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New York Power Authority

John C. Brons
Senior Vice President
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IPN-85-58

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Proposed Inservice Inspection Relief Request

Pursuant to 10 CFR 50.55a (g) (6), the New York Power Authority hereby requests relief from certain requirements of Section XI of the ASME Boiler and Pressure Vessel Code. The relief requests apply to the Indian Point 3 Weld and Support Inservice Inspection Program.

The attached relief requests pertain to inspections of the reactor coolant pump casing and welds, vessel interior clad, and valve interior surfaces. In lieu of the inspection prescribed by Section XI of the ASME Code, the Authority has proposed appropriate alternative examinations.

Your expeditious review of these requests for relief is requested to facilitate planning for the next refueling outage ISI. If you have any questions on this matter, please call Mr. P. Kokolakis of my staff.

Very truly yours,

John C. Brons
Senior Vice President
Nuclear Generation

cc: Resident Inspector's Office
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ATTACHMENT
IPN-85-58

PROPOSED RELIEF REQUEST
WELD AND SUPPORT
INSERVICE INSPECTION PROGRAM

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

The Indian Point 3 Weld and Support Inservice Inspection Program is based on Section XI of the ASME Boiler and Pressure Vessel Code, 1974 Edition with Addenda through summer, 1975. The Authority hereby requests relief from the specific Code requirements, outlined below.

1. A. CATEGORY B-L-1: PRESSURE RETAINING WELDS IN PUMP CASING

Item Number B5.6 - Pump Casing Welds

Areas Subject to Examination:

The areas shall include the weld metal and the base metal for one wall thickness beyond the edge of the weld.

Extent and Frequency of Examinations:

The examinations performed during each inspection interval shall include 100% of the pressure-retaining welds in at least one pump in each group of pumps performing similar functions in system (e.g., recirculating coolant pumps).

The examination may be performed at or near the end of the inspection interval.

Method of Examination: Volumetric

B. CATEGORY B-L-2: Pump Casings

Item Number B5.7 - Pump Casings

Areas Subject to Examination:

The areas shall include the internal pressure boundary surfaces.

Extent and Frequency of Examinations:

One pump in each of the group of pumps performing similar functions in the system shall be examined during each inspection interval. This examination may be performed on the same pump selected for the Category B-L-1 examinations.

The examinations may be performed at or near the end of the inspection interval.

Method of Examination: Visual

Alternate Examination Proposed

In lieu of the volumetric and visual examinations required for the first 10 yr. interval, New York Power Authority proposes to perform:

1) 100% visual examination of the external surfaces only of one pump's casing welds to the extent and frequency of Examination Category B-L-2.

2) Partial surface examination of the external casing weld(s) of one pump only, conditions, permitting, to the frequency of Examination Category B-L-2.

Basis For Relief Request

The Indian Point 3 Reactor Coolant Pumps (RCP's) are Westinghouse Model 93 controlled leakage pumps. The Model 93 pump casing is fabricated by welding four stainless steel casings together. The three circumferential pressure boundary welds created in the manufacture of the pump are to be inspected in accordance with Category B-L-1.

It had been recognized since the installation of these pumps that a volumetric examination of the casing welds was not possible with existing ultrasonic techniques in the field. The physical properties of the stainless steel casting and weld metal prevented a meaningful ultrasonic examination.

Recent developments in volumetric examination equipment has provided the capability to inspect the RCP casing welds.

Utilizing the miniature linear accelerator (MINAC), RCP casing examinations have been performed on several RCP's identical in design and manufacture to the IP-3 pumps.

The volumetric examination method utilizing the MINAC is radiographic and is performed by placing the MINAC inside the pump casing and locating the film on the outside of the pump. To perform the examination, the pump must be completely disassembled, including removal of the diffuser adapter and casing adapater. This amount of disassembly is far beyond the amount of disassembly performed for normal maintenance. The pump manufacturer does not require nor recommend pump disassembly to perform normal maintenance and inspections. In addition, because the pump bowl must be dry for installation of the MINAC, a complete core unload is required since the reactor coolant system water level must be drained below the level necessary to maintain shutdown cooling for the core.

Examinations of the Model 93 RCP casing welds have been performed at four plants to date. The Authority understands that no indications were identified in the welds inspected at any of the sites. A review of the original radiographs of a pump at one site was performed prior to the MINAC examination, and all the original landmarks were identified during the field examination with no apparent change.

The successful performance of this volumetric examination using the MINAC at four different sites demonstrates that the method is capable of satisfying ASME Section XI inspection requirements, however, the performance of the examination has shown that there is a relatively high radiation exposure associated with it. The total exposure associated with insulation removal, pump disassembly, inspection, and reassembly of the pump is estimated to range from 35-100 man-rem. There have been no defects identified by the four inspections performed on these pumps to date.

The pump disassembly, examination and reassembly is estimated to cost $500,000. This estimate does not include dollar estimates for radiation exposure or decontamination processes, if available.

It is the Authority's position that a volumetric examination of the Indian Point Unit 3 reactor coolant pump casing welds and a visual examination of the interior pressure retaining surface of one pump during the first ten-year inspection interval does not provide an increase in safety commensurate with the associated radiation exposure or cost required to perform the examination. The inspection of four identical reactor coolant pumps at other plants provides reasonable assurance that no problems are expected with respect to the Indian Point Unit 3 reactor coolant pump casing welds.

In addition, the relief requested by the Authority for IP-3 is similar to that granted by the NRC for other units with pumps identical to those at IP-3. Deferral of this examination is also supported by EPRI Report NP-3491 which is a generic, in-depth report on welded pump casing integrity and examination.

Based on the preceding factors, the Authority hereby requests relief from performing a volumetric examination of the reactor coolant pump casing welds and visual examination of the interior pressure retaining surface of one of the four reactor coolant pumps at Indian Point 3 during the first ten-year inservice inspection interval.

2 A. CATEGORY B-I-1: INTERIOR CLAD SURFACES OF REACTOR VESSELS

Item Number B1.13 - Closure Head Cladding
Item Number B1.14 - Vessel Cladding

Areas Subject to Examination: The areas shall include at least six patches (each 36 sq. in.) evenly distributed, in the closure head, and six patches (each 36 sq. in.), evenly distributed in accessible sections of vessel shell.

Extent and Frequency of Examinations: The examinations performed during each inspection interval shall cover 100% of the patch areas.

Method of Examination: B1.13-1) Visual and Surface or 2) Volumentric; B1.14-Visual.

Alternate Examination Proposed

The Authority proposes no additional examinations in these categories since editions and addenda of the ASME Code, Section XI approved by the NRC and incorporated into 10 CFR 50.55a no longer require cladding examinations.

B. CATEGORY B-I-2: INTERIOR CLAD SURFACES OF VESSELS OTHER THAN REACTOR VESSELS:

Item Number B2.9 - Pressurizer Cladding
Item Number B3.8 - Steam Generator Cladding

Areas Subject to Examination: The areas shall include at least one patch (36 sq. in.) near each manway in the primary side of the vessel.

Extent and Frequency of Examinations: The examinations performed during each inspection interval shall cover 100% of the patch areas. The examination of the patches may be performed at or near the end of the inspection interval.

Method of Examination: Visual

Alternate Examination Proposed

The Authority proposes no additional examinations in these categories since editions and addenda of the ASME Code, Section XI approved by the NRC and incorporated into 10 CFR 50.55a no longer require cladding examinations.

Basis for Relief Request

The edition of the ASME Code, Section XI in effect for the first ten year inservice inspection interval at IP-3 is the 1974 edition with Addenda through summer 1975. This version

of the Code required reactor vessel, pressurizer and steam generator cladding examinations. Subsequent editions and addenda to the Code which have been approved by the NRC for incorporation into 10 CFR 50.55a have deleted the cladding inspection.

Recognizing this deletion and the intent of the ASME Section XI examinations to provide monitoring of component degradation over the plant's service interval, it is the Authority's position that the radiation exposure and cost associated with the cladding examinations are not commensurate with the increase in safety realized. The clad examination results obtained during the first inspection interval will not be directly comparable to examination results in later intervals.

Table 1 presents a summary of the cladding examinations required by the first ten year inservice inspection plan and the results of these examinations to date. No recordable indications have been identified in any of the inspections performed to date. Note, on Table 1, x = completed examination, = scheduled examination.

Based on the preceding factors, the Authority hereby requests relief from the remaining Reactor Vessel, Pressurizer and Steam Generator cladding examinations at Indian Point Unit 3 during the first ten year inservice inspections interval.

3. CATEGORY B-M-2: INTERIOR SURFACES OF VALVES

Item Number B6.7 - Valve Bodies

Areas Subject to Examination

The areas shall include the internal pressure boundary surfaces on valves exceeding 4 in. nominal pipe size.

Extent and Frequency of Examinations

One valve in each group of valves of the same constructional design, e.g., globe, gate, or check valve, manufacturing method and manufacturer that performs similar functions in the system shall be examined during each inspection interval. This examination may be performed on the same valve selected for the Category B-M-1 examination.

The examinations may be performed at or near the end of the inspection interval.

Method of Examination: Visual

Alternate Examination Proposed

In lieu of examination of each similar valve's interior on lines 4 inch nominal pipe size and larger during the interval, the Authority proposes to examine only those valves in this category which are disassembled during the interval for maintenance purposes.

Basis For Relief Request

Disassembly of a valve which has been functioning within acceptable parameters for the sole purpose of examination is contrary to good maintenance practices since the likelihood of failure may be increased. All of these components are subjected to an alternate form of performance and/or leakage monitoring, such as inservice valve testing, Appendix J leak rate testing, or primary coolant system leak detection. All valves in this category are constructed of cast austenitic stainless or carbon steels, which have been identified as unlikely to experience failure by cracking. Finally, considering the uncertain benefit involved, it is difficult to justify the additional radiation exposure which would be incurred in the valve disassembly, inspection, and valve reassembly.

It is the Authority's position that performing a visual examination of the interior of one valve in group of similar valves within the Class 1 pressure boundary at Indian Point Unit 3 during the first ten year inservice inspection interval does not provide an increase in safety above that provided by routine inservice valve testing and pressure testing required by ASME Section XI. Therefore, the costs and radiation exposure associated with this examination are also not justified.

Based on the preceeding factors, we hereby request relief from performing a visual examination of the interior surfaces of one valve in a group of similar valves on piping 4 inch nominal pipe size and larger at Indian Point Unit 3 during the first ten-year inservice inspection interval.

COMPONENT: REACTOR VESSEL: CLOSURE HEAD CLAD PATCHES

ITEM NO.		CATEGORY NO.		INT		EXAMINATION METHODS			FIRST INTERVAL			SECOND INTERVAL			THIRD INTERVAL			FOURTH INTERVAL			REMARKS
75S		75S		SKETCH NO.	IDENT. NO.	VOL.	SUR.	VIS.	1ST •	2ND •	3RD •	1ST •	2ND •	3RD •	1ST •	2ND •	3RD •	1ST •	2ND •	3RD •	
B1.13		B-I-1		1-1300	CP1	X**	X*	X	X		/										No Indications
					CP2	X**	X*	X	X		/										No Indications
					CP3	X				X											No Indications
					CP4	X				X											No Indications
					CP5	X					/										
					CP6	X					/										
				TOTAL	6				2	2	4										

*Surface deleted due to radiation levels for 1st period. Vis only performed

**Vol performed 3rd period only

COMPONENT: REACTOR VESSEL: VESSEL CLADDING

ITEM NO.		CATEGORY NO.		INT		EXAMINATION METHODS			FIRST INTERVAL			SECOND INTERVAL			THIRD INTERVAL			FOURTH INTERVAL			REMARKS
75S		75S		SKETCH NO.	IDENT. NO.	VOL.	SUR.	VIS.	1ST •	2ND •	3RD •	1ST •	2ND •	3RD •	1ST •	2ND •	3RD •	1ST •	2ND •	3RD •	
B1.14		B-I-1		1-1250	CP1			X													
					CP2			X		X											NRI*
					CP3			X		X											NRI*
					CP4			X													
					CP5			X	X												NRI*
					CP6			X	X												NRI*
					CP7			X													
					CP8			X													
					CP9			X													
					CP10			X			/										
					CP11			X			/										
					CP12			X													
					CP13			X													
					CP14			X													
					CP15			X													
					CP16			X													
					CP17			X													
					CP18			X													
				TOTAL	18				2	2	2										

*No Recordable Indications

COMPONENT: PRESSURIZER: VESSEL CLADDING

ITEM NO.		CATEGORY NO.		INT		EXAMINATION METHODS			FIRST INTERVAL			SECOND INTERVAL			THIRD INTERVAL			FOURTH INTERVAL			REMARKS
75S		75S		SKETCH NO.	IDENT. NO.	VOL.	SUR.	VIS.	1ST •	2ND •	3RD •	1ST •	2ND •	3RD •	1ST •	2ND •	3RD •	1ST •	2ND •	3RD •	
B2.9		B-I-2		1-2100	CP1			X			/										

COMPONENT: STEAM GENERATORS 31,32,33 & 34: VESSEL CLADDING

ITEM NO.		CATEGORY NO.		INT		EXAMINATION METHODS			FIRST INTERVAL			SECOND INTERVAL			THIRD INTERVAL			FOURTH INTERVAL			REMARKS
75S		75S		SKETCH NO.	IDENT. NC.	VOL.	SUR.	VIS.	1ST •	2ND •	3RD •	1ST •	2ND •	3RD •	1ST •	2ND •	3RD •	1ST •	2ND •	3RD •	
B3.8		B-I-2		1-3100	CP1			X			/										
					CP2			X			/										
					CP3			X			/										
					CP4			X			/										
					CP5			X			/										
					CP6			X			/										
					CP7			X			/										
					CP8			X			/										
				TOTAL	8						8										