



December 22, 2004

NRC-04-144  
10 CFR 50.55a

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

Kewaunee Nuclear Power Plant  
Docket 50-305  
License No. DPR-43

Response To Request For Additional Information Related To The Kewaunee Nuclear Power Plant Fourth Ten-year Interval Inservice Testing Program

References: 1) Letter from Thomas Coutu (NMC) to Document Control Desk (NRC), "Inservice Testing Program Fourth Ten-Year Interval Update", dated August 16, 2004.

2) E-mail from Carl F. Lyon (NRC) to Theodore L. Maloney - "4th Interval IST RAI", dated November 4, 2004.

In Reference 2), the Nuclear Regulatory Commission (NRC) staff requested additional information (RAI) concerning the Nuclear Management Company, LLC (NMC) Inservice Testing Program submittal dated August 16, 2004 (Reference 1). Enclosure 1 is NMC's response to the NRC's request for additional information. Enclosure 2 is the revised Pump Relief Request (PRR-01), which was changed based on discussions with the NRR Project Manager.

Summary of Commitments

This letter makes no new commitments and no revisions to existing commitments.

A047

I declare under penalty of perjury that the foregoing is true and correct.  
Executed on December 22, 2004.



Thomas Coutu  
Site Vice-President, Kewaunee Nuclear Power Plant  
Nuclear Management Company, LLC

Enclosures (2)

cc: Administrator, Region III, USNRC  
Project Manager, Kewaunee Nuclear Power Plant, USNRC  
Senior Resident Inspector, Kewaunee Nuclear Power Plant, USNRC  
Electric Division, PSCW

**ENCLOSURE 1**  
**NRC REQUEST FOR ADDITIONAL INFORMATION REGARDING**  
**INSERVICE TESTING PROGRAM FOURTH TEN-YEAR INTERVAL UPDATE**

**Request for Additional Information (RAI)**  
**Kewaunee Nuclear Power Plant**  
**Fourth Ten-year Interval Inservice Testing Program**  
**Relief Request Nos. PRR-01, PRR-02, VRR-02 and VRR-05**  
**for Pumps and Valves**  
**Docket Nos. 50-305 (MC4182, MC4183, MC4184, and MC4185)**

*References:*

1. *Nuclear Management Company, LLC, letter to NRC "Inservice Testing Program Fourth Ten-Year Interval Update for Kewaunee Nuclear Power Plant", dated August 16, 2004.*

*The NRC staff needs the following additional information to complete its review.*

*Relief Request No. PRR-01*

*In a "Note" at the end of relief request, the licensee states "this relief request was previously approved for third 10-year interval IST program via NRC Safety Evaluation Report Dated July 1, 2004." Please note that the Code of record for Kewaunee's third 10-year interval IST program for pumps and valves was the 1989 Edition of the ASME Boiler and Pressure Vessel Code, Section XI. Whereas, the Code of record for the fourth 10-year interval IST program is the 1998 Edition through 2000 Addenda of the ASME OM Code. The differences in pump IST requirements between the two Codes are significant, and, thus NRC staff's previous authorization may not readily apply to the newer Code.*

**NMC Response:**

Kewaunee agrees there are significant differences in pump test requirements between the two Codes, however; there is virtually no difference with respect to the pump test procedure and requirements for operating the pump at a reference point or value. Therefore, the note is applicable to the request.

1998 Edition through 2000 Addenda requirements:

ISTB-5121(b), ISTB-5221(b) – The resistance of the system shall be varied until the flow rate equals the reference point. The differential pressure shall then be determined and compared to the reference value. Alternatively, the flow rate shall be varied until the differential pressure equals the reference point and the flow rate determined and compared to the reference flow value.

ISTB-5123(b), ISTB-5223(b) – For centrifugal and vertical line shaft pumps, the resistance of the system shall be varied until the flow rate equals the reference point. The differential pressure shall then be determined and compared to the reference value. Alternatively, the flow rate shall be varied until the differential pressure equals the reference point and the flow rate determined and compared to the reference flow value.

Part 6, OMa-1988 requirement:

5.2(b) – “The resistance of the system shall be varied until the flow rate equals the reference value. The pressure shall then be determined and compared to its reference value. Alternatively, the flow rate can be varied until the pressure equals the reference value and the flow rate shall be determined and compared to the reference flow rate value.”

*RAI 1: ASME OM Code Edition 1998 through 2000 Addenda, requires that all pumps within scope of IST program need to be categorized either as Group A or Group B pumps. Therefore, please specify the category of the component cooling water and service water pumps (i.e., either Group A or Group B). After specifying the pumps as Group A or Group B, please specify which paragraph of the OM Code relief is requested.*

**NMC Response:**

The Component Cooling and Service Water Pumps are Group A pumps.

Component Cooling Pumps, para. ISTB 5121(b) and ISTB 5123(b)

Service Water Pumps, para. ISTB 5221(b) and ISTB 5223(b)

*RAI 2: Under “Alternate Testing” the licensee used the NRC guidance provided in Section 5.2 of NUREG-1482. The NUREG-1482 is based on 1989 Edition of ASME Section XI, Subsections IWP and IWV for pumps and valves, whereas the Kewaunee’s fourth 10-year interval IST program is based on 1998 Edition through 2000 Addenda of the ASME OM Code. Please explain the technical basis for the proposed alternative testing relative to the later ASME OM Code and your reasons for assuming the NUREG guidance still applies to the ASME OM Code requirements.*

*Note: (Draft) NUREG-1482, Revision 1, which is based on ASME OM Code, 1998 Edition through 2000 Addenda has been issued for public comments. The Draft copies of NUREG-1482, Revision 1 were provided to all licensees for comments during the ASME/NRC Eighth Pump & Valve Symposium in July 2004.*

**NMC Response:**

As a result of conversations with our NRR Project Manager and based upon NUREG-1482 guidance, NMC has revised the original request that was submitted to the NRC in the August 16, 2004 Inservice Testing Program Fourth Ten-Year Interval Update submittal. The revised Pump Relief Request PRR-01, contained in Enclosure 2 requests relief to use Code Case OMN-9, "Use of a Pump Curve for Testing", OM Code 1998 edition through 2000 addenda.

**Relief Request No. PRR-02**

*RAI 3: Under "Alternate Testing" the licensee states, "Residual Heat Removal (RHR) and Auxiliary Feedwater (AFW) pump suction pressures will be measured with the currently installed instrumentation with the accuracies...." The licensee did not provide any information about how the discharge pressure of the RHR and AFW pumps will be measured. However, under "Basis for Relief" the licensee provided information only on measuring RHR suction side pressure only, and AFW pumps suction and discharge side pressure. Please clarify this inconsistency, and also explain how RHR pump discharge pressure will be measured.*

**NMC Response:**

The relief requested is for relief from ISTB-3510(b)(1) instrument range requirements. The AFW pump discharge pressure discussion is documented to provide the basis for using the combination of installed instruments to meet the comprehensive pump test differential pressure accuracy requirements. This basis would be validated with approval to use the installed suction pressure gauge.

RHR pump discharge pressure is measured with installed instrumentation that meets the range requirements for the Group A test, (0.7%, 0-350 psig range, 170 psig expected reading). For the comprehensive test, a different installed suction pressure gauge is used as this test is performed under different plant conditions (cool down alignment). Temporary high accuracy discharge pressure gauges are used for this design point comprehensive flow test.

*RAI 4: Under "Basis for Relief" second paragraph, the licensee did not provide RHR pumps' suction and discharge pressure gauge accuracy requirements for the comprehensive pump test. Please clarify and provide all the necessary information.*

**NMC Response:**

As stated above, the relief is for the instrument ranges. Installed RHR pump discharge pressure instrumentation for the group A test meets the required range and accuracy requirements. Installed RHR pump suction instrumentation meets the range and accuracy requirements for comprehensive pump testing. Temporary high accuracy discharge pressure instruments are installed for design point flow testing.

<b>Test</b>	<b>Suction Pressure</b>	<b>Normal Value</b>	<b>Accuracy</b>	<b>Range</b>
Group A	PI 11819 (11820)	28 psig	0.5%	0-100 psig
Comprehensive	PI 11276 (11277)	350 psig	0.5%	0-600 psig
	<b>Discharge Pressure</b>			
Group A	PI 11906 (11907)	170 psig	0.7%	0-350 psig
Comprehensive	Helicoid Temporary	460 psig	0.25%	0-800 psig

**ENCLOSURE 2**  
**REVISED PUMP RELIEF REQUEST PRR-01**

## PUMP RELIEF REQUEST - PRR-01

**System:** Component Cooling Water  
Service Water

**Components:** CCW Pumps 1A, 1B  
SW Pumps 1A1, 1A2, 1B1, 1B2

**Code Class:** 3

**Function:** The component cooling water and service water pumps perform the safety-related function of providing heat removal from essential safety-related equipment during accident conditions.

**Code Requirement:** Paragraphs ISTB-5121(b) and ISTB-5221(b) of the OM Code details the pump parameters that must be measured or observed at least once every 3 months. Paragraphs ISTB-5123(b) and ISTB-5223(b) of the OM Code details the pump parameters that must be measured or observed during the comprehensive test. These paragraphs include a requirement that either flow rate or differential pressure be held constant while measuring the other required parameters.

**Alternate Testing:** Service water and component cooling water pumps will be tested in a range of flows, and the results compared to acceptance criteria based upon a portion of the pump curve and the hydraulic acceptance criteria given in ISTB. The guidelines set forth in Code Case OMN-9, "Use of a Pump Curve for Testing," OM Code 1998 edition through 2000 addenda, will be followed. This alternative to the requirements of ISTB-5121(b), ISTB-5123(b), ISTB-5221(b) and ISTB-5223(b) provides an acceptable level of quality and safety.

**Basis For Relief:** Pursuant to 10 CFR 50.55a(f)(5)(iii), relief is being requested on the basis that conformance to Code requirements is impractical for the facility.

The component cooling water pumps operate during a variety of flow rates, differential pressure conditions and system demands resulting in the inability to easily establish a stable flow rate or differential pressure for evaluation against reference values. Varying the flow rate of the component cooling water pumps is impractical during normal plant operation due to the potential of creating transients in the reactor coolant pumps, which could cause a plant trip. The Code required test method would be an undue burden in that damage to plant equipment could occur as well as a plant transient/trip. The alternative testing can provide an adequate level of assurance of operational readiness of the component cooling water pumps without creating adverse conditions.

The service water pumps operate during a variety of flow rates, differential pressure conditions and system demands resulting in the inability to easily establish a stable flow rate or differential pressure for evaluation against reference values. Varying the flow rate of the service water pumps is impractical during normal plant operation due to the potential loss of adequate flow to various components dependent upon service water for cooling water flow and heat removal. The potential interruption of cooling water flow to these components is burdensome and could result in a reactor transient or a trip.

Note: Similar relief utilizing NUREG 1482 guidance was previously approved for the Third 10-Year Interval via NRC Safety Evaluation Report dated July 1, 2004, ML041680247. These reference curves, based upon the previously approved relief are acceptable. Any new reference curves will be developed in accordance with OMN-9 and conditions identified in Regulatory Guide 1.192, Operation and Maintenance Code Case Acceptability, ASME OM Code.