NMC
Committed to Nuclear Excellence

Kewaunee Nuclear Power Plant
N490, State Highway 42
Kewaunee, WI 54216-9511
920-388-2560

Operated by
Nuclear Management Company, LLC

February 26, 2001

10 CFR 50.55a(g)(5)(iii)

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

Ladies/Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
INSERVICE INSPECTION (ISI) PROGRAM
RELIEF REQUESTS RR1-6, RR1-7 AND RR G-5

10 CFR 50.55a(g)(4) requires inservice inspections (ISI) comply with Section XI of the ASME Boiler and Pressure Vessel Code. Relief is requested from the requirements specified in Paragraph IWB-5221 of the 1989 Edition of Section XI and Subarticle VII-4240 of the 1995 Edition and 1996 Addenda of Section XI. These requirements are associated with performing system pressure testing and providing annual training for ultrasonic testing personnel.

Relief requests RR-1-6 and RR-1-7 (Attachments 1 and 2) address the requirement to perform system leakage testing at a test pressure not less than the nominal operating pressure associated with 100% rated reactor power for all Class 1 pressure-retaining components.

Relief request RR-G-5 (Attachment 3) addresses the issue of ensuring that personnel qualified for performing ultrasonic examinations in accordance with Appendix VIII receive training that includes laboratory work and examinations on flawed specimens no earlier than 6 months prior to performing examinations.

In accordance with 10 CFR 50.55a(a)(3)(i) and 10 CFR 50.55a(g)(5)(iii), descriptions and basis for the relief requests, as well as alternative methods of examinations, are provided. Based upon information contained in RR-1-6, RR-1-7, and RR-G-5, the proposed alternatives will provide an acceptable level of quality and safety.

A047

If you have questions regarding these relief requests, please contact us.

Sincerely,

Kyle A. Hoops
Manager-Kewaunee Plant

CAT

Attachment

cc - NRC Senior Resident Inspector
US NRC Region III
Electric Division, PSCW

ATTACHMENT 1

Letter from K.A. Hoops (NMC)

To

Document Control Desk (NRC)

Dated

February 26, 2001

RE: RR-1-6

NUCLEAR MANAGEMENT COMPANY, LLC
KEWAUNEE NUCLEAR POWER PLANT
THIRD TEN-YEAR INTERVAL
RELIEF REQUEST RR-1-6

Components Affected

Class 1 Piping and Valves:

Item	Drawing	Description
A.	ISIXK100-18	8" and 3/4" piping in the residual heat removal (RHR) system between valves RHR-1A and RHR-2A up to and including valves RHR-1A, RHR-2A, RHR-30A, RHR-31A, RHR-32A, RHR-32A-1, and rupture disc.
B.	ISIXK100-18	8" and 3/4" piping in the RHR, system between valves RHR-1B and RHR-2B up to and including valves RHR-1B, RHR-2B, RHR-30B, RHR-31B, RHR-32B, RHR-30B-1, and rupture disc.
C.	ISIXK100-28	12" and 3/4" piping in the safety injection (SI) system between valves SI-21A and SI-22A up to and including valves SI-21A, SI-22A, SI-44A, SI-45A, and SI-201A.
D.	ISIXK100-28	12", 10" and 3/4" piping in the SI system between valves SI-21B and SI-22B up to and including valves SI-21B, SI-22B, RHR-11, SI-44B, SI-45B, and SI-201B.
E.	ISIXK100-28	6", 2" and 3/4" piping in the SI system between valves SI-12A and SI-13A up to and including valves SI-12A, SI-13A, and SI-42.
F.	ISIXK100-28	6", 2" and 3/4" piping between in the SI system valves SI-12B and SI-13B up to and including valves SI-12B, SI-13B, and SI-62.
G.	ISIXK100-28	6", 2" and 3/4" piping in the SI system between valves SI-303A and SI-304A up to and including valves SI-303A, SI-304A, SI-16A, SI-46, and SI-48.
H.	ISIXK100-28	6", 2" and 3/4" piping in the SI system between valves SI-303B and SI-304B up to and including valves SI-303B, SI-304B, SI-16B, SI-47, SI-49, and SI-50.

Section XI Requirements

Section XI Class 1 piping per ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition, Table IWB-2500-1, Category B-P, Item Numbers B15.50 and B15.70; Code Case N-416-1; and Code Case N-498-1

This relief request involves Code requirements that mandate performance of a VT-2 visual examination during either the system pressure test or hydrostatic pressure test. Specifically, the requirement in Paragraph IWB-5221 states a system leakage test be conducted at a test pressure not less than the nominal operating pressure associated with 100% rated reactor power

System leakage tests and hydrostatic pressure tests are performed at various times throughout the inspection interval. First, a system leakage pressure test of the RCS is performed following each refueling outage. Second, the Code requires a hydrostatic pressure test be performed following certain repair and replacement activities. Third, a hydrostatic pressure test of the RCS must be performed at or near the end of the inspection interval.

NRC approved use of Code Case N-416-1 and Code Case N-498-1 in a letter dated February 15, 1995. In general, Code Case N- 498 -1permits performing a system pressure test in lieu of the hydrostatic pressure test that is required once every inspection interval. Additionally, Code Case N-416-1permits performing a system leakage pressure test in lieu of the hydrostatic pressure test required following certain repair and replacement activities.

This relief request addresses the requirement of performing the system leakage test at a test pressure not less than the nominal operating pressure associated with 100% rated reactor power, which is 2235 psig for Class 1 piping connected to the RCS. The intent of Paragraph IWB-5221 is to ensure Class 1 pressure-retaining piping and valves within the system are pressurized to RCS pressure (i.e., 2235 psig) in lieu of the hydrostatic test pressure.

Relief Requested

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from the provisions of Table IWB-2500-1, Category B-P, Item Numbers B15.50 and B15.70, Code Case N-416-1, and Code Case N-498-1. These items require performing the VT-2 visual examination at a test pressure of not less than the nominal operating pressure associated with 100% rated reactor power.

Basis for Requesting Relief

The affected components listed above consist of piping that is either

- located between two (2) shut valves
- located between two (2) check valves and/or
- classified as parts of systems not required to operate during normal plant operation

This piping is operated at a pressure lower than the nominal operating pressure associated with 100% rated reactor power. The piping and valves including operating pressure are as follows:

Items A and B: Train A and Train B of Residual Heat Removal (RHR) Inlet Piping

Items A and B have the following characteristics:

Section XI Required System Leakage Test Pressure:	2235 psig
Operating Pressure:	450 psig
Proposed System Leakage Test Pressure:	450 psig

Both trains consist of two motor-operated valves in series and are located off the hot legs of the RCS loops. These trains are the inlet piping to the RHR system that are used for cooling the core during plant shutdown, refueling and startup.

At 100% rated reactor power, this piping can be pressurized to RCS pressure by either of the following methods:

- The interlocks associated with valves RHR-1A(B) and RHR-2A (B) could be modified to permit pressurization from the RCS. Overriding the interlocks associated with RHR-1A and RHR-2A (RHR-1B and RHR-2B) to pressurize the piping between these valves could result in challenging the piping on the downstream side of valves RHR-2A(B). This piping is classified as Section XI code Class 2 and designed for 600 psig. This method could result in reducing the margin of safety of the plant since failure of either valve RHR-2A(B) would result in an inter-system LOCA outside of containment.

- A hydrostatic pressure pump could be used to pressurize the piping between these two motor-operated valves through an existing drain valve. Use of a hydrostatic pressure pump in this application poses the possibility of overpressurizing the downstream Class 2 piping due to leakage or failure of RHR-2A or RHR-2B.

Items C and D: Train A and B of Accumulator Injection Piping

Items C and D have the following characteristics:

Section XI-Required System Leakage Test Pressure:	2235 psig
Operating Pressure:	2200 psig at SI pump discharge
Proposed System Leakage Test Pressure:	2200 psig at SI pump discharge

This piping is located at the discharge of the SI accumulator tanks and is maintained at approximately 750 psig when the plant is operating at 100% rated reactor power.
At 100% rated reactor power, this piping can be pressurized to RCS pressure by either of the following methods:

- The piping configuration would require the installation of jumpers to existing drain valves located between check valves SI-21A&B and SI-22A&B to pressurize the piping from the RCS.
- Installation and use of a hydrostatic pressure pump.

Items E and F: Train A and B High Pressure SI Piping

Items E and F have the following characteristics:

Section XI-Required System Leakage Test Pressure:	2235 psig
Operating Pressure:	2200 psig at SI pump discharge
Proposed System Leakage Test Pressure:	2200 psig at SI pump discharge.

This piping is connected to the cold legs of the RCS loops. This piping provides SI fluid to the core under high-pressure conditions following an accident.

At 100% rated reactor power, this piping can be pressurized to RCS pressure by either of the following two methods:

- Installation of jumpers to the drain valves located between the check valves
- Installation of a hydrostatic pressure pump.

Items G and H: Train A and B SI to Reactor Vessel

Item G and H have the following characteristics:

Section XI-Required System Leakage Test Pressure:	2235 psig
Operating Pressure:	2200 psig at SI pump discharge
Proposed System Leakage Test Pressure:	2200 psig at SI pump discharge

This piping is connected to the SI nozzles attached to the reactor vessel.

At 100% rated reactor power, this piping can be pressurized to RCS pressure by either of the following two methods:

- Installation of jumpers to existing drain valves located between the check valves
- Installation of a hydrostatic pressure pump.

A hydrostatic pressure pump could be used to pressurize each of these segments of piping through an existing drain valve. When a hydrostatic pump is used as a pressure source, the affected system is not available to perform its intended safety function during the period of time it has been declared inoperable to conduct the test. Although hydrostatic pressure testing is performed with the utmost of care using detailed procedures and trained personnel, there is a small possibility of equipment damage or human error. Hydrostatic pressure testing also

delays availability of the system by several shifts to establish test conditions, perform the test and recover from testing.

The use of a hydrostatic pressure pump poses various operational challenges depending on the plant mode when testing is performed. The testing poses operational concerns and personnel and plant safety issues because the plant is placed in a configuration requiring an operating pressure greater than normal operating pressure for either hydrostatic or system pressure testing. Connecting the RCS to the SI system and RHR system through the use of jumpers poses similar challenges.

Alternative Method of Examination

Perform the Code-required VT-2 visual examinations of the affected components at the normal operating pressure of each of the systems, as discussed below:

Items A and B: Train A and Train B RHR Inlet Piping

Since this piping is within the RCS test boundary, it is VT-2 visually inspected following each refueling outage when the plant is in hot shutdown. Although the motor-operated valves are shut at this time, the piping is pressurized from operation of the RHR system. This section of piping is also VT-2 visually examined as part of the Class 2 RHR system once during each inspection period (every 40 months). A test pressure of 450 psig (pump discharge pressure) is used for testing the RHR system. During refueling shutdown, except when fuel is removed from the reactor vessel, the RHR system is in continuous operation at pressures that vary between approximately 450 psig and atmospheric pressure. At this time, the integrity of RHR system is verified via available instrumentation and personnel observations. The combination of plant monitoring equipment such as leak detection systems and increased maintenance and surveillance activities provides a high degree of confidence that through-wall leakage would be detected and corrected.

The alternative test pressure of 450 psig fulfils the same purpose as the test pressure required by Paragraph IWB-5221 in that it accomplishes a check for component leakage at a reduced cost while enhancing plant safety. Plant safety is enhanced when pressure testing is performed at the normal operating pressure of 450 psig because the affected system is available to perform its intended safety function during testing, the possibility of challenging the pressure integrity of the downstream Class 2 piping is reduced, the possibility of damage to pipe connections is eliminated if a hydrostatic pressure pump need not be installed.

Items C and D: Train A and B Accumulator Injection Piping

This section of piping is pressurized to approximately 750 psig and VT-2 visually inspected as part of the RCS following each refueling outage when the plant is in hot shutdown. This section of piping is also VT-2 visually examined as part of the SI system at or near the end of the inspection interval to satisfy the hydrostatic pressure test requirement. A test pressure of approximately 2200 psig (pump discharge pressure) is used to test the SI system.

The alternative test pressure of 2200 psig at the SI pump discharge fulfills the same purpose as the test pressure required by Paragraph IWB-5221 because a check for component leakage is performed at a reduced cost while enhancing plant safety. Plant safety is enhanced when pressure testing is performed at the normal operating pressure of approximately 2200 psig (pump discharge pressure). The affected system is available to perform its intended safety function during testing, the probability of challenging the pressure integrity of an affected component or causing an inadvertent actuation of a safety/relief valve or safety feature is reduced, and the possibility of damage to pipe connections is eliminated that could cause system leakage or valve inoperability.

Items E and F: Train A and B High Pressure Safety Injection Piping
Items G and H: Train A and B Safety Injection to Reactor Vessel

Since this piping is within the RCS test boundary, it is VT-2 visually inspected following each refueling outage when the plant is in hot shutdown. This section of piping is also VT-2 visually examined as part of the SI system at or near the end of the inspection interval to satisfy the hydrostatic pressure test requirement. A test pressure of approximately 2200 psig (pump discharge pressure) is used for testing the SI system.

The alternative test pressure of 2200 psig at the SI pump discharge, fulfills the same purpose as the test pressure required by Paragraph IWB-5221 in that a check for component leakage is accomplished at a reduced cost while plant safety is enhanced. Plant safety is enhanced when pressure testing is performed at the normal operating pressure. The affected system is available to perform its intended safety function during testing; the possibility of challenging the pressure integrity of an affected component or causing an inadvertent actuation of a safety/relief valve or safety feature is reduced; and the possibility of damage to pipe connections is eliminated that could cause system leakage or valve inoperability.

Implementation Period

Relief is requested for the Third ten-year ISI Interval that began on June 16, 1994, and ends on June 16, 2004.

ATTACHMENT 2

Letter from K. A. Hoops (NMC)

To

Document Control Desk (NRC)

Dated

February 26, 2001

RE: RR-1-7

NUCLEAR MANAGEMENT COMPANY, LLC
KEWAUNEE NUCLEAR POWER PLANT
THIRD TEN YEAR INTERVAL
RELIEF REQUEST RR-1-7

Components Affected

Class 1 piping:

Drawing	Description
ISIXK100-10	Class 1 3/4" reactor vessel flange leakoff connections from reactor vessel to 3/8" reducers. (Note: Non Code piping extends from reducers to 3/8" valves RC-40A and RC-40B).

Section XI Requirements

A VT-2 visual examination of Class 1 piping per ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition, Table IWB-2500-1, Category B-P, Item No. B15.51 and Code Case N-498-1.

These criteria require that "all" Class 1 pressure-retaining piping and valves within the system be pressurized to RCS pressure (2235 psig) using reactor coolant as the pressuring medium for at least four (4) hours for insulated systems and 10 minutes for non-insulated systems once every 10 years in lieu of the system hydrostatic test.

Relief Requested

Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from the provisions of Table IWB-2500-1, Category B-P, Item No. B15.51 and Code Case N-498-1 for performing the VT-2 visual examination using reactor coolant as a pressurizing medium at a test pressure of 2235 psig.

Basis for Requesting Relief

The reactor vessel flange leakoff lines are not pressurized to 2235 psig when the RCS is operated at 100% rated power. The design of the reactor vessel flange leakoff lines does not allow for pressurization using reactor coolant as a pressuring medium. The purpose of the reactor vessel O rings is to provide a seal between the reactor vessel and head. The reactor vessel flange leakoff lines would only experience a pressure of 2235 psig if the reactor vessel O-rings leaked. These lines are classified, as parts of systems not required to operate during normal plant operation. The lines normally see a pressure of approximately 50 psig when the reactor vessel O-rings are removed and the reactor cavity is flooded for refueling activities

Alternative Method of Examination

Perform the required VT-2 visual examinations for the reactor vessel flange leakoff lines during the regularly scheduled Class 1 system pressure test that is performed following each refueling outage. The reactor vessel flange leakoff lines will not be pressurized, during the VT-2 visual examinations, to RCS pressure (2235 psig) using reactor coolant as a pressuring medium. However, the reactor vessel flange leakoff lines are filled with borated water at a pressure of approximately 50 psig, which corresponds to the static head in the reactor cavity during refueling operations. Since borated water leaves a crystalline residue, the proposed VT-2 visual examination provides reasonable assurance that through-wall leakage in the reactor vessel flange leakoff lines will be detected and corrected.

Implementation Period

Relief is requested for the Third ten-year ISI Interval that began on June 16, 1994, and ends on June 16, 2004.

ATTACHMENT 3

Letter from K. A. Hoops (NMC)

To

Document Control Desk (NRC)

Dated

February 26, 2001

RE: RR-G-5

NUCLEAR MANAGEMENT COMPANY, LLC
KEWAUNEE NUCLEAR POWER PLANT
THIRD TEN YEAR INTERVAL
RELIEF REQUEST RR-G-5

Components Affected

Code Class:	Class 1 and Class 2
Reference:	ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition Appendix VII Article VII-4000 Paragraph VII-4240
Examination Category:	B-A, B-B, B-D, B-F, B-G-1, B-J, C-A, C-B, C-F-1, and C-F-2
Item Number:	B1.11, B1.21, B1.30, B1.40, B2.11, B2.12, B2.40, B3.90, B3.100, B3.120, B3.140, B5.10, B5.40, B5.70, B6.30, B6.40, B6.180, B9.11, B9.12, B9.31, C1.10, C1.20, C1.30, C2.21, C2.22, C5.11, C5.12, C5.21, C5.51 and C5.52
Description:	Alternative Requirements to VII-4240 "Annual Training"
Component Numbers:	As Applicable

Section XI Requirements

The 1995 Edition and 1996 Addenda of ASME Boiler and Pressure Vessel Code Section XI, Subarticle VII-4240 requires a minimum of 10 hours of annual training.

10 CFR 50.55a(b)(2)(xiv) requires personnel qualified to perform ultrasonic examinations in accordance with Appendix VIII shall receive 8 hours of annual hands-on training on specimens that contain cracks. This training must be completed no earlier than six (6) months prior to performing ultrasonic examinations at a licensee's facility.

Relief Requested

In accordance with 10 CFR 50.55a(a)(3)(i), relief is requested from the provisions of Subarticle VII-4240 which requires ten (10) hours of classroom training on an annual basis.

Basis for Requesting Relief

10 CFR 50.55a was amended in the Federal Register (Volume 64, No. 183 dated September 22, 1999) to require the 1995 Edition, with the 1996 Addenda of ASME Boiler and Pressure Vessel Code Section XI for Appendix VIII qualification requirements. This amendment also mandates the use of the 1995 Edition, with 1996 Addenda of Section XI for the requirements of Appendix VII. As stated above, Subarticle VII-4240 requires a minimum of 10 hours of annual training.

10 CFR 50.55a(b)(2)(xiv) requires personnel qualified for performing ultrasonic examinations in accordance with Appendix VIII shall receive 8 hours of annual hands-on training on specimens that contain cracks. This training must be completed no earlier than six (6) months prior to performing ultrasonic examinations at a licensee's facility.

Paragraph 2.4.1.1.1 of the Federal Register included the following:

> "The NRC had determined that this requirement (10 hours of training on an annual basis) was inadequate for two reasons. The first reason was that the training does not require laboratory work and examinations on flawed specimens. Signals can be difficult to interpret and, as detailed in the regulatory analysis for this rulemaking, experience and studies indicate that the examiner must practice on a frequent basis to maintain the capability for proper interpretation. The second reason is related to the length of training and its frequency. Studies have shown that an examiner's capability begins to diminish within approximately 6 months if skills are not maintained. Thus the NRC had determined that 10 hours of annual training is not sufficient practice to maintain skills, and that an examiner must practice on a more frequent basis to maintain proper skill level. The PDI program has adopted a requirement for 8 hours of training, but it is required to be hands-on practice. In addition, the training must be taken no earlier than 6 months prior to performing examinations at a licensee's facility. PDI believes that 8 hours will be acceptable relative to an examiners abilities in this highly specialized skill area because personnel can gain knowledge of new developments, material failure modes, and other pertinent technical topics through other means. Thus, the NRC has decided to adopt in the Final Rule the PDI position on this matter. These changes are reflected in 10 CFR 50.55a(b)(2)(xiv)."

Implementation of the requirements contained in ASME Section XI and the Final Rule would result in redundant training being performed. Use of 10 CFR50.55a(b)(2)(xiv) in lieu of additional requirements specified in Subarticle VII-4240 will simplify record keeping, satisfy needs for maintaining skills, and provide an acceptable level of safety.

Alternative Method of Examination

Annual ultrasonic training for Appendix VII and Appendix VIII qualification requirements will be conducted in accordance with 10 CFR 50.55a(b)(2)(xiv). Ultrasonic examiners will receive eight (8) hours of laboratory work on flawed specimens no earlier than six (6) months prior to performing examinations at a licensee's facility.

Implementation Period

Relief is requested for the duration of Third ten-year ISI Interval that began on June 16, 1994, and ends on June 16, 2004.