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Kewaunee / Point Beach Nuclear  
Operated by Nuclear Management Company, LLC

NRC 2002-0016

10 CFR 5055a(f)(4)(ii)

February 13, 2002

Document Control Desk  
U.S. Nuclear Regulatory Commission  
Mail Station P1-137  
Washington DC 20555

Ladies/Gentlemen:

Dockets 50-266 And 50-301  
ASME Section XI Inservice Testing Program  
Fourth Interval Relief Requests VRR-1 AND PRR-1  
Point Beach Nuclear Plant, Units 1 And 2

In accordance with 10 CFR 50.55a(f)(4)(ii), Nuclear Management Company, LLC's Point Beach Nuclear Plant (PBNP) is requesting relief from specific requirements of the Code for Operation and Maintenance of Nuclear Power Plants, 1995 Edition and the 1996 Addenda, Subsections ISTB and ISTC during the Fourth Ten-Year Inservice Testing (IST) Interval. There is one valve relief request, VRR-1, and one pump relief request, PRR-1. Relief Request VRR-1 applies to specific requirements of ASME ISTC 4.5.4(c)(3). PRR-1 applies to specific requirements of ISTB 4.7.1(a) and ISTB 4.7.1(b)(1).

Relief Requests VRR-1 and PRR-1 have been previously approved by the NRC for use at PBNP during the Third Ten-Year IST Interval. Regulatory relief for the continued use of Relief Request PRR-1 is contained in NUREG 1482, Section 5.5.1. Relief Request VRR-1 has been prepared in accordance with NRC Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," Attachment 1, Position 2. Continuation of the extended disassembly interval is supported by the examination history and the hardships that would be incurred if the requirements of ISTC 4.5.4.c.3 were imposed.

PBNP will implement the Fourth Ten-Year Interval IST Program in accordance with the guidance of NUREG 1482, Section 3.3.4. Implementing inservice test surveillance procedures will be revised and issued prior to the interval start date. These procedures will meet the requirements of the ASME OM Code 1995 Edition/1996 Addenda. During the implementation phase, the need for additional relief requests may be identified. These relief requests, if required, will be submitted in accordance with 10 CFR 50.55a(f)(5)(iv).

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The enclosed relief requests are for implementation of the Fourth Ten Year Interval of the PBNP inservice testing program to be implemented by September 1, 2002. for Unit 1, and October 1, 2002, for Unit 2.

If you have any questions or require additional information, please contact us.

Sincerely,

A handwritten signature in black ink, appearing to read "T. J. Webb". The signature is written in a cursive style with a large, sweeping initial "T".

T. J. Webb  
Regulatory Affairs Manager

Attachments

cc: NRC Resident Inspector  
NRC Regional Administrator  
NRC Project Manager  
PSCW

ATTACHMENT 1

Letter from Tom J. Webb (NMC)

To

Document Control Desk (NRC)

Dated

February 13, 2002

POINT BEACH NUCLEAR PLANT  
FOURTH TEN-YEAR IST INTERVAL  
VALVE RELIEF REQUEST VRR-1

System: Safety Injection  
Valve(s): 1(2)SI-00842A&B 1(2)SI-867A  
Category: AC Code Class: 1  
Function:

These check valves are located in the safety injection line to the RCS Loop A and B cold legs from SI accumulators 1(2)T-34A&B. The valves perform an active safety function in the open direction and must be capable of opening to provide a flow path to the RCS for injection of SI accumulator contents. This function is dependent upon a reduction in RCS pressure prior to safety injection. These valves also perform an active safety function in the closed direction. Valves 1(2)SI-867A perform an Event V RCS PIV function and are subject to periodic leak testing per Technical Specification 3.4.14. Also, upon initiation of high head safety injection 1(2)SI-00842A&B must close to prevent safety injection flow from being diverted to the SI accumulator in lieu of their associated cold leg.

Code Requirement:

Relief is requested from the sample disassembly examination requirements of ISTC 4.5.4(c)3. This section of the OM Code requires the disassembly and examination of at least one valve in the sample group each refueling outage and establishes a maximum interval of 8 years between valve disassemblies.

Basis For Relief:

During normal operation, neither SI pump discharge pressure of 1500 psig nor accumulator pressure of 760 psig is sufficient to overcome RCS pressure. Therefore, full or partial stroke exercising during power operation is not possible.

A full stroke exercise test by injecting to the RCS could be possible during refueling when the reactor vessel head is removed, but the volume and flow rate required for the test could result in damage to the core internals. There is also the potential of forcing a nitrogen bubble into the RCS piping and refueling cavity resulting in possible safety implications, which makes this testing concept inadvisable. The PBNP RHR System injects back to the RCS through the B cold leg. 1(2)SI-842B cannot be isolated from this flow path. Therefore, disassembly is limited to those conditions when the RHR system is not required to be operable, requiring a core off-load.

To date, 21 check valve disassemblies have been performed. No anomalies have been identified during these examinations that would indicate an inability of a valve to full stroke open or closed. During the previous Ten-Year IST Interval, the NRC safety evaluation report dated June 30, 1999, allowed an extended disassembly schedule that permitted 1(2)SI-842B to be disassembled and manually full stroke exercised every ten (10) years. 1(2) SI-842A and 1(2) SI-867A were disassembled on a six year schedule. In addition, the sampling schedule did not require the disassembly of one valve from the sample group each refueling outage. The examination results warrant continuation of the alternate examination schedule of VRR-01.

Alternate Testing:

Valves 1(2)SI-842A and 1(2)SI-867A will each be disassembled, inspected, and manually stroked once every six years, rotating the sequence of valves being inspected such that a different valve is completed each time until all valves have been inspected and the sequence repeated. Should a failure be detected, the other valves for that unit (excluding SI-842B if the core is loaded) shall be disassembled and proper operation verified prior to completion of that outage. The opposite unit's two valves will be disassembled and inspected during that unit's next scheduled refueling outage.

Valves 1(2)SI-842B require a complete core off-load to disassemble and inspect. Efforts will be made to disassemble, inspect, and manually stroke each valve every six years. However, this will typically be done concurrent with reactor vessel inspections that are required to be completed once every 120 months. Should a failure be detected, the other valves (SI-842A and SI-867A) for that unit shall be disassembled and proper operation verified prior to completion of the outage.

In the inspections that result from the detection of a failure, should an additional failure be detected, all remaining valves will be disassembled, inspected, and manually full stroke exercised. Valves associated with the unit in an outage will be completed prior to the return of the unit to service, even if an unscheduled core off-load is required. Valves associated with the opposite unit will be completed during the next scheduled refueling outage, even if these actions require a complete core offload.

Bidirectional exercising requirements for these valves will be satisfied by disassembly. In addition, when the plant is at nominal operating pressure, confirmation of 1(2)SI-842A closure is demonstrated by monitoring accumulator level.

Basis for Extended Inspection Interval:

Generic Letter (GL) 89-04, Attachment 1, Position 2, requested information to support the extension of valve disassembly and inspection intervals of greater than once every six years. Over the past 15 years, each of the six valves identified in this request for relief and SI-867B have been disassembled, inspected, and manually exercised in accordance with the criteria in GL 89-04, Attachment 1, Position 2. No degradation of valve operability or performance has been noted in any disassembly and inspection performed to date. The following table lists each valve, the individual work order under which the inspection was performed, and the MWR completion date.

<u>Unit 1</u>		
Valve	Work Order	WO Completion Date
SI-00842A	9902498	11/04/99
	45881	04/14/93
	890172	04/11/90
	872759	04/14/88
SI-00842B	9902499	11/05/99
	45639	04/14/93
	890174	04/21/90
SI-00867A	9703899	04/08/98
	890176	04/24/90
	872755	04/15/88
SI-00867B	890178	04/21/90
<u>Unit 2</u>		
SI-00842A	9912856	11/01/00
	9510056	10/17/95
	890173	10/05/89
	872760	10/18/87
SI-00842B	9912857	11/03/00
	9510057	10/17/95
	890175	11/04/89
SI-00867A	9912858	11/01/00
	9510060	10/21/95
	890177	10/05/89
	872757	10/20/87
SI-00867B	50730	10/08/93
	890179	11/03/89

An industry-wide search on similar valves, performed January 2, 1998, utilizing the Nuclear Plant Reliability Data System also indicated no failures, although leakage through the seat was reported in 34 instances, including three instances at PBNP. Allowable leakage values for 1(2)SI-867A are given in TS 5.5.16. Discussions with the valve vendor in January of 2002, indicate there is no current operating experience in the industry to invalidate the previous NPRDS search.

The primary wear mechanism for these valves is operation at low flow rates, where the valve disk is less than full open. Discussions with the valve manufacturer indicate that clapper arm shaft and bushing materials were chosen specifically for resistance to wear. The normally closed service conditions of these valves also makes wear unlikely to occur.

The request for an extended inspection interval only applies to SI-00842B. This is the only valve that goes beyond the six year period specified in GL 89-04, Attachment 1, Position 2. The maintenance history of all six valves contained in this relief, in addition to similar valve SI-867B, is provided for completeness to show the trouble-free history of the valves.

Additional justification for the extended inspection interval is contained in the NRC Safety Evaluation Reports on the Inservice Test Program at PBNP dated April 17, 1992, and October 28, 1993.

POINT BEACH NUCLEAR PLANT  
FOURTH TEN-YEAR IST INTERVAL  
PUMP RELIEF REQUEST PRR-01

System: Various

Components: 1/2P-11A&B Component Cooling Water (CCW)  
1/2P-10A&B Residual Heat Removal (RHR)  
P-12A&B Spent Fuel Pool Cooling (SFPC)

Pump Group: Group A

Test Type: Group A

Code Class: 2 (CCW and RHR)  
3 (SFPC)

Code Requirement:

Instrument accuracy shall be within the limits of Table ISTB 4.7.1-1. Station instruments meeting these requirements shall be acceptable [Para. ISTB 4.7.1(a)]. These accuracy requirements also apply to the percent of total loop accuracy for a combination of instruments.

The full scale range of each analog instrument shall not be greater than three times the reference value [Paragraph 4.7.1(b)(1)].

Basis For Relief:

Various permanently installed pressure instruments utilized during the Group A test have a full scale range that exceeds three times the reference value criteria that is specified by the Code. Although these instruments do not meet the Code range requirements, they are able to provide the same or better indication accuracy as an instrument that is allowed by the Code, and ensure repeatability of test data.

For instruments to be in compliance with the OM Code Group A tests, two requirements must be satisfied. The first requirement states that flow and pressure instrumentation must be accurate to within  $\pm 2\%$  of the full scale value; the second requirement states that the full scale range of each instrument shall be three times the reference value or less. Based on these requirements, a maximum indicated accuracy of  $\pm 6\%$  can be calculated by comparing the actual tolerance of the instrument to the reference value being measured.

The following example of calculating indicated instrument accuracy uses a pressure reference value of 20 psig and a pressure gauge with full scale range of 60 psig that is calibrated to  $\pm 2\%$  of full scale.

Code Requirement: Group A Test  
3 x reference value (20 psig) = 60 psig  
Instrument tolerance =  $\pm 1.2$  psig ( $\pm 2\% \times 60$  psig)

Indicated Accuracy:  
 $\pm 1.2$  psig / 20 psig x 100% =  $\pm 6\%$



The indicated accuracy for the instruments on the pumps listed are less than or equal to  $\pm 6\%$  at the reference value. These accuracies are the same or better than those allowed by the Code. The use of the existing gauges is supported by NUREG-1482, Paragraph 5.5.1 when the combination of range and accuracy yields a reading at least equivalent to the reading achieved from instruments that meet the Code requirements. In addition, all the gauges identified serve as suction pressure gauges. Since suction pressure is subtracted from a much higher discharge pressure to determine differential pressure, the impact of the suction pressure error is minimized.

The following table specifies the instruments where this relief request applies. The indicated accuracy, which is less than  $\pm 6\%$  in all cases, is determined by dividing the actual instrument calibration tolerance by the reference value multiplied by 100%.

Pump ID (Freq)	Instrument Number	PPCS Loop Accuracy	Parameter	Reference Value (Baseline)	Instr Range	Instr Accur (Loop)	Instr Cal Tolerance	Indicated Accur @ Ref Value
1P-11A	1PI-692A	N/A	Suction Pressure	16.2 psig	0-60 psig	$\pm 0.5\%$	$\pm 0.3$ psig	$\pm 1.85\%$
1P-11B	1PI-692B	N/A	Suction Pressure	16.6 psig	0-60 psig	$\pm 0.5\%$	$\pm 0.3$ psig	$\pm 1.80\%$
2P-11A	2PI-692A	N/A	Suction Pressure	16.0 psig	0-60 psig	$\pm 0.5\%$	$\pm 0.3$ psig	$\pm 1.88\%$
2P-11B	2PI-692B	N/A	Suction Pressure	16.7 psig	0-60 psig	$\pm 0.5\%$	$\pm 0.3$ psig	$\pm 1.80\%$
1P-10A(CS)	1PI-653A	N/A	Suction Pressure	7.4 psig	0-60 psig	$\pm 0.5\%$	$\pm 0.3$ psig	$\pm 4.05\%$
1P-10B(CS)	1PI-653B	N/A	Suction Pressure	8.5 psig	0-60 psig	$\pm 0.5\%$	$\pm 0.3$ psig	$\pm 3.53\%$
2P-10A(CS)	2PI-653A	N/A	Suction Pressure	15.5 psig	0-60 psig	$\pm 0.5\%$	$\pm 0.3$ psig	$\pm 1.94\%$
2P-10B(CS)	2PI-653B	N/A	Suction Pressure	17.3 psig	0-60 psig	$\pm 0.5\%$	$\pm 0.3$ psig	$\pm 1.73\%$
0P-12A	PI-658A	N/A	Suction Pressure	4.3 psig	0-15 psig	$\pm 1.00\%$	$\pm 0.15$ psig	$\pm 3.49\%$
0P-12B	PI-658B	N/A	Suction Pressure	4.4 psig	0-15 psig	$\pm 1.00\%$	$\pm 0.15$ psig	$\pm 3.41\%$

Alternate Testing:

The existing permanently installed pump instrumentation is acceptable provided the indicated accuracy is less than or equal to  $\pm 6\%$  of the reference value. No alternate testing will be performed.