

**CERTIFIED on 7/6/05 by Mario Bonaca  
Issued 6/17/05**

**ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
MINUTES OF THE ACRS PLANT LICENSE RENEWAL SUBCOMMITTEE MEETING  
ON THE POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2  
May 31, 2005  
ROCKVILLE, MARYLAND**

On May 31, 2005, the Plant License Renewal Subcommittee held a meeting in Room T-2B3, 11545 Rockville Pike, Rockville, Maryland. The purpose of the meeting was to review and discuss the Point Beach Nuclear Plant, Units 1 and 2 license renewal application and the associated Safety Evaluation Report (SER) with Open Items.

The meeting was open to the public. No written comments or requests to make oral statements were received from members of the public related to this meeting. Mr. Santos was the Designated Federal Official for this meeting. The meeting convened at 12:30 p.m. and adjourned at 5:16 p.m. on May 31, 2005.

**ATTENDEES:**

**ACRS MEMBERS/STAFF**

Mario Bonaca, Chairman  
Stephen Rosen, Member  
John Sieber, Member  
William Shack, Member

Graham Wallis, Member  
Graham Leitch, Consultant  
Cayetano Santos Jr., ACRS Staff  
John G. Lamb, ACRS Staff

**NRC STAFF/PRESENTERS**

F. Gillespie, NRR  
V. Rodriguez, NRR  
G. Suber, NRR  
P. Longheed, RIII  
K. Chang, NRR  
S. Lee, NRR  
M. Hartzman, NRR  
R. McIntyre, NRR  
R. Subbaratnam, NRR  
D. Reddy, NRR  
M. Lintz, NRR  
N. Dudley, NRR  
C. Lauron, NRR  
P. Kan, RES  
B. Elliott, NRR  
L. Lund, NRR  
J. Medoff, NRR  
L. Miller, NRR  
B. Poole, OGC  
H. Chernoff, NRR  
T. Koshy, NRR  
Y. Diaz, NRR  
J. Zimmerman, NRR  
B. Rodgers, NRR  
D. Meazke, NRR  
G. Galletti, NRR

P. Loudon, RIII  
K. Cozens, NRR  
M. Morgan, NRR  
N. Ray, NRR  
M. Mitchell, NRR  
T. Steingass, NRR  
J. Ma, NRR  
G. Cranston, NRR  
B. Pascarelli, NRR  
S. Gosselin, NRR  
R. Aulude, NRR  
T. Le, NRR  
Y. Li, NRR  
A. Hull, NRR  
C. Li, NRR  
H. Asher, NRR  
K. Alm-Lytz, NRR  
S. Ray, NRR  
A. Hodgdan, OGC  
J. Hernandez, NRR  
P. Gill, NRR  
N. Patel, NRR  
S. Imboden, NRR  
R. McNally, NRR  
J. Raval, NRR  
J. Ayala, NRR

## OTHER ATTENDEES

J. Knorr, NMC

J. Thorgersen, NMC

M. Ortmyer, NMC

B. Fromm, NMC

J. Schweitzer, NMC

D. Cooper, NMC

R. Graves, Legin Group, Inc.

S. Dort, First Energy

K. Brune, TVA

D. Ava, TVA

R. Jennings, TVA

D. Horner, McGraw-Hill

D. Johnson, NMC

T. Mielke, NMC

S. Schellin, NMC

W. Herrman, NMC

D. Turner, NMC

B. Vincent, NMC

M. Fallin, Constellation Energy

J. Thomas, First Energy

W. Crouch, TVA

R. Jansen, TVA

R. Grumbir, AEP

The presentation slides, handouts used during the meeting, and a complete list of attendees are attached to the office copy of the meeting minutes. The presentations to the Subcommittee are summarized below.

### **Opening Remarks**

Dr. Bonaca, Chairman of the Subcommittee on Plant License Renewal, convened the meeting and made a few introductory remarks. The purpose of this meeting was to review the Nuclear Management Company, LLC (NMC) license renewal application (LRA) for the Point Beach Nuclear Plant (PBNP), Units 1 and 2 and the associated Safety Evaluation Report (SER) with Open Items. The first part of the meeting reviewed the recent red findings at the PBNP. Chairman Bonaca explained that the Subcommittee understands that these findings will be addressed as current operation issues but is concerned that problems in human performance and the Corrective Action Program (CAP) may affect license renewal. Chairman Bonaca called upon Mr. Gillespie of the Office of Nuclear Reactor Regulation (NRR) to begin the discussion.

Mr. Gillespie agreed that the CAP is key to license renewal and stated that the staff constantly struggles with the separation of current performance and license renewal issues. Mr. Gillespie explained that NRR reviews the structure of the programs associated with license renewal, and the Region inspects the implementation of these programs. The staff has received a petition for rulemaking to incorporate current operation in the license renewal rule. Finally, Mr. Gillespie noted that the PBNP is the first plant that is expected to exceed the pressurized thermal shock (PTS) screening criterion during the period of extended operation.

### **Point Beach Red Findings**

Mr. Loudon, Region III, described the actions taken by the Region in response to the red inspection findings at the PBNP.

During an upgrade of its probabilistic risk assessment (PRA) in November 2001, the applicant identified a finding associated with the Auxiliary Feedwater (AFW) system. As a result, the NRC performed two Special Inspections. The Special Inspection in 2003 identified a second finding in the AFW system. The first red finding was issued in April 2003 and a second red finding was issued in December 2003. The PBNP was placed in Column IV (Multiple/Repetitive Degraded Cornerstone) of the NRC Action Matrix of the Reactor Oversight Process (ROP).

Mr. Loudon stated that a Supplemental Inspection was performed in 2003 per NRC Inspection Procedure 95003. This inspection was diagnostic in nature and focused on known problem areas. It identified additional findings and violations in five areas: (1) human performance, (2) engineering design control, (3) the engineering/operations interface, (4) emergency preparedness, and (5) the CAP. Mr. Loudon stated that these five areas of concern formed the basis for the NRC Confirmatory Action Letter (CAL) issued to the PBNP on April 21, 2004. Attached to the CAL was a commitment letter from NMC. The commitment letter was based on

the PBNP Site Excellence Plan. Special inspections were conducted by the Region to evaluate the applicant's progress in implementing these commitments.

Mr. Loudon described the current performance of the PBNP. As stated in the CAL, substantive cross-cutting issues were identified in the areas of human performance and the CAP. Mr. Loudon explained that the CAP is sound, but improvement is still needed in its implementation. The applicant has focused on improving human performance and the staff has noted recent improvement in this area. Mr. Loudon concluded by stating that progress has been made in all five areas identified in the CAL, and the Region is focusing on the sustainability of these corrective actions.

### **Point Beach License Renewal Application**

Mr. Johnson, NMC Director for License Renewal Projects, greeted the Subcommittee and introduced accompanying members of the NMC staff including Mr. Knorr (Point Beach License Renewal Project Manager) and Mr. Schweitzer (Point Beach Director of Engineering). Mr. Knorr, NMC, described the operating experience, plant improvements, aging management programs (AMPs), and the commitment tracking process at the PBNP.

#### Background

In a letter dated February 25, 2004, NMC submitted an application for renewal of the PBNP operating licenses for up to an additional 20 years. The current operating licenses for Units 1 and 2 expire on October 5, 2010, and March 8, 2013, respectively.

The LRA used the standard format and made extensive use of past precedence. The staff reviewed the LRA using the new on-site audits to evaluate consistency with the Generic Aging Lessons Learned (GALL) Report.

#### Plant Description

The PBNP is owned by the Wisconsin Electric Power Company and operated by NMC. The plant is located in Two Creeks, Wisconsin.

The PBNP consists of two 2-loop Westinghouse pressurized water reactor units housed in post tensioned steel-reinforced concrete containments. Each unit has a rated thermal power of 1540 MWt and an electrical output of 538 MWe. The PBNP has four emergency diesel generators (EDGs) and one 25 MWe combustion turbine. Lake Michigan is the ultimate heat sink. The plant operates on 18 month fuel cycles.

#### Recent Operating Experience and Plant Improvements

In 1975, Unit 1 experienced a steam generator tube rupture caused by intergranular stress corrosion cracking (IGSCC). In 1999, Unit 1 experienced a feedwater heater shell failure caused by steam impingement and flow-accelerated corrosion (FAC).

The NRC Performance Assessment for the PBNP shows green performance indicators and red inspection findings. Unit 1 experienced its last automatic reactor trip on July 15, 2003, and has a rolling 18-month capability factor of 87.25%. Unit 2 experienced its last automatic reactor trip on July 10, 2003, and has a rolling 18-month capability factor of 89.19%.

The major improvements at the PBNP include the following: (1) replacement of steam generators for both units, (2) replacement of split pins in both units, (3) installation of two additional EDGs, (4) replacement of baffle bolts in Unit 2, (5) upgrade of portions of the Service Water System, (6) replacement of the plant process computer, and (7) redesign of the intake structure. The reactor vessel heads for both units will be replaced in 2005. The auxiliary feedwater pumps are scheduled for replacement between 2006 and 2007.

#### Aging Management Programs

There are 26 AMPs used to manage degradation at the PBNP. All 26 of these AMPs are

common to both units. Of the 26 AMPs, 21 are existing programs, and five are new programs.

Mr. Knorr described some of the exceptions taken to the GALL Report. In the Reactor Vessel Surveillance Program an additional surveillance capsule was added for extended life. The Reactor Vessel Internals Program will be submitted for NRC review and approval at least 24 months prior to entering the period of extended operation. In the Cable Condition Monitoring Program all inaccessible medium voltage cables have already been tested.

Mr. Knorr stated that the current number of Effective Full Power Years (EFPY) for Units 1 and 2 are 25.7 and 26.2, respectively. At 60 years Unit 1 is projected to have 51 EFPY and Unit 2 is projected to have 53 EFPY. These projections assume a capacity factor of 95% and a power uprate to 1678 MWt.

The reactor vessel embrittlement time-limited aging analyses (TLAAs) were calculated using 53 EFPY. For both units the upper shelf energy (USE) of the limiting material will be below the minimum acceptance criterion of 50 ft-lb. Therefore, equivalent margins analyses were performed to satisfy the requirements in 10 CFR 50 Appendix G. The reference temperature,  $RT_{PTS}$ , for the limiting beltline material in Unit 2 is projected to 316 °F at 53 EFPY. This will reach the PTS screening criterion of 300 °F at approximately 38.1 EFPY in 2017. To address this issue, the applicant has committed to implementing flux reduction programs.

#### Commitment Tracking

Mr. Knorr explained the commitment management process at the PBNP. All of the license renewal commitments have been entered into the plant's commitment management system. Team-Track is the system used to track the implementation of all of these commitments. Incorporated into the Team-Track system is an integrated work control process called CHAMPS (Computerized History and Maintenance Planning System). Mr. Knorr concluded by stating the CAP is integral to tracking these commitments.

#### **Safety Evaluation Report Overview**

Ms. Rodriguez, NRR, introduced several members of the staff including Mr. Suber (Project Manager), Ms. Loughheed (Inspection Team Leader), and Mr. Cozens (Audit Team Leader). Ms. Rodriguez led the staff's presentation of the SER with Open Items, the scoping and screening review, the AMP reviews and audits, and the TLAAAs.

The SER with Open Items was issued on May 2, 2005, and contained five open items, fifteen confirmatory items, and three proposed license conditions. Ms. Rodriguez listed the dates of the audits and inspections performed by the staff.

#### Scoping and Screening

Ms. Rodriguez stated that the staff's review of the scoping and screening methodology resulted in three confirmatory items in the SER: (1) the use of exposure duration in scoping, (2) the definition of first equivalent anchor, and (3) the effect of FAC on the scoping of piping. In a letter dated April 29, 2005, the applicant revised its scoping methodology to remove the term, exposure duration, and to use a "spaces" approach. This new methodology resulted in the addition of 14 component types to the scope of license renewal. No new aging mechanisms were identified.

Ms. Rodriguez stated that the staff's review of Section 2.2 (Plant-Level Scoping and Screening), Section 2.3 (Scoping and Screening of Mechanical Systems), and Section 2.5 (Scoping and Screening of Electrical and Instrumentation and Controls) found no omissions and had no open or confirmatory items. There is one confirmatory item in Section 2.4 (Scoping and Screening of Containments, Structures, and Supports) to identify specific concrete tank foundations.

## **Aging Management Program Review and Audits**

Mr. Cozens, NRR, stated that of the 26 AMPs at the PBNP, 21 are existing programs and five are new programs. Twenty-two of these AMPs are consistent with the GALL Report with exceptions and/or enhancements, and four are plant-specific. There are two open items and two confirmatory items associated with AMPs.

Mr. Cozens discussed the two types of enhancements to the AMPs. The first type of enhancement describes actions needed to demonstrate consistency with the GALL Report. These enhancements were reviewed by the audit team. The second type of enhancement describes actions needed to implement commitments. These were administrative enhancements and were not reviewed by the audit team.

Mr. Cozens described some of the AMPs reviewed during the audit such as the ASME Code Programs, the Buried Service Monitoring Program, the Cable Condition Monitoring Program, the FAC Program, the One-Time Inspection Program, and the Bolting Integrity Program.

There are three AMPs at the PBNP based on ASME Code inspections. These are existing programs with exceptions and enhancements. One open item deals with the use of relief requests as the bases for exceptions to the GALL Report. There is also a confirmatory item concerning with the use of a flaw tolerance evaluation to manage thermal embrittlement of cast austenitic stainless steel.

The Buried Service Monitoring Program is an existing program consistent with the GALL Report. Since some fire protection piping may not have been coated or wrapped, a susceptible section of this piping will be excavated and inspected prior to entering the period of extended operation. This will be a one-time (planned or opportunistic) inspection. The applicant has also committed to performing an inspection of buried components every ten years.

The Cable Condition Monitoring Program is a new program consistent with the GALL Report with exceptions. Testing of radiation monitoring and nuclear instrumentation circuits is not required because they are environmentally qualified or are in non-adverse environments. Nuclear instrumentation circuits that are not subject to technical specification surveillance will be periodically tested. Finally, a sample of the most susceptible inaccessible medium-voltage cables will be tested every ten years.

The FAC Program is an existing program consistent with the GALL Report. There is one confirmatory item in this program. The staff requested the applicant provide justification and confirmation that the minimum required wall thickness will be maintained during the period of extended operation.

The One-Time Inspection Program is a new program consistent with the GALL Report. This program takes an exception to the GALL Report in that small bore piping is not within its scope because these components are volumetrically inspected according to risk-informed inservice inspection criteria. The aging management of stress corrosion cracking in stainless steel heat exchangers and the loss of material in steam generators credits the Water Chemistry Control Program without any verification from the One-Time Inspection Program. The staff has identified these two aging management reviews (AMRs) as open items.

The Bolting Integrity Program is an existing program consistent with the GALL Report. There is an open item in this AMP because the applicant did not identify specific exceptions to the recommendations in the appropriate NUREG and EPRI documents.

Ms. Rodriguez described some of the staff's findings from their evaluation of the AMRs.

The staff's evaluation of Section 3.1 (Reactor Vessel, Internals, and the Reactor Coolant System) resulted in one open item. The Water Chemistry Control Program was credited for

managing loss of material in steam generators but there was no program to validate its effectiveness. The applicant committed to submitting a Reactor Vessel Internals Program for NRC approval 24 months prior to entering the period of extended operation.

The staff's evaluation of Section 3.2 (Auxiliary Systems) had one open item regarding cracking in the Component Cooling Water System. The Water Chemistry Control Program was the only AMP credited with no validation of its effectiveness.

The staff's evaluation of Section 3.5 (Containments, Structures, and Component Supports) resulted in one open item regarding the loss of material in the containment liner plate. The staff requested the applicant provide repair guidelines and acceptance criteria for identifying corrective actions when loss of material is observed.

Ms. Rodriguez stated that there were no open or confirmatory items in Section 3.2 (Engineered Safety Features), Section 3.4 (Steam and Power Conversion Systems), or Section 3.6 (Electrical Components).

#### Onsite Inspection Results

Ms. Loughheed, Region III, described the license renewal inspections performed by the staff. These inspections follow Inspection Procedure 71002. For the PBNP, the scoping, screening, and aging management review inspections were combined. The inspection team consisted of a team leader and four members in various technical disciplines.

The objective of the scoping and screening inspection is to confirm that the applicant has included all the structures, systems, and components (SSCs) within the scope of license renewal as required by the rule. This portion of the inspection emphasized physical walkdowns of the plant and concentrated on non-safety related systems whose failure could impact safety related systems. Inspectors found that the majority of systems were appropriately scoped, but the applicant's program for mechanical systems was not completely defined at the time of the inspection. Therefore, additional information should be submitted to NRR.

The objective of the AMP inspection is to confirm that existing AMPs are managing current age-related degradation. Ms. Longheed stated that 16 AMPs and two TLAA programs were reviewed. The inspection concluded that the majority of the programs are adequate for the period of extended operation, but the One-Time Inspection Program was not yet sufficiently developed to allow a review.

Ms. Loughheed concluded by stating that overall, the scoping, screening, and AMPs are adequate for extended operation. However, additional inspections may be required regarding the scoping and screening of mechanical systems whose failure could affect safety-related systems, and the sample sizes and locations of the One-Time Inspection Program.

#### **Time Limited Aging Analyses**

Mr. Suber presented an overview of the staff's evaluation of the TLAAAs.

Embrittlement of the reactor vessel affects TLAAAs associated with USE, PTS, and pressure-temperature limits. These analyses were performed using 53 EFPY.

Calculations by the staff and applicant demonstrate that the  $RT_{PTS}$  value for the limiting material in Unit 1 meets the PTS screening criterion of 300 °F. These calculations also show that the  $RT_{PTS}$  value for the limiting material in Unit 2 is 315 - 316 °F. Unit 2 will reach the PTS screening criterion in 2017. Mr. Suber stated that the applicant has made several commitments to reduce the flux in the vessels. Both units will use a low-low leakage fuel loading management pattern, and Unit 2 will use hafnium absorber assemblies. Mr. Suber noted other options allowed by 10 CFR 50.61(b) such as the submission of an analysis supporting continued operation past the screening criterion or thermal annealing of the vessel.

The USE values of the limiting beltline materials in both units will be less than the acceptance criterion of 50 ft-lb. The applicant performed a plant-specific equivalent margins analysis to satisfy the 10 CFR 50 Appendix G requirements through the end of the period of extended operation. The staff performed independent analysis and confirmed the applicant's conclusion.

The containment buildings are constructed of post-tensioned, reinforced concrete. The preload forces are projected to exceed the minimum required values for 60 years of operation. Therefore, the staff concluded that this TLAA remains valid through the period of extended operation.

The staff concluded that the Boraflex Monitoring Program will adequately manage the effects of aging through the period of extended operation. The four confirmatory items associated with this program deal with: (1) the surveillance frequency of areal density tests, (2) the surveillance frequency of blackness testing, (3) a baseline inspection of areal density, and (4) the specification of acceptance criteria.

Mr. Suber concluded the presentation by stating that the applicant's Environmental Qualification Program is consistent with the GALL Report and will continue to manage equipment in accordance with 10 CFR 50.49.

## **Member Comments**

### Red Findings

Members Wallis and Rosen asked about the immediate actions taken by the applicant to address the red findings. The applicant stated that the specific technical fixes have been completed. The operating procedures were changed, the orifices were replaced, and the power supplies to the auxiliary feedwater recirculation valves were changed to make them safety-related. Consultant Leitch added that the real issue is that the applicant missed several opportunities to find these problems earlier. The staff added that a red finding remains open until the root cause of the event has been satisfactorily addressed.

Consultant Leitch asked about the staff's findings in the 95003 inspection. The staff stated that there were ten green findings and one unresolved item in the area of Emergency Preparedness. The unresolved item became a severity level three violation, and a \$60,000 civil penalty was imposed.

Consultant Leitch questioned whether the goal of less than 2,500 corrective actions was appropriate given that workers should be encouraged to identify and report problems. The staff stated that this goal is a measure of the applicant's process for resolving items and tracks the backlog of currently open items. The applicant added that last year approximately 8,000 items were generated. Chairman Bonaca agreed with Consultant Leitch's comments and added that there may be legacy issues that have been around for a long time but are not resolved.

Consultant Leitch and Chairman Bonaca asked about the 143 action items identified by the applicant to address the CAL. After these actions are completed, the staff will perform an inspection of the effectiveness of these implemented commitments. The staff examines the applicant's effectiveness review and performs its own independent effectiveness review. The majority of the commitments are being completed on time but a few will be completed after the original target date.

Member Sieber asked what performance indicators are used to measure human error rates at the PBNP. The applicant stated that it monitors human performance error rates for different organizations and resets the clock after an error has occurred. Engineering resets approximately every 14 days, maintenance resets approximately every 3 - 4 days, and the plant resets approximately every 100 days. The criteria for a reset varies for each department. For each reset there is a human performance investigation and an item is entered into the CAP.

Consultant Leitch asked if the corrective action items are identified by the line organizations or external organizations. The applicant stated that the self-identification ratio of corrective actions is 60% for the engineering department at the PBNP. This compares to an industry standard of approximately 30 - 40%.

Chairman Bonaca questioned the effectiveness of oversight organizations at the PBNP. The applicant stated that the nuclear oversight program has been revamped to emphasize working with the line organizations to identify and resolve issues. The staff noted that there has been improvement in the nuclear oversight and quality assurance organizations.

Chairman Bonaca and Member Rosen questioned the staff's statement that the CAP was sound given that the annual assessment letter identified problems in this area. The staff explained that all the necessary elements and components of a sound CAP are in place, but there are problems with the implementation and timely resolution of corrective actions.

Chairman Bonaca asked about the quality of root cause evaluations at the PBNP. The staff stated that it independently reviews root cause evaluations and no issues have been identified in that area. The staff added that another problem identification and resolution inspection is planned for September 2005 that will focus on the timeliness of actions taken and the overall quality of root cause evaluations. The applicant added that a corrective action review board reviews all root cause evaluations as well as the effectiveness of the corrective actions.

Consultant Leitch and Member Rosen asked about the use of PRA in prioritizing corrective actions. The applicant stated that PRA is not explicitly used, but safety significance is considered. All of the corrective actions that are initiated each day are prioritized (A through D) based on the safety significance of the issue. Those that fall within the A category receive a root cause evaluation and those that fall in the B category receive an apparent cause evaluation.

Member Rosen asked for more information regarding the staff's concern with the engineering/operations interface. The staff stated that these departments had a different understanding of issues associated with the grid and fire protection. To address this problem, the applicant implemented an operational decision-making issue process that includes the perspectives of various organizations in making operational decisions. The staff has noted improvement in this area.

Consultant Leitch asked if there is any relationship between closing out the CAL and the red findings. The staff stated that they will be treated separately. The red findings are still open because of the systematic issues identified in the CAL. After the action plan items are completed, the staff will perform an inspection of the completeness and effectiveness of the CAL closeout actions.

#### General

Several members asked about the EDGs. The applicant stated that all four EDGs are safety-related and each diesel has the capacity to supply one train of safety-related equipment on both units. The normal lineup is to have one EDG dedicated to each bus on each unit. The two emergency diesels added in 1994 were to lower the core damage frequency.

In response to a question from Member Rosen, the applicant stated that the automatic reactor trips for both units in July 2003 were due to equipment failures.

Member Shack asked how much piping has been replaced due to FAC. The applicant responded that all of the secondary side extraction lines and some of the service water lines were replaced with stainless steel.

Several Members asked about the replacement steam generators. The Unit 1 replacement steam generators had Alloy 600 tubes while the Unit 2 steam generators had Alloy 690 tubes.

They all had quatrefoil support plates. The applicant added that very few of the tubes are plugged.

Member Sieber asked about the DC upgrades to the plant. The applicant stated that batteries were added to provide additional backup capability and the swing battery was added so that battery testing could be performed online.

Several Members asked about the reactor vessel head replacements. The heads are being replaced as a preventive measure and not because of cracking. In the last outage an indication was found on a nozzle in Unit 1 and was repaired. The head for Unit 2 has not yet been replaced because the new head is heavier than the old head and a license amendment for the handling of heavy loads is needed. There are no aging issues associated with the crane. The applicant does not plan to replace the head until after this issue is resolved.

Consultant Leitch asked why the LRA was submitted so close to the expiration dates of the current licenses. The applicant responded that the delay was due to a decision from the asset owner. Member Rosen stated that since the current licenses will expire soon, the applicant should have a contingency plan for a Reactor Vessel Internals Program in case the EPRI/MRP program has not been completed.

Chairman Bonaca and Member Sieber asked about cable testing. The applicant stated that as a baseline, all of the medium voltage cables have undergone a partial discharge test. In addition a sample of cables in the most adverse environment will be tested. If degradation is identified, the sample size will be expanded. Chairman Bonaca noted that the PBNP has had problems with flooding of manholes containing these cables. The applicant stated that a water mitigation system is being developed and the manholes are periodically pumped and inspected.

Chairman Bonaca and Member Shack asked about the effects of power uprate on license renewal. The power uprate will be implemented by replacing the main feed pumps and increasing  $T_{hot}$  to 605.5 °F. The applicant added that all of the structures and components that would be in scope at the higher power are already in scope.

Member Rosen asked when the license renewal commitments will be completed. The applicant stated that they plan to implement most of them by 2006.

Chairman Bonaca and Member Rosen asked about the use of the Risk-Informed Inservice (RI-ISI) Program for small bore piping. Chairman Bonaca noted that the objective of the one-time inspection of small bore piping is to confirm that there are no aging effects by examining susceptible locations, irrespective of risk. The applicant confirmed that the RI-ISI program does inspect susceptible locations. The staff added that approximately 30 to 40 locations are examined.

Chairman Bonaca and Member Shack noted that Section 3.0.1.4.4 of the LRA is confusing. This section may be confusing thermal embrittlement of cast austenitic stainless steel with IGSCC of stainless steels.

Several members asked about the condition of the containment liner. The staff and applicant explained that there are actually two separate events associated with the liner. The first event was very localized and occurred as a result of drilling into the containment wall. At the worse location, 46% of the containment liner was lost. The second event was caused by a flood. Borated water leaked through the control pores in the floor and caused corrosion of the liner plate. The staff added that the corroded containment liner has been repaired.

In response to a question by Consultant Leitch, the staff stated that the SER with Open Items does not contain all of the issues identified in the license renewal inspection report dated May 2, 2005. However, all of these items will be resolved and incorporated into the final SER.

Member Wallis noted that a large number of commitments are listed in Appendix A of the SER and asked what is done to ensure that they are implemented appropriately. The staff stated that the Region will perform an inspection to verify that the commitments have been implemented. There is also a license condition that these commitments be completed on schedule. The license renewal rule does not permit the staff to deny a renewed license because of a failure to implement these commitments. If the applicant does not implement the commitments, it would be subject to traditional enforcement, and enforcement policy would be used to determine its significance. Member Wallis and Chairman Bonaca noted that given the ROP status of the PBNP and the fact that the Subcommittee is not able to verify the implementation of these commitments, there is a concern about the ability of the applicant to fulfill these commitments.

Chairman Bonaca and Member Wallis asked about the coordination between the inspections and audits. The staff stated that the Project Manager serves as the interface between the regional inspections and audits. Although there is some overlap or redundancy, the inspections focus more on implementation and operating history than the audits. In the case of the Boraflex Monitoring Program, the inspections complemented the audit in that the inspectors were able to pick up where the auditors left off.

#### Scoping and Screening

Chairman Bonaca asked about the revised scoping methodology submitted in a letter dated April 29, 2005. The staff stated that the revised methodology eliminated the term, exposure duration, and implemented a spaces approach methodology. This information was not incorporated into the draft SER because it was submitted after the cutoff date of March 31, 2005. However, the final SER will describe the new methodology and the additional components brought into scope.

The inspection report dated May 2, 2005, stated that the scoping boundaries for some of the systems were not yet complete. Consultant Leitch noted that it is relatively late in the review process to establish the scoping boundaries. The staff attributed this to the recent change in the applicant's scoping methodology. The applicant stated that the scoping methodology description has been completed and the final boundary locations have been submitted to the staff.

#### Aging Management

Member Wallis expressed concern about the quality of the AMPs. The staff stated that the audit team determines if the AMPs satisfy the requirements in the license renewal rule and the Region determines if the AMPs are adequately implemented. Some of the existing AMPs may be enhanced such that additional actions are imposed for the period of extended operation that are not required for current operation.

Several Members asked about the open item regarding the applicant's use of relief requests as the basis for exceptions to the GALL Report. The staff requested the applicant develop sufficient technical arguments for taking specific exemptions to the GALL Report. The staff added that some of the relief requests were granted based on hardship. Chairman Bonaca noted that the applicant has an unusually high number of relief requests from the ASME Code.

Member Wallis asked about the excavation and inspection of fire protection piping. The staff responded that one inspection of buried pipes showed that the protective coating was intact and did not need to be repaired. However, in any excavation there is the danger of scratching off the protective coating.

Member Sieber noted that other LRAs have had more than 26 AMPs. The staff stated that it is up to the applicant how to organize the AMPs to demonstrate consistency with the GALL Report.

Consultant Leitch asked about the different criteria for safety-related and non-safety-related piping in the FAC program. The staff responded that the minimum wall thickness criteria is the

same for safety-related and non-safety-related piping, but the inspection expansion criteria are different.

Member Rosen asked about the hardness tests performed in the One-Time Inspection Program to detect selective leaching in heat exchangers. The staff stated that this is a simple screening test to identify whether or not the aging mechanism is present. The hardness test is not intended to determine the capability of a component to perform its intended function. Member Rosen stated that it may be more appropriate to perform a metallurgical analysis on a section of the component.

Member Shack asked about the exceptions to the Bolting Integrity Program. The staff explained that the LRA did not identify specific exceptions from the recommendations made in the NUREG and EPRI documents.

#### Time-Limited Aging Analyses

Several Members asked about the TLAA associated with PTS. The staff explained why Unit 2 is predicted to exceed the PTS screening criterion while Unit 1 is not. The initial fracture toughness ( $RT_{NDT}$ ) of the limiting material in Unit 2 is a generic value while the initial  $RT_{NDT}$  of the limiting material in Unit 1 is a measured value. Thus, the margin term applied to the Unit 2 material is larger, and the  $RT_{PTS}$  value calculated at the end of extended operation is higher. Originally, the applicant submitted a master-curve based approach for addressing this TLAA. However, the staff had not yet reviewed the topical report describing this approach so it was withdrawn. The staff added that this report is currently under review. The applicant's options for addressing this issue are to (1) implement a flux reduction program to avoid exceeding the screening criterion, (2) submit an analysis to the staff justifying continued operation past the screening criterion, (3) thermally anneal the vessel, (4) use the master-curve based approach for calculating  $RT_{PTS}$ , or (5) wait for a potential change to the PTS rule which would possibly relax the screening criterion. The applicant committed to the use of a low-leakage core and hafnium absorbers but admitted that the use of hafnium absorbers would have little effect in meeting the PTS screening criterion.

Member Wallis asked about the TLAA associated with USE. Both units fall below the USE requirement of 50 ft-lbs so an equivalent margins analysis was performed. The staff stated that this equivalent margins analysis is based on a more refined elastic plastic fracture mechanics analysis using the J-integral fracture toughness property.

Member Wallis asked about the fracture mechanics analysis of the reactor coolant pump flywheel. The staff stated that the number of cycles projected through the end of the period of extended operation is bounded by the number of cycles assumed in the 60 year fatigue analysis.

#### Subcommittee Discussion

Several Members expressed concern with the serious longstanding performance issues identified in the CAL and the ROP.

Member Sieber stated that the LRA and SER were done properly, but he lacks confidence that the applicant can implement the commitments for license renewal.

Member Shack stated that this LRA was of lower quality than other applications. The staff's requests for information seemed to ask for basic information rather than clarification. Given the experience from the other license renewal applications, there should be less confusion about scoping issues.

Member Wallis commented that this LRA raised more questions than previous applications, but the staff did a good job of responding to questions from the Subcommittee.

Member Kress stated that the ACRS should keep in mind the constraints imposed on the staff

by the license renewal rule. The staff's presentation and answers gave him assurance that a good review was performed. He added that the Environmental Impact Statement should be included in the ACRS review of LRAs.

Consultant Leitch commented that if the staff had better coordinated the timing of the inspections, audits, and the issuance of the SER, many of the open items would have been resolved. The timing of the supplemental information, inspections, audits and SER led to confusion.

Member Rosen stated that the LRA application was of good quality except for the rescoping late in the review process. He suggested that instead of a hardness test for selective leaching, a destructive metallurgical examination be performed.

Chairman Bonaca commented that the Subcommittee was provided numerous, confusing, and conflicting documents. The staff appeared to be in a rush to meet a schedule. It would have been more helpful if the inspections, audits, and draft SER were better coordinated and the documents were provided in a more mature stage. Chairman Bonaca concluded by describing his concerns with the impact of current performance on license renewal commitments.

### **Subcommittee Decisions and Follow-up Actions**

The Subcommittee Chairman will summarize the discussions to the full Committee during the June 2005 ACRS meeting and recommend whether an interim letter be issued.

### **Background Materials Provided to the Committee**

1. Nuclear Management Company, LLC, "Application for Renewed Operating Licenses Point Beach Nuclear Plant Units 1 & 2," February 2004
2. Pacific Northwest National Laboratory, "Audit and Review Report for Plant Aging Management Reviews and Programs, Point Beach Nuclear Plant Units 1 and 2," April 11, 2005
3. U.S. Nuclear Regulatory Commission, "Safety Evaluation Report Related to the License Renewal of the Point Beach Nuclear Plant, Units 1 and 2," May 2005
4. U.S. Nuclear Regulatory Commission, "Point Beach Nuclear Plant, Units 1 and 2 NRC License Renewal Scoping, Screening, and Aging Management Inspection Report 05000266/2005005 (DRS); 05000301/2005005 (DRS)," May 2, 2005
5. Letter from J. Dyer, Regional Administrator, to M. Warner, Site Vice President, Kewaunee and Point Beach Nuclear Plants, Nuclear Management Company, LLC, "Point Beach Special Inspection - NRC Inspection Report 50-266/01-17(DRS); 50-301/01-17(DRS), Preliminary Red Finding," April 3, 2002
6. Letter from J. Dyer, Regional Administrator, to M. Warner, Site Vice President, Kewaunee and Point Beach Nuclear Plants, Nuclear Management Company, LLC, "Point Beach Nuclear Plant Final Significance Determination for a Red Finding and Notice of Violation NRC Special Inspection Report No. 50-266/01-17(DRS; 50-301/01-17(DRS)," July 12, 2002
7. Letter from J. Dyer, Regional Administrator, to A. Cayia, Site Vice President, Point Beach Nuclear Power Plant, Nuclear Management Company, LLC, "Point Beach Nuclear Plant Special Inspections: Resolution of Auxiliary Feedwater Old Design Issue and Preliminary Red Finding - Auxiliary Feedwater Orifice Plugging Issue; NRC Inspection Report 50-266/02-15(DRP); 50-301/02-15(DRP)," April 2, 2003
8. Letter from J. Caldwell, Regional Administrator, to A. Cayia, Site Vice President, Point Beach Nuclear Plant, Nuclear Management Company, LLC, "Point Beach Nuclear Plant, Units 1 and 2 Final Significance Determination for a Red Finding and Notice of Violation (NRC Inspection Report No. 50-266/02-15(DRP); 50-301/02-15(DRP))," December 11, 2003
9. Letter from G. Van Middlesworth, Site Vice President, Point Beach Nuclear Plant, Nuclear Management Company, LLC, to U.S. Nuclear Regulatory Commission

- Document Control Desk, "Commitments in Response to 95003 Supplemental Inspection," March 22, 2004
10. Letter from J. Caldwell, Regional Administrator, to G. Van Middlesworth, Site Vice President, Point Beach Nuclear Plant, Nuclear Management Company, LLC, "Confirmatory Action Letter," April 21, 2004
  11. Letter from J. Caldwell, Regional Administrator, to D. Koehl, Site Vice President, Point Beach Nuclear Plant, Nuclear Management Company, LLC, "Annual Assessment Letter - Point Beach Nuclear Plant (Report 05000266/200501; 05000301/200501)," March 2, 2005
  12. Letter from D. Koehl, Site Vice-President, Point Beach Nuclear Plant, Nuclear Management Company, LLC, to U.S. Nuclear Regulatory Commission Document Control Desk, "License Renewal Application Revised Information," September 10, 2004
  13. Memorandum from L. Reyes, EDO, to Chairman Diaz, Commissioner McGaffican, and Commissioner Merrifield, "Pressurized Thermal Shock Analyses for Renewal of Certain Nuclear Power Plant Operating Licenses," May 27, 2004

\*\*\*\*\*

NOTE:

Additional details of this meeting can be obtained from a transcript of this meeting available in the NRC Public Document Room, One White Flint North, 11555 Rockville Pike, Rockville, MD, (301) 415-7000, downloading or view on the Internet at <http://www.nrc.gov/reading-rm/doc-collections/acrs/> can be purchased from Neal R. Gross and Co., 1323 Rhode Island Avenue, NW, Washington, D.C. 20005, (202) 234-4433 (voice), (202) 387-7330 (fax), [nrgross@nealgross.com](mailto:nrgross@nealgross.com) (e-mail).

\*\*\*\*\*



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, DC 20555 - 0001

July 7, 2005

MEMORANDUM TO: ACRS Members

FROM: Cayetano Santos Jr., Senior Staff Engineer *Cayetano Santos Jr.*  
ACRS/ACNW

SUBJECT: CERTIFICATION OF THE MINUTES OF THE PLANT LICENSE  
RENEWAL SUBCOMMITTEE MEETING ON THE POINT BEACH  
NUCLEAR PLANT UNITS 1 AND 2 LICENSE RENEWAL APPLICATION,  
MAY 31, 2005 - ROCKVILLE, MARYLAND

The minutes of the subject meeting were certified on July 6, 2005, as the official record of the proceedings of that meeting. A copy of the certified minutes is attached.

Attachment: As stated

cc w/o Attachment:

J. Larkins  
A. Thadani  
M. Scott  
M. Snodderly  
S. Duraiswamy  
J. Lamb



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, DC 20555 - 0001

MEMORANDUM TO: Cayetano Santos Jr., Senior Staff Engineer,  
Technical Support Staff, ACRS

FROM: Mario Bonaca, Chairman  
ACRS Plant License Renewal Subcommittee

SUBJECT: CERTIFICATION OF THE MINUTES OF THE ACRS SUBCOMMITTEE  
MEETING ON THE POINT BEACH NUCLEAR PLANT UNITS 1 AND 2  
LICENSE RENEWAL APPLICATION, MAY 31, 2005 - ROCKVILLE,  
MARYLAND

I hereby certify, to the best of my knowledge and belief, that the minutes of the subject meeting on May 31, 2005, are an accurate record of the proceedings for that meeting.

*Mario Bonaca*      *7/6/05*  
\_\_\_\_\_  
Mario Bonaca,      Date  
Plant License Renewal Subcommittee Chairman



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, DC 20555 - 0001

June 17, 2005

MEMORANDUM TO: Mario Bonaca, Chairman  
ACRS Plant License Renewal Subcommittee

FROM: *Cayetano Santos Jr.*  
Cayetano Santos Jr., Senior Staff Engineer,  
Technical Support Branch, ACRS

SUBJECT: WORKING COPY OF THE MINUTES OF THE ACRS SUBCOMMITTEE  
MEETING ON THE POINT BEACH NUCLEAR PLANT UNITS 1 AND 2  
LICENSE RENEWAL APPLICATION, MAY 31, 2005 - ROCKVILLE,  
MARYLAND

A working copy of the minutes for the subject meeting is attached for your review.  
Please review and comment on them at your earliest convenience. If you are satisfied with  
these minutes please sign, date, and return the attached certification letter.

Attachments: Certification Letter  
Minutes (DRAFT)

cc w/o Attachment:

J. Larkins  
A. Thadani  
M. Scott  
M. Snodderly  
S. Duraiswamy  
J. Lamb

**Advisory Committee on Reactor Safeguards  
Plant License Renewal Subcommittee Meeting  
Point Beach Nuclear Plant, Units 1 and 2  
May 31, 2005  
Rockville, MD**

-PROPOSED SCHEDULE-

Cognizant Staff Engineer: Cayetano Santos Jr. [CXS3@NRC.GOV](mailto:CXS3@NRC.GOV) (301) 415-7270

Topics		Presenters	Time
I	Opening Remarks	M. Bonaca, ACRS	12:30 pm - 12:35 pm
II	Staff Introduction	F. Gillespie, NRR	12:35 pm - 12:40 pm
III	Point Beach Red Inspection Findings	P. Loudon, Region III	12:40 - 1:40 pm
IV	Point Beach License Renewal Application A. Application Background B. Description of Point Beach C. Operating History D. Scoping Discussion E. Application of GALL F. Commitment Process	J. Knorr, Nuclear Management Company, LLC	1:40 pm - 2:40 pm
BREAK			2:40 pm - 2:55 pm
V	SER Overview A. Scoping and Screening Methodology Results	V. Rodriguez, NRR	2:55 pm - 3:05 pm
VI	Aging Management Program Review and Audits	K. Cozens, NRR	3:05 pm - 3:50 pm
VII	Onsite Inspection Results	P. Loughheed, Region III	3:50 pm - 4:00 pm
VIII	Time Limited Aging Analyses	G. Suber, NRR	4:00 pm - 4:30 pm
IX	Subcommittee Discussion	M. Bonaca, ACRS	4:30 pm - 5:00 pm

**NOTE:**

- Presentation time should not exceed 50 percent of the total time allocated for a specific item. The remaining 50 percent of the time is reserved for discussion.
- 50 copies of the presentation materials to be provided.

Johnny

Dated: May 11, 2005.  
 Michael R. Snodderly,  
 Acting Branch Chief, ACRS/ACNW.  
 [FR Doc. E5-2510 Filed 5-18-05; 8:45 am]  
 BILLING CODE 7590-01-P

## NUCLEAR REGULATORY COMMISSION

### Advisory Committee on Reactor Safeguards Meeting of the Subcommittee on Plant License Renewal; Notice of Meeting

The ACRS Subcommittee on Plant License Renewal will hold a meeting on May 31, 2005, Room T-2B3, 11545 Rockville Pike, Rockville, Maryland.

The entire meeting will be open to public attendance.

The agenda for the subject meeting shall be as follows:

*Tuesday, May 31, 2005—12:30 p.m. until 5 p.m.*

The purpose of this meeting is to discuss the License Renewal Application and associated Safety Evaluation Report (SER) with Open Items related to the License Renewal of the Point Beach Nuclear Plant, Units 1 and 2. The Subcommittee will hear presentations by and hold discussions with representatives of the NRC staff, the Nuclear Management Company, LLC, and other interested persons regarding this matter. The Subcommittee will gather information, analyze relevant issues and facts, and formulate proposed positions and actions, as appropriate, for deliberation by the full Committee.

Members of the public desiring to provide oral statements and/or written comments should notify the Designated Federal Official, Mr. Cayetano Santos (telephone 301-415-7270) five days prior to the meeting, if possible, so that appropriate arrangements can be made. Electronic recordings will be permitted.

Further information regarding this meeting can be obtained by contacting the Designated Federal Official between 7:30 a.m. and 4:15 p.m. (ET). Persons planning to attend this meeting are urged to contact the above named individual at least two working days prior to the meeting to be advised of any potential changes to the agenda.

Dated: May 11, 2005.  
 Michael R. Snodderly,  
 Acting Branch Chief, ACRS/ACNW.  
 [FR Doc. E5-2511 Filed 5-18-05; 8:45 am]  
 BILLING CODE 7590-01-P

## SECURITIES AND EXCHANGE COMMISSION

[Release Nos. IC-26867; File No. S7-11-04]

RIN 3235-AJ17

### Mutual Fund Redemption Fees

**AGENCY:** Securities and Exchange Commission.

**ACTION:** Notice of OMB Approval of Collections of Information.

**FOR FURTHER INFORMATION CONTACT:** William C. Middlebrooks, Jr., Senior Counsel, Office of Regulatory Policy, Division of Investment Management, (202) 551-6792, at the Securities and Exchange Commission, 450 Fifth Street, NW., Washington, DC 20549-0506.

**SUPPLEMENTARY INFORMATION:** The Office of Management and Budget has approved the collection of information requirements described in the release entitled "Mutual Fund Redemption Fees."<sup>1</sup> This collection is titled "Rule 22c-2" (OMB Control No. 3235-0620).

Dated: May 13, 2005.  
 J. Lynn Taylor,  
 Assistant Secretary.  
 [FR Doc. 05-9970 Filed 5-18-05; 8:45 am]  
 BILLING CODE 8010-01-P

## SECURITIES AND EXCHANGE COMMISSION

[File No. 500-1]

### In Sino Silver Corp.; Order of Suspension of Trading

May 17, 2005.

It appears to the Securities and Exchange Commission that the public interest and the protection of investors require a suspension of trading in the securities of Sino Silver Corp. ("Sino"), trading under the stock symbol SSLV on the Over-the-Counter Bulletin Board ("OTCBB"). The Commission has concerns about the accuracy and completeness of information about Sino contained in press releases and public filings with the Commission relating to a change in control over Sino. In addition, the Commission is concerned that Sino, its affiliates, and others may be engaged in the unlawful distribution of restricted Sino securities through the OTCBB.

The Commission is of the opinion that the public interest and the protection of investors require a suspension of trading in the securities of the above listed company.

<sup>1</sup> Investment Company Act Rel. No. 26782 (Mar. 11, 2005) [70 FR 13328 (Mar. 18, 2005)].

Therefore, it is ordered, pursuant to Section 12(k) of the Securities Exchange Act of 1934, that trading in the above listed company is suspended for the period from 9:30 a.m. EST, May 17, 2005 through 11:59 p.m. EST, on May 31, 2005.

By the Commission.  
 Jonathan G. Katz,  
 Secretary.  
 [FR Doc. 05-10091 Filed 5-17-05; 11:39 am]  
 BILLING CODE 8010-01-P

## SECURITIES AND EXCHANGE COMMISSION

[Release No. 34-51689; File No. SR-Amex-2005-039]

### Self-Regulatory Organizations; American Stock Exchange LLC; Notice of Filing and Immediate Effectiveness of Proposed Rule Change Relating to Revisions to the Series 4 Examination Program

May 12, 2005.

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act")<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> notice is hereby given that on April 8, 2005, the American Stock Exchange LLC ("Amex" or "Exchange") filed with the Securities and Exchange Commission ("Commission") the proposed rule change as described in Items I, II, and III below, which Items have been prepared by Amex. Amex has designated the proposed rule change as one constituting a stated policy, practice, or interpretation with respect to the meaning, administration, or enforcement of an existing rule of Amex pursuant to Section 19(b)(3)(A)(i) of the Act<sup>3</sup> and Rule 19b-4(f)(1) thereunder,<sup>4</sup> which renders the proposal effective upon filing with the Commission. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

#### I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

Amex is filing revisions to the study outline and selection specifications for the Limited Principal—Registered Options (Series 4) examination ("Series 4 Examination"). The proposed revisions update the material to reflect changes to the laws, rules, and regulations covered by the Series 4 Examination.

<sup>1</sup> 15 U.S.C. 78s(b)(1).

<sup>2</sup> 17 CFR 240.19b-4.

<sup>3</sup> 15 U.S.C. 78s(b)(3)(A)(i).

<sup>4</sup> 17 CFR 240.19b-4(f)(1).

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
 SUBCOMMITTEE MEETING ON PLANT LICENSE RENEWAL

May 31, 2005  
 Date

NRC STAFF SIGN IN FOR ACRS MEETING

PLEASE PRINT

<u>NAME</u>	<u>NRC ORGANIZATION</u>
MICHAEL MORGAN	NRR/RLEP SECTION A
KURT COZENS	NRR/RLEP-B
Kirsi Alm-Lytz	NRR/IPSB
Patricia Longhead	NRC Region III Engr Branch 2
Leslie Miller	NRC/NRR/DE/EMCB-C
Patrick Louden	NRC/R-III/DRP/Gr. 5
SHEILA RAY	NRC/NRR/DLPM/LPD3-1
Jake Zimmerman	NRC/NRR/DRIP/RLEP-A
BROOKE POOLE	NRC/OGC
HAROLD CHERNOFF	NRC/NRR/DLPM/PD3-1
PATRICK LOUDEN	NRC Region III
Jorge Hernandez	NRC/NRR/DSSA
Ram Subbarayan	NRC/NRR/DRIP
Stacey Imboden	NRC/NRR/DRIP
Bill Rogers	NRC/NRR/DIPM
Richard McNally	NRC/NRR/DE/EMEB
SAMSON LEE	NRC/NRR/DRIP/RLEP
S. K. Mifflin	NRC/NRR/DIPM/RLEP
DANIEL MEARKE	NRC/NRR/DRIP/RLEP
G. Galletti	NRC/NRR/DIPM/IPSB
T. STEINGASS	NRR/DE/EMCB
JUAN AYALA	NRR/DRIP/RLEP

J. KOSTA

NRR/DE/EEIB

P. GILL

NRR/DE/EEIB

VITIN PATEL

NRR/DE/EEIB

John Ma

NRR/DE/EMEB

Naeem Iqbal

NRR/DSSA/SPLB

Ann Hodgson

OGC

Michael Li

NRR/DRIP/RLEP-A

Yaira Diaz

NRR/DRIP/RLEP

Arnold Lee

NRR/DE/EMEB

Kaihua HSU

NRR/DRIP/RLEP-B

Linh Tran

NRR/DRIP/RLEP-B

Gregory SUBER

NRR/DRIP/RLEP

Jahak Raval

NRR/DSSA/SPSB-C

Verónica Rodriguez

NRR/DRIP/RLEP-A

Matthew A. McCall

NRR/DE/EMEB

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
SUBCOMMITTEE MEETING ON PLANT LICENSE RENEWAL

May 31, 2005  
Date

PLEASE PRINT

<u>NAME</u>	<u>AFFILIATION</u>
STEVEN A. SCHELLIN	NMC-PBNP
William J Herrman	NMC - PBNP
John G. Thorgersen	NMC - PBNP
Mark Ortmaier	NMC - PBNP
BRAD FROMM	NMC - PBNP
Jim Schweitzer	NMC - PBNP
Jim Knorr	NMC - PBNP
DOUGLAS JOHNSON	NMC - CORPORATE
Johnny Eads	NRC-DRIP/ALEPA
TODD MIELKE	NMC - PBNP
DARREL TURNER	NMC - PALISADES
RAFAEL GRAVES	LEGION GROUP INC.
Mike Follin	Constellation Energy
STEVEN DORT	FIRST ENERGY
JOHN THOMAS	FIRST ENERGY
BOB VINCENT	NMC - PALISADES
Daniel Horner	McGraw-Hill
RICHARD GRUMBIR	AEP - D.C. Cook Nuclear Plant
William D. Crouch	TVA
Russell Jansen	TVA



ACRS Subcommittee Meeting  
Point Beach Nuclear Plant  
License Renewal  
Comments and Questions by  
G.M.Leitch for 5/31/05

GENERAL

It is interesting to note that these plants, particularly Unit 1, is close (within 5 years) to the end of license life. This is OK, but I'd be curious as to why it is so late as compared to other applications we have seen.

This plant continues to be in the Regulatory Response Column of the ROP. I think this is the first plant we have considered for license renewal that was in this column.

There are 2 issues related to the AFW system which resulted in 2 red findings for unit 2 and one red and 1 yellow for unit 1. There is also a yellow finding in the area of emergency preparedness.

There is an outstanding Confirmatory Action Letter on this plant. It concerns 5 areas. Human Performance, Engineering Design Control, Engineering/Operations Interface, Emergency Preparedness, and Corrective Action Program. All of these areas are serious, long standing problems. They all relate to license renewal, particularly the CAP. The NRC in the CAL Letter dated 4/21/04 lists criteria to be considered for closing the CAL (see Letter). The licensee has yet to tell the NRC that it has completed the CAL actions, so of course the NRC has yet to close the CAL. (Unless my information is not up to date)

In the commitment letter from NMC to NRC dated 3/22/04, NMC committed to a number of actions to address those issues listed in the CAL. A number of these actions are not scheduled to be completed until 1Q05 or 2Q05. Some of these relate to commitment tracking which is of particular concern as it relates to license renewal. What is the status of this improvement program?

Many of these improvement program items are long standing "cultural issues" which are not quickly corrected. Should we hear that these issues are closed to the satisfaction of the NRC, as indicated by CAL closure, before proceeding with a recommendation for license renewal by the full ACRS ?

## CRANE

Is there an issue with the Polar Crane? Is this an age related issue? I have seen some discussion of this. What are the details?

## LICENSE RENEWAL APPLICATION

Page 1-3 Should first paragraph on this page be changed to indicate no exceptions?

Page 2-9 Are there really no applicable fuse holders? Seems unlikely.

Page 2-19 and 20. NSR SSCs not directly connected to SRSSCs. Discuss mitigative and preventive. "Mitigative NSR SSCs can be excluded from scope if function is maintained". This seems to be a new concept. Does this mean that a NSR component that could drop on and damage one EDG can be excluded from scope so long as the other EDG is unaffected? i.e. the function is maintained? What is a good example of mitigative?

Page 2-21. What is meant by "long term".

Page 2-21. Is physical impact considered for NSR piping failures caused by FAC?

Page 2-32. PTS TLAA not really addressed is 4.2.1. Needs to be reworded in light of recent discussion on this topic.

## TLAA's

Recently we received a revision to the LRA. This revision raises several questions. It appears that rather than extend the existing TLAA for PTS of reactor vessel, NMC will be the first plant to use 10CFR54.21(c)(1)(iii). Why is this approach being taken, particularly when BAW - 2467NP appears to justify a more traditional approach? Is this approach being taken for both Units? 9/10/04 letter from NMC to NRC Commitments 1 and 2 appear to apply only to Unit 2. Commitment #3 What is

meant by EOL? Original or extended license?

BAW - 2467NP The following questions relate to this report. If this report is not being used these are moot.

Report states that NMC is considering removal of Halfnium. Letter from NMC to NRC dated 9/10/04 states otherwise. Which is the case?

What are to plans for power uprate? Report appears to bound that case, (up to 1678 Mwth) but is the report being used?

In Fig. 2-2 of report a CE weld is shown, but there is no discussion of this weld. Do we know that this weld is not limiting?

The report appears to conclude on page 9-1 that weld Unit 1 SA 847 is most limiting, but the letter seems to indicate that Unit2 SA 1484 is most limiting. Please clarify.

SER with OPEN ITEMS

OI 3.5-4 Section 3.5.2.2.1. Need to hear more about borated water causing corrosion of containment liner plate on both units. What was the source of the borated water? Is this an ongoing problem?

INSPECTION REPORT dated 5/2/05.

Page 12. Apparently Unit 2 Containment was inspected, but there is no mention of Borated Water corrosion of liner plate. Has this condition been repaired?

Page 4 and 5. Comment that "some additional non safety related components needed to be placed within scope" Has this been resolved? It appears to be open as of 5/2/05.

Page 5. Aux Steam - "proposed boundaries not yet complete" as of 5/2/05 inspection report.

Page 6. Chemical Volume - same comment.

Page 12 and Page 19. In comments related to the Boraflex Monitoring Program and the One Time Inspection Program on the above pages, the report indicates that, with certain changes, these programs will be acceptable. This is a very recent report and it appears to postdate the SER. Are there firm commitments to make the changes referred to here?

Page 8. Feedwater System - same comment.

AUDIT AND REVIEW REPORT dated 4/11/05

There is an Open Item OI B2.1 wherein the applicant is requested to provide technical bases for exceptions to ASME Section XI without referencing relief requests. I expected to see this referenced in this report on Page 15 Paragraph 7.1.1.7. This issue is not mentioned in that section. Why?

ACRS Subcommittee Meeting  
Point Beach Nuclear Plant  
License Renewal  
Comments and Questions by  
G.M.Leitch for 5/31/05

I. GENERAL

- A. It is interesting to note that these plants, particularly Unit 1, is close (within 5 years) to the end of license life. This is OK, but I'd be curious as to why it is so late as compared to other applications we have seen.
- B. This plant continues to be in the Regulatory Response Column of the ROP. I think this is the first plant we have considered for license renewal that was in this column.
- C. There are 2 issues related to the AFW system which resulted in 2 red findings for unit 2 and one red and 1 yellow for unit 1. There is also a yellow finding in the area of emergency preparedness.
- D. There is an outstanding Confirmatory Action Letter on this plant. It concerns 5 areas. Human Performance, Engineering Design Control, Engineering/Operations Interface, Emergency Preparedness, and Corrective Action Program. All of these areas are serious, long standing problems. They all relate to license renewal, particularly the CAP. The NRC in the CAL Letter dated 4/21/04 lists criteria to be considered for closing the CAL (see Letter). The licensee has yet to tell the NRC that it has completed the CAL actions, so of course the NRC has yet to close the CAL. (Unless my information is not up to date)
- E. In the commitment letter from NMC to NRC dated 3/22/04, NMC committed to a number of actions to address those issues listed in the CAL. A number of these actions are not scheduled to be completed until 1Q05 or 2Q05. Some of these relate to

commitment tracking which is of particular concern as it relates to license renewal. What is the status of this improvement program?

- F. Many of these improvement program items are long standing “cultural issues” which are not quickly corrected. Should we hear that these issues are closed to the satisfaction of the NRC, as indicated by CAL closure, before proceeding with a recommendation for license renewal by the full ACRS ?

## II. CRANE

- A. Is there an issue with the Polar Crane? Is this an age related issue? I have seen some discussion of this. What are the details?

## III. LICENSE RENEWAL APPLICATION

- A. Page 1-3 Should first paragraph on this page be changed to indicate no exceptions?
- B. Page 2-9 Are there really no applicable fuse holders? Seems unlikely.
- C. Page 2-19 and 20. NSR SSCs not directly connected to SRSSCs. Discuss mitigative and preventive. “Mitigative NSR SSCs can be excluded from scope if function is maintained”. This seems to be a new concept. Does this mean that a NSR component that could drop on and damage one EDG can be excluded from scope so long as the other EDG is unaffected? i.e. the function is maintained? What is a good example of mitigative?
- D. Page 2-21. What is meant by “long term”.
- E. Page 2-21. Is physical impact considered for NSR piping failures caused by FAC?
- F. Page 2-32. PTS TLAA not really addressed is 4.2.1. Needs to be reworded in light of recent discussion on this topic.

#### IV. TLAA's

A. Recently we received a revision to the LRA. This revision raises several questions.

1. It appears that rather than extend the existing TLAA for PTS of reactor vessel, NMC will be the first plant to use 10CFR54.21(c)(1)(iii). Why is this approach being taken, particularly when BAW - 2467NP appears to justify a more traditional approach? Is this approach being taken for both Units? 9/10/04 letter from NMC to NRC Commitments 1 and 2 appear to apply only to Unit 2. Commitment #3 What is meant by EOL? Original or extended license?

B. BAW - 2467NP The following questions relate to this report. If this report is not being used these are moot.

1. Report states that NMC is considering removal of Hafnium. Letter from NMC to NRC dated 9/10/04 states otherwise. Which is the case?
2. What are to plans for power uprate? Report appears to bound that case, (up to 1678 Mwth) but is the report being used?
3. In Fig. 2-2 of report a CE weld is shown, but there is no discussion of this weld. Do we know that this weld is not limiting?
4. The report appears to conclude on page 9-1 that weld Unit 1 SA 847 is most limiting, but the letter seems to indicate that Unit2 SA 1484 is most limiting. Please clarify.

#### V. SER with OPEN ITEMS

A. OI 3.5-4 Section 3.5.2.2.1. Need to hear more about borated water causing corrosion of containment liner plate on both units. What was the source of the borated water? Is this an ongoing problem?

VI. INSPECTION REPORT dated 5/2/05.

- A. Page 12. Apparently Unit 2 Containment was inspected, but there is no mention of Borated Water corrosion of liner plate. Has this condition been repaired?
- B. Page 4 and 5. Comment that "some additional non safety related components needed to be placed within scope" Has this been resolved? It appears to be open as of 5/2/05.
- C. Page 5. Aux Steam - "proposed boundaries not yet complete" as of 5/2/05 inspection report.
- D. Page 6. Chemical Volume - same comment.
- E. Page 12 and Page 19. In comments related to the Boraflex Monitoring Program and the One Time Inspection Program on the above pages, the report indicates that, with certain changes, these programs will be acceptable. This is a very recent report and it appears to postdate the SER. Are there firm commitments to make the changes referred to here?
- F. Page 8. Feedwater System - same comment.

VII. AUDIT AND REVIEW REPORT dated 4/11/05

- A. There is an Open Item OI B2.1 wherein the applicant is requested to provide technical bases for exceptions to ASME Section XI without referencing relief requests. I expected to see this referenced in this report on Page 15 Paragraph 7.1.1.7. This issue is not mentioned in that section. Why?

John J. Barton - ACRS Consultant

May 26, 2005

Dr. Mario Bonaca, Chairman  
Plant License Renewal Sub-Committee

Re: Application to renew the operating licenses for Point Beach Nuclear Plant - Units 1 & 2

Dr. Mario:

I have completed my review of the Point Beach Licensing Renewal Application, The NRC Staff Safety Evaluation Report, and other documents and reports. My individual comments are contained on the attachment to this letter.

My overall conclusion regarding this applicant is that I would not be in favor of renewing the Operation License at this time based on the seriousness of findings associated with the Auxiliary Feedwater System, the fact that the station has been placed in the Multiple/Repetitive Degraded Cornerstone Column of the Action Matrix, and the Failure of station programs to identify all issues and take corrective action in a timely manner.

I believe that the issues surrounding the Auxiliary Feedwater System cut across several programs at the site that failed to identify and acknowledge the magnitude of the problem, and failed to conduct proper investigations to ensure there were no other performance problems with the system.

I must ask where were the Safety Review Groups, the Quality Assurance Organization, the Corrective Action Program? Oversight groups and an effective corrective action program are key to the success of the overall performance at the station. Based on my experience, I see multiple failures of the station organization which leads me to bring into question the "Safety Culture" at the site.

Should the ACRS decide that an interim letter be prepared at the conclusion of the upcoming meeting I would certainly support such action. The basis for my support of such action is based on experience that indicates you don't correct programmatic failures quickly. Cultural issues **sometimes** take years to correct.

Sincerely,



John Barton

## John J. Barton - ACRS Consultant

### Attachment

Individual comments on Point Beach License Renewal Application, NRC Safety Evaluation Report and other documents received.

1. NRC Inspection Report - May 2, 2005

**Subject:** License renewal scoping, screening, and Aging Management (Pg.6).

As recently as April, 2005, the inspectors noted that "while not yet completed the proposed boundaries for the chemical volume and control system appeared to comply with the License Renewal Rule.

Does this mean that while the application for license renewal was submitted over a year ago we still don't have the scoping nailed down?

2. NRC Inspection Report - May 2, 2005  
(Pg.17)

During the inspection, it was noted that the current Flow Accelerated Corrosion Program procedures differed from methods described in the License Renewal Application.

Did Inspectors look for other programs that differed from the LRA ?, or was this an isolated case?

3. NRC Safety Evaluation Report

Section 1.5 "Summary of Open Items" (Item 3.5-4 PWR Containment)

I would like the staff to address the liner corrosion issue and how it was resolved.

If the item is still open, discuss staff concerns and what action is required to close the item.

4. NCR Safety Evaluation Report

Section 2.3.3, "Auxiliary Systems"

Throughout this section there are numerous examples of "Failure to Highlight In-Scope Components." This issue came to light due to all the RAI's requesting clarification of what was in-scope.

If this was really a lack of proper highlighting or drawing errors as described by the applicant versus a deliberate failure to include in-scope equipment from Aging Management, I must conclude that a quality review by the applicant's staff was not done, or was ineffective.

I also believe the NRC Staff accepted the RAI responses regarding scope issues without challenging the adequacy and quality of the application.

What does this issue say about the applicant's work and does it directly impact License Renewal? I don't believe it has a direct impact, but I do believe that it is an indicator of the Quality of work performed at the site, the lack of proper oversight by Management, and could very well be related to the same issues surrounding the Auxiliary Feedwater System.

5. General Comment

I would have expected a higher quality application from this applicant. There have been many LRA's submitted to date and some have been of very good quality because applicants learned from earlier applications. I believe this applicant could have produced a better product.

I don't know how many RAI's were generated, but from my review many were the result of poor initially submitted material.

J.J.B.



# **Point Beach Nuclear Plant, Units 1 and 2 Discussion of Red Findings**

Staff Presentation to the ACRS Plant  
License Renewal Subcommittee  
Patrick Loudon, Branch Chief  
Division of Reactor Projects, Region III  
May 31, 2005

## **Point Beach Red Findings**



- Licensee identified Auxiliary Feedwater system finding in November 2001
- Two NRC Special Inspections performed:
  - December 2001 – February 2002
  - September 2002 – March 2003
- 2003 Inspection identified second Auxiliary Feedwater system finding

## Point Beach Red Findings



- Plant notified of final decision on first Red finding in April 2003
- Red Finding places Point Beach in Column IV of the NRC Action Matrix
- Second Red finding issued in December 2003

## NRC Inspection Procedure 95003



- Supplemental Inspection 95003 conducted from August to December 2003
  - Diagnostic in nature
  - Focused on known problem areas
  - Results determine any necessary additional NRC actions
- Point Beach 95003 inspection completed in three parts

## Point Beach 95003



- Teams comprised of inspectors from all NRC regional offices and included contractors
- Additional findings and violations identified
- Results indicated five general areas of concern

## NRC Areas of Concern



- Five areas of regulatory concern:
  - Human Performance
  - Engineering Design Control
  - Engineering/Operations Interface
  - Emergency Preparedness
  - Corrective Action Program

## Point Beach CAL



- These five areas formed basis for NRC Confirmatory Action Letter (CAL)
- CAL issued on April 21, 2004
- Licensee developed Commitment Letter based on their Site-Wide Excellence Plan
- Commitment Letter attached to CAL

## Point Beach Inspections



- Baseline team inspection membership was expanded
- Special inspections were conducted to evaluate the licensee's progress in implementing Confirmatory Action Letter items.

## Point Beach Current Performance



- Substantive Cross-cutting Issues
  - Substantive cross-cutting issues identified in the areas of Human Performance and the Corrective Action Program
  - Also are identified as areas of concern in the Confirmatory Action Letter

## Point Beach Current Performance



- Human Performance has been a licensee focus and recent improvement has been noted
- Corrective Action Program is sound; however, some areas are still in need of improvement

## Point Beach Current Assessment



- The licensee has made progress in all five Confirmatory Action Letter areas of concern
- The NRC focus is on sustainability of the licensee's corrective actions



# Point Beach Nuclear Plant



## License Renewal Presentation to ACRS Subcommittee

Jim Knorr  
PBNP License Renewal Project Manager  
Nuclear Management Company, LLC  
May 31, 2005



1



## Participants



- **Doug Johnson – Director,  
License Renewal Projects**
- **Jim Knorr – Manager License Renewal**
- **Support Staff**
  - **John Thorgersen – Programs Lead**
  - **Todd Mielke – Mechanical Lead**
  - **Mark Ortmyer – Civil Structural Lead**
  - **Steven Schellin – Electrical Lead**
  - **Brad Fromm – TLAAs & Major Components**
  - **Bill Herrman – Programs & Implementation**



2



## Description of Point Beach Nuclear Plant



- PBNP Owner – We Energies
- PBNP Operator – Nuclear Management Company, LLC
- Located in Two Creeks, Wisconsin
- Westinghouse 2-loop PWRs
- Rated Thermal Power  
Units 1 and 2 1540 MWt
- Rated Electrical Output  
Unit 1 538 MWe  
Unit 2 538 MWe



3



## Point Beach Features



- Four Emergency Diesel Generators
- 25 MWe Combustion Turbine
- Ultimate Heat Sink - Lake Michigan
- Once-through Cooling
- Containment - Post Tensioned Steel Reinforced Concrete with Steel Liner
- 18 Month Fuel Cycles



4



## Operating Experience



- 1975 Unit 1 Steam Generator Tube Rupture
  - Cause - IGSCC
- 1999 Unit 1 Feedwater Heater Shell Failure
  - Cause – Steam impingement and flow accelerated corrosion



## PBNP Performance Summary



- NRC Performance Assessment
  - All Performance Indicators Green
  - Aux Feedwater Design Related Red Findings (2003)
- Unit 1 Rolling 18 Month Capability Factor = 87.25  
Last Auto Rx Trip – July 15, 2003
- Unit 2 Rolling 18 Month Capability Factor = 89.19  
Last Auto Rx Trip - July 10, 2003





## PBNP Major Improvements



- New Steam Generators
  - Unit 1 - 1984
  - Unit 2 - 1997
- Split Pin Replacement – Both Units - Mid 1980s
- Upflow Modification – Late 1980s
- Two Additional Emergency Diesels – 1994
- Unit 2 Baffle Bolt Replacement – 1998
- New Integral-Hub Low Pressure Turbines - 1998
- New Training and Engineering Building -1998
- DC Upgrades
  - 2 New Batteries and DC Busses - Mid 1980s
  - New Swing Battery and Bus – Mid 1990s
  - New Non-safety Related Batteries

7

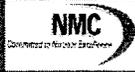


## PBNP Major Improvements



- Upgrade Portions of Service Water System – Late 1990s
- Replaced Plant Process Computer – 2000
- Redesigned Intake Structure – 2001
- New Containment Fan Cooler Hxs – Early 2000s
- Reactor Vessel Head Replacement
  - Unit 2 in Spring 2005
  - Unit 1 in Fall 2005
- Scheduled to Replace Auxiliary Feedwater Pumps – 2006 - 2007

8



## Application Background

- Application Submitted February 25, 2004
- Current License Expiration
  - Unit 1 – October 5, 2010
  - Unit 2 – March 8, 2013
- LRA Process
  - Standard 2003 LRA Format with Expanded Content
  - NRC Used the New Review Process



9



## Aging Management Programs (AMPs)

- 26 AMPs total
  - All are Units 1 and 2 common AMPs
- 21 Existing AMPs
- Five New AMPs
- Exceptions/clarifications to Generic Aging Lessons Learned (GALL) Programs:
  - Use of different or later versions of codes and standards
  - Expansion of program scope beyond GALL
  - Use of later NRC guidance or precedence



10



## GALL Exception Examples



- Reactor Vessel Surveillance Program
  - Added capsule for extended life
- Reactor Vessel Internals Program
  - Submit program for review and approval  $\geq 24$  months prior to period of extended operation
- Instrumentation Circuits
  - Alternate program – Cable Testing
- Medium Voltage Cables
  - Already tested all inaccessible medium voltage cables



11



## PBNP Effective Full Power Years



### Current EFPY

- Unit 1 - 25.7
- Unit 2 - 26.2
- Projected EFPY (95% Capacity Factor with assumed power uprate to 1678 MWt)
  - Unit 1 - 51 at 60 years
  - Unit 2 - 53 at 60 years



12



## Reactor Vessel Time Limited Aging Analyses (TLAAs)



- Unit 1 (53 EFPY – 95% capacity factor @ 1678 MWt)
  - USE = <50 ft-lbs ( $J_{0.1}/J_1 = 1.87$  and  $1.60$ )
  - $RT_{PTS} = 299$  °F
- Unit 2 (53 EFPY – 95% capacity factor @ 1678 MWt)
  - USE = <50 ft-lbs ( $J_{0.1}/J_1 = 5.57$  and  $4.87$ )
  - $RT_{PTS} = 316$  °F  
(300 °F reached at 38.1 EFPY in 2017)

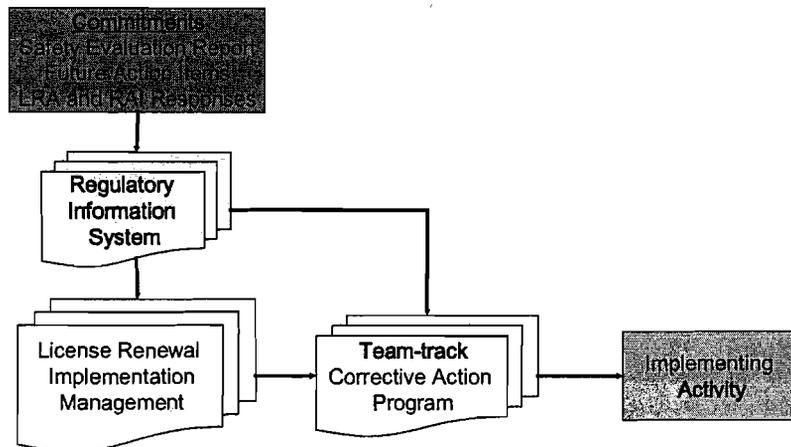
**Note:** 10 CFR 50.61 requires submittal of a safety analysis of a flux reduction program to prevent failure of the reactor vessel due to a PTS event or licensing of an alternate PTS analysis technique three years prior to reaching the acceptance criteria.



13

## Commitment Management

Commitments were documented in the License Renewal Application or added and modified as needed during the NRC review





## Corrective Action Program

- Integral to Tracking Commitments
- Common Process Across NMC Fleet
  - Team-Track System
  - Corrective Action Program (CAP) Item
    - Corrective Action Item(s)
- Integrated into Work Control Process
  - CHAMPS (Computerized History and Maintenance Planning System)

15



## Closing Remarks

- Application
  - Based upon 2003 template with enhanced detail
- NRC Review
  - “Consistent with GALL” Audit process
  - Standard Safety Evaluation Report patterned after Standard Review Plan

16

# **Point Beach Nuclear Plant, Units 1 and 2 License Renewal Safety Evaluation Report**

Staff Presentation to the ACORS Subcommittee  
Veronica Rodriguez, Michael Morgan, and  
Gregory Suber, Project Managers  
Office of Nuclear Reactor Regulation  
May 31, 2005

## **Review Highlights**



- License extension request - February 25, 2004
  - Unit 1: October 5, 2010
  - Unit 2: March 8, 2013
- SER with Open and Confirmatory Items issued on May 2, 2005
- Five (5) Open Items
  - 2 Aging Management Programs (AMPs)
  - 3 Aging Management Reviews (AMRs)
- Fifteen (15) Confirmatory Items
- Three (3) License Conditions

# Review Highlights



## NRC Audits and Inspections

- AMP GALL Audit
  - April 26 - 30, 2004
- Scoping and Screening Methodology Audit
  - June 21 – 25, 2004
- AMR GALL Audit
  - June 7 – 11, 2004
- Regional Scoping and Screening/AMP Inspection
  - March 7 – 25, 2005

3

# Section 2 - Overview



## Section 2.1: Scoping and Screening Methodology

- On-site Audit - June 21-25, 2004
- Three Confirmatory Items
  - CI 2.1-1 Application of Scoping Criteria in 10 CFR 54.4(a) – Exposure Duration
  - CI 2.1-2 Application of Scoping Criteria in 10 CFR 54.4(a) – First Equivalent Anchor
  - CI 2.1-3 Flow-Accelerated Corrosion Effect on Piping Section Scoping in 10 CFR 54.4(a)(2)

4

## Section 2 - Overview



### Section 2.1: Scoping and Screening Methodology

- Revised Methodology (letter dated April 29, 2005)
  - Removed “Exposure Duration”
  - New methodology using “Spaces” approach
  - Scope expansion
    - No new aging effects mechanisms identified
    - New Tables and Line Items in Sections 2 and 3
      - 14 Component Types

5

## Section 2 - Overview



### Section 2.4: Scoping and Screening of Containments, Structures and Supports

- Staff reviewed LRA to determine if any passive and long-lived SSC's required to be within the scope of license renewal were omitted
  - No omissions were identified
  - One (1) Confirmatory Item
    - Identify specific concrete tanks foundations

6

## Section 2 - Overview



- Section 2.2: Plant-Level Scoping and Screening
- Section 2.3: Scoping and Screening of Mechanical Systems
- Section 2.5: Scoping and Screening of Electrical and Instrumentation and Controls

- Staff reviewed LRA to determine if any passive and long-lived SSC's required to be within the scope of license renewal were omitted
  - No omissions were identified
  - No Open or Confirmatory Items

7

## Section 3 - Overview



### Aging Management Review Results

- Section 3.0: Use of the GALL Report/AMP's
- Section 3.1: Reactor Vessel Internals
- Section 3.2: Engineering Safety Features
- Section 3.3: Auxiliary Systems
- Section 3.4: Steam and Power Conversion
- Section 3.5: Containments, Structures, Supports
- Section 3.6: Electrical Components

8

## Section 3 - Overview



### Section 3.0: Applicant's Use of the GALL Report

- Total of 26 Aging Management Programs
  - 21 Existing Programs, 5 New Programs
  - 22 Programs Consistent with the GALL Report with exceptions or enhancements
  - 4 Plant-Specific Programs
- Two (2) Open Items for AMPs
- Two (2) Confirmatory Item for AMPs

9

## Section 3 - Overview (AMP)



### Enhancements

- LRA treatment of enhancements was inclusive
  - Actions needed to demonstrate consistency with GALL Report AMP
  - Actions appropriate to implement commitments
- Project team audit
  - Evaluates enhancements necessary to demonstrate if LRA AMP is consistent with the GALL Report
  - Audit programs not implementation documents
    - May sample implementation documents to obtain additional info
    - Region determines program implementation sufficiency

10

## Section 3 - Overview (AMP)



### AMPs using ASME Code

- Three LRA AMPs
  - IWB-IWC-IWD
  - IWE-IWL
  - IWF
- Existing programs consistent with the GALL Report
  - Exceptions (relief requests and LBB for thermal embrittlement)
  - Enhancements (administrative)
- Open Item
  - Relief requests basis for exceptions
- Confirmatory Item
  - Use of flaw tolerance evaluation to manage CASS thermal embrittlement

11

## Section 3 - Overview (AMP)



### Buried Service Monitoring Program

- Existing Program consistent with the GALL Report
  - Enhancements (administrative)
- RAI responses and Commitments
  - Some fire protection piping may not have been coated or wrapped
    - One-time (planned or opportunistic) inspection
      - Susceptible section of fire protection piping will be excavated and inspected prior to period of extended operation
  - Commitment to perform inspection every 10 years
    - May credit opportunistic inspection
    - If loss of material is observed, sample size will be expanded

12

## Section 3 - Overview (AMP)



### Cable Condition Monitoring Program

- New program consistent with the GALL Report
  - Exceptions
    - E2 non-EQ instrumentation circuits
      - Testing of radiation monitoring and nuclear instrumentation not required because EQ qualified or non-adverse environment
      - Nuclear instrumentation circuits not in TS surveillance, but periodically tested
    - E3 inaccessible medium-voltage cables
      - Based on RAI response applicant agreed to be consistent with the definition of significant moisture
      - Tested every 10 yrs using a sample of most susceptible cables
  - Enhancements
    - Administrative

13

## Section 3 - Overview (AMP)



### Flow-Accelerated Corrosion Program

- Existing program consistent with the GALL Report
  - Confirmatory item
    - RAI clarification of acceptance criteria for minimum wall thickness calculation used with safety and non-safety related piping
      - Received support from NRC Region III staff
    - Applicant to provide justification and confirmation that minimum required wall thickness will be maintained for the period of extended operation
- Enhancements
  - Administrative

14

## Section 3 - Overview (AMP)



### One-Time Inspection Program

- New program consistent with the GALL Report
- AMP modifications
  - Identified aging management methods based on aging effect
  - Use visual inspections per ASME Code Section V to detect fouling to manage loss of heat transfer
- RAI response
  - Added hardness test for selective leaching inspection methodology

15

## Section 3 - Overview (AMP)



### One-Time Inspection Program (cont'd)

- Exceptions
  - Small bore piping not in scope of OTI AMP, volumetrically inspected per risk-informed in-service inspection criteria
- Enhancements
  - Administrative
- Open Item
  - Two (2) AMR line items using only water chemistry without verification such as One-Time Inspection Program
    - SCC in stainless steel heat exchanger
    - Loss of material in steam generators

16

## Section 3 - Overview (AMP)



### Bolting Integrity Program

- Existing program consistent with the GALL Report
- Exceptions
  - One (1) Open Item - exceptions to the bolting recommendations of NUREG and EPRI documents not stated in AMP
- Enhancements
  - Administrative

17

## Section 3 - Overview (AMR)



### Section 3.1: Reactor Vessel, Internals, and Reactor Coolant System

- Reactor Vessel      – Reactor Vessel Internals
- Pressurizer          – Steam Generators
- One (1) Open Item - SG loss of material evaluation
  - Use of the Water Chemistry Control Program as the only AMP for managing loss of material. No program to validate effectiveness of Water Chemistry Control Program
- Commitments to submit programs for NRC approval 24 months prior to entering the period of extended operation

18

## Section 3 - Overview (AMR)



### Section 3.3: Auxiliary Systems

- Spent fuel cooling
- Service water
- Fuel handling
- Containment ventilation
- One (1) Open Item - Component Cooling Water cracking evaluation
  - Use of the Water Chemistry Control Program as the only AMP for managing loss of material. No program to validate effectiveness of Water Chemistry Control Program
- No Confirmatory Items

19

## Section 3 - Overview (AMR)



### Section 3.5 Containments, Structures, and Component Supports

- Control building
- Diesel generator building
- Yard
- Turbine building
- One (1) Open Item - Containment liner plate loss of material evaluation
  - Staff requested procedural descriptions (repair guidelines) and acceptance criteria for identifying corrective actions when loss of material is observed

20

## Section 3 - Overview (AMR)



- Section 3.2: Engineered Safety Features
- Section 3.4: Steam and Power Conversion Systems
- Section 3.6: Electrical Components

- No Open or Confirmatory Items

21

## License Renewal Inspections



- Scheduled to support NRR reviews
- Onsite inspections performed in accordance with NRC Inspection Procedure 71002
- Combined scoping, screening, and aging management reviews into one inspection
  - Two weeks onsite over a period from March 7 - 25, 2005
- Opportunity to look at normally inaccessible areas inside the Unit 2 containment from April 4 - 8, 2005

22

## License Renewal Inspections



- Team of five inspectors
  - Lead inspector - mechanical systems expertise
  - NRR Project manager - mechanical systems expertise
  - Electrical inspector
  - Operations inspector
  - Structural inspector
  - Water chemistry inspector

23

## License Renewal Inspections



- Scoping and Screening
  - Looked at electrical, structural, and mechanical systems
  - Emphasized physical walk downs of the plant
  - Concentrated on non-safety systems whose failure could impact safety systems
- Conclusions
  - Majority of systems appropriately scoped
  - Applicant's program for mechanical systems not completely defined at time of inspection
  - Additional information submitted to NRR
  - Need for further inspection to be determined following NRR review

24

## License Renewal Inspections



- Reviewed 16 aging management programs and two (2) Time-Limited Aging Analyses programs
- Conclusions
  - Majority of programs adequate for period of extended operation
  - One-time Inspection program not yet sufficiently developed to allow review
  - Additional information to be submitted to NRR
  - Further inspection might be needed dependent upon NRR review

25

## License Renewal Inspections



- Aging Management Programs
  - Bolting Integrity
  - Boraflex Monitoring
  - Boric Acid Corrosion
  - Buried Services Monitoring
  - Cable Condition Monitoring
  - Closed-Cycle Cooling Water
  - Fire Protection
  - Flow-Accelerated Corrosion
  - Fuel Oil Chemistry Control
  - One-Time Inspection
  - Open-Cycle Cooling Water
  - Periodic Surveillance and Preventative Maintenance
  - Structures Monitoring
  - Systems Monitoring
  - Tank Internal Inspection
  - Water Chemistry Control
- Time-Limited Aging Analyses programs
  - Environmental Qualification
  - Fatigue Monitoring

26

# License Renewal Inspections



## Conclusions

- Overall, scoping, screening and aging management programs adequate for extended operation
- Two areas may require additional inspection
  - Scoping and Screening – Mechanical non-safety components whose failure might affect safety-related system, structures or components
  - Aging Management – One-Time Inspection Program requires further information regarding specific sample sizes and locations

27

# Section 4 - Overview



## Time-Limited Aging Analyses (TLAA)

- Reactor Vessel and Internals Neutron Embrittlement
- Metal Fatigue
- Fracture Mechanics Analysis
- Loss of Pre-Load
- Neutron Absorber
- Wear
- Environmental Qualification

28

## Section 4 - Overview



### Section 4.2: Reactor Vessel and Internals Neutron Embrittlement

- Three analyses affected by irradiation embrittlement identified as TLAA's
  - Pressurized Thermal Shock
  - Upper Shelf Energy
  - Pressure Temperature Limits
- Applicant used 53 EFPY

29

## Section 4 - Overview



- RV Pressurized Thermal Shock, Units 1 and 2

	Limiting Material for PTS	Screening Criteria	Calculated 53 EFPY $RT_{PTS}$ value	Conclusion
Unit 1	Intermediate to lower shell circumferential weld (71249)	300 °F	Applicant: 299 °F Staff: 299 °F	Screening Criterion is met
Unit 2	Intermediate to lower shell circumferential weld (72442)	300 °F	Applicant: 316 °F Staff: 315 °F	Screening Criterion is exceeded in 2017

30

## Section 4 - Overview



- Point Beach Commitments for PTS
  - Low-low leakage loading fuel management pattern (Both Units)
  - Hafnium absorbers assemblies (Unit 2)
  - Document flux reduction plan and other options allowed by 10 CFR 50.61(b)
    - Submit additional analyses supporting continued operation at least three years prior to exceeding screening criteria
    - Thermal annealing of the reactor pressure vessel in accordance with 10 CFR 50.66

31

## Section 4 - Overview



- Upper Shelf Energy (USE), Units 1 and 2
  - Vessel beltline USE values will be less than the acceptance criteria (50 ft-lb)
  - Equivalent margin analysis performed
  - Applicant performed plant specific analysis that satisfied 10 CFR 50, Appendix G requirements
  - Staff performed independent analysis and confirmed applicant's conclusion
  - Analysis projected through end of period of extended operation pursuant to 10 CFR 54.21(c)(1)(ii)

32

## Section 4 - Overview



### Section 4.3: Metal Fatigue

- ASME Class 1 Components
- USAS B31.1 Piping
- Environmentally Assisted Fatigue

33

## Section 4 - Overview



### Section 4.4: Fracture Mechanics Analysis

- Reactor Vessel Underclad Cracking
- Reactor Coolant Pump Flywheel
- Reactor Coolant Pump Casing
- Leak-Before-Break
  - RCS Main Loop Piping
  - Pressurizer Surge Line
  - Class 1 Accumulator Injection Line
  - Class 1 RHR Line

34

## Section 4 - Overview



### Section 4.5: Loss of Pre-load

- Containment buildings are post-tensioned, reinforced concrete.
- Based on applicant's projections, predicted final effective preload exceeds minimum required preload at 60 years
- TLAA remains valid through the period of extended operation

35

## Section 4 - Overview



### Section 4.5: Loss of Pre-load

Pre-stressed forces projected for 40 and 60 yrs of operation (kips/tendon)

Inspection Year	Dome Tendon Projected	Dome Minimum Value	Vertical Tendon Projected	Vertical Minimum Value	Horizontal Tendon Projected	Horizontal Minimum Value
40	621	607	641	621	624	594
60	612	607	635	621	615	594

(Values for Unit 2; Unit 1 values were greater)

36



## Section 4 - Overview

### Section 4.6: Spent Fuel Pool Storage Rack Boraflex

- Aging effects will be adequately managed through the period of extended operation using the Boraflex Monitoring Program
- Four (4) Confirmatory Items
  - Surveillance Frequency – Areal Density
  - Surveillance Frequency – Blackness Testing
  - Baseline Areal Density Inspection
  - Specify Acceptance Criteria

37



## Section 4 - Overview

### Section 4.8: Environmental Qualification

- Applicant's EQ Program is consistent with the GALL Report
- Staff concluded EQ Program will continue to manage equipment in accordance with 10 CFR 50.49, and meets 10 CFR 54.21(c)(1)(iii)

38



ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
SUBCOMMITTEE MEETING ON PLANT LICENSE RENEWAL

May 31, 2005  
Date

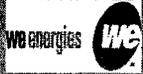
NRC STAFF SIGN IN FOR ACRS MEETING

PLEASE PRINT

<u>NAME</u>	<u>NRC ORGANIZATION</u>
RICH McINTYRE	NRR / DRIP
GREG CRAWSTON	NRR / DRIP
Bob Pascarella	NRR / DRIP / IIP
Devender Reddy	NRR / DSSA / SPLB
Steve Gosselin	NRR / DSSA Contractor
Neil Ray	NRR / EMLB
Do Jay	NRR / EMEB
Ken Chang	NRR / RLEP
M. Lintz	NRR / RLEP
R. Auluck	NRR / RLEP
NOEL DUDLEY	NRR / DRIP
Tommy L	NRR / RLEP
Carolyn Lauron	NRR / DE / EMCB
Peter S. Kang	NRR / RES / MET.
Ang Hull	NRR / DRIP / RLEP
Y.C. Li	NRR / DE / EMEB
BARRY ELLIOT	NRR / DE / EMCB
Changyang Li	NRR / DSSA / SPLB
Kouise Lund	NRR / DE / EMCB
Harriet Asher	NRR / DE / EMCB
JAMES MEDOFF	NRR / DE / EMCB
MARK HARTZMAN	NRR / DE / EMEB



# Point Beach Nuclear Plant



## License Renewal Presentation to ACRS Subcommittee

Jim Knorr  
PBNP License Renewal Project Manager  
Nuclear Management Company, LLC  
May 31, 2005



1



## Participants



- **Doug Johnson – Director,  
License Renewal Projects**
- **Jim Knorr – Manager License Renewal**
- **Support Staff**
  - **John Thorgersen – Programs Lead**
  - **Todd Mielke – Mechanical Lead**
  - **Mark Ortmyer – Civil Structural Lead**
  - **Steven Schellin – Electrical Lead**
  - **Brad Fromm – TLAAs & Major Components**
  - **Bill Herrman – Programs & Implementation**



2



## Description of Point Beach Nuclear Plant



- PBNP Owner – We Energies
- PBNP Operator – Nuclear Management Company, LLC
- Located in Two Creeks, Wisconsin
- Westinghouse 2-loop PWRs
- Rated Thermal Power  
Units 1 and 2 1540 MWt
- Rated Electrical Output  
Unit 1 538 MWe  
Unit 2 538 MWe



3



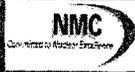
## Point Beach Features



- Four Emergency Diesel Generators
- 25 MWe Combustion Turbine
- Ultimate Heat Sink - Lake Michigan
- Once-through Cooling
- Containment - Post Tensioned Steel Reinforced Concrete with Steel Liner
- 18 Month Fuel Cycles



4



## Operating Experience



- 1975 Unit 1 Steam Generator Tube Rupture
  - Cause - IGSCC
- 1999 Unit 1 Feedwater Heater Shell Failure
  - Cause -- Steam impingement and flow accelerated corrosion



5



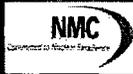
## PBNP Performance Summary



- NRC Performance Assessment
  - All Performance Indicators Green
  - Aux Feedwater Design Related Red Findings (2003)
- Unit 1 Rolling 18 Month Capability Factor = 87.25  
Last Auto Rx Trip – July 15, 2003
- Unit 2 Rolling 18 Month Capability Factor = 89.19  
Last Auto Rx Trip - July 10, 2003



6



## PBNP Major Improvements



- New Steam Generators
  - Unit 1 - 1984
  - Unit 2 - 1997
- Split Pin Replacement – Both Units - Mid 1980s
- Upflow Modification – Late 1980s
- Two Additional Emergency Diesels – 1994
- Unit 2 Baffle Bolt Replacement – 1998
- New Integral-Hub Low Pressure Turbines - 1998
- New Training and Engineering Building -1998
- DC Upgrades
  - 2 New Batteries and DC Busses - Mid 1980s
  - New Swing Battery and Bus – Mid 1990s
  - New Non-safety Related Batteries

7



## PBNP Major Improvements



- Upgrade Portions of Service Water System – Late 1990s
- Replaced Plant Process Computer – 2000
- Redesigned Intake Structure – 2001
- New Containment Fan Cooler Hxs – Early 2000s
- Reactor Vessel Head Replacement
  - Unit 2 in Spring 2005
  - Unit 1 in Fall 2005
- Scheduled to Replace Auxiliary Feedwater Pumps – 2006 - 2007

8



## Application Background



- Application Submitted February 25, 2004
- Current License Expiration
  - Unit 1 – October 5, 2010
  - Unit 2 – March 8, 2013
- LRA Process
  - Standard 2003 LRA Format with Expanded Content
  - NRC Used the New Review Process



9



## Aging Management Programs (AMPs)



- 26 AMPs total
  - All are Units 1 and 2 common AMPs
- 21 Existing AMPs
- Five New AMPs
- Exceptions/clarifications to Generic Aging Lessons Learned (GALL) Programs:
  - Use of different or later versions of codes and standards
  - Expansion of program scope beyond GALL
  - Use of later NRC guidance or precedence



10



## GALL Exception Examples

- Reactor Vessel Surveillance Program
  - Added capsule for extended life
- Reactor Vessel Internals Program
  - Submit program for review and approval  $\geq 24$  months prior to period of extended operation
- Instrumentation Circuits
  - Alternate program – Cable Testing
- Medium Voltage Cables
  - Already tested all inaccessible medium voltage cables

11



## PBNP Effective Full Power Years

### Current EFPY

- Unit 1 - 25.7
- Unit 2 - 26.2
- Projected EFPY (95% Capacity Factor with assumed power uprate to 1678 MWt)
  - Unit 1 - 51 at 60 years
  - Unit 2 - 53 at 60 years

12



## Reactor Vessel Time Limited Aging Analyses (TLAAs)



- Unit 1 (53 EFPY – 95% capacity factor @1678 MWt)
  - USE = <50 ft-lbs ( $J_{0.1}/J_1 = 1.87$  and  $1.60$ )
  - $RT_{PTS} = 299$  °F
- Unit 2 (53 EFPY – 95% capacity factor @1678 MWt)
  - USE = <50 ft-lbs ( $J_{0.1}/J_1 = 5.57$  and  $4.87$ )
  - $RT_{PTS} = 316$  °F  
(300 °F reached at 38.1 EFPY in 2017)

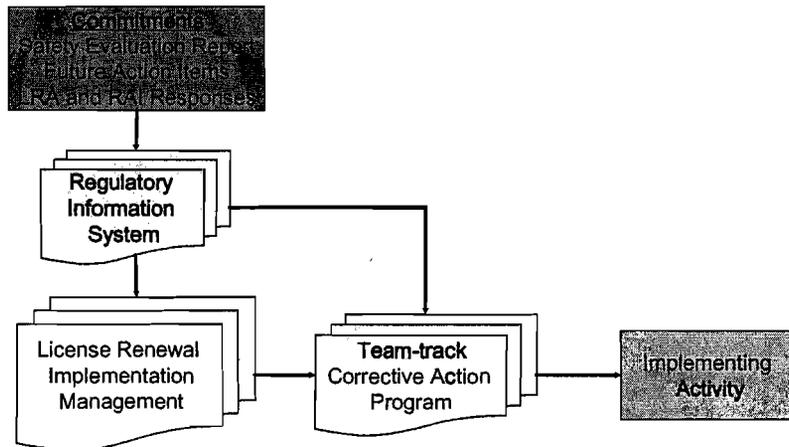
**Note:** 10 CFR 50.61 requires submittal of a safety analysis of a flux reduction program to prevent failure of the reactor vessel due to a PTS event or licensing of an alternate PTS analysis technique three years prior to reaching the acceptance criteria.



13

## Commitment Management

Commitments were documented in the License Renewal Application or added and modified as needed during the NRC review





## Corrective Action Program



- Integral to Tracking Commitments
- Common Process Across NMC Fleet
  - Team-Track System
  - Corrective Action Program (CAP) Item
    - Corrective Action Item(s)
- Integrated into Work Control Process
  - CHAMPS (Computerized History and Maintenance Planning System)



15



## Closing Remarks



- Application
  - Based upon 2003 template with enhanced detail
- NRC Review
  - "Consistent with GALL" Audit process
  - Standard Safety Evaluation Report patterned after Standard Review Plan



16

# **Point Beach Nuclear Plant, Units 1 and 2 Discussion of Red Findings**

Staff Presentation to the ACRS Plant  
License Renewal Subcommittee  
Patrick Loudon, Branch Chief  
Division of Reactor Projects, Region III  
May 31, 2005

## **Point Beach Red Findings**



- Licensee identified Auxiliary Feedwater system finding in November 2001
- Two NRC Special Inspections performed:
  - December 2001 – February 2002
  - September 2002 – March 2003
- 2003 Inspection identified second Auxiliary Feedwater system finding

## Point Beach Red Findings



- Plant notified of final decision on first Red finding in April 2003
- Red Finding places Point Beach in Column IV of the NRC Action Matrix
- Second Red finding issued in December 2003

## NRC Inspection Procedure 95003



- Supplemental Inspection 95003 conducted from August to December 2003
  - Diagnostic in nature
  - Focused on known problem areas
  - Results determine any necessary additional NRC actions
- Point Beach 95003 inspection completed in three parts

## Point Beach 95003



- Teams comprised of inspectors from all NRC regional offices and included contractors
- Additional findings and violations identified
- Results indicated five general areas of concern

## NRC Areas of Concern



- Five areas of regulatory concern:
  - Human Performance
  - Engineering Design Control
  - Engineering/Operations Interface
  - Emergency Preparedness
  - Corrective Action Program

## Point Beach CAL



- These five areas formed basis for NRC Confirmatory Action Letter (CAL)
- CAL issued on April 21, 2004
- Licensee developed Commitment Letter based on their Site-Wide Excellence Plan
- Commitment Letter attached to CAL

## Point Beach Inspections



- Baseline team inspection membership was expanded
- Special inspections were conducted to evaluate the licensee's progress in implementing Confirmatory Action Letter items.

## Point Beach Current Performance



- Substantive Cross-cutting Issues
  - Substantive cross-cutting issues identified in the areas of Human Performance and the Corrective Action Program
  - Also are identified as areas of concern in the Confirmatory Action Letter

## Point Beach Current Performance



- Human Performance has been a licensee focus and recent improvement has been noted
- Corrective Action Program is sound; however, some areas are still in need of improvement

## Point Beach Current Assessment



- The licensee has made progress in all five Confirmatory Action Letter areas of concern
- The NRC focus is on sustainability of the licensee's corrective actions

# **Point Beach Nuclear Plant, Units 1 and 2 Discussion of Red Findings**

Staff Presentation to the ACRS Plant  
License Renewal Subcommittee  
Patrick Loudon, Branch Chief  
Division of Reactor Projects, Region III  
May 31, 2005

## **Point Beach Red Findings**



- Licensee identified Auxiliary Feedwater system finding in November 2001
- Two NRC Special Inspections performed:
  - December 2001 – February 2002
  - September 2002 – March 2003
- 2003 Inspection identified second Auxiliary Feedwater system finding

## Point Beach Red Findings



- Plant notified of final decision on first Red finding in April 2003
- Red Finding places Point Beach in Column IV of the NRC Action Matrix
- Second Red finding issued in December 2003

## NRC Inspection Procedure 95003



- Supplemental Inspection 95003 conducted from August to December 2003
  - Diagnostic in nature
  - Focused on known problem areas
  - Results determine any necessary additional NRC actions
- Point Beach 95003 inspection completed in three parts

## Point Beach 95003



- Teams comprised of inspectors from all NRC regional offices and included contractors
- Additional findings and violations identified
- Results indicated five general areas of concern

## NRC Areas of Concern



- Five areas of regulatory concern:
  - Human Performance
  - Engineering Design Control
  - Engineering/Operations Interface
  - Emergency Preparedness
  - Corrective Action Program

## Point Beach CAL



- These five areas formed basis for NRC Confirmatory Action Letter (CAL)
- CAL issued on April 21, 2004
- Licensee developed Commitment Letter based on their Site-Wide Excellence Plan
- Commitment Letter attached to CAL

## Point Beach Inspections



- Baseline team inspection membership was expanded
- Special inspections were conducted to evaluate the licensee's progress in implementing Confirmatory Action Letter items.

## Point Beach Current Performance



- Substantive Cross-cutting Issues
  - Substantive cross-cutting issues identified in the areas of Human Performance and the Corrective Action Program
  - Also are identified as areas of concern in the Confirmatory Action Letter

## Point Beach Current Performance



- Human Performance has been a licensee focus and recent improvement has been noted
- Corrective Action Program is sound; however, some areas are still in need of improvement

## Point Beach Current Assessment



- The licensee has made progress in all five Confirmatory Action Letter areas of concern
- The NRC focus is on sustainability of the licensee's corrective actions

**Advisory Committee on Reactor Safeguards  
Plant License Renewal Subcommittee Meeting  
Point Beach Nuclear Plant, Units 1 and 2  
May 31, 2005  
Rockville, MD**

**-PROPOSED SCHEDULE-**

Cognizant Staff Engineer: Cayetano Santos Jr. [CXS3@NRC.GOV](mailto:CXS3@NRC.GOV) (301) 415-7270

Topics		Presenters	Time
I	Opening Remarks	M. Bonaca, ACRS	12:30 pm - 12:35 pm
II	Staff Introduction	F. Gillespie, NRR	12:35 pm - 12:40 pm
III	Point Beach Red Inspection Findings	P. Loudon, Region III	12:40 - 1:40 pm
IV	Point Beach License Renewal Application A. Application Background B. Description of Point Beach C. Operating History D. Scoping Discussion E. Application of GALL F. Commitment Process	J. Knorr, Nuclear Management Company, LLC	1:40 pm - 2:40 pm
BREAK			2:40 pm - 2:55 pm
V	SER Overview A. Scoping and Screening Methodology Results	V. Rodriguez, NRR	2:55 pm - 3:05 pm
VI	Aging Management Program Review and Audits	K. Cozens, NRR	3:05 pm - 3:50 pm
VII	Onsite Inspection Results	P. Loughheed, Region III	3:50 pm - 4:00 pm
VIII	Time Limited Aging Analyses	G. Suber, NRR	4:00 pm - 4:30 pm
IX	Subcommittee Discussion	M. Bonaca, ACRS	4:30 pm - 5:00 pm

**NOTE:**

- Presentation time should not exceed 50 percent of the total time allocated for a specific item. The remaining 50 percent of the time is reserved for discussion.
- 50 copies of the presentation materials to be provided.



# **Point Beach Nuclear Plant, Units 1 and 2 License Renewal Safety Evaluation Report**

Staff Presentation to the ACRS Subcommittee  
Veronica Rodriguez, Michael Morgan, and  
Gregory Suber, Project Managers  
Office of Nuclear Reactor Regulation  
May 31, 2005

## **Review Highlights**



- License extension request - February 25, 2004
  - Unit 1: October 5, 2010
  - Unit 2: March 8, 2013
- SER with Open and Confirmatory Items issued on May 2, 2005
- Five (5) Open Items
  - 2 Aging Management Programs (AMPs)
  - 3 Aging Management Reviews (AMRs)
- Fifteen (15) Confirmatory Items
- Three (3) License Conditions

# Review Highlights



## NRC Audits and Inspections

- **AMP GALL Audit**
  - April 26 - 30, 2004
- **Scoping and Screening Methodology Audit**
  - June 21 – 25, 2004
- **AMR GALL Audit**
  - June 7 – 11, 2004
- **Regional Scoping and Screening/AMP Inspection**
  - March 7 – 25, 2005

3

# Section 2 - Overview



## Section 2.1: Scoping and Screening Methodology

- **On-site Audit - June 21-25, 2004**
- **Three Confirmatory Items**
  - CI 2.1-1 Application of Scoping Criteria in 10 CFR 54.4(a) – Exposure Duration
  - CI 2.1-2 Application of Scoping Criteria in 10 CFR 54.4(a) – First Equivalent Anchor
  - CI 2.1-3 Flow-Accelerated Corrosion Effect on Piping Section Scoping in 10 CFR 54.4(a)(2)

4

## Section 2 - Overview



### Section 2.1: Scoping and Screening Methodology

- Revised Methodology (letter dated April 29, 2005)
  - Removed “Exposure Duration”
  - New methodology using “Spaces” approach
  - Scope expansion
    - No new aging effects mechanisms identified
    - New Tables and Line Items in Sections 2 and 3
      - 14 Component Types

5

## Section 2 - Overview



### Section 2.4: Scoping and Screening of Containments, Structures and Supports

- Staff reviewed LRA to determine if any passive and long-lived SSC's required to be within the scope of license renewal were omitted
  - No omissions were identified
  - One (1) Confirmatory Item
    - Identify specific concrete tanks foundations

6

## Section 2 - Overview



Section 2.2: Plant-Level Scoping and Screening

Section 2.3: Scoping and Screening of Mechanical Systems

Section 2.5: Scoping and Screening of Electrical and Instrumentation and Controls

- Staff reviewed LRA to determine if any passive and long-lived SSC's required to be within the scope of license renewal were omitted
  - No omissions were identified
  - No Open or Confirmatory Items

7

## Section 3 - Overview



### Aging Management Review Results

- Section 3.0: Use of the GALL Report/AMP's
- Section 3.1: Reactor Vessel Internals
- Section 3.2: Engineering Safety Features
- Section 3.3: Auxiliary Systems
- Section 3.4: Steam and Power Conversion
- Section 3.5: Containments, Structures, Supports
- Section 3.6: Electrical Components

8

## Section 3 - Overview



### Section 3.0: Applicant's Use of the GALL Report

- Total of 26 Aging Management Programs
  - 21 Existing Programs, 5 New Programs
  - 22 Programs Consistent with the GALL Report with exceptions or enhancements
  - 4 Plant-Specific Programs
- Two (2) Open Items for AMPs
- Two (2) Confirmatory Item for AMPs

9

## Section 3 - Overview (AMP)



### Enhancements

- LRA treatment of enhancements was inclusive
  - Actions needed to demonstrate consistency with GALL Report AMP
  - Actions appropriate to implement commitments
- Project team audit
  - Evaluates enhancements necessary to demonstrate if LRA AMP is consistent with the GALL Report
  - Audit programs not implementation documents
    - May sample implementation documents to obtain additional info
    - Region determines program implementation sufficiency

10

## Section 3 - Overview (AMP)



### AMPs using ASME Code

- Three LRA AMPs
  - IWB-IWC-IWD
  - IWE-IWL
  - IWF
- Existing programs consistent with the GALL Report
  - Exceptions (relief requests and LBB for thermal embrittlement)
  - Enhancements (administrative)
- Open Item
  - Relief requests basis for exceptions
- Confirmatory Item
  - Use of flaw tolerance evaluation to manage CASS thermal embrittlement

11

## Section 3 - Overview (AMP)



### Buried Service Monitoring Program

- Existing Program consistent with the GALL Report
  - Enhancements (administrative)
- RAI responses and Commitments
  - Some fire protection piping may not have been coated or wrapped
    - One-time (planned or opportunistic) inspection
      - Susceptible section of fire protection piping will be excavated and inspected prior to period of extended operation
  - Commitment to perform inspection every 10 years
    - May credit opportunistic inspection
    - If loss of material is observed, sample size will be expanded

12

## Section 3 - Overview (AMP)



### Cable Condition Monitoring Program

- New program consistent with the GALL Report
  - Exceptions
    - E2 non-EQ instrumentation circuits
      - Testing of radiation monitoring and nuclear instrumentation not required because EQ qualified or non-adverse environment
      - Nuclear instrumentation circuits not in TS surveillance, but periodically tested
    - E3 inaccessible medium-voltage cables
      - Based on RAI response applicant agreed to be consistent with the definition of significant moisture
      - Tested every 10 yrs using a sample of most susceptible cables
  - Enhancements
    - Administrative

13

## Section 3 - Overview (AMP)



### Flow-Accelerated Corrosion Program

- Existing program consistent with the GALL Report
  - Confirmatory item
    - RAI clarification of acceptance criteria for minimum wall thickness calculation used with safety and non-safety related piping
      - Received support from NRC Region III staff
    - Applicant to provide justification and confirmation that minimum required wall thickness will be maintained for the period of extended operation
- Enhancements
  - Administrative

14

## Section 3 - Overview (AMP)



### One-Time Inspection Program

- New program consistent with the GALL Report
- AMP modifications
  - Identified aging management methods based on aging effect
  - Use visual inspections per ASME Code Section V to detect fouling to manage loss of heat transfer
- RAI response
  - Added hardness test for selective leaching inspection methodology

15

## Section 3 - Overview (AMP)



### One-Time Inspection Program (cont'd)

- Exceptions
  - Small bore piping not in scope of OTI AMP, volumetrically inspected per risk-informed in-service inspection criteria
- Enhancements
  - Administrative
- Open Item
  - Two (2) AMR line items using only water chemistry without verification such as One-Time Inspection Program
    - SCC in stainless steel heat exchanger
    - Loss of material in steam generators

16

## Section 3 - Overview (AMP)



### Bolting Integrity Program

- Existing program consistent with the GALL Report
- Exceptions
  - One (1) Open Item - exceptions to the bolting recommendations of NUREG and EPRI documents not stated in AMP
- Enhancements
  - Administrative

17

## Section 3 - Overview (AMR)



### Section 3.1: Reactor Vessel, Internals, and Reactor Coolant System

- Reactor Vessel      – Reactor Vessel Internals
- Pressurizer          – Steam Generators
- One (1) Open Item - SG loss of material evaluation
  - Use of the Water Chemistry Control Program as the only AMP for managing loss of material. No program to validate effectiveness of Water Chemistry Control Program
- Commitments to submit programs for NRC approval 24 months prior to entering the period of extended operation

18

## Section 3 - Overview (AMR)



### Section 3.3: Auxiliary Systems

- Spent fuel cooling
- Service water
- Fuel handling
- Containment ventilation
- One (1) Open Item - Component Cooling Water cracking evaluation
  - Use of the Water Chemistry Control Program as the only AMP for managing loss of material. No program to validate effectiveness of Water Chemistry Control Program
- No Confirmatory Items

19

## Section 3 - Overview (AMR)



### Section 3.5 Containments, Structures, and Component Supports

- Control building
- Diesel generator building
- Yard
- Turbine building
- One (1) Open Item - Containment liner plate loss of material evaluation
  - Staff requested procedural descriptions (repair guidelines) and acceptance criteria for identifying corrective actions when loss of material is observed

20

## Section 3 - Overview (AMR)



- Section 3.2: Engineered Safety Features
- Section 3.4: Steam and Power Conversion Systems
- Section 3.6: Electrical Components

- No Open or Confirmatory Items

21

## License Renewal Inspections



- Scheduled to support NRR reviews
- Onsite inspections performed in accordance with NRC Inspection Procedure 71002
- Combined scoping, screening, and aging management reviews into one inspection
  - Two weeks onsite over a period from March 7 - 25, 2005
- Opportunity to look at normally inaccessible areas inside the Unit 2 containment from April 4 - 8, 2005

22

## License Renewal Inspections



- Team of five inspectors
  - Lead inspector - mechanical systems expertise
  - NRR Project manager - mechanical systems expertise
  - Electrical inspector
  - Operations inspector
  - Structural inspector
  - Water chemistry inspector

23

## License Renewal Inspections



- Scoping and Screening
  - Looked at electrical, structural, and mechanical systems
  - Emphasized physical walk downs of the plant
  - Concentrated on non-safety systems whose failure could impact safety systems
- Conclusions
  - Majority of systems appropriately scoped
  - Applicant's program for mechanical systems not completely defined at time of inspection
  - Additional information submitted to NRR
  - Need for further inspection to be determined following NRR review

24

## License Renewal Inspections



- Reviewed 16 aging management programs and two (2) Time-Limited Aging Analyses programs
- Conclusions
  - Majority of programs adequate for period of extended operation
  - One-time Inspection program not yet sufficiently developed to allow review
  - Additional information to be submitted to NRR
  - Further inspection might be needed dependent upon NRR review

25

## License Renewal Inspections



- Aging Management Programs
  - Bolting Integrity
  - Boraflex Monitoring
  - Boric Acid Corrosion
  - Buried Services Monitoring
  - Cable Condition Monitoring
  - Closed-Cycle Cooling Water
  - Fire Protection
  - Flow-Accelerated Corrosion
  - Fuel Oil Chemistry Control
  - One-Time Inspection
  - Open-Cycle Cooling Water
  - Periodic Surveillance and Preventative Maintenance
  - Structures Monitoring
  - Systems Monitoring
  - Tank Internal Inspection
  - Water Chemistry Control
- Time-Limited Aging Analyses programs
  - Environmental Qualification
  - Fatigue Monitoring

26

# License Renewal Inspections



## Conclusions

- Overall, scoping, screening and aging management programs adequate for extended operation
- Two areas may require additional inspection
  - Scoping and Screening – Mechanical non-safety components whose failure might affect safety-related system, structures or components
  - Aging Management – One-Time Inspection Program requires further information regarding specific sample sizes and locations

27

# Section 4 - Overview



## Time-Limited Aging Analyses (TLAA)

- Reactor Vessel and Internals Neutron Embrittlement
- Metal Fatigue
- Fracture Mechanics Analysis
- Loss of Pre-Load
- Neutron Absorber
- Wear
- Environmental Qualification

28

## Section 4 - Overview



### Section 4.2: Reactor Vessel and Internals Neutron Embrittlement

- Three analyses affected by irradiation embrittlement identified as TLAA's
  - Pressurized Thermal Shock
  - Upper Shelf Energy
  - Pressure Temperature Limits
- Applicant used 53 EFPY

29

## Section 4 - Overview



- RV Pressurized Thermal Shock, Units 1 and 2

	<b>Limiting Material for PTS</b>	<b>Screening Criteria</b>	<b>Calculated 53 EFPY RT<sub>PTS</sub> value</b>	<b>Conclusion</b>
Unit 1	Intermediate to lower shell circumferential weld (71249)	300 °F	Applicant: 299 °F Staff: 299 °F	Screening Criterion is met
Unit 2	Intermediate to lower shell circumferential weld (72442)	300 °F	Applicant: 316 °F Staff: 315 °F	Screening Criterion is exceeded in 2017

30

## Section 4 - Overview



- Point Beach Commitments for PTS
  - Low-low leakage loading fuel management pattern (Both Units)
  - Hafnium absorbers assemblies (Unit 2)
  - Document flux reduction plan and other options allowed by 10 CFR 50.61(b)
    - Submit additional analyses supporting continued operation at least three years prior to exceeding screening criteria
    - Thermal annealing of the reactor pressure vessel in accordance with 10 CFR 50.66

31

## Section 4 - Overview



- Upper Shelf Energy (USE), Units 1 and 2
  - Vessel beltline USE values will be less than the acceptance criteria (50 ft-lb)
  - Equivalent margin analysis performed
  - Applicant performed plant specific analysis that satisfied 10 CFR 50, Appendix G requirements
  - Staff performed independent analysis and confirmed applicant's conclusion
  - Analysis projected through end of period of extended operation pursuant to 10 CFR 54.21(c)(1)(ii)

32

## Section 4 - Overview



### Section 4.3: Metal Fatigue

- ASME Class 1 Components
- USAS B31.1 Piping
- Environmentally Assisted Fatigue

33

## Section 4 - Overview



### Section 4.4: Fracture Mechanics Analysis

- Reactor Vessel Underclad Cracking
- Reactor Coolant Pump Flywheel
- Reactor Coolant Pump Casing
- Leak-Before-Break
  - RCS Main Loop Piping
  - Pressurizer Surge Line
  - Class 1 Accumulator Injection Line
  - Class 1 RHR Line

34

## Section 4 - Overview



### Section 4.5: Loss of Pre-load

- Containment buildings are post-tensioned, reinforced concrete.
- Based on applicant's projections, predicted final effective preload exceeds minimum required preload at 60 years
- TLAA remains valid through the period of extended operation

35

## Section 4 - Overview



### Section 4.5: Loss of Pre-load

Pre-stressed forces projected for 40 and 60 yrs of operation (kips/tendon)

Inspection Year	Dome Tendon Projected	Dome Minimum Value	Vertical Tendon Projected	Vertical Minimum Value	Horizontal Tendon Projected	Horizontal Minimum Value
40	621	607	641	621	624	594
60	612	607	635	621	615	594

(Values for Unit 2; Unit 1 values were greater)

36

## Section 4 - Overview



### Section 4.6: Spent Fuel Pool Storage Rack Boraflex

- Aging effects will be adequately managed through the period of extended operation using the Boraflex Monitoring Program
- Four (4) Confirmatory Items
  - Surveillance Frequency – Areal Density
  - Surveillance Frequency – Blackness Testing
  - Baseline Areal Density Inspection
  - Specify Acceptance Criteria

37

## Section 4 - Overview



### Section 4.8: Environmental Qualification

- Applicant's EQ Program is consistent with the GALL Report
- Staff concluded EQ Program will continue to manage equipment in accordance with 10 CFR 50.49, and meets 10 CFR 54.21(c)(1)(iii)

38

