NMC
Committed to Nuclear Excellence

Point Beach Nuclear Plant
Operated by Nuclear Management Company, LLC

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NRC 2005-0015
10 CFR 50.55a

U.S. Nuclear Regulatory Commission
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Point Beach Nuclear Plant, Units 1 and 2
Dockets 50-266 and 50-301
License Nos. DPR-24 and DPR-27

Relief Request from the Provisions of ASME Section XI, IWA-5244, "Buried Components," Relief Request 15

In accordance with 10 CFR 50.55a(a)(3)(ii), Nuclear Management Company, LLC (NMC), licensee for Point Beach Nuclear Plant (PBNP), hereby requests relief from the requirements of the 1998 Edition with Addenda through 2000 of Section XI, IWA-5244, "Buried Components," for PBNP Units 1 and 2, for the fourth inservice interval, which began on July 1, 2002 and ends on June 30, 2012. The basis for the request is that compliance with the specified requirements is a hardship without a compensating increase in the level of quality and safety. Performing the specified examinations will require excavation of buried piping between the Circulating Water Pump House and the Turbine Building, reconfiguration of the existing Service Water system, and/or entry into a dual unit seven-day Technical Specification Action Condition.

A review of previous PBNP pressures tests indicated that prior Inservice Inspection (ISI) intervals had not met Code requirements for performing pressure testing on buried portions of the main SW headers as required by IWA-5244 of the 1986 Edition of ASME Section XI. By letter dated August 30, 2004, NMC submitted a separate relief request regarding that issue.

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

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Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
Mike Verhagen, Department of Commerce, State of Wisconsin

ENCLOSURE 1

RELIEF REQUEST 15
REQUEST FOR RELIEF FROM THE EXAMINATION REQUIREMENTS OF ASME SECTION XI, IWA-5244, "BURIED SERVICE WATER PIPING"

Pursuant to 10 CFR 50.55a(a)(3)(ii), Nuclear Management Company, LLC (NMC), requests relief from the requirements of 1998 Edition with Addenda through 2000 of Section XI, IWA-5244, "Buried Components." The basis for the request is that compliance with the specified requirements is a hardship without a compensating increase in the level of quality and safety. Performing the specified examinations will require excavation of buried piping between the Circulating Water Pump House and the Turbine Building, reconfiguration of the existing Service Water (SW) system, and/or entry into a dual unit seven-day Technical Specification Action Condition (TSAC).

ASME Code Components Affected

Approximately 90 feet of Class 3, 30-inch diameter cast steel SW piping for each unit buried between the Circulating Water Pump House and the Turbine Building.

These sections of piping are not accessible for pressure testing.

Applicable Code Edition and Addenda

ASME Section XI, 1998 Edition with Addenda through 2000

Applicable Code Requirements

IWA-5211, "Test Description"

Pressure retaining components within each system boundary shall be subject to the following applicable system pressure tests referenced in Table IWA-5210-1 under which conditions a VT-2 visual examination is performed in accordance with IWA-5240 to detect leakage:

(a) a system leakage test conducted while the system is in operation, during a system operability test, or while the system is at rest conditions using an external pressurization source.

IWA-5221, "System Leakage Test Boundary"

The boundary subject to test pressurization during a system leakage test [IWA-5211(a)] includes the pressure retaining components to be tested in accordance with IWB-5222, IWC-5222, and IWD-5240.

IWA-5244, "Buried Components"

(b) For buried components where a VT-2 visual examination cannot be performed, the examination requirement is satisfied by the following:

(1) The system pressure test for buried components that are isolable by means of valves shall consist of a test that determines the rate of pressure loss. Alternatively, the test may determine the change in flow between the ends of the buried components. The acceptable rate of pressure loss of flow shall be established by the Owner.

(2) The system pressure test for nonisolable buried components shall consist of a test to confirm that flow during operation is not impaired.

(3) Test personnel need not be qualified for VT-2 visual examination.

Examination Category D-B, Item No. D2.10. The extent of examination for the system leakage test (IWD-5221) of pressure retaining components is the pressure retaining boundary.

IWD-5240, "Boundaries"

(a) The pressure retaining boundary includes only those portions of the system required to operate or support the safety function up to and including the first normally closed valve (including a safety or relief valve) or valve capable of automatic closure when the safety function is required.

(b) Items outside the boundaries of IWD-5240(a), and open ended discharge piping, are excluded from the examination requirements.

Reason for Request

The buried piping in question consists of about 90 feet of 30-inch diameter cast steel piping located between the Circulating Water Pump House and the Turbine Building. These piping sections are buried approximately seven feet underground with a road built over it. There is no access to this buried piping other than excavation. No annulus was provided during original construction that would allow for testing or examination of these buried sections of piping. It is not possible to perform a direct VT-2 examination when performing a system leakage test in accordance with IWA-5211.

An alternative to the IWA-5211 system leakage test is to isolate the buried sections of the piping and perform a test that determines the rate of pressure loss. This test method is a stated method in ASME Section XI, 1998 Edition, 2000 Addenda, IWA-5244(b)(1). The existing isolation valves available to isolate this buried portion of piping are six butterfly valves, three per piping section. These valves are designed to isolate a failed ring header such that the remaining portion of the ring header would still provide the required system flow; however, the valves are not expected to provide an adequate pressure test boundary, which is necessary for accurate pressure test results. System modification would be required to perform a test in accordance with IWA-5244(b)(1), as it would be necessary to either replace the valves with those of better leakage characteristics or install temporary blind flanges to conduct this test.

Such a test methodology would be difficult to perform and would remove one train of service water. This would also require entry into a dual unit, seven-day TSAC, as described below.

The SW system for both units is configured with a ring header such that both sides (i.e., north and south headers) of the system are supplying both units. PBNP TS 3.7.8 requires, "SW ring header continuous flowpath not interrupted" for SW system operability. Removing one section of the ring header from service reduces the redundancy of the system. If the SW ring header continuous flowpath is interrupted, the ability of the system to provide required cooling water flow to required equipment must be verified within one hour in accordance with TSAC 3.7.8.C, Required Action C.1. Isolating a section of the SW ring header also requires entry into a dual unit TSAC to restore the flowpath within seven days.

The 1998 Edition, 2000 Addenda, IWA-5244(b)(1), also states that as an alternative, a test to determine the change in flow between the ends of the buried piping is allowed. The SW system is not physically configured to make this determination. To use an ultrasonic flow meter would require a length of straight pipe 15 times its diameter. PBNP plant experience has shown that 15 pipe diameters of straight length piping are the minimum length required in order to get an accurate rate of flow. As-built drawings of the system show a 12-foot, 3-inch straight length of piping with a 24-inch by 30-inch reducer. Therefore, the ultrasonic gauge would require a 30-foot length of straight piping without turbulence-inducing components to work correctly. The configuration of the SW system will not allow for determining the change in flow between the ends of the buried piping.

NMC recognizes that Microbiologically Influenced Corrosion (MIC) could be a concern for the SW piping, as it contains lake water. However, NMC has determined that the possibility of erosion from MIC in these sections of piping is minimal. This is due to the continuous high flow rate of water through the piping, which does not support significant microbiological attack.

Proposed Alternative and Basis for Use

The proposed test methodology will confirm unimpaired flow as stated in ASME Section XI, 1998 Edition, 2000 Addenda IWA-5244(b)(2):

"The system pressure test for nonisolable buried components shall consist of a test to confirm that flow during operation is not impaired."

NMC proposes the use of the following PBNP Inservice Testing procedures conducted on a quarterly basis to verify adequate flow through the SW system during operation:

IT-7A, "P-32A Service Water Pump (Quarterly)"
IT-7B, "P-32B Service Water Pump (Quarterly)"
IT-7C, "P-32C Service Water Pump (Quarterly)"
IT-7D, "P-32D Service Water Pump (Quarterly)"
IT-7E, "P-32E Service Water Pump (Quarterly)"
IT-7F, "P-32F Service Water Pump (Quarterly)"

The buried portions of piping are isolable to protect against a header break but not sufficiently isolable for a pressure test. Application of IWA-5244(b)(2) will provide an adequate level of quality and safety. The use of the inservice pump tests provides a means to ensure flow during operation is not impaired. The pump acceptance criteria also ensure the required safety flow is maintained for any buried piping leakage other than system loss of flow and pump degradation. Significant through-wall leakage of a buried pipe would result in failed inservice pump tests for three of six SW pumps providing flow to this portion of buried pipe. This failure would result in a 72-hour TSAC and lead to a plant shutdown to identify and correct the condition.

Duration of Proposed Alternative

The duration of the proposed alternative is for the fourth inservice interval, which began on July 1, 2002 and is scheduled to end on June 30, 2012.

References

ASME Section XI, 1998 Edition with Addenda through 2000

EPRI TM-1001, Microbiologically Influenced Corrosion

PBNP Technical Specification 3.7.8, Service Water (SW) System