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SUBJECT: Requests relief from ASME requirements re hydrostatic testing & extension of reliefs requests ready granted until completion of 1985 refueling outage,Related info encl.

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WISCONSIN PUBLIC SERVICE CORPORATION

P.O. Box 1200, Green Bay, Wisconsin 54305

February 8, 1984

Director, Office of Nuclear Reactor Regulation
Attention: Mr. D. G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Hydrostatic Test Relief Requests

References: 1) Letter from E. W. James to Director, Nuclear Reactor Regulation dated July 18, 1977

2) Letter from S. A. Varga to C. W. Giesler dated April 19, 1983

3) Letter from C. W. Giesler to D. G. Eisenhut dated July 19, 1983

4) Letter from S. A. Varga to C. W. Giesler dated May 16, 1983

10 CFR 50.55 a(g)4(iii) requires that the inservice examinations and tests performed at the Kewaunee Nuclear Plant shall comply with the requirements of Section XI of the ASME Boiler and Pressure Vessel Code, 1974 Edition and Addenda through the summer of 1975 Addenda. In accordance with 10 CFR 50.55 a(g)5(iii) we hereby provide information to support our determination that certain inservice inspection requirements for ASME Code Class 1, 2 and 3 components and piping are impractical.

During the development of the hydrostatic test procedures and preparation for our upcoming refueling outage, several requirements have been determined to be impractical to implement. These recently identified reliefs and those previously submitted with Reference 1 are included as appendices to this letter.

Appendix A details the components affected (including drawing references), the new relief that is requested, the basis for the relief request, and the proposed alternate method of examination. Appendix B provides the relief requests previously granted by the Commission in Reference 2. Appendix C includes the referenced drawings.

In Reference 3 we advised you that due to the schedular constraints on the 1984 outage and as allowed by IWA-2400 of the ASME Code, we intend to extend the inspection interval by one year and perform the reactor vessel examination during the 1985 refueling outage. We also intend to utilize the year extension to complete the hydrostatic tests during the 1984 and 1985 refueling outages.

In Reference 4 you stated that the relief requests granted by the Commission in Reference 2 will expire in June 1984. Since some of the reliefs already granted (Appendix B) are for systems that may not be tested until the 1985 refueling outage, we request that the reliefs be extended until completion of the 1985 refueling outage (Spring, 1985).

In addition we request that the recently recognized relief requests (Appendix A) be evaluated and that approval, be effective through the end of the 1985 refueling outage.

We are anticipating implementation of several of the hydrostatic tests during the 1984 refueling outage scheduled to begin March 17, 1984. Therefore, we request your prompt review of the enclosed relief requests.

Very truly yours,

C. W. Giesler

DSN/jks

cc - Mr. Robert Nelson, US NRC
Mr. S. A. Varga, US NRC

APPENDIX A

to the

Letter from C. W. Giesler to D. G. Eisenhut dated February 8, 1984

REQUESTS FOR RELIEF

1) COMPONENTS AFFECTED

The following Class 2 piping systems are affected:

1) Internal Containment Spray
2) Safety Injection
3) Chemical and Volume Control
4) Residual Heat Removal

RELIEF REQUESTED

The hydrostatic test will be performed at a test temperature of less than 100°F.

SECTION XI REQUIREMENTS (1974S1975)

The system hydrostatic test shall be conducted at test temperature not less than 100°F per IWC-5220(a).

BASIS FOR RELIEF

Achieving a test temperature of 100°F would require heating of the water in the system. The process of heating the water content of the system is not practical. The 1980 Edition of the ASME Boiler and Pressure Vessel Code, Section IWC 5230(c) states that "No limit on system test temperature is required for systems comprised of components constructed entirely of austenitic steel materials." These systems are constructed of austenitic stainless steel.

ALTERNATE METHOD OF EXAMINATION

The hydrostatic testing will be performed using the water in the stagnant system which will be at a temperature equal to the auxiliary building ambient temperature. The demineralized water system will be used to provide the necessary fill water when using the hydrostatic pump.

2) COMPONENTS AFFECTED

The nitrogen gas header between containment isolation valves NG-108A, NG-108B and NG-107 (see drawing X-K100-28).

RELIEF REQUESTED

The piping will not be hydrostatically tested each inspection interval as required by IWC-2510.

SECTION XI REQUIREMENT (1974S1975)

The piping shall be hydrostatically tested at a pressure of at least 1.25 times the system design pressure in accordance with IWC-5220(a).

BASIS FOR RELIEF

It is not practical to water fill or hydrostatically test this portion of the nitrogen gas supply piping to the accumulators. The 1980 Edition of

the ASME Code, IWA-5211(e), provides the option of performing a pneumatic test in lieu of the hydrostatic test, however, there are safety concerns of pressurizing a small diameter (1") pipe to extreme pneumatic conditions.

The purpose of this piping is to supply nitrogen gas to the accumulators and serve as a containment isolation barrier. The gas in the accumulator provides sufficient driving head to discharge the contents of the accumulator when required. The system's primary use is to initially provide a nitrogen pressure blanket on the accumulators following a refueling outage. Once the pressure blanket is established on the accumulators the nitrogen supply valves NG-108A and NG-108B are closed.

During normal operation this piping system is not in use and will only be utilized if the nitrogen blanket pressure on the accumulator drops below its required level due to accumulator leakage. Failure of this piping will not effect the operation of the accumulators since valves NG-108A and NG-108B are normally closed.

ALTERNATE METHOD OF EXAMINATION

Leakage testing performed in accordance with 10 CFR 50, Appendix J, will identify any major leakage that could prevent this portion of the system from being capable of providing it containment isolation function.

3) COMPONENTS AFFECTED

The following portions of Class 2 piping are affected:

1) RHR Supply Line to Internal Containment Spray Pumps Between Valves RHR-400A and RHR-401A (see drawing M-217).
2) RHR Supply Line to Internal Containment Spray Pumps Between Valves RHR-400B and RHR-401B (see drawing M-217).
3) Boric Acid Supply Line to Suction of Charging Pumps Between Valves CVC-440 and CVC-441 (see drawing X-K100-36).

RELIEF REQUESTED

The piping will not be hydrostatically tested each inspection interval as required by IWC-2510.

SECTION XI REQUIREMENT (1974S1975)

Perform a hydrostatic pressure test on the system at a pressure of 1.25 times the system design pressure in accordance with IWC-5220(a).

BASIS FOR RELIEF

This portion of piping exists between a motor operated valve and a check valve. The system design would require disassembly of the check valve in order to allow pressurization up to the motor valve. The affected length of pipe is relatively short (a few feet) therefore the impracticality of disassembling the check valve to test this piping is not justified.

ALTERNATE METHOD OF EXAMINATION

A visual examination will be performed on this small portion of piping under stagnant system conditions. The purpose of this visual examination will be to identify any leakage by checking for boric acid crystallization.

4) COMPONENTS AFFECTED

The following sections of Class 2 piping (see drawing X-K100-28) are affected:

1) Cold Leg Injection Line From Accumulators Between the Four Valves SI-20A, SI-22A, SI-201A and SI-202A
2) Cold Leg Injection Line From Accumulator Between the Five Valves SI-20B, SI-22B, SI-201B, SI-202B and RHR-11
3) Cold Leg High Head Injection Line Between Valves SI-12A and SI-13A
4) Cold Leg High Head Injection Line Between Valves SI-12B and SI-13B
5) Reactor Vessel Low Head Injection Line Between Valves SI-302A, SI-304A and SI-16A
6) Reactor Vessel Low Head Injection Line Between Valves SI-302B, SI-304B and SI-16B

RELIEF REQUESTED

The hydrostatic test on this Class 2 piping will be performed at a test pressure of less than that required by the ASME Code.

SECTION XI REQUIREMENT (1974S1975)

The piping shall be hydrostatically tested at a pressure of at least 1.25 times the system design pressure in accordance with IWC-5220(a).

BASIS FOR RELIEF

The affected portions of piping are ASME Code Class 2 and therefore require hydrostatic testing at a pressure of 1.25 times the design pressure of the system.

Subsection IWB and IWC contain differing requirements for hydrostatic testing of Class 1 and Class 2 systems and components. The implementation of these requirements is impractical when the boundary between the two systems is a check valve arranged for flow from the Class 2 to the Class 1 system.

The potential for inadvertent overpressurization of the reactor coolant system causes additional concerns on the advisability of pressurizing Class 2 systems to considerably higher pressure than the adjacent Class 1 system.

ALTERNATE METHODS OF EXAMINATION

These portions of Class 2 piping will be hydrostatically tested at the test pressure used for the Reactor Coolant System Test (1.1 times RCS operating pressure). We will utilize the drain and vent valves designed into the system to provide jumpers around the check valves. This will allow pressurization of the Class 2 piping back to the motor operated isolation valves on the Safety Injection System during the RCS hydrostatic test.

5) COMPONENTS AFFECTED

The following portions of Class 2 piping (see drawing X-K100-28) are affected:

1) Cold Leg High Head Injection Piping Between Valves SI-11A and SI-12A
2) Cold Leg High Head Injection Piping Between Valves SI-11B and SI-12B
3) Reactor Vessel High Head Injection Piping Between SI-15A and SI-16A
4) Reactor Vessel High Head Injection Piping Between SI-15B and SI-16B

RELIEF REQUESTED

The piping will not be hydrostatically tested each inspection interval as required by IWC-2510.

SECTION XI REQUIREMENT (1974S1975)

The piping shall be hydrostatically tested at a pressure of at least 1.25 times the system design pressure in accordance with IWC-5220(a).

BASIS FOR RELIEF

The affected piping is ASME Code Class 2 and therefore requires hydrostatic testing at a pressure of 1.25 times the design pressure of the system.

Subsections IWB and IWC contain differing requirements for hydrostatic testing of Class 1 and Class 2 systems and components. The implementation of these requirements is impractical when the boundary between the two systems is a check valve arranged for flow from the Class 2 and Class 1 system.

The potential for inadvertent overpressurization of the reactor coolant system causes additional concerns on the advisability of pressurizing Class 2 systems to considerably higher pressure than the adjacent Class 1 system.

The following alternate methods of examination were considered:

1 - Pressurize the Check Valves in the Direction of Normal Flow at the Same Time as the RCS Hydrostatic Test.

2 - Improvise a Test Connection to Jumper the Check Valve and Pressurize Back to the Isolation Valve During the RCS Hydrostatic Test.
3 - Remove the Internals of the Check Valve.

Since there are no vent and drain connections between the check valve and the motor operated valve as in the previous relief request and since the affected length of pipe is relatively short, the hardship that must be endured to perform any of the above alternative hydrostatic exams is not practical.

ALTERNATE METHODS OF EXAMINATION

A visual examination will be performed on these small sections of pipe under the stagnant system conditions. The purpose of the visual examination will be to identify any leakage by checking for boric acid crystallization.

6) COMPONENTS AFFECTED

The following sections of Class 3 piping (see drawing X-K100-36) are affected:

1) Piping Between Valves LD-27 and CVC-801
2) Piping Between Valves MG(R)-535 and MG(R)-537

RELIEF REQUESTED

The piping will not be hydrostatically tested each inspection interval as required by IWD-2410(b).

SECTION XI REQUIREMENT (1974S1975)

The piping shall be hydrostatically tested at a pressure of at least 1.10 times the system design pressure in accordance with IWD-5200(a).

BASIS FOR RELIEF

The affected piping is on a system determined to be Non Nuclear Safety Class, however, the affected portion of piping has been classified as ASME Code Class 3 solely for the purpose of providing a transition from Class 2 to Non Nuclear Safety (NNS).

Since the system is classified NNS it is considered impractical to perform hydrostatic testing on only this small portion of the system piping.

ALTERNATE METHODS OF EXAMINATION

Periodic routine use of this system will provide assurance of continued integrity and performance.

7) COMPONENTS AFFECTED

The following portions of Class 2 piping are affected:

1) Auxiliary Feedwater System piping from the isolation valve on the discharge of the auxiliary feedwater pumps to the inlet to the steam generator (see drawing M-205).
2) Main Steam System piping from the steam generator outlet to the main steam isolation valves (see drawing M-203).
3) Steam Generator Blowdown System piping from the steam generator to the blowdown isolation valves BT-3A and BT-3B (see drawing M-203).

RELIEF REQUESTED

The hydrostatic test will be performed at a test pressure less than that required by IWC-2510.

SECTION XI REQUIREMENTS (1974S1975)

Perform a hydrostatic test at a test pressure of at least 1.25 times the system design pressure in accordance with IWC-5220(a).

BASIS FOR RELIEF

The Class 2 boundary on these systems extends from the first isolation valve on the discharge side of the Auxiliary Feedwater Pumps to the Main Steam Isolation Valves on the outlet of the steam generators. Performance of a hydrostatic test in accordance with the ASME Code requirements would require filling the steam generators solid with water and pressurizing to the test pressure. The system design provides the capability for performing this type of an exam, however, it would require filling of the main steam lines with water up to the main steam isolation valves and gagging or isolating all of the relief and safety valves.

The main steam isolation valves serve as an isolation boundary for the steam generators. The portion of main steam line piping between the steam generators and the isolation valves was not designed to support a water filled environment. Subsequent analysis has shown that the existing piping support design is capable of withstanding the additional loading associated with the postulated water fill event. However, any unnecessary challenging of the system under water fill conditions is not justified.

The main steam system is designed with five safety valves and one power operated relief valve for each steam generator. The purpose of the safety valves is to limit the pressure on the steam generator during transient conditions. The setpoints on the safety valves range from 1074-1127 psig. The pressure relieving capacity of the code safety valves is equal to the steam generation rate at maximum calculated conditions. The testing of the safety and relief valves in accordance with the ASME Code requirements assures this relief capability.

Performance of the hydrostatic test in accordance with the ASME Code, 1974 Edition and Addenda through the summer 1975 Addenda, would require a test pressure of 1.25 times the system design pressure. For the Main Steam System with a design pressure of 1100 psig this would require a hydrostatic test at a pressure of 1375 psig. The performance of a test at this high pressure is impractical since the system design (i.e. relief valves) will limit the maximum pressure to well below the Code required test pressure.

ALTERNATE METHOD OF EXAMINATION

The hydrostatic test on the auxiliary feedwater, blowdown, and main steam systems will be performed at a test pressure slightly greater than the pressure setting of the lowest set safety valve (1074 psig). Since the plant is designed with multiple protection systems, including the steam generator power operated relief valve, the probability of the steam pressure reaching that of the safety valve setting is minimal.

The system test pressure will be attained by operating the system at conditions similar to those experienced during hot shutdown operation. The auxiliary feedwater pumps, operating at slightly higher than test pressure will supply water to the steam generators. The power operated relief valve and the lowest set safety valve will be gagged or isolated. The steam pressure will be maintained at approximately 1075 psig and visual examination will be performed on the auxiliary feedwater and the main steam systems.

Since the operating pressure of the main steam system ranges from 1005 psig at hot shutdown to 750 psig at a 100% power level, the intent of pressurizing the system to a test pressure in excess of normal operating conditions is met.

8) COMPONENTS AFFECTED

The Class 3 steam supply piping from valves MS-100A and MS-100B to the turbine driven auxiliary feedwater pump.

RELIEF REQUESTED

The hydrostatic test will be performed at a test pressure less than that required by IWD-5200(a).

SECTION XI REQUIREMENTS (1974S1975)

Perform a hydrostatic test at a test pressure of at least 1.1 times the system design pressure.

BASIS FOR RELIEF

This portion of piping is designed to supply steam to the turbine driven auxiliary feedwater pump. Performance of the hydrostatic test as required by the code would require filling the pipe with water and pressurizing to

test pressure. In addition to the supply piping, a moisture separator and the pump's turbine are part of the Class 3 system. Since these systems are designed to operate with a steam filled environment there is concern for damage to the equipment if exposed to a water filled high pressure environment.

ALTERNATE METHOD

The hydrostatic test on the steam supply to the turbine driven auxiliary feedwater pump will be performed in conjunction with the proposed main steam hydrostatic exam (see previous relief request). A visual examination will be performed on the steam supply piping during the operation of the turbine driven auxiliary feedwater pump.

9) COMPONENTS AFFECTED

The following Class 2 piping on the Main Feedwater System (see drawing M-205):

1) Piping Between the Feedwater Isolation Valves (FW-7A and FW-10A) and the Check Valve FW-13A
2) Piping Between the Feedwater Isolation Valves (FW-7B and FW-10B) and the check valve FW-13B

RELIEF REQUESTED

The piping will not be hydrostatically tested each inspection interval as required by IWC-2510.

SECTION XI REQUIREMENT (1974S1975)

The piping shall be hydrostatically tested at a pressure of at least 1.25 times the design pressure in accordance with IWC-5220(a).

BASIS FOR RELIEF

The Main Feedwater system is not considered a safety system and is in fact isolated during post accident conditions.

The piping located upstream of the isolation valves is determined to be non-classed. The affected portion of piping has been classified as ASME Code Class 2 based on the guidance documents used to define the ISI code class boundaries.

The system design prohibits use of a practical method to perform the pressure test required by the code. The check valves (FW-13A and FW-13B) are arranged to permit flow from the Main Feedwater System to the steam generator. Since filling of the steam generator with water is impractical (see previous relief request) the system is in effect an open ended system supplying the steam generator. Since this system is not considered to be safety related and the system design prohibits pressurization of this piping to the code required pressure, the hydrostatic testing on the Main Feedwater piping is considered impractical.

ALTERNATE METHOD OF EXAMINATION

The affected portion of Main Feedwater piping will be visually inspected under normal operating conditions.

10) COMPONENTS AFFECTED

The clad patch on the interior surface of the pressurizer.

RELIEF REQUESTED

The visual examination will not be performed as required by IWB-2500.

SECTION XI REQUIREMENT (1974S1975)

Perform a visual examination of a 36 square inch patch near the manway in the interior of the pressurizer at or near the end of the inspection interval.

BASIS FOR RELIEF

The radiation exposure received during the performance of this visual examination and the amount of useful information gained through performance of the exam make this requirement impractical.

In addition, the 1980 Edition of the ASME Boiler and Pressure Vessel Code including the Addenda through the Winter 1981 Addenda no longer requires a visual examination of the pressurizer clad patch.

ALTERNATE METHOD OF EXAMINATION

None

APPENDIX B

to the

Letter from C. W. Giesler to D. G. Eisenhut dated February 8, 1984

RELIEF GRANTED

by

NRC Safety Evaluation Report dated April 19, 1983

1) COMPONENTS AFFECTED

The following portions of Class 2 piping are affected:

1) RC Pump Seal Bypass Line from the Orifice to CVC-250
2) RC Pump Seal Leak off Line to Manually Operated Valves CVC-207 A and B
3) RC Pump Seal Injection Line from Check Valve CVC-205A and B to Manually Operated Valves CVC-204 A and B
4) Charging Line Control Valve By-Pass Line from Check Valve CVC-14 to Manually Operated Valve CVC-13
5) Letdown Line from Valve LD-3 to Orifice Outlet Valves LD-4 A, B and C
6) Pressurizer Steam Space Sampling Line from Valve RC-402 to RC-403, Pressurizer Liquid Space Sampling Line from Valve RC-412 to RC-413 and Loop Sampling Line from Valve RC-422 to Valve RC-423.

RELIEF REQUESTED

Relief is requested from hydrostatic pressure testing requirements of Class 2 piping that cannot be isolated from Class 1 piping.

SECTION XI REQUIREMENT (1974S1975)

The pressure retaining components shall be subjected to a hydrostatic test at 1.25 times the system design pressure at 100°F at least once toward the end of each inspection interval.

BASIS FOR RELIEF

Subsections IWB and IWC contain differing requirements for the hydrostatic testing of Class 1 and Class 2 systems and components. The implementation of these requirements is impractical when the only means of pressurizing the Class 2 system is through the Class 1 system or when the boundary between the two systems is a check valve arranged for flow from Class 2 to the Class 1 system.

The potential for inadvertent overpressurization of the reactor coolant system causes additional concerns on the advisability of pressurizing Class 2 systems to considerably higher pressures than the adjacent Class 1 system and relief is requested from implementing the hydrostatic test requirements of IWC-2412(a) on the CVCS system where such potential exists. The chemical and volume control charging, seal injection and letdown systems are in continuous operation during normal plant operation and are continuously monitored to ensure continued integrity and performance.

ALTERNATE METHOD OF EXAMINATION

Visual examinations will be conducted for evidence of leakage on these portions of the above systems at the systems nominal operating pressure in accordance with the requirements of IWB-5222 for the adjoining Class 1 system.

2) COMPONENTS AFFECTED

Class 3 systems that are continuously in use.

RELIEF REQUESTED

Relief is requested from system pressure test requirements for Class 3 systems where the system is in continuous use.

SECTION XI REQUIREMENT (1974S1975)

The system pressure test shall be at least 1.10 times the system design pressure.

BASIS FOR RELIEF

The examination requirements for Class 3 systems and components are in accordance with IWD-2410(c) which specifies that 100 percent of the components be examined as required by IWA-5240 and IWD-2600 either during normal operation or during system inservice testing. An additional requirement of IWD-2410(b) is for the examination of Class 3 systems and components for evidence of leakage during the performance of a system pressure test in accordance with IWD-5000. The code does not stipulate that certain amounts of these examination requirements be completed within each 40-month period such that the system pressure test requirements may be deferred until the end of the ten year inspection interval. However, it should be noted, that these system pressure tests when required are impractical in those systems, such as component cooling, service water, spent fuel pit cooling, and boric acid transfer and recirculation, which are in continuous operation during all modes of plant operation. The continuous functional operation serves to demonstrate the structural and leak-tight integrity of these systems. Visual examinations of these systems will be performed at normal operation pressures to verify leak-tightness.

ALTERNATE METHOD OF EXAMINATION

Visual examination of these systems will be performed at normal operating pressures to verify leak-tightness.

APPENDIX C

to the

Letter from C. W. Giesler to D. G. Eisenhut dated February 8, 1984

REFERENCED DRAWINGS

LIST OF DRAWINGS

X-K100-28	Safety Injection System
X-K100-36	Chemical and Volume Control System
M-203	Main, Auxiliary Steam and Steam Dump
M-205	Feedwater System
M-217	Internal Containment Spray System