic testing instrumentation and procedure have been demonstrated to be capable of detecting OD surface connected defects in the circumferential orientation in a laboratory test block. The defects should be cracks and not machined notches.

### NYPA Response

The specific welds for relief requests 6 and 10 are listed under Table 5.0 for Code categories B 5.10 and B 9.11 in the Authority's 2nd ten-year interval ISI Program. Examinations performed by the Westinghouse remote reactor vessel examination tool examines the inner 1/3 as required by the ASME Code Section XI. Modifications or development of new calibration blocks and development of a technique to examine full volume of the weld and OD surface connected defects in the circumferential orientation in a laboratory test block with cracks and not machined notch, require an extensive research and development program. This may not provide meaningful Code compliance results especially utilizing crack induced calibration blocks. The Authority is investigating whether the remote reactor vessel examination tool could examine a much greater volume of weld than the inner 1/3. Results of present non-destructive examination research with the Authority's ISI contractor has shown that ultrasonic examination of the full weld volume is achievable. This could be implemented for the final 3 1/3 year period in 1996 at which time these welds would be scheduled for examination.

### NRC Item K

Relief Request 8 (ISI Program): Relief is requested from volumetric examination of the pressurizer upper head circumferential and longitudinal welds. Can a partial volumetric examination be performed? If so, what is the estimated percent coverage that can be obtained?

### NYPA Response

The pressurizer upper head circumferential and longitudinal welds are located in an area of many permanent interferences such as the concrete missile wall barrier, pressurizer safety relief valves, associated piping (loop seals) and supports. These permanent interferences preclude sufficient removal and reinstallation of insulation and prevents adequate surface preparation. A partial volumetric examination is not feasible in this area.

NRC Item L

Relief Request 11 (ISI Program): Discuss the possibility of using the improved miniature linear accelerator (Minac-6), which is reported to be almost ten times more powerful than the original EPRI Minac for volumetric examination of the Class 1 longitudinal electrosag piping welds in the cast austenitic elbows on the crossover leg of the reactor coolant system.

NYPA Response

The Authority has utilized the Minac system in 1987 at the Authority's FitzPatrick plant. The results of the inspection were unsatisfactory. The Minac system had a very high radiation source and required evacuation of the entire containment building and an auxiliary building. The X-ray film (double-wall shot) was of extremely poor quality and non-readable even when the film was computer enhanced. The Authority still requests that Relief Request 11 be granted at this time. In addition, the Authority will continue to investigate alternate ultrasonic examination techniques which are presently being evaluated by the Westinghouse Owner's Group and Commonwealth Edison Company.

NRC Item M

Relief Request 13 (ISI Program): Regulatory Guide 1.14 requires the performance of an in-place ultrasonic volumetric examination of the areas of higher stress concentration at the bore and keyway at approximately 3 year intervals. Also required is a surface examination of all exposed surfaces and complete ultrasonic volumetric examination at approximately 10 year intervals. These examinations are to be performed during plant shutdowns coinciding with the inservice inspection schedule as required by Section XI of the ASME Code.

The relief request does not demonstrate that the requirements of Regulatory Guide 1.14 for the volumetric examinations are impractical. In order for relief to be considered, additional information that justifies the determination that the required volumetric examinations are impractical to perform at the required frequency must be provided.

With regard to the required surface examination of the Reactor Coolant Pump flywheels, discuss the possibility of performing a magnetic particle examination on the painted surfaces.

NYPA Response

The Authority has not committed to following the requirements of Regulatory Guide 1.14 for the Indian Point Unit 3 Nuclear Power Plant. The Authority has elected to use portions of this Regulatory Guide, as appropriate. The Authority will inspect all Reactor Coolant Pump flywheels within a 10 year interval. The Indian Point Unit 3 Reactor Coolant Pump flywheels, to date, have been examined a total of nine times, and all inspection results were satisfactory.

Magnetic Particle examination of painted surfaces is not allowed by the Authority's NDE procedures and is unacceptable according to ASME Section V, Article SE-709, Article 25, Part 7, Partial Preparation of Magnetic Particle Examination. In addition, the use of magnetic particle dry powder on top of the motor could lead to intrusion of the dry powder into the motor causing degradation to the motor's operation.

NRC Item N

Relief Requests 17 and 18 (ISI Program): Relief is requested from performing the Code required volumetric examination of the seal water heat exchanger shell and head circumferential welds (Relief Request 17) and the seal water return filter shell and head circumferential welds (Relief Request 18) based on the thickness of the material (0.187 inch) used to construct the thin-walled

pressure vessels. A surface examination is proposed in lieu of the Code required volumetric examination.

ASME Code Case N-435-1, "Alternate Examination Requirements for Vessels with Wall Thickness Two Inch or Less," stated that for welds in vessels with nominal wall thickness of 1/5 inch or less surface examination may be applied in lieu of volumetric examination. ASME Code Case N-435-1 is listed as an acceptable Code Case in NRC Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1, "Revision 6; therefore, may be used without requesting relief. The licensee should consider withdrawing relief requests 17 and 18 based on use of ASME Code Case N-435-1.

#### NYPA Response

Relief Requests No. 17 and 18 are included in the Program to identify that a required ASME Code volumetric examination is not being performed. However, the Authority will revise both relief requests to include reference to Code Case N-435-1 as further technical justification to support the relief requests.

#### NRC Item O

Relief Request 19 (ISI Program): This is a generic relief request that states that the individual systems where relief is required and the alternative tests to be performed will be identified in the Indian Point Unit 3 system pressure and hydrostatic tests relief requests. The licensee should withdraw this relief request since the individual relief requests for hydrostatic testing during the second 10-year interval were included in the licensee's December 6, 1988 submittal. These 15 relief requests for hydrostatic tests are being evaluated along with the Indian Point Nuclear Power Plant, Unit 3, second 10-year interval ISI Program Plan.

#### NYPA Response

The relief request should stay in this document to reference the Code items as listed. This identifies that these Code items are under a separate Program and have appropriate relief requests submitted.