NMC
Committed to Nuclear Excellence

Point Beach Nuclear Plant
Operated by Nuclear Management Company, LLC

July 19, 2005

NRC 2005-0088
10 CFR 54

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

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

Clarification to Information Regarding the Point Beach Nuclear Plant
License Renewal Application
(TAC Nos. MC2099 and MC2100)

By letter dated February 25, 2004, Nuclear Management Company, LLC (NMC), submitted the Point Beach Nuclear Plant (PBNP) Units 1 and 2 License Renewal Application (LRA). NMC letter to Nuclear Regulatory Commission (NRC) dated January 25, 2005, provided responses to NRC staff requests for additional information dated November 17, 2004, regarding LRA Section B2.1.23, "Thimble Tube Inspection Program." In a telephone conference on July 6, 2005, a clarification was requested by the NRC staff concerning this program. The clarification is provided in the enclosure to this letter.

NMC letter to NRC dated April 8, 2005, provided clarifications regarding information on LRA Section B2.1-4, "Bolting Integrity Program," as a result of an inspection conducted during the weeks of March 7 and March 21, 2005. In a telephone conference on July 5, 2005, a clarification was requested by the staff concerning an exception to NUREG-1801 as delineated in EPRI NP-5769 for hardness testing of a sample of procured bolting material. The clarification is provided in the enclosure to this letter.

NMC letter to the NRC dated April 29, 2005, provided additional information regarding the methodology and results of 10 CFR 54.4(a)(2) scoping using the "spaces" approach. The April 29, 2005, letter provided the 10 CFR 54.4(a)(2) methodology, including specific exceptions to that methodology for special cases and impact of results on the LRA. The NRC staff in a teleconference on June 30, 2005, requested clarifications concerning scoping in accordance with 10 CFR 54.4(a)(2). These clarifications are also provided in the enclosure to this letter.

Should you have any questions concerning this submittal, please contact Mr. James E. Knorr at (920) 755-6863.

A093

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

I declare under penalty of perjury that the forgoing is true and correct. Executed on July 19, 2005.

For

Dennis L. Koehl
Site Vice-President, Point Beach Nuclear Plant
Nuclear Management Company, LLC

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Point Beach Nuclear Plant, USNRC
Resident Inspector, Point Beach Nuclear Plant, USNRC
PSCW

ENCLOSURE

CLARIFICATION TO INFORMATION REGARDING POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2 LICENSE RENEWAL APPLICATION

The following information provides clarifications regarding the Point Beach Nuclear Plant (PBNP) License Renewal Application (LRA). The information is provided in response to the Nuclear Regulatory Commission (NRC) staff's request during teleconferences on June 30, July 5, and July 6, 2005.

LRA Section B2.1.23, "Thimble Tube Inspection Program."

In a letter to the NRC dated January 25, 2005, NMC stated that:

> "While resolving the issue related to calculation methodology, it was discovered that the worst case flaw depth method has been largely replaced in the industry with the mixed frequency amplitude wall loss method. Therefore, future inspections may be analyzed using both of these methods to determine if PBNP should change to the current industry standard method. One of the reasons that the current 4.5 year inspection interval was chosen, where 6 years is allowed by the program, was to allow timely comparison of the worst case flaw depth data analysis method with the mixed frequency amplitude wall loss data analysis method over two inspections to facilitate final resolution of the questions related to possible adoption of the current industry standard methods of eddy current data analysis."

Two inspections have occurred in 2004 and 2005. Based upon a review of those results NMC concluded that the current industry method is appropriate and therefore NMC is adopting the current industry standard of the mixed frequency amplitude wall loss data analysis method to begin during the PBNP fall 2005 Unit 1 refueling outage.

LRA Section B2.1-4, "Bolting Integrity Program"

In a letter to the NRC dated April 8, 2005, NMC stated that:

> "NMC understands that the industry recommendations discussed in NUREG-1801, as being delineated in EPRI NP-5769, are contained within Section 1 of Volume II of EPRI NP-5769. The page numbers below are from Section 1 of Volume II of EPRI NP-5769. NMC will comply with these recommendations with the exceptions noted in NUREG-1339 for safety related bolting, except as described on the next page:

8. Hardness Test - Page 1-7

NMC does not perform hardness tests of random samples of bolting material during receipt inspection at PBNP. With few exceptions, (e.g., Hilti Quickbolts), safety related bolting used at PBNP is provided with a CMTR. NMC reviews the CMTR and confirms that either the hardness or actual tensile or proof load test falls within the acceptable range for the material. Hardness, tensile strength, and proof load information is not provided if the material is procured only with a COC. NMC would only perform hardness tests if the provided information was suspect based on site or industry operating experience."

By this letter, NMC does not take exception to the recommendations of EPRI NP-5769 regarding the hardness testing of bolting material as part of the receipt inspection process. NMC will conduct hardness testing of random samples of bolting material as part of the receipt inspection process as recommended in EPRI NP-5769 during the period of extended operation at PBNP.

NRC Request for Further Clarification

The U.S. Nuclear Regulatory Commission staff (the staff) and representatives of Nuclear Management Company, LLC (NMC) held a telephone conference call on June 30, 2005, to discuss and clarify the applicant's responses to the staff's request for additional information (RAI) concerning the Point Beach Nuclear Plant, Units 1 and 2, license renewal application (LRA). The following RAI was discussed during the telephone conference call.

NRC Question: RAI- 2.1-1 Short Term Exposure Duration Definition - 10 CFR 54.4(a)(2)

The PBNP LRA and page 13 of LR-TR-514 did not adequately define short-term exposure duration for low and moderate energy piping failures covered under 10 CFR 54.4(a)(2) that could affect safety-related electrical equipment under the scope of 10 CFR 54.4(a)(l). Specifically, the staff found that some safety-related electrical equipment may exist in the turbine building or other parts of the plant and may be subject to harsh environments from low or moderate energy pipe breaks but are not environmentally qualified (EQ). Since this equipment may not be EQ, they could fail due to 10 CFR 54.4(a)(2) piping failures.

The staff requests additional information to adequately define short term exposure duration for low and moderate energy piping failures and how it relates to scoping and screening of 10 CFR 54.4(a)(2) piping that could cause these types of failures.

Applicant's Response

In a response dated April 29, 2005, the applicant provided additional information on scoping and screening of non safety-related (NSR) components. The portions of the response discussed during the telecon are as follows:

The original scoping process at PBNP for 10 CFR 54.4(a)(2) included evaluating potential effect on vulnerable safety related (SR) components, assuming a finite spray/leakage duration from a failed non-safety related (NSR) system or component (SC). The spray/leakage duration assumed that the spray/leak would be identified by normal work activities within the plant (walkdowns, system parameter changes, sump alarms and trends, etc.). Based on feedback from the staff, NMC is changing the scoping methodology to remove the assumption of leakage duration and to eliminate the limitation of vulnerable targets to only electrical components.

The revised methodology invokes a plant "spaces" approach that assumes a spatial interaction can potentially occur if SR and NSR SCs are located within the same space. For the purposes of this process, a space is defined by the room in which the SR and NSR components are located. Physical barriers (e.g., walls, ceilings, and floors) enclose the space. This revised methodology evaluates the effect of sprays and leaks on mechanical as well as electrical SR SCs, with no limitation on the duration of the sprays/leaks. NMC considers all liquid or steam bearing NSR SCs to be in the scope of the criterion 10 CFR 54.4(a)(2), provided the NSR SCs are located in the same space as a SR SC and the NSR SCs are in proximity where spray or leakage from the NSR SCs could contact a SR SC.

NMC has re-evaluated the SC at PBNP using the revised 10 CFR 54.4(a)(2) methodology. A number of configurations have been identified where the failure of NSR SCs would not result in the loss of intended function of the SR SCs in the "space."

The exceptions to the revised methodology follow:

Exceptions

1. NSR SCs in containment were not re-evaluated. SR SCs within containment are already evaluated for post-accident environments including spray and/or steam. As such, the existing current licensing basis (CLB) has addressed the bounding environmental conditions for SR SCs within containment.

2. NSR components in rooms or cubicles where there are no SR components do not need to be in-scope. These rooms or cubicles have also been evaluated to ensure that SR piping does not run through them.

The following cubicles or rooms have no SR equipment in them, and therefore NSR components in these cubicles or rooms are not in-scope:

- Demineralizer Cubicles and Demineralizer Valve Gallery
- Sump Tank Cubicle
- Gas Stripper Building
- Blowdown Evaporator Building
- Drumming Area
- PAB Truck Bay
- "B" and "C" Hold Up Tank (HUT) Cubicles (See note on "A" HUT in Exception 5)
- Laundry Tank Room

3. *Only NSR SCs containing liquid or steam are considered to pose any potential* for spatial interaction. NSR SCs containing gases (e.g., plant air systems, ventilation systems) pose no potential for aging effects on SR SCs due to leakage of air or gas.

   - NSR portions of plant air systems (instrument air, service air) are not in-scope per this exception.
   - NSR portions of ventilation systems are not in-scope per this exception.
   - NSR portions of gas systems (nitrogen, hydrogen) are not in-scope per this exception.
   - NSR portions of systems that are normally vented or connected to the vent header are not in-scope per this exception.

4. Abandoned or manually isolated and drained NSR SCs are not considered to pose any potential for aging effects on SR SCs, and therefore do not need to be in-scope.

   - NSR glycol drain tank in G-03/G-04 Emergency Diesel Generator Rooms is manually isolated, vented and drained when the engine is operational, and therefore is not in-scope per this exception.

   - NSR portions of the Heating Steam system that are isolated and control tagged as abandoned are not in-scope per this exception.

5. Spray is not postulated from unpressurized systems, however leakage still is a potential. Leakage can only affect SR SCs that are physically below the unpressurized NSR components.

If SR components are above or beside the unpressurized NSR components, the NSR components would not need to be in-scope.

- NSR chemical addition pots in the auxiliary feedwater pump rooms are normally vented and isolated and are mounted near the floor where they cannot leak on any SR equipment; therefore, these chemical addition pots are not in-scope.

- "A" HUT Cubicle has some SR piping that passes through this cubicle and exits the ceiling to supply SR components in a cubicle above. NSR piping that is above or adjacent to this SR piping has been included in-scope, but the HUT tank itself is at very low pressure (normally 2.5 psig) and as such it could not spray on the SR piping, and therefore the "A"HUT is not in scope.

6. NSR SCs in large open areas (e.g., turbine building, facade) are eliminated from scope if it can be shown that there is no possible effect on the SR SCs.

   - The NSR Reactor Makeup Water (RMW) Tank is on the 6.5' elevation of the facade. This tank is not pressurized. This tank is about 1/3 the size of the Refueling Water Storage Tank (RWST), and therefore is bounded by the flooding analysis that assumed the RWST would fail. There are also two short runs of pressurized pipe (~5' long) where the pipe exits the adjacent RMW pump room and crosses into the Primary Auxiliary Building (PAB). Intervening structures exist between these pipes and any SR equipment (nearest would be the containment penetrations on 26' elevation). Failure of any of these RMW components on the 6.5' elevation could not affect any SR equipment, and therefore these NSR components are not in-scope.

   - NSR Crossover Steam Dump components are located within the 66' fan room. SR equipment in the 66' fan room includes SG pressure transmitters and the main steam lines themselves (in the overhead). The transmitters are environmental qualification (EQ) qualified for harsh environment based on main steam line break potential, and this bounds the energy level of the crossover steam dump system by a significant margin. The crossover steam dump components are a minimum of 50' away from SR equipment and failure of these NSR components will not affect the function of these SR components. Therefore, the NSR crossover steam dump components would not be in-scope.

   - The SR Main Feedwater Regulating Valves (MFRVs), bypass valves, and associated solenoid operated valves (SOVs), are located on the 26' elevation of the Unit 1/Unit 2 Turbine Building. The safety function is for the MFRVs and bypass valves to close. The SOVs are EQ qualified for harsh environments. The piping on either end of these valves is NSR. All other equipment on this elevation of the turbine building is NSR. The only potential failure that could cause a failure of the safety function of these components, would be a flow accelerated corrosion (FAC) failure where a pipe-whip impact could bend the actuator stem and prevent the valve from closing. Simple leakage or spray would not affect the safety function of these valves, as external aging effects would only create fail-safe failures of the SR valves (through-wall leakage would divert flow from SGs which is the fail-safe direction). Therefore, NSR high energy piping sections that pose the potential for pipe-whip on these valves and/or SOVs are included in-scope. Portions of high energy piping that cannot physically reach, or are shielded from, the SR components by structures or other larger piping, are not included in-scope. Major components such as feedwater heaters and the condenser are anchored and do not have the potential for pipe-whip, and therefore are also not included in-scope.

Staff Comment
The applicant stated that all NSR SC containing liquid or steam were in scope "...provided the NSR SCs are located in the same space as a SR SC and the NSR SCs are in proximity where spray or leakage from the NSR SCs could contact a SR SC." The staff requested that the applicant clarify the use of the word "proximity."

Status
The applicant stated that proximity referred to the NSR SCs located in large open areas and included the exceptions listed in Section 6 of the response. No additional information is required at this time.

Staff Comment
For exception 3, the applicant stated that "...NSR portions of gas systems (nitrogen, hydrogen) are not in-scope per this exception." The staff requested that the applicant explain why leakage from external corrosion was not considered as a failure mechanism that could cause a possible hydrogen fire/explosion.

Status
The applicant cited that industry experience did not identify external corrosion as an aging effect for dry gas systems. The staff requested that the applicant provide further clarifications regarding operating experience.

NMC Response:

The hydrogen supply system at PBNP provides a source of hydrogen gas for the main generator in the turbine building and the volume control tank (VCT) in the primary auxiliary building (PAB). In the PAB, the hydrogen supply system is made up of piping with welded connections. In the area of the VCT the piping is stainless steel. In the turbine building the hydrogen supply system is also made up of piping with welded connections. However, there is no safety-related equipment near the hydrogen supply system for the main generator and therefore the system is not considered in-scope for license renewal in the turbine building.

A review of industry and PBNP operating experience (OE) for the PAB environment has shown that the system materials of carbon steel and stainless steel show no effects of aging either internally due to the dry hydrogen or externally due to the indoor - no air conditioning environments. PBNP operating experience shows that for the PAB environment no condensation occurs on the external surface of the piping in the system. Additional OE for the turbine hall environment was also reviewed. The hydrogen supply system in the PAB is not located in environments prone to vibration. The PBNP review of NRC Information Notice 87-20, "Hydrogen Leak in Auxiliary Building," noted that minor leakage of hydrogen in the auxiliary building would be dispersed through the PAB ventilation system. SERs and LRAs for recent license renewal applicants were reviewed. These reviews revealed that some applicants included the hydrogen supply system in-scope due to configurations and current licensing bases that differ from PBNP. Therefore, the hydrogen supply system at PBNP is not considered in-scope for license renewal due to operating experience, and plant-specific configurations and current licensing bases.

Staff Comment

For exception 4, the applicant stated that "Abandoned or manually isolated and drained NSR SCs are not considered to pose any potential for aging effects on SR SCs, and therefore do not need to be in-scope." The staff requested that the applicant clarify whether the manually isolating component (e.g., valve) was in-scope, and identify the safety-related boundary for the manual isolation.

Status

The applicant stated that the isolating component (valve, flange, etc.) was in the scope of license renewal and represented the system boundary. Additional information is requested at this time to clarify the inclusion of the valve in scope.

NMC Response:

In the case of abandoned or isolated and drained NSR SCs in a "space" with SR SCs, the upstream components that are pressurized up to and including the isolating component (valve, flange, etc.) are considered in-scope of license renewal and represents the system boundary.

Staff Comment

For exception 6, the applicant stated that: "...The crossover steam dump components are a minimum of 50' away from SR components. Therefore, the NSR crossover steam dump components would not be in-scope." The staff requested that the applicant provide a technical justification for the 50' exclusion value and consider the effects of impingement.

Status

The applicant agreed to provide further clarification regarding the steam dump components.

NMC Response:

Exception number 6 for the crossover steam dump components in the 10 CFR 54.4(a)(2) methodology as outlined in NMC letter to the NRC dated April 29, 2005, is modified as follows (additions are double-underlined; deletions are strikethrough):

Exception

6. NSR SCs in large open areas (e.g., turbine building, facade) are eliminated from scope if it can be shown that there is no possible effect on the SR SCs.

    - (No change for this question)

    - The NSR crossover steam dump components that are located within the 66' fan room. SR equipment in the 66' fan room includes SG pressure transmitters and the main steam lines themselves (in the overhead). The transmitters are environmental qualification (EQ) qualified for harsh environment based on main steam line break potential, and this bounds the energy level of the crossover steam dump system by a significant margin. The steam pressure in the crossover steam line is approximately 120 psi (low energy) and not considered a high energy line as defined by the PBNP current licensing basis. At PBNP, high energy piping systems are defined as systems where the combined pressure and temperature conditions of the fluid exceeds 275 psig and 200°F. There is also no flow through these lines except when the crossover steam dump is used in a turbine trip event. The crossover steam dump components are a minimum of 50' away from SR equipment and failure of these NSR components will not affect the function of these SR components. The SR components are outside the jet impingement cone that could be created during a failure of the NSR crossover steam dump. Therefore, the NSR crossover steam dump components are not considered to be in-scope for license renewal.

    - (No change for this question)

Staff Comment

For exception 6, The applicant also stated that "Portions of high energy piping that can not physically reach........are not included in-scope." The staff requested that the applicant clarify "physically reach," and provide qualification for the barriers.

Status

The applicant stated that the phrase "can not physically reach," referred to the components in large open areas (facade, turbine building, etc) that are specifically addressed in exception 6. The applicant agreed to provide further clarification regarding the components in the area of the main feed regulating valves.

NMC Response:

Exception number 6 as outlined in NMC letter to the NRC dated April 29, 2005, is modified as follows (additions are double-underlined; deletions are strikethrough):

Exception

6. NSR SCs in large open areas (e.g., turbine building, facade) are eliminated from scope if it can be shown that there is no possible effect on the SR SCs.

   - (No change for this question)

   - (No change for this question)

   - The SR MFRVs, bypass valves, and associated solenoid operated valves (SOVs), are located on the 26' elevation of the Unit 1/Unit 2 Turbine Building. The safety function is for the MFRVs and bypass valves to close. The SOVs are EQ qualified for harsh environments. The piping on either end of these valves is NSR. All other equipment on this elevation of the turbine building is NSR. The only potential failure that could cause a failure of the safety function of these components, would be a flow accelerated corrosion (FAC) failure of an NSR component where a pipe-whip impact could bend the actuator stem and prevent the valve from closing. Simple leakage or spray would not affect the safety function of these valves, as external aging effects would only create fail-safe failures of the SR valves (through-wall leakage would divert flow from SGs which is the fail-safe direction). Therefore, NSR high energy piping sections that pose the potential for pipe-whip on these valves and/or SOVs are included in-scope. Portions of high energy piping that cannot physically reach, or are shielded from, the SR components by structures or other larger piping, are not included in-scope. ~~Major components such as feedwater heaters and the condenser are anchored and do not have the potential for pipe-whip, and therefore are also not included in scope.~~ Major components such as feedwater heaters in the space adjacent to the MFRVs are considered in-scope due to the potential for jet impingement.

This change results in the inclusion of the #4 and #5 feedwater heaters in-scope on the 26' elevation of the turbine hall for both Unit 1 and 2. LRA Table 3.4.2-2, "Steam and Power Conversion - Feedwater and Condensate System - Summary of Aging Management Evaluation," under the component type "Piping and Fittings" with the intended function of "Pressure Boundary" provides the aging management evaluation results for the material, environment, aging effect and aging management program for these feedwater heaters. As a result, the internal environment of the heat exchanger shell (Treated Water – Secondary, T>120°F) is managed by the One-Time Inspection Program, Water Chemistry Control Program and the Flow-Accelerated Corrosion Program. The external environment of the heat exchanger shell (Indoor – No Air Conditioning) is managed by the Systems Monitoring Program.