NMC
Committed to Nuclear Excellence

Point Beach Nuclear Plant
Operated by Nuclear Management Company, LLC

March 15, 2005

NRC 2005-0026
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). On February 15, 2005, the Nuclear Regulatory Commission (NRC) staff requested clarification of information regarding previous responses to NRC requests for additional information. The enclosure to this letter contains NMC's clarifications to earlier responses.

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

Summary of Commitments

New commitments made as part of this response are as follows:

1. Periodic visual inspections of the bus duct will be performed as part of the Periodic Surveillance and Preventive Maintenance Program to inspect for signs of insulation cracking, corrosion, debris, excessive dust buildup, evidence of moisture and water intrusion, or discoloration of insulation.

2. A susceptible location in the Fire Protection System (i.e., uncoated/unwrapped piping) will be scheduled to be inspected once prior to the period of extended operation and at least every 10 years during the period of extended operation. Based upon findings from these Fire Protection System inspections, additional inspection locations could include coated and/or uncoated buried piping in the Fire Protection System, Service Water System and Fuel Oil System.

A093

3. A representative sample of in-scope, inaccessible non-EQ medium-voltage cables not designed for submergence subject to significant moisture and significant voltage will be tested prior to the end of the current license period and once every ten years during the period of the extended license. This sample will include the most susceptible cables and be representative of all cable types and manufacturers. The basis for this representative sample will be documented.

   Significant moisture is defined as periodic exposure that lasts more than a few days (I.e., cable in standing water), which is consistent with NUREG-1801, Section XI.E3.

4. Enhancements will be made to the Structural Monitoring Program (SMP) to include the primary shield and reactor vessel support areas.

I declare under penalty of perjury that the forgoing is true and correct. Executed on March 15, 2005.

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 is provided in response to the Nuclear Regulatory Commission (NRC) staff's request during a February 15, 2005, meeting for clarification to requests for additional information (RAI) regarding the Point Beach Nuclear Plant (PBNP) License Renewal Application (LRA).

The LRA Sections and associated NRC RAI numbers are listed below with the Nuclear Management Company (NMC) clarification information following.

LRA Section 2.1: Scoping and Screening

Scoping and Screening Methodology

NRC Question RAI 2.1-1:

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)(1). 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.

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI 2.1-1:

NMC initially responded to this RAI in NMC letter dated January 31, 2005 (NRC 2005-0001). The staff stated that they would not accept this response and that NMC would need to change the methodology for 10 CFR 54.4(a)(2) scoping to the "spaces" approach. NMC presented preliminary information with regard to this change in scoping methodology at the meeting. The details of the NMC 10 CFR 54.4(a)(2) methodology, including specific exceptions to that methodology for special cases and

impact of results on the LRA, will be provided under a separate letter. This change in methodology will require completion of the additional 10 CFR 54.4(a)(2) scoping work. NMC has scheduled this effort to be completed and will provide a description of methodology and summary of results to the NRC by the end of April 2005.

NMC Clarification to RAI 2.1-3:

The PBNP LRA Section 2.1.2.1.2, pages 2-20 and 2-21, states, under Piping Supports, "All NSR supports for non-seismic or Seismic II/I piping systems with a potential for spatial interaction with safety related SSC, will be included within the scope of license renewal per 10 CFR 54.4(a)(2). These supports will be addressed in a commodity fashion, within the civil/structural area review. As long as the effects of aging on the supports for these piping systems are managed, falling of piping sections, except for flow accelerated corrosion (FAC) failures, is not considered credible, and the piping section itself would not be in-scope for 10 CFR 54.4(a)(2) due to physical impact hazard (although the leakage or spray may still apply)."

The staff requests additional information to adequately describe why the falling of piping sections is not considered credible, and why the piping section itself would not be in-scope for 10 CFR 54.4(a)(2) due to physical impact hazard. Please describe how the management of FAC relates to the scoping and screening of 10 CFR 54.4(a)(2) Seismic II/I piping systems that could cause these types of failures.

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI 2.1-3

NMC initially responded to this RAI in NMC letter dated January 31, 2005 (NRC 2005-0001). In that response, NMC included the verbiage "NSR high energy piping in proximity to SR components would be considered in-scope as long as a FAC failure in that line and impact on SR components is considered credible." During the February 15, 2005, meeting between NMC and the NRC staff, the staff requested clarification on what was considered "credible."

In clarification, NMC agreed to remove "as long as a FAC failure in that line and impact on SR components is considered credible" from this response. Therefore, the statement in the response should read "NSR high energy piping in proximity to SR components would be considered in-scope."

LRA Section 2.3.4.2: Feedwater and Condensate

Steam and Power Conversion System - Feedwater and Condensate System

NRC Question RAI 2.3.4.2-4:

In a letter dated November 16, 2004, the Nuclear Regulatory Commission (NRC) requested additional information regarding the Auxiliary Systems (LRA Section 2.3.3) and Steam and other Balance of Plant (BOP) Systems in LRA Sections 2.3.3 and 2.3.4 respectively. PBNP response to this request was submitted to the NRC in Nuclear Management Company, LLC letter dated December 22, 2004. The NRC review of the PBNP response to RAI 2.3.4.2-1 identified two follow-up questions regarding the scoping for the small bore branch piping from the NSR portion of the 16-inch main feed water header (FW) between the feed regulating valve and the downstream steam generator FW inlet check valve:

1. Recognizing the NRC would not require a formal HELB evaluation be performed on piping 1-inch and less, did PBNP perform any evaluation (i.e., walkdown, etc.) to confirm that a break in the branch piping would not impact any safety related equipment in the immediate vicinity of the possible break location?

2. Please discuss flooding associated with a failure in the branch piping and its impact on safety related equipment.

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI 2.3.4.2-4:

NMC initially responded to this RAI in NMC letter dated January 26, 2005 (NRC 2005-0012). The staff requested clarification as to what was meant by "proximity," in reference to the potential interaction of small bore branch piping with the SR transmitters (within response to question #1).

Per the Clarification to RAI 2.1-1 as previously stated, the scoping methodology will change to a "spaces" approach, and as such, the non-safety related (NSR) components in the same space with the SR transmitters will be included in-scope.

LRA Section 3.3: Aging Management – Auxiliary Systems

NRC Question RAI 3.3-6

Loss of preload is an aging effect for closure bolting in high temperature or high pressure systems. NUREG-1801, XI.M18, "Bolting Integrity" program provides aging management inspections for this aging effect. LRA Section 3.3 for the auxiliary systems

does not identify loss of preload as an aging effect for closure bolting. The applicant is requested to discuss why the loss of preload was not identified as an aging effects for auxiliary systems closure bolting and the inspections in NUREG-1801, XI.M18 were not credited for managing this aging effect. This RAI is also applicable for closure bolting in the ESF and SPCS.

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI 3.3-6:

NMC initially responded to this RAI in NMC letter dated January 7, 2005 (NRC 2005-0005). In that response, NMC stated that loss of preload was a design driven effect, and not an aging effect requiring management. Nonetheless, the Bolting Integrity Program is composed of procedures and guidance that will manage loss of preload for bolted connections subject to vibration or high temperature in the Auxiliary systems, ESF systems, and Steam and Power Conversion systems.

Aging Management of Auxiliary Systems

NRC Question RAI 3.3.2.1.6-1:

LRA Table 3.3.2-6 refers to Notes J and 5 which describe the AMPs for certain fire protection component types as listed in the table. Provide justification for the conclusion specified in Note 5 that "the aging management program(s) referenced are appropriate for the aging effects identified and provides assurance that the aging effects are effectively managed through the period of extended operation."

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required further clarification. This question will be deferred for clarification in a future conference call or a meeting.

NMC Clarification to RAI 3.3.2.1.6-1:

During a telephone conference call on March 2, 2005, the NRC staff and NMC discussed RAI 3.3.2.1.6-1 regarding the use of the Fire Protection Program to manage identified aging. The staff requested that NMC not provide a response to this RAI at this time. The NRC staff may provide further clarifications and/or revised questions to NMC.

LRA Section 3.5: Aging Management – Containment

Aging Management of Containments, Structures, and Components Supports

NRC Question RAI 3.5-4:

In discussion of Item 3.5.1-12 in Section 3.5.2.2.1.4, the applicant notes that the liner corrosion has been found in both the PBNP units due to borated water leakage, and that the applicant is performing Subsection IWE augmented inspections in this areas. The applicant is requested to provide a quantitative summary of extent of liner corrosion found in each unit, and the corrective actions taken. The applicant is requested to include a discussion of acceptable liner plate corrosion before it is reinstated to its nominal thickness.

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI 3.5-4:

NMC initially responded to this RAI in NMC letter dated August 26, 2004 (NRC 2004-0086). The specific clarification issue pertains to what NMC's guidance or criteria is when doing an engineering evaluation of a liner plate (LP) indication that does meet the acceptance standards of ASME Section XI, Subsection IWE (containment LP inservice inspection).

As discussed at the February 15, 2005 meeting with the NRC staff, IWE does not specify a limit for material loss exceeding a percentage of nominal containment wall thickness that would necessitate a repair. Instead, the engineering evaluations are on a case-by-case basis and need to address the affect on the containments structural integrity or leak tightness. It was pointed out that the 1/4-inch thick LP design is based on the need to withstand the predicted strains without leaking and that it is not a stress issue.

As agreed during the February 15, 2005, meeting, NMC is providing operating experience information of previous engineering evaluations of the LP.

CAP	Date	Subject	Base Metal Reduction	Comments
25175	11/12/99	Mechanical Penetrations With Base Metal Reduction	>10 %	Calculation indicates recorded thickness is acceptable, repair not required
25187	11/16/99	Liner Plate Base Metal Reduction	>10 %	Evaluation indicates no effect on containment structural integrity or leak tightness
22754	4/11/01	LP Damage Due To Concrete Core Drilling	46 %	Evaluation indicates acceptable for continued service.
13912	4/26/01	Liner Plate Base Metal Reduction At Access Port CH-04	18.4 %	Evaluation indicates acceptable for continued service.

NRC Question RAI 3.5-5:

The further evaluation in Section 3.5.2.2.1.3 associated with line Item 3.5.1-27 (Table 3.5.1) of the LRA indicates that the reactor cavity cooling sub-system maintains acceptable ambient temperature at the primary shield and reactor vessel support structure. The applicant is requested to provide the following information related to the concrete temperatures and monitoring activities in the primary shield and reactor vessel support areas for PBNP Units 1 and 2:

a. The operating experience related to the functioning of the reactor cavity cooling sub-system including a range of temperatures maintained between the reactor vessel and the primary shield wall, and at the reactor vessel support, and means of monitoring these temperatures;

b. If a separate cooling system is installed to cool the primary shield wall concrete, provide the operating experience related to the functioning of this system, and means used to monitor the primary shield concrete temperatures; and

c. A summary of the results of the last inspection performed in these areas, such as concrete cracking, spalling, pop-outs, etc.

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI 3.5-5

NMC initially responded to this RAI in NMC letter dated August 26, 2004 (NRC 2004-0086).

During the meeting on February 15, 2005 with the NRC staff, it was agreed that the reactor cavity cooling system is not within the scope of license renewal. The reactor vessel sump area, also known as the Keyway, is presently inspected during various inservice inspections. Enhancements will be made to the Structural Monitoring Program (SMP) to include the primary shield and reactor vessel support areas. The NRC staff requested a review of prior ISI inspection results for this area of containment. The focus of the review was on the condition of the sump concrete and if there is any noted degradation, especially due to elevated temperatures.

The concrete in the Keyway is inspected under the "*general visual examination*" for containment. Inspection of the Keyway occurs during refueling outages, most recently in 1998, 1999, 2001, and 2002 for Unit 1 and 1998, 2000, and 2003 for Unit 2. These inspections have shown no significant degradation of the concrete in either unit's Keyway.

LRA Section 3.6: Aging Management - Electrical

Aging Management of Electrical and Instrumentation and Controls

NRC Question RAI 3.6.2.1.3:

Phase bus (480 VAC, 4160 VAC, and 13.8 KVAC Power Systems):
Information Notices 89-64, 98-36, and 2000-14 provide examples that underscore the safety significance of bus ducts and the potential problems that can arise from age-related bus component failures. Please explain why the aging management program (AMP) for bus ducts is not necessary. If needed, the AMP must address the following aging effects: oxidation, loosening of bolted connections due to thermal cycling, corrosion due to moisture, embrittlement, cracking, melting, discoloration, swelling or loss of dielectric strength of bus duct insulating materials (if applicable) leading to reduced insulation resistance and dielectric strength. The AMP should check bolted connections for proper torque. A periodic visual inspection of the bus duct is needed to inspect for signs of insulation cracking, corrosion, debris, excessive dust buildup, evidence of moisture and water intrusion, or discoloration of insulation which may indicate overheating. The internal bus supports should also be inspected for structural integrity and signs of cracks. If visual inspection of the whole bus assembly can not be performed, appropriate electrical tests should be conducted on a periodic basis to assess its condition for aging degradation.

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI 3.6.2-1- Phase Bus:

NMC initially responded to this RAI in NMC letter dated January 25, 2005 (NRC 2005-0003). The staff requested further clarification on aging management of bus ducts.

Metal-enclosed phase bus in the PBNP 480 VAC, 4160 VAC, and 13.8K VAC power systems within the scope of license renewal has not shown a potential for aging that requires management. Nonetheless, periodic visual inspections of the bus duct will be performed as part of the Periodic Surveillance and Preventive Maintenance Program (LRA Section B2.1.15) to inspect for signs of insulation cracking, corrosion, debris, excessive dust buildup, evidence of moisture and water intrusion, or discoloration of insulation. These periodic visual inspections provide reasonable assurance that any aging effects will be managed such that the intended function(s) will be maintained during the extended period of operation.

LRA Section 4.5: Time Limited Aging Analysis - Loss of Preload

TLAA - Loss of Preload

NRC Question RAI 4.5-1

The use of 10 CFR 54.21(c)(1)(ii) and (iii) is appropriate for concrete containment tendon prestress TLAA. However, the staff need to assess the plant specific operating experience regarding the residual prestressing forces in the containments and the methods used to arrive at the projected prestress forces. Based on the analysis performed as per 10 CFR 54.21(c)(1)(ii), the applicant is requested to provide the following information:

a. The estimated upper and lower bound lines, and the minimum required prestressing forces for each group of tendons for each containment.

b. Trend lines of the projected prestressing forces for each group of tendons based on the regression analysis of the measured prestressing forces (see NRC Information Notice 99-10 for more information). Also, show the actual measured prestressing forces that were used to obtain the trend lines.

c. Plots showing comparisons of prestressing forces projected to 40 years and 60 years with the minimum required prestress (or MRV) for each group of tendons for each containment.

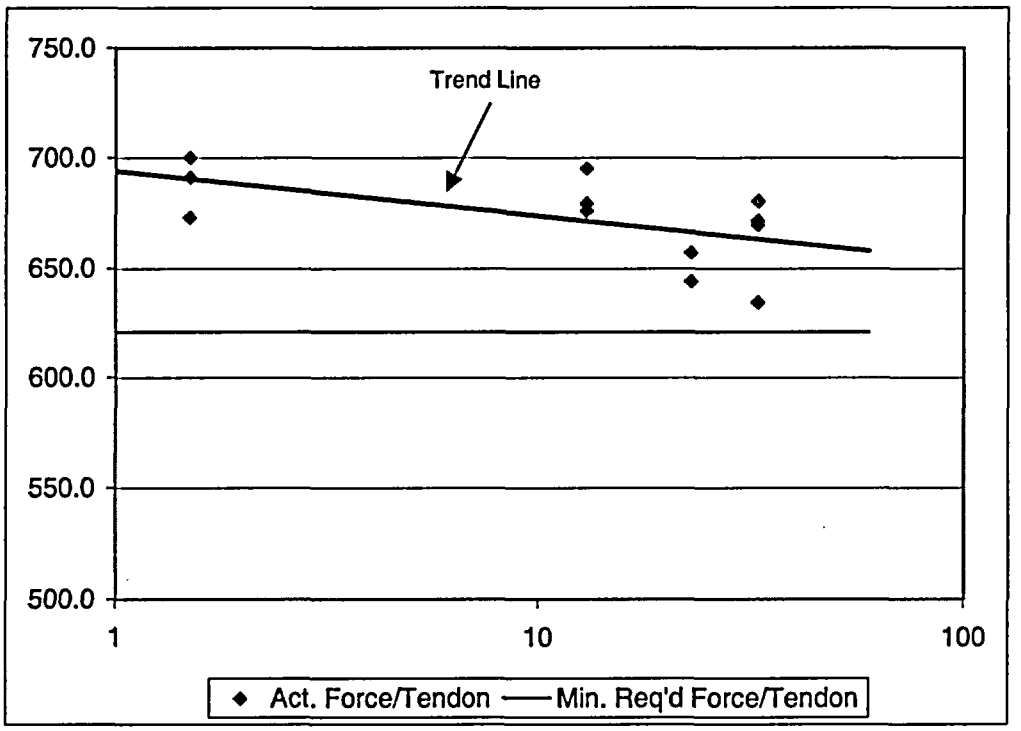
Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI 4.5-1

NMC initially responded to this RAI in NMC letter dated August 26, 2004 (NRC 2004-0086).

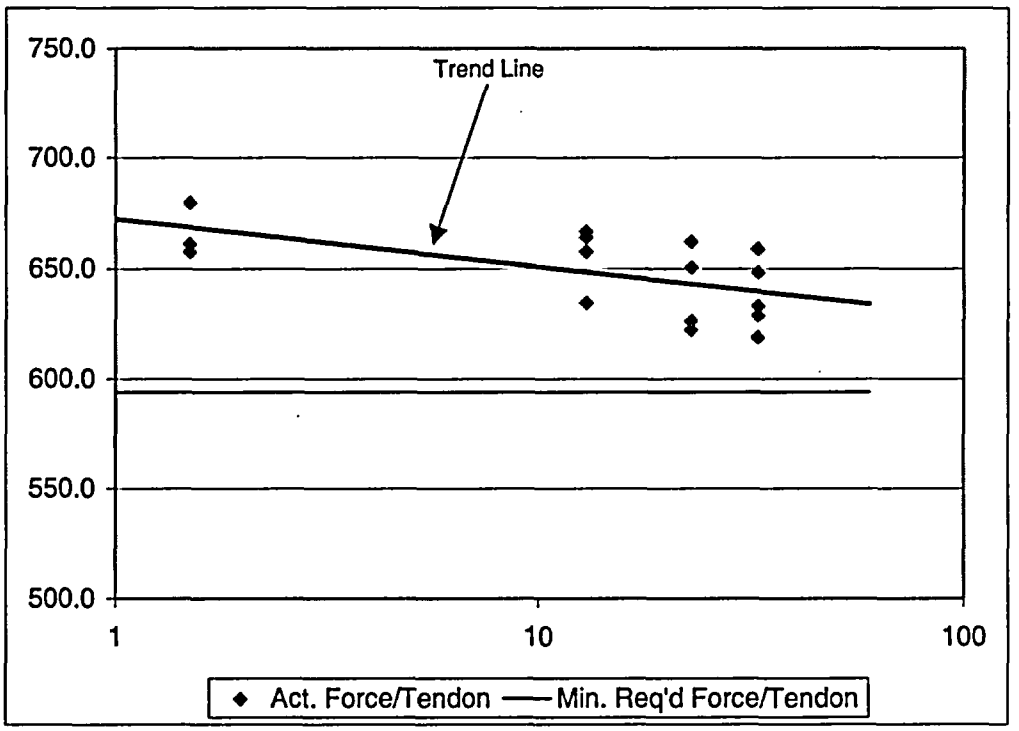
The specific request from the NRC staff was to re-title the graphs and edit the legend for the projected pre-stressing force trend line graphs (reference RAI 4.5-1(b)). The information should be presented on a per tendon group basis. There are six graphs total, one for each group of tendons for the two units. The graphs follow:

UNIT 1 VERTICAL TENDONS
Projected Pre-stressing Force Trend



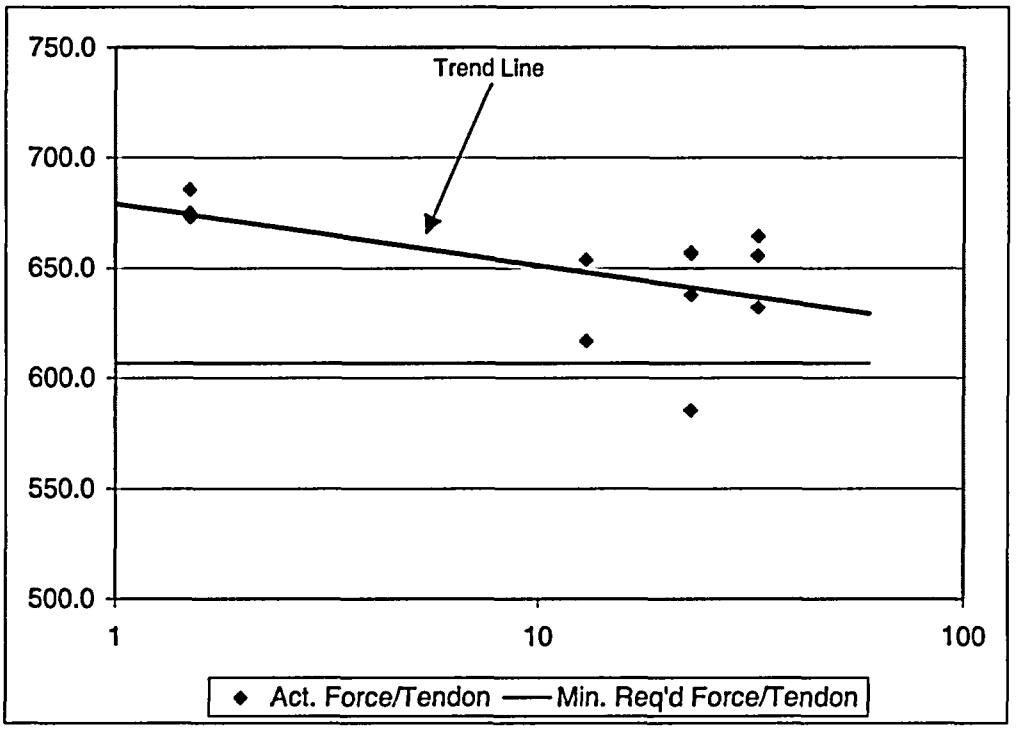
Year	Actual (kips)		Year	Actual (kips)
1.5	691.0		23	644.0
1.5	700.0		33	680.3
1.5	673.0		33	669.6
13	679.3		33	671.5
13	695.0		33	634.6
13	676.0			
23	657.1			

UNIT 1 HOOP TENDONS
Projected Pre-stressing Force Trend



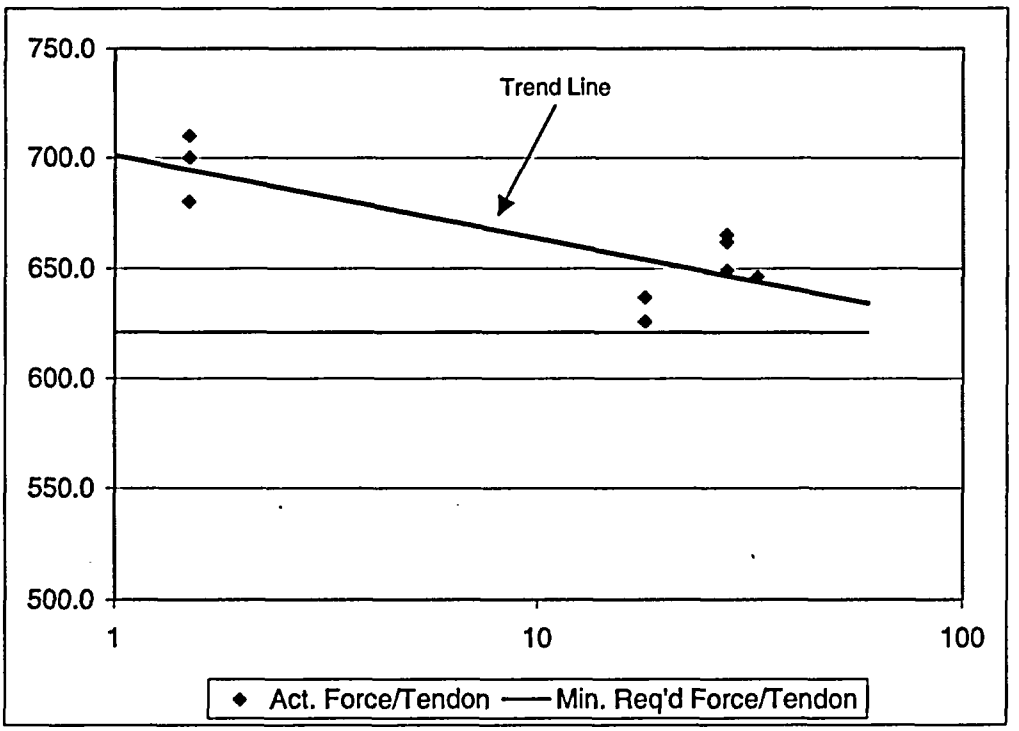
Year	Actual (kips)		Year	Actual (kips)
1.5	657.5		23	662.0
1.5	661.0		23	650.5
1.5	679.5		23	622.45
13	634.5		33	648.2
13	666.5		33	618.9
13	664.0		33	658.7
13	657.5		33	633.0
23	626.35		33	628.8

UNIT 1 DOME TENDONS
Projected Pre-stressing Force Trend



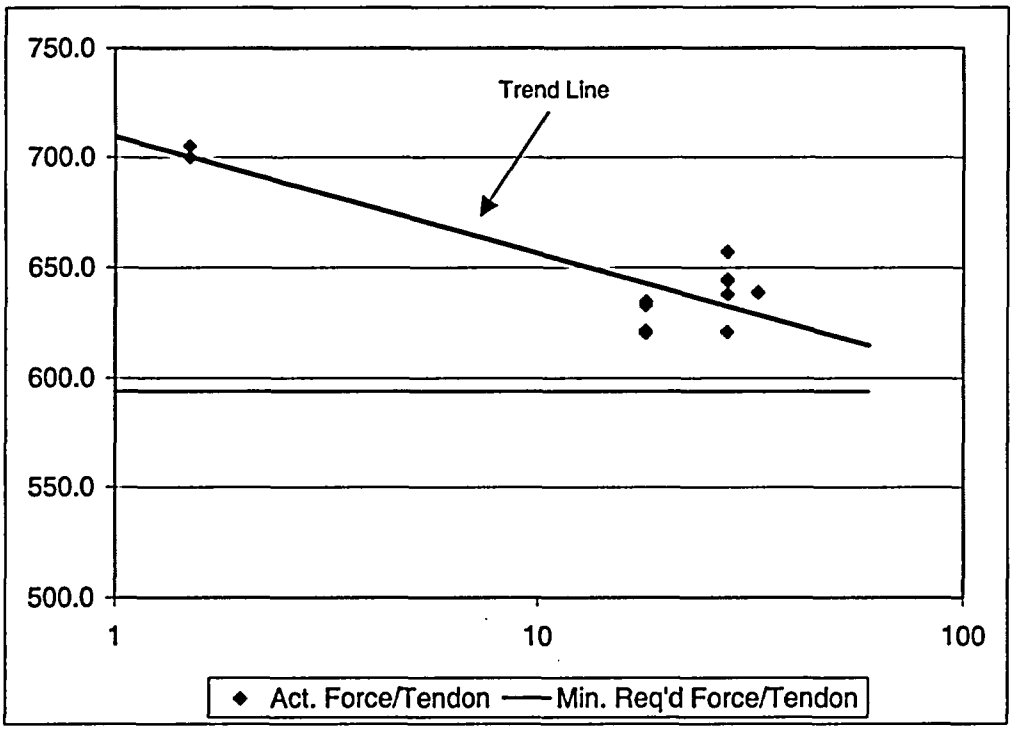
Year	Actual (klps)		Year	Actual (klps)
1.5	675.0		23	656.5
1.5	673.0		33	655.5
1.5	685.5		33	632.0
13	653.8		33	664.4
13	616.9			
23	637.85			
23	657.15			
23	585.3			

UNIT 2 VERTICAL TENDONS
Projected Pre-stressing Force Trend



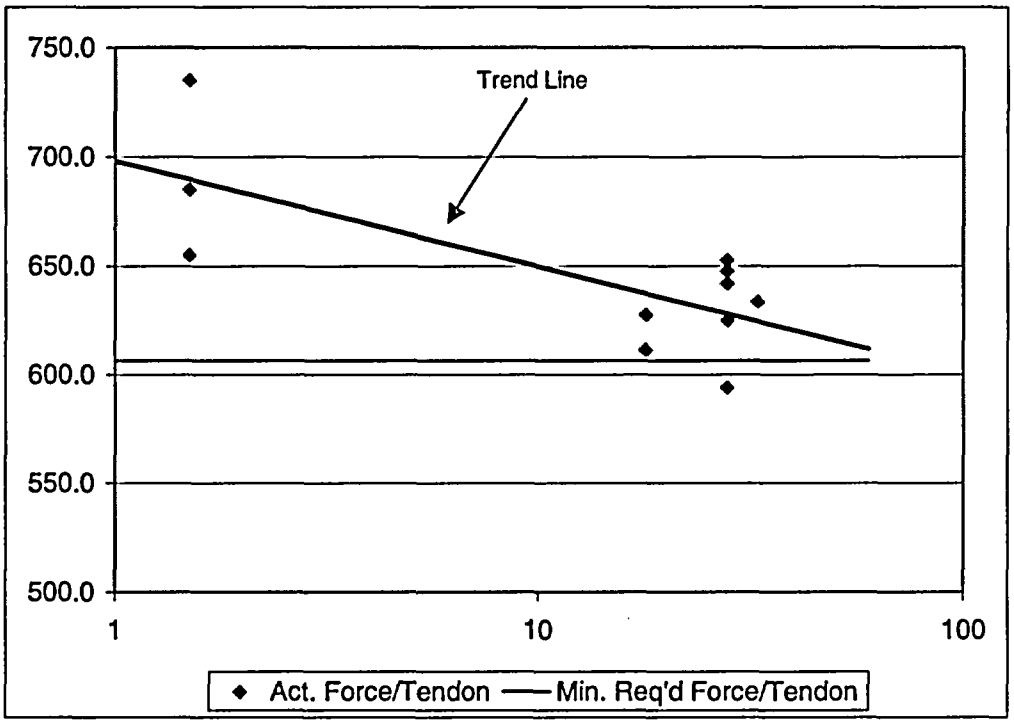
Year	Actual (kips)		Year	Actual (kips)
1.5	710.0		28	649.0
1.5	680.0		33	646.0
1.5	700.0			
18	637.0			
18	626.0			
28	662.0			
28	665.0			

UNIT 2 HOOP TENDONS
Projected Pre-stressing Force Trend



Year	Actual (kips)		Year	Actual (kips)
1.5	700.0		28	621.0
1.5	705.0		28	638.0
1.5	705.0		28	644.0
18	634.5		28	644.5
18	620.5		28	657.0
18	621.5		33	638.7
18	633.0			

UNIT 2 DOME TENDONS
Projected Pre-stressing Force Trend



Year	Actual (kips)		Year	Actual (kips)
1.5	685.0		28	594.0
1.5	735.0		28	642.0
1.5	655.0		28	652.5
18	627.5		33	633.6
18	611.5			
28	625.0			
28	647.5			

NRC Question RAI 4.5-2:

In Section 15.3.1 of Appendix A of the LRA, the applicant notes the "Prestressed Concrete Containment Tendon Surveillance Program," as an activity related to this TLAA. The applicant's description is qualitative. For the summary to be meaningful, as a minimum, the applicant should provide a Table showing the minimum required prestressing forces and the projected (to 60 years) prestressing forces for each group of tendons which would demonstrate the validity of the program and the corresponding TLAA results. The applicant is requested to supplement this information in Section 15.3.1 of Appendix A of the UFSAR Supplement.

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI 4.5-2:

NMC initially responded to this RAI in NMC letter dated August 26, 2004 (NRC 2004-0086).

The specific request from the NRC staff was to reformat the information in the tables presenting the projected pre-stressing forces at 40 and 60 years along with the final effective stress requirements. It was requested that only the per tendon information be included. Included below are the reformatted tables.

Unit 1

Tendon Type	Projected Pre-stressing Force Trend Line Values		Final Effective Stress	
	40 Years	60 Years	Per Tendon (kips) [a] [b]	(kips/in^2) [c]
	Per Tendon (kips) [b]	Per Tendon (kips) [b]		
Dome	634.3	629.4	607.0	137.4
Hoop	637.9	634.1	594.2	134.5
Vertical	661.6	658.0	621.2	140.6

[a] The area per wire, Aw = 0.0490874 sq-in.
[b] Each tendon has a nominal 90 wires per tendon.
[c] Reference FSAR Section 5.1.2.4, page 5.1-61.

Unit 2

Tendon Type	Projected Pre-stressing Force Trend Line Values		Final Effective Stress	
	40 Years	60 Years	Per Tendon (kips) [a] [b]	(kips/in^2) [c]
	Per Tendon (kips) [b]	Per Tendon (kips) [b]		
Dome	620.5	612.0	607.0	137.4
Hoop	624.3	615.0	594.2	134.5
Vertical	640.9	634.3	621.2	140.6

[a] The area per wire, Aw = 0.0490874 sq-in.
[b] Each tendon has a nominal 90 wires per tendon.
[c] Reference FSAR Section 5.1.2.4, page 5.1-61.

Note: RAI 4.5-1 and RAI 4.5-2 initial responses were based on a draft calculation. That calculation has since been finalized and no results or conclusions have changed.

LRA Appendix B Section B2.1.7: Buried Services Monitoring Program

NRC Question RAI B2.1.7-1:

The program indicates that buried components within the program scope are coated per industry practice prior to installation. Although the AMP references "industry practice" what bases were used by the plant to confirm that all buried services within the program scope were required to be coated at the plant? If such documentation does not exist, how is reasonable assurance established that program components are all coated in light of the limited related operating experience.

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI B2.1.7-1:

NMC initially responded to this RAI in NMC letter dated January 6, 2005 (NRC 2005-0006).

The Buried Services Monitoring Program (LRA Section B2.1.7) includes visual inspections of the external surfaces of buried carbon steel, cast iron, and low alloy steel components that are within the scope of license renewal in the PBNP Service Water, Fuel Oil, and Fire Protection Systems. The inspections of the PBNP Service Water, Fuel Oil, and Fire Protection Systems will be performed based on plant operating experience and opportunities for inspection. In addition, a susceptible location in the Fire Protection System (i.e., uncoated/unwrapped piping) will be scheduled to be inspected once prior to the period of extended operation and at least every 10 years during the period of extended operation. The intent of these scheduled inspections is to

ensure that buried components within the Fire Protection System are periodically inspected. Therefore, if an opportunity for inspection occurs prior to the scheduled inspection, the inspection of opportunity can be credited for satisfying the scheduled inspection.

The Fire Protection System is considered a leading indicator for all buried components within the scope of the Buried Services Monitoring Program, since not all of the buried components in the Fire Protection System have been installed with a protective coating system (i.e., coatings and wrappings). Therefore, inspections of buried components within the Fire Protection System would bound the buried components in the Service Water and Fuel Oil Systems, since the buried components in these systems have been installed with a protective coating system.

The Buried Services Monitoring Program monitors parameters such as coating and wrapping integrity that are directly related to loss of material on the external surfaces of buried components. Coatings and wrappings are visually inspected. Evidence of damage to the coating or wrapping will cause the protected component to be inspected for loss of material. If the visual inspection shows that the coatings or wrappings are intact, no further inspection is required. However, if any evidence of coating/wrapping damage is observed or the component is not coated, the component will be further inspected for evidence of degradation. If any loss of material is observed during these inspections, the results of the inspection will be evaluated and additional locations inspected, as required. These additional locations could include uncoated and/or coated buried piping in the Fire Protection System, Service Water System and Fuel Oil System. Evidence of coating/wrapping or component degradation will be documented and evaluated under the PBNP corrective action program.

LRA Appendix B Section B2.1.8: Cable Condition Monitoring Program

NRC Question RAI B2.1.8-1:

Question 2: On Page B-84 of the PBNP LRA, purposes and an exception to the definition of "significant moisture." The GALL Report defines "significant moisture" as "periodic exposure to moisture that lasts more than a few days (e.g., cable in standing water)." The PBNP LRA (page B-84) states that, "Prolonged exposure to significant moisture is defined as exposures to significant moisture that last more than a few years (e.g., cable in standing water)."

The LRA supports this alternative definition based on a logic that includes consideration of the following:

- Use of moisture resistant cables
- Reduced likelihood for water treeing in lower voltage cables
- Installation of cables not using less susceptible installation material
- Minimize expose to moisture

While the NRC staff understands that these antidotal attributes suggest that water treeing would be minimized in these cables, the LRA does not provide any quantified test data supporting this alternate definition. Furthermore, the NRC staff understands that cables managed by this AMP are made by two manufactures and that one cable type is expected to perform better than the other because it has used a later technology. Please provide to the NRC staff manufacturer or laboratory test results for both types of cables that support a conclusion that water treeing would not occur if the cables were immersed in water for five or more years.

The LRA states that:

"Manhole flooding and groundwater intrusion has been a long standing issue at PBNP and efforts were periodically taken to reduce the exposure of medium-voltage cables to water. In order to better understand the magnitude of the groundwater intrusion problem into the electrical manholes, a new call-up to inspect and pump the flooded manholes was initiated. The new call-up periodically inspects and pumps down the electrical manholes, as necessary. As part of the new call-up, the approximate water level in each manhole is recorded. The recording of the water level will provide the basis for any future changes in frequency to the call-up and any deletion of manhole inspections."

The PBNP activities to better manage the manhole flooding and groundwater intrusion is a positive step in managing the potential for treeing. However, it has been the NRC staff's experience that just eliminating water in the manholes does not provide reliable information about the presence of water or moisture in the inaccessible regions in conduits or where cables are buried. Therefore, based on the information contained in the LRA, it is not possible to determine if water or moisture is present in the inaccessible areas, even if the manholes are regularly drained. Please provide information that supports a lack of water in the inaccessible areas once the manholes have been drained. Alternatively, provide information documenting how PBNP will assure that the cables can not be immersed in water for more than a few days.

If this data is not available, please consider the use of the GALL Report definition for "significant moisture?"

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI B2.1.8-1:

NMC initially responded to this RAI in NMC letter dated January 21, 2005 (NRC 2005-0009). As part of the Cable Condition Monitoring Program (LRA Section B2.1.8), all inaccessible non-EQ medium-voltage cables within the scope of license renewal not designed for submergence that are subject to significant moisture and significant voltage are considered for testing. A representative sample of in-scope, inaccessible non-EQ medium-voltage cables not designed for submergence subject to

significant moisture and significant voltage will be tested prior to the end of the current license period and once every ten years during the period of the extended license. This sample will include those cables considered to be most susceptible and will represent all cable types and manufacturers. The basis for this representative sample will be documented.

Periodic actions are being taken to minimize exposure of inaccessible non-EQ medium-voltage cables within the scope of license renewal not designed for submergence from exposure to significant moisture. None of the inaccessible non-EQ medium-voltage cables that are within the scope of license renewal not designed for submergence have been exempted from this program on the basis that they may be in a dry environment. However, removal of water from the proximity of cables will prolong the lifetime of these cables.

Significant moisture is defined as periodic exposures to moisture that last more than a few days (i.e., cable in standing water), which is consistent with NUREG-1801, Section XI.E3. Periodic exposures to moisture that last less than a few days (i.e., normal rain and drain) are not significant.

LRA Appendix B Section B3.3: Pre-Stressed Concrete

B3.3 Pre-Stressed Concrete Containment Tendon Surveillance Program

The staff indicated that if the TLAA in Section 4.5.1 is performed using 10 CFR 54.21(c)(1)(ii), the GALL AMP X.S1 is not required. Based on the discussion with the staff, the applicant decided to withdraw Section B3.3 of the LRA.

NRC Question RAI B3.3-1:

Scope of Program: The title of the program is "Prestressed Concrete Containment Tendon Surveillance Program," that includes inspection of tendon wires, tendon corrosion protection medium, tendon anchorages, and monitoring of tendon prestressing forces. The "scope" element only includes monitoring of tendon prestressing forces part of the tendon surveillance. For the sake of consistency with the scope, the title of the program should be "Prestressed Concrete Containment Tendon Force Monitoring Program." The applicant is requested to discuss this inconsistency.

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI B3.3-1:

Based upon discussions with the NRC staff, NMC has deleted the Pre-Stressed Concrete Containment Tendon Surveillance Program from the LRA. This was noted in the amendment to the PBNP LRA by letter to the NRC dated February 23, 2005. Revisions to various LRA sections provided in the February 23, 2005, letter reflect this program deletion. Therefore, the NMC response to this RAI needs no clarification.

NRC Question RAI B3.3-2:

Preventive Actions: In order to ensure that the tendon prestressing forces are not affected by age related degradation, it is essential that the tendons and their anchorages are not prone to corrosion. Ensuring the coverage of the tendons by qualified corrosion protection medium, and preventing ingress of water from the anchorage areas are the preventive measures. The staff recognizes that these aspects are covered under IWL inspections, the preventive measures need be identified in this program, may be through referencing Sections of B2.1.2 Program. The applicant is requested to justify the lack of this discussion in this program element.

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI B3.3-2:

Based upon discussions with the NRC staff, NMC has deleted the Pre-Stressed Concrete Containment Tendon Surveillance Program from the LRA. This was noted in the amendment to the PBNP LRA by letter to the NRC dated February 23, 2005. Revisions to various LRA sections provided in the February 23, 2005, letter reflect this program deletion. Therefore, The NMC response to this RAI needs no clarification.

NRC Question RAI B3.3-3:

The staff finds a reference to 10 CFR 50, Appendix B, and Section 1.4 of the PBNP FSAR acceptable as corrective action process and documentation requirements for "Corrective Actions" program element. However, Section X.S1 of NUREG-1801, which has been quoted as reference for this program, recommends the corrective actions to be taken as follows: "If acceptance criteria are not met, then either systematic retensioning of tendons, or a reanalysis of the containment is warranted to ensure the design adequacy of the containment." The applicant is requested to provide information to justify why the program specific corrective actions should not be added to this element description.

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI B3.3-3:

Based upon discussions with the NRC staff, NMC has deleted the Pre-Stressed Concrete Containment Tendon Surveillance Program from the LRA. This was noted in the amendment to the PBNP LRA by letter to the NRC dated February 23, 2005. Revisions to various LRA sections provided in the February 23, 2005, letter reflect this program deletion. Therefore, the NMC response to this RAI needs no clarification.

NRC Question RAI B3.3-4:

In Section 15.3.1 of Appendix A of the LRA, the applicant summarizes the program, together with the relevant time limited aging analysis (Section 4.5 of the LRA). The applicant's description is qualitative. For the summary to be meaningful, as a minimum, the applicant should provide a Table showing the minimum required prestressing forces and the projected (to 60 years) prestressing forces for each group of tendons which would demonstrate the validity of the program and the corresponding TLAA results. The applicant is requested to supplement this information in Section 15.3.1 of the UFSAR Supplement.

Discussion: Based on the discussion with the applicant, the staff indicated and the applicant agreed that this question required clarification. Applicant will clarify information and will provide their formal response in writing.

NMC Clarification to RAI B3.3-4:

Based upon discussions with the NRC staff, NMC has deleted the Pre-Stressed Concrete Containment Tendon Surveillance Program from the LRA. This was noted in the amendment to the PBNP LRA by letter to the NRC dated February 23, 2005. Revisions to various LRA sections provided in the February 23, 2005, letter reflect this program deletion. Therefore, the NMC response to this RAI needs no clarification.