

April 1, 2004

Gary D. Van Middlesworth  
Site Vice President  
Point Beach Nuclear Plant  
Nuclear Management Company, LLC  
6610 Nuclear Road  
Two Rivers, WI 54241

SUBJECT: POINT BEACH NUCLEAR PLANT, UNIT 1 - REQUEST FOR RELIEF VRR 03-01  
ON A ONE-TIME BASIS FOR PERFORMING INSERVICE TESTING OF RELIEF  
VALVE 1RH-861C (TAC NO. MC2046)

Dear Mr. Van Middlesworth:

By letter dated February 10, 2004, and supplemented on March 15, 2004, the Nuclear Management Company, LLC, submitted Relief Request (RR) VRR 03-01, a one time request for relief from certain requirements of the American Society of Mechanical Engineers Operations and Maintenance Code-1995 Edition with 1996 Addenda (OM Code) for inservice testing of a residual heat removal system relief valve (IRH-861C).

The U. S. Nuclear Regulatory Commission (NRC) staff has reviewed RR VRR 03-01. The NRC staff's safety evaluation is enclosed. Pursuant to 10 CFR 50.55a(a)(3)(ii), one-time relief is authorized on the basis that meeting the OM Code requirements would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. This relief is authorized from the beginning of refueling outage U1R28, which is scheduled to begin April 3, 2004, through the end of refueling outage U1R29, which is scheduled to begin in October 2005. In addition, the NRC staff has concluded that the licensee proposed alternative of performing inservice testing of relief valve IRH-861C provides reasonable assurance of the valves operational readiness.

Sincerely,

*/RA/*

L. Raghavan, Chief, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-266

Enclosure: Safety Evaluation

cc w/encl: See next page

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ON A ONE-TIME BASIS FOR PERFORMING INSERVICE TESTING (IST) OF  
RELIEF VALVE 1RH-861C (TAC NO. MC2046)

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Point Beach Nuclear Plant, Units 1 and 2

cc:

Jonathan Rogoff, Esquire  
Vice President, Counsel & Secretary  
Nuclear Management Company, LLC  
700 First Street  
Hudson, WI 54016

Mr. Richard R. Grigg  
President and Chief Operating Officer  
Wisconsin Electric Power Company  
231 West Michigan Street  
Milwaukee, WI 53201

Regulatory Affairs Manager  
Point Beach Nuclear Plant  
Nuclear Management Company, LLC  
6610 Nuclear Road  
Two Rivers, WI 54241

Mr. Ken Duveneck  
Town Chairman  
Town of Two Creeks  
13017 State Highway 42  
Mishicot, WI 54228

Chairman  
Public Service Commission  
of Wisconsin  
P.O. Box 7854  
Madison, WI 53707-7854

Regional Administrator, Region III  
U.S. Nuclear Regulatory Commission  
801 Warrenville Road  
Lisle, IL 60532-4351

Resident Inspector's Office  
U.S. Nuclear Regulatory Commission  
6612 Nuclear Road  
Two Rivers, WI 54241

Mr. Jeffery Kitsembel  
Electric Division  
Public Service Commission of Wisconsin  
P.O. Box 7854  
Madison, WI 53707-7854

Nuclear Asset Manager  
Wisconsin Electric Power Company  
231 West Michigan Street  
Milwaukee, WI 53201

John Paul Cowan  
Executive Vice President & Chief Nuclear  
Officer  
Nuclear Management Company, LLC  
700 First Street  
Hudson, WI 54016

Douglas E. Cooper  
Senior Vice President - Group Operations  
Palisades Nuclear Plant  
Nuclear Management Company, LLC  
27780 Blue Star Memorial Highway  
Covert, MI 49043

Site Director of Operations  
Nuclear Management Company, LLC  
6610 Nuclear Road  
Two Rivers, WI 54241

January 2003

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO A ONE-TIME REQUEST FOR RELIEF FROM

INSERVICE TESTING REQUIREMENTS OF RELIEF VALVE 1RH-861C AT

POINT BEACH NUCLEAR PLANT, UNIT 1

DOCKET NO. 50-266

1.0 INTRODUCTION

By letter dated February 10, 2004, and supplemented on March 15, 2004, the Nuclear Management Company, LLC (NMC), submitted Relief Request (RR) VRR 03-01, a one-time request for relief from certain requirements of the American Society of Mechanical Engineers (ASME) Operations and Maintenance Code-1995 Edition with 1996 Addenda (OM Code) for inservice testing (IST) of a residual heat removal (RHR) system relief valve. The requested duration of this alternative is from the beginning of refueling outage U1R28, which is scheduled to begin April 3, 2004, through the end of refueling outage U1R29, which is scheduled to begin in October 2005.

2.0 REGULATORY REQUIREMENTS

The *Code of Federal Regulations*, 10 CFR 50.55a, requires that IST of certain ASME Code Class 1, 2, and 3 pumps and valves be performed in accordance with the applicable edition of the *ASME Code for Operation and Maintenance of Nuclear Power Plants* (ASME OM Code) and applicable addenda, except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission pursuant to paragraphs (a)(3)(i), (a)(3)(ii), or (f)(6)(i) of 10 CFR 50.55a. In proposing alternatives or requesting relief, the licensee must demonstrate that: (1) the proposed alternatives provide an acceptable level of quality and safety; (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety; or (3) conformance is impractical for its facility. Section 50.55a allows the Commission to authorize alternatives and to grant relief from ASME Code requirements upon making the necessary findings. The Nuclear Regulatory Commission (NRC) guidance contained in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," provides alternatives to the Code requirements which are acceptable. Further guidance is given in GL 89-04, Supplement 1, and NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants."

ENCLOSURE

The licensee's proposed one-time RR VRR 03-01 from certain requirements of Appendix I of ASME OM Code-1995 with 1996 Addenda, would apply only until the end of the Unit 1 refueling outage U1R29, which is currently scheduled to commence in October 2005.

The NRC staff's findings with respect to granting or denying the IST program RR VRR 03-01 are discussed below.

### 3.0 TECHNICAL EVALUATION

#### 3.1 ASME Code Component Affected

The Unit 1 RHR relief valve for which relief is requested is identified as valve 1RH-861C, which is the P-10A/B RHR Pump Suction Header Relief Valve to the Containment Floor Drain. It is an ASME Code Class 2 relief valve.

#### 3.2 Applicable Code Requirement

Paragraph I 1.3.5(a) of Appendix I of the ASME OM Code-1995 Edition with 1996 Addenda, requires that, "Class 2 and 3 pressure relief valves, with the exception of pressurized-water reactor main steam safety valves, shall be tested every 10 years, starting with initial electric power generation. No maximum limit is specified for the number of valves to be tested during any single plant operating cycle; however, a minimum of 20 percent of the valves from each valve group shall be tested within any 48 month interval. This 20 percent shall consist of valves that have not been tested during the current 10-year test interval, if they exist."

The licensee is requesting one-time relief from the above requirement to test the 1RH-861C relief valve every 10 years. The licensee proposes to extend the 10-year test interval by approximately 7 months.

#### 3.3 Licensee's Basis for Relief

As a basis for requesting the above described relief, the licensee stated that it had originally planned for implementing a specific dry cask storage system by January 2004, but that significant delays in obtaining approvals and constraints on plant resources have resulted in the inability to free enough spaces in the spent fuel pool to restore full core offload capability until the fall of 2004, without significant hardship. The licensee states that the associated cost would be approximately \$650,000 and that there would also be an undesired dose to personnel as a result. Therefore, the licensee decided that it cannot reasonably perform a full core offload during the U1R28 refueling outage scheduled to begin in April 2004. Instead, the licensee will perform a fuel shuffle during the outage. As a result of this decision, work which required the core to be fully offloaded, such as testing of relief valve 1RH-861C, cannot be performed.

The licensee states that the relief valve 1RH-861C performs the following functions:

1. the safety-related function of remaining closed below its setpoint to maintain the "closed-system" containment integrity of the RHR system during a loss-of-coolant accident (LOCA).

2. the non-safety-related quality assurance (QA) function (Augmented Quality) of providing Low Temperature Overpressure Protection (LTOP) of the reactor coolant system (RCS) while the RCS is solid and the RHR system is in operation.
3. the non-safety-related, non-QA functions of automatically opening to prevent over-pressurization of the RHR system supply line piping in the event of RCS leakage past motor operated valves RH-700 and RH-701 during normal power operation, and remaining closed below its setpoint to prevent an inadvertent loss of coolant when the RHR System is operating.

The licensee states that the RHR has only one suction path, and in order to perform the required IST surveillance test on 1RH-861C, the RHR system must be rendered inoperable. Valve 1RH-861C, one of two valves used as a pressure relief device for the supply side of the RHR pumps, cannot be removed for testing with the RHR system in operation. Since there will be fuel in the reactor pressure vessel throughout refueling outage U1R28 scheduled to begin in April 2004, the RHR system will be in operation, and the valve cannot be removed for testing.

The licensee states that valve 1RH-861C was last tested on March 24, 1995, and that in order to comply with the requirements of the OM Code, the next required test is due by March 23, 2005. The licensee desires to delay the testing of this valve until the next refueling outage, U1R29, which is currently scheduled to commence in October 2005, which is approximately 10 years, 7 months after the last test.

The licensee reviewed the past maintenance history of 1RH-861C and indicated that its performance is highly reliable. The licensee states that indications of valve degradation would be apparent by the accumulation of boric acid at the discharge of the valve, which is open to the containment; however, no leakage has been observed. The licensee states that the favorable maintenance history for this valve provides reasonable assurance that the valve will continue to perform its function to open. Testing of this valve in 1990 and 1995 showed it lifted at 510 psig each time, which is within the +/-3 percent allowed by the OM Code Appendix I. A review of the test history of this valve showed no setpoint drift between the tests. The licensee also states that this same type of testing performed on the Unit 2 valve shows essentially the same results, and that the trending would indicate that the valve setting did not change between tests.

The licensee also reviewed the INPO Equipment Performance and Information Exchange System (EPIX), which identified only one instance of this type of valve exhibiting problems. The problem occurred with a valve used in a similar application and with the lift setting outside the technical specification limits. The valve setting was higher than its initial setting by 6.5 percent (474 psig instead of the required 445 psig), but was still well within the design limits of the piping system, which was 600 psig at 400 degrees F. Therefore, the licensee determined that there is reasonable assurance that the valve was continuing to perform its function.

The licensee states that the RHR relief valves can be considered a diverse and redundant relief system to the pressurizer power operated relief valves (PORVs) for the LTOP function and that the PORVs are the primary method of reducing pressure. The licensee further stated that the relief valve lift setpoint and valve capacity are determined by LTOP considerations, and the function to provide overpressure protection for the RHR system piping is bounded by the LTOP considerations. The licensee states that the RHR system piping is also protected by the 1RH-861B valve, a 3/4" inlet by 1" outlet relief valve, which was last tested within its 10-year

testing interval. This valve is set at 600 psig, which is also within the design specifications of this system.

The licensee states that the RHR system is normally in operation only for shutdown cooling. When the plant is operating, this system and valve 1RH-861C are isolated from the RCS by normally closed motor-operated valves at each end of the decay heat removal trains, and by two check valves and a motor-operated valve in series at each safety injection line. The suction piping from the RCS, and therefore 1RH-861C, is also isolated from the refueling water storage tank (RWST) suction piping by manual isolation valves with in-series check valves. The licensee states, therefore, that during normal operation, essentially no pressure is present in the RHR system, and during a LOCA condition, this valve remains isolated, as the alignment of the plant will be such that suction is off the RWST and later switched to the containment sump, which is not connected to this portion of the system. The licensee also determined that during a LOCA, should the containment penetration be heated to the point where the water in the pipe should become pressurized, the other relief valve, 1RH-861B, which is in close proximity to 1RH-861C and in the same portion of the system, will lift at 600 psig.

The licensee states that because the RHR system is normally in operation only to support shutdown cooling, the valve is not challenged during normal plant operation; therefore, its useful life can be assumed to be somewhat extended. The licensee further states that since the valve is not being used at pressure most of the time, it does not experience significant challenges resulting in wear. The licensee argues that the additional 7 months between tests will not adversely affect the system function, as the valve is not being used during that time period.

The licensee also provided information in a response to a request for additional information regarding how the above OM Code Appendix I paragraph I 1.3.5 requirement is met to test 20 percent of the valves from each valve group within any 48 month interval. Appendix I defines a "valve group" as "valves of the same manufacturer, type, system application, and service media". The licensee states that valve 1RH-861C is part of a group of 12 valves, which includes relief valves in the chemical and volume control system, the safety injection system, and the component cooling water system, in addition to the RHR relief valves. This grouping consists of top-guided, spring-operated, nozzle-type Crosby manufactured relief valves for water service. The licensee states that the requirement to test 20 percent of the valves in the group within any 48 months has been met, and that this requirement would continue to be met even if testing of valve 1RH-861C is deferred until the October 2005 outage, as proposed.

### 3.4 Licensee's Proposed Alternative Testing

The licensee proposes extending the OM Code required 10-year test frequency of 1RH-861C to test the valve during the U1R29 refueling outage. The period between tests would be approximately 10 years, 7 months. The extended test interval is requested for a one-time basis only.

## 4.0 EVALUATION

The staff finds that testing of the RHR system relief valve, 1RH-861C, in order to meet the above OM Code requirements, would result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety. The licensee stated that performing

the required testing of this relief valve would necessitate that the RHR system be out of service, which could only be accomplished with unusual difficulty and unnecessary radiation exposure. Further, the licensee has demonstrated with historical test data that the relief valve is reliable and that it is unlikely that it would significantly degrade or fail to perform its safety functions with the small increase of 7 months to the 10-year test interval. In addition, the licensee would meet the requirement to test at least 20 percent of the relief valves within the licensee's relief valve group containing the 1RH-861C relief valve, if the test interval is extended. Therefore, the staff finds the licensee's proposed alternative to test the 1RH-861C relief valve during the U1R29 refueling outage to be acceptable.

## 5.0 CONCLUSION

The NRC staff concludes the proposed alternative to the requirements of paragraph I 1.3.5 of Appendix I of the OM Code-1995 Edition with 1996 Addenda for RHR relief valve 1RH-861C is authorized on a one-time basis pursuant to 10 CFR 50.55a(a)(3)(ii) on the basis that compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. This alternative provides reasonable assurance of the valve's operational readiness. The duration of this alternative is authorized from the beginning of refueling outage U1R28, which is scheduled to begin April 3, 2004, through the end of refueling outage U1R29, which is scheduled to begin in October 2005.

Principal Contributor: G. Hammer

Date: April 1, 2004