September 7, 2004

Mr. Dennis L. Koehl
Site Vice-President
Point Beach Nuclear Plant
Nuclear Management Company, LLC
6610 Nuclear Road
Two Rivers, WI 54241-9516

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2
NRC SAFETY SYSTEM DESIGN AND PERFORMANCE CAPABILITY
INSPECTION 05000266/2004004(DRS); 05000301/2004004(DRS)

Dear Mr. Koehl:

On July 16, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed a baseline inspection at your Point Beach Nuclear Plant, Units 1 and 2. The enclosed report documents the inspection findings, which were discussed on July 16, 2004, with you and members of your staff.

The inspection examined activities conducted under your license as they relate to safety and to compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel. Specifically, this inspection focused on the design and performance capability of the service water and 480 Vac systems. We noted that design modifications that you have made to the service water system have enhanced the system's operational availability and reliability. The inspection team did identify several examples where design outputs were not properly translated into field documents. The team also identified examples which illustrated knowledge and program implementation deficiencies pertaining to certain ASME Code standards. Collectively, these inspection findings illustrated the continuing challenge which remains for the engineering organization. We will continue to monitor your progress in implementing engineering program improvements as part of our Confirmatory Action Letter follow-up activities. In addition, four Action Plan steps of your Excellence Plan were reviewed during the inspection. The reviews conducted during this inspection were in-progress assessments with the full effectiveness of the Action Plans being assessed during future follow-up inspections.

Based on the results of this inspection, six findings of very low safety significance (Green) were identified which were also determined to involve violations of NRC requirements. Because these violations were of very low safety significance and because they have been entered into your corrective action program, the NRC is treating these findings as Non-Cited Violations in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest the subject or severity of the Non-Cited Violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington,

DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Point Beach Nuclear Plant.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Steven A. Reynolds, Acting Director
Division of Reactor Projects

Docket Nos. 50-266; 50-301
License Nos. DPR-24; DPR-27

Enclosure: Inspection Report 05000266/2004004(DRS);
05000301/2004004(DRS)

cc w/encl: F. Kuester, President and Chief
Executive Officer, We Generation
J. Cowan, Executive Vice President
Chief Nuclear Officer
D. Cooper, Senior Vice President, Group Operations
D. Weaver, Nuclear Asset Manager
Plant Manager
Regulatory Affairs Manager
Training Manager
Site Assessment Manager
Site Engineering Director
Emergency Planning Manager
J. Rogoff, Vice President, Counsel & Secretary
K. Duveneck, Town Chairman
Town of Two Creeks
Chairperson
Public Service Commission of Wisconsin
J. Kitsembel, Electric Division
Public Service Commission of Wisconsin
State Liaison Officer

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-266; 50-301
License Nos:	DPR-24; DPR-27
Report No:	05000266/2004004(DRS); 05000301/2004004(DRS)
Licensee:	Nuclear Management Company, LLC
Facility:	Point Beach Nuclear Plant, Units 1 and 2
Location:	6610 Nuclear Road Two Rivers, WI 54241
Dates:	June 28 through July 16, 2004
Inspectors:	S. Burgess, Senior Reactor Analyst/Team Leader C. Baron, Mechanical Contractor M. Holmberg, Engineering Inspector A. Klett, Engineering Inspector J. Neurauter, Engineering Inspector G. O'Dwyer, Engineering Inspector G. Skinner, Electrical Contractor N. Valos, Operations Inspector R. Winter, Engineering Inspector
Observer:	J. Bond, Nuclear Safety Professional
Approved by:	J. Lara, Chief Electrical Engineering Branch Division of Reactor Safety (DRS)

Enclosure

SUMMARY OF FINDINGS

IR 05000266/2004004(DRS); 05000301/2004004(DRS); 06/28/2004 - 07/16/2004; Point Beach Nuclear Plant, Units 1 & 2; Safety System Design and Performance Capability.

The inspection was a three week baseline inspection of the design and performance capability of the service water and 480 Vac systems. The inspection was conducted by regional engineering inspectors and a mechanical and electrical consultant. Six issues of very low safety significance were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green, or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Non-Cited Violation of 10 CFR 50.55a(g)(4) and 10 CFR 50.55a(g)(5)(iv) associated with failure to perform testing of the buried service water header piping in accordance with the American Society of Mechanical Engineers Code Section XI requirements. The licensee's corrective actions included verifying that quarterly system flow tests provided basis for service water header operability.

  This finding was more than minor because it affected the Mitigating Systems Cornerstone objective of equipment reliability and if left uncorrected, could have allowed undetected through-wall flaws to develop in the header piping. These flaws could then continue to grow in size until leakage from the buried headers degraded system operation or if sufficient general corrosion occurs, a gross rupture or collapse of the piping sections could occur. The finding is of very low safety significance and screened as Green using the SDP Phase 1 screening worksheet. (Section 1R21.2b.1)

- Green. The inspectors identified a Non-Cited Violation of 10 CFR 50.55a(g)(4) associated with failure to conduct non-destructive examinations and repair of valve SW 0322 in accordance with American Society of Mechanical Engineers Code Section XI requirements. The licensee's corrective actions included replacement of the valve during the next opportunity.

  This finding was more than minor because it affected the Mitigating Systems Cornerstone objective of equipment reliability and if left uncorrected, could have allowed unacceptable base metal flaws to remain in service. Additionally, the failure to heat treat the weld repairs could have resulted in high welding residual stresses and untempered martensite formation. Untempered martensite is a hard brittle phase of steel (e.g., not flaw tolerant) and can serve to allow rapid crack propagation that could jeopardize the pressure retaining function of the valve body. The finding is of very low safety significance and screened as Green using the SDP Phase 1 screening worksheet. (Section 1R21.2b.2)

- Green. The inspectors identified a Non-Cited Violation of 10 CFR 50.55a(g)(4) associated with failure to implement the American Society of Mechanical Engineers Code Section XI examinations and repair requirements for service water pump discharge check valves SW 32C and SW 32F. The licensee's corrective actions included verifying that quarterly surveillance tests verified check valve operability.

  This finding was more than minor because it affected the Mitigating Systems Cornerstone objective of equipment reliability and if left uncorrected, the failure to perform the required examinations could have allowed unacceptable base metal flaws to remain in-service. Additionally, the failure to select and follow a repair Code or standard may have resulted in inadequate post weld heat treatments for the weld repairs that could result in high welding residual stresses and untempered martensite formation. Untempered martensite is a hard brittle phase of steel (e.g., not flaw tolerant) and can serve to allow rapid crack propagation which could jeopardize the pressure retaining function of these valve disks. The finding is of very low safety significance and screened as Green using the SDP Phase 1 screening worksheet. (Section 1R21.2b.3)

- Green. The inspectors identified a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," in that, the design bases for the maximum Condensate Storage Tank (CST) temperature was not correctly translated into procedures and instructions. Specifically, the Main Steam Line Break (MSLB) Containment Integrity Analysis assumed a maximum value of 100°F for the temperature of the water in the CST, while operations procedures allowed a maximum of 120°F for the CST temperature. This finding applies to both units. The licensee's corrective actions included procedural changes to reflect the correct temperature limit.

  This finding was more than minor because an evaluation was required to ensure that accident analysis requirements were met, since the CST was heated up to greater than the maximum analysis value of 100°F during unit startup/shutdown operations with the CST aligned to the operating unit. The finding is of very low safety significance and screened as Green using the SDP Phase 1 screening worksheet. (Section 1R21.2b.4)

- Green. The inspectors identified a Non-Cited Violation of Technical Specification Surveillance Requirements SR 3.7.8.1 and SR 3.6.3.2 associated with the periodic verification of the position of valves and flanges in the service water (SW) system flow paths servicing safety related equipment and in lines associated with containment isolation. Specifically, the licensee did not verify that approximately 100 valves in the SW system flow path servicing safety related equipment that were not locked, sealed, or otherwise secured in position, were in the correct position every 31 days while the Units were in Mode 1, 2, 3, or 4. In addition, the licensee did not verify that 12 containment isolation manual valves were closed and two pipe fittings associated with containment isolation were in place every 31 days while the Units were in Mode 1, 2, 3, or 4. This finding applies to both units. The licensee's corrective actions included locking the appropriate valves and procedural changes.

  This finding was more than minor because it was, for the most part, associated with the Mitigating Systems attribute of Configuration Control, which affected the Mitigating Systems Cornerstone objective of ensuring the availability and reliability of the service water (SW) system to respond to initiating events to prevent undesirable consequences.

The finding is of very low safety significance and screened as Green using the SDP Phase 1 screening worksheet. (Section 1R21.2b.5)

- Green. The inspectors identified a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to adequately translate original design requirements for the 480 Vac system into specifications during procurement of new and replacement equipment. The original specifications for equipment such as motors and cables identified the intended service as suitable for a 480 Vac ungrounded system. Specifications for replacement motors did not specify the intended service as an ungrounded system. The licensee's corrective actions included a verification that the identified equipment that did not specify use in a 480 Vac ungrounded system could withstand the overvoltage conditions that can occur on ungrounded systems.

  This finding was more than minor because it involved the design control attribute of the Mitigating Systems cornerstone and affected the objective of ensuring the capability of the safety related 480 Vac system in response to initiating events to prevent undesirable consequences. Specifically, the failure to specify the correct service conditions may have resulted in motors being supplied without the enhanced insulation systems required to withstand the overvoltage conditions that can occur on ungrounded systems when a single line to ground occurs. The finding is of very low safety significance and screened as Green using the SDP Phase 1 screening worksheet. (Section 1R21.3b)

B. <u>Licensee-Identified Violations</u>

None.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstone: Mitigating Systems and Barrier Integrity

1R21 Safety System Design and Performance Capability (71111.21)

Introduction: Inspection of safety system design and performance verifies the initial design and subsequent modifications and provides monitoring of the capability of the selected systems to perform design bases functions. As plants age, the design bases may be lost and important design features may be altered or disabled. The plant risk assessment model is based on the capability of the as-built safety systems to perform the intended safety functions successfully. This inspectable area verifies aspects of the mitigating systems cornerstone for which there are no indicators to measure performance.

The objective of the safety system design and performance capability inspection is to assess the adequacy of calculations, analyses, other engineering documents, and operational and testing practices that were used to support the performance of the selected systems during normal, abnormal, and accident conditions.

The systems and components selected were the service water (SW) and 480 Vac systems (two samples). These systems were selected for review based upon:

- having high probabilistic risk analysis rankings;
- considered high safety significant maintenance rule systems; and
- not having received recent NRC review.

The criteria used to determine the acceptability of the system's performance was found in documents such as:

- licensee technical specifications (TS);
- applicable updated final safety analysis report (UFSAR) sections; and
- the systems' design documents.

The following system and component attributes were reviewed in detail:

System Requirements

Process Medium - water;
Energy Source - electrical power, steam, air;
Control Systems - initiation, control, and shutdown actions;
Operator Actions - initiation, monitoring, control, and shutdown; and
Heat Removal - ventilation.

System Condition and Capability

Installed Configuration - elevation and flow path operation;
Operation - system alignments and operator actions;
Design - calculations and procedures; and
Testing - flow rate, pressure, temperature, voltage, and levels.

Component Level

Equipment Qualification - temperature and radiation; and
Equipment Protection - seismic and electrical.

.1 System Requirements

a. Inspection Scope

The inspectors reviewed the UFSAR, TS, system notebooks, lesson plans, drawings, and other available design basis information, as listed in the attached List of Documents, to determine the performance requirements of SW and the 480 Vac systems. The reviewed system attributes included process medium, energy sources, control systems, operator actions, and heat removal. The rationale for reviewing each of the attributes was:

Process Medium: This attribute required review to ensure that the SW system would supply the required amount of water to the safety-related equipment following normal transients and design basis events.

Energy Sources: This attribute needed to be reviewed to ensure that the SW and 480 Vac systems would function when called upon, and that appropriate SW valves would have sufficient power to change state when so required.

Controls: This attribute required review to ensure that the automatic controls for the SW and 480 Vac systems were properly established. Additionally, review of alarms and indicators of off-normal conditions was necessary to ensure that operator actions would be accomplished in accordance with the design.

Operations: This attribute was reviewed because operator actions played an important role ensuring that the selected systems would accomplish their safety functions.

Heat Removal: This attribute was reviewed to ensure that pump bearings were adequately cooled and that room coolers provided sufficient heat removal capability for equipment needed for accident mitigation.

b. Findings

No findings of significance were identified.

.2 System Condition and Capability

a. Inspection Scope

The inspectors reviewed design basis documents and plant drawings, abnormal and emergency operating procedures, requirements, and commitments identified in the UFSAR and TS. The inspectors compared the information in these documents to applicable electrical, instrumentation and control, and mechanical calculations, setpoint changes, and plant modifications. The inspectors also reviewed operational procedures to determine whether instructions to operators were consistent with design assumptions.

The inspectors reviewed information to determine whether the actual system condition and tested capability was consistent with the identified design bases. Specifically, the inspectors reviewed the installed configuration, the system operation, the detailed design, and the system testing, as described below.

Installed Configuration: The inspectors determined that the installed configuration of the SW and 480 Vac systems met the design basis by performing detailed system walkdowns. The walkdowns focused on the installation and configuration of piping, components, and instruments; the placement of protective barriers and systems; the susceptibility to flooding, fire, or other environmental concerns; physical separation; provisions for seismic and other pressure transient concerns; and the conformance of the currently installed configuration of the systems with the design and licensing bases.

Operation: The inspectors performed a procedure walk-through of selected manual operator actions to determine if the operators had the knowledge and tools necessary to accomplish actions credited in the design basis.

Design: The inspectors reviewed the mechanical, electrical, and instrumentation design of the SW and 480 Vac systems to determine whether the systems would function as required under design conditions. This included a review of the design basis, design changes, design assumptions, calculations, boundary conditions, and models as well as a review of selected modification packages. Instrumentation was reviewed to determine appropriateness of applications and setpoints based on the required equipment function. Additionally, the inspectors performed limited analyses in several areas to determine the appropriateness of the design values.

Testing: The inspectors reviewed records of selected periodic testing and calibration procedures and results to determine whether the design requirements of calculations, drawings, and procedures were incorporated in the system and were adequately demonstrated by test results. Test results were also reviewed to ensure automatic initiations occurred within required times and that testing was consistent with design basis information.

b. Findings

b.1 Failure to Perform Code Testing to Confirm the Integrity of Buried Service Water Headers

Introduction: The inspectors identified a Non-Cited Violation (NCV) of 10 CFR 50.55a(g)(4) and 10 CFR 50.55a(g)(5)(iv) having very low safety significance (Green) for failure to perform testing of the buried SW header piping in accordance with the American Society of Mechanical Engineers (ASME) Code Section XI requirements.

b.1.1 Failure to Test Service Water Headers During Last Code Interval

Description: The Unit 1 and 2 SW systems contain a buried 31-inch diameter header that carries service water from the pump house to SW system loads in the auxiliary and turbine buildings. These buried headers were installed with protective coatings applied to the exterior of the piping, but were not actively protected from corrosion by a cathodic protection system. Therefore, the only means of confirming that interior or exterior corrosion had not affected the pressure retaining integrity of this piping was through periodic testing required by the Section XI of the ASME Code. The inspectors identified that this periodic testing had not been performed.

On July 1, 2004, the inspectors identified that the licensee had not performed the periodic pressure drop test or change in flow rate test to confirm the integrity of the buried SW headers as required by 1986 Edition of Section XI, IWA-5244 (the licensee was committed to this Edition of the ASME Code during the previous Code Inservice Inspection (ISI) interval). The licensee acknowledged that the 1986 Code Edition requirements were not met, but considered that compliance with the current requirements was achieved for nonisolable buried pipe as identified in the 1998 Edition through 2000 Addenda of Section XI (see Section b.1.2). Therefore, the licensee documented in CAP 057701 that this was an administrative issue and that there were no operability concerns. The inspectors questioned the licensee staff as to why a failure to complete Code testing was an administrative issue. This question prompted the licensee staff to initiate a second CAP 057789, in which the licensee staff documented that the quarterly system flow test (IT-7) provided the basis for confirming SW header operability (e.g., no gross leakage existed because the SW system flow was above minimum requirements).

Analysis: The inspectors determined that the failure to perform the required periodic testing of the buried SW headers or request NRC relief from the ASME Code requirements was a performance deficiency warranting a significance evaluation. The inspectors concluded that the finding was greater than minor in accordance with Inspection Manual Chapter (IMC) 0612, “Power Reactor Inspections Reports,” Appendix B, “Issue Disposition Screening,” because, if left uncorrected, the failure to perform the required periodic tests could have allowed undetected through-wall flaws to develop. These flaws could then continue to grow in size until leakage from the buried headers degrades system operation or if sufficient general corrosion occurs, a gross rupture or collapse of the piping sections could occur. This finding was assigned to the Mitigating System Cornerstone because the affected headers were in the SW system (mitigating system) and the finding affected the Mitigating System Cornerstone objective

of equipment reliability. The inspectors evaluated the finding using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening, and determined that the finding screened as Green because it was not a design issue resulting in loss of function per GL 91-18, did not represent an actual loss of a system's safety function, did not result in exceeding a TS allowed outage time, and did not affect external event mitigation.

Enforcement: Title 10 CFR 50.55a(g)(4) requires, in part, that throughout the service life of a boiling or pressurized water reactor facility, components classified as ASME Code Class 1, 2, and 3 must meet requirements of Section XI. Section XI, IWA-5244, "Buried Components," required "(a) In nonredundant systems where buried components are isolable by means of valves, the visual examination VT-2 shall consist of a leakage test that determines the rate of pressure loss. Alternatively, the test may determine the change in flow between the ends of the buried components..." or "(b) In redundant systems where buried components are nonisolable, the visual examination VT-2 shall consist of a test that determines the change in flow between ends of the buried components."

Title 10 CFR 50.55a(g)(5)(iv) requires, in part, where an examination required by the Code or Addenda is determined to be impractical by the licensee and is not included in the revised ISI Program as permitted by paragraph (g)(4) of this section, the basis for this determination must be demonstrated to the satisfaction of the commission not later than 12 months after and each subsequent 120-month period of operation during which the examination is determined to be impractical.

Contrary to these requirements, as of July 1, 2004, the licensee failed to perform the pressure drop or change in flow rate testing required on the buried portions of the 31-inch SW system headers. Additionally, as of June 30, 2003, which was 12 months after the third 120-month Code ISI interval end date, the licensee had not submitted to the NRC the basis for considering this testing impractical. However, because of the very low safety significance of this finding and because the issue was entered into the licensee's corrective action program (CAPs 057866, 057789, 057701), it is being treated as an NCV, consistent with Section VI.A.1 of the Enforcement Policy (NCV 05000266/2004004-01; NCV 05000301/2004004-01).

b.1.2 Lack of Service Water Headers Testing During Current Code Interval

Description: On July 1, 2004, the inspectors identified that the licensee did not intend to perform a pressure drop test or change in flow rate test to confirm the integrity of the buried SW system headers during the current 120-month Code ISI interval that started on July 1, 2002. For this Code ISI interval, the licensee was committed to follow the requirements of the 1998 Edition through 2000 Addenda of the ASME Code of Section XI. With respect to this Code Edition, the licensee stated that "Pressure testing of the SW system is performed on a 40 month interval; however, due to the installed and licensed configuration of the plant, it is not prudent to suspend flow to perform a pressure drop test. In addition, it is not likely that the header sectionalizing valves would be sufficiently leak-tight to obtain valid test results using a pressure drop method." Further, the licensee stated, "There is an insufficient length of straight upstream piping

in which to install flow instrumentation with the accuracy and precision necessary to obtain valid flow test results. Even the downstream flow instrumentation that is installed (which does have adequate straight runs upstream and downstream) has an uncertainty of approximately 300gpm. Based upon these considerations, the piping cannot be considered isolable to the extent necessary to perform valid testing per IWA-5244(b)(1). IWA-5244(b)(2) requires that the system pressure test for non-isolable buried components shall consist of a test to confirm that flow during operation is not impaired. The frequent performance of IT-7A through F verifies that flow through the piping is in fact unimpaired..."

The inspectors noted that each of the buried SW headers is surrounded by butterfly type isolation valves; therefore, the inspectors concluded that the requirements of the 1998 Edition 2000 Addenda of Section XI, Article IWA-5244(b)(1) were applicable. The licensee's basis for concluding that the buried section of SW pipe was nonisolable appeared to be a justification for deviation from the 1998 Section XI ASME Code Article IWA-5244(b)(1) requirements. Further, the licensee did not propose corrective actions to perform flow testing or pressure drop testing that was required under the previous ASME Code Section XI requirements.

Part 9900 of the NRC Inspection Manual would normally require the inspectors to submit the licensee's position on a disputed Code requirement to the Office of Nuclear Reactor Regulation (NRR) for review. In this case, the licensee staff stated the intent to discuss the application of the 1998 Code requirements for testing of buried SW piping in a relief request submittal to justify not meeting the 1986 Edition of Section XI requirements. The inspectors confirmed with NRR staff that the scope of a relief request review for this topic would include the licensee's application of current Code requirements in this area. Therefore, the inspectors considered the issue of application of current Code requirements for buried SW piping addressed by the licensee's planned corrective actions, which included submitting a Code relief request on the impracticality of testing the buried SW system headers (CAP 057866).

b.2 Non-Code Repair Performed on Unit 1 Service Water Valve SW 0322

Introduction: The inspectors identified an NCV of 10 CFR 50.55a(g)(4) having very low safety significance (Green) for failure to conduct non-destructive examinations and repair of valve SW 0322 in accordance with the ASME Code Section XI requirements.

Description: The licensee performed weld repairs (reference work order No. 9709004) to erosion cavities identified inside the valve body of SW 0322, which is the outlet isolation/throttle valve to component cooling water heat exchanger 12A. The inspectors identified that the licensee had failed to perform nondestructive examinations and implement a weld repair process in accordance with Section XI of the ASME Code.

In August of 1997, the licensee added weld metal to ten erosion cavities inside the valve body of SW 0322 to restore minimum wall thickness. The final acceptance was recorded as a visual examination to verify "original contour" and a system leakage test. On July 1, 2004, the inspectors identified that the licensee had not performed liquid penetrant or magnetic particle examinations of the repair cavity surfaces to verify the indications were reduced to an acceptable size in accordance with requirements of

Article IWD-4200(b)(1) of the 1986 Edition of Section XI. The licensee documented this non-compliance in CAP 057711 and concluded that valve SW 0322 was operable based on annual thickness measurements and no noted problems with valve performance.

The inspectors also identified that the licensee had not performed the weld repair in accordance the Owners Design Specification and original Construction Code or Section III as required by Article IWA-4120 of Section XI. The licensee documented in the Code repair replacement form No. 97-0050, that USAS B16.5, BECH 6118-M-85 and Section XI (1986 Edition) were used for the repair of this valve. However, the licensee had not followed Section XI repair methods (e.g., half bead weld technique) and the other documents referenced did not contain any guidance on welded repairs. Subsequently, the licensee identified that the vendor drawing (William Powell drawing No. 059960) for the valve identified ASTM A-216 as the applicable specification for the weld repairs made on the body of this valve. ASTM A-216 required post weld heat treatments for weld repairs exceeding 20 percent of the wall thickness. The licensee had not performed a post weld heat treatment for these repairs, which exceeded 20 percent of the wall thickness and documented the failure to perform the required heat treatments in CAP 057799. The inspectors also identified that the weld procedure used for this repair may not be appropriate in that the weld metal applied by procedure (WPS-1) was potentially weaker than the minimum tensile strength required for ASTM A-216 Grade WCB, which required a minimum of 70,000 psi tensile strength. Specifically, in a weld metal tensile test recorded in procedure qualification report No. 34, specimen A-2 failed in the weld metal at 69,750 psi, which is less than the minimum tensile strength required for ASTM A-216 grade WCB. The licensee entered this issue into CAP 057911 and concluded that valve SW 0322 was operable because of long acceptable service and the lack of flaws detected during ultrasonic thickness measurements.

Analysis: The inspectors determined that the failure to perform the required nondestructive examinations and implement a repair in accordance with Section XI of the ASME Code was a performance deficiency warranting a significance evaluation. The inspectors concluded that the finding was greater than minor in accordance with IMC 0612, “Power Reactor Inspections Reports,” Appendix B, “Issue Disposition Screening,” because, if left uncorrected, the failure to perform the required surface examinations could have allowed unacceptable base metal flaws to remain in-service. The licensee’s failure to follow heat treatments in ASTM A-216 for the weld repairs could result in high welding residual stresses and untempered martensite formation. Untempered martensite is a hard brittle phase of steel (e.g., not flaw tolerant) and can serve to allow rapid crack propagation that could jeopardize the pressure retaining function of the valve body. This finding was assigned to the Mitigating System Cornerstone because the affected valve was in the SW system (mitigating system) and the finding affected the Mitigating System Cornerstone objective of equipment reliability. The inspectors evaluated the finding using Inspection Manual Chapter 0609, “Significance Determination Process,” Appendix A, “Significance Determination of Reactor Inspection Findings for At-Power Situations,” Phase 1 screening, and determined that the finding screened as Green because it was not a design issue resulting in loss of function per GL 91-18, did not represent an actual loss of a system’s safety function, did not result in exceeding a TS allowed outage time, and did not affect external event mitigation.

Enforcement: Title10 CFR 50.55a(g)(4) requires, in part, that throughout the service life of a boiling or pressurized water reactor facility, components classified as ASME Code Class 1, 2 and 3 must meet requirements of Section XI. Section XI, Article IWD-4200(b)(1) required "After final grinding, the affected surfaces, including surfaces of cavities prepared for welding, shall be examined by magnetic particle or liquid penetrant method to ensure that the indication has been reduced to an acceptable limit in accordance with IWA-3000." Article IWA-4120(a) of Section XI required, "Repairs shall be performed in accordance with the Owners Design Specification and the original Construction Code of the component or system." The applicable specification for the material repaired was ASTM A-216 and Paragraph 10.2 required, in part, "Weld repairs shall be inspected to the same quality standards that are used to inspect the castings" and Paragraph 10.3 required in part, "Castings containing any repair weld that exceeds 20 percent of the wall thickness or 1 inch, whichever is smaller, or ... shall be stress relieved or heat-treated after welding. This mandatory stress relief or heat treatment shall be in accordance with the procedure qualification used."

Contrary to these requirements, on July 1, 2004, inspectors identified that in August of 1997 (reference work order No. 9709004), the licensee performed welded repairs to valve SW 0322 and failed to perform magnetic particle or liquid penetrant examinations after final grinding and failed to perform post weld stress relief or heat treatments for repair cavities that exceeded 20 percent of the wall thickness. However, because of the very low safety significance of this finding and because the issue was entered into the licensee's corrective action program (CAP 057711 and CAP 057877), it is being treated as an NCV, consistent with Section VI.A.1 of the Enforcement Policy (NCV 05000266/2004004-02).

b.3 Pump Discharge Check Valves Improperly Exempted From The Code Repair/Replacement Requirements

Introduction: The inspectors identified an NCV of 10 CFR 50.55a(g)(4) having very low safety significance (Green) for failure to implement the ASME Code Section XI examination and repair requirements for SW pump discharge check valves SW 32C and SW 32F.

Description: On July 13, 2004, the inspectors identified a concern related to exemption of the SW pump discharge check valves from the ASME Code Section XI repair requirements. The licensee concluded in a number of work orders (beginning in 1990) performed on each of the SW pump discharge check valves that the valve disks were exempt from the ASME Code Section XI repair requirements. In licensee procedure NP 7.2.5, "Repair/Replacement Program," the licensee exempted valve disks from the repair/replacement program unless they were part of a Code Class boundary. However, the inspectors noted that Section XI, Article IWD-1100, "Scope," stated, in part, that Code inspection, repair and replacement rules applied to Class 3 pressure retaining components. Further, Section III, Article ND-2110, defined pressure retaining material and this definition included valve disks. Therefore, the inspectors concluded that the pump discharge check valve disks should be considered Class 3 pressure retaining components because they have a safety function to close and retain SW system pressure for any non-running SW pump. The licensee subsequently contacted five other nuclear plants that considered these valves to be under the ASME Code

repair/replacement requirements. The license also identified a memorandum from the former Chair of the ASME Repair/Replacement Committee, which recommended that a valve disk be considered as a pressure boundary material unless proven otherwise. Based upon this information, the licensee staff agreed with the inspectors and initiated CAP 057903 to track this issue. Consequently, the inspectors identified repairs to check valve disks on valves SW 32C and SW 32F for which the licensee had not implemented Code repair requirements.

On April 17, 2003, in work order No. 9938090, the licensee weld repaired six pitted areas on the check valve disk for SW pump discharge check valve SW 32F. For two of these six repair areas, the licensee ground out in excess of 20 percent of the disk wall thickness. On December 3, 2003, in work order No. 0304633, the licensee weld repaired seven pitted areas on the check valve disk for SW pump discharge check valve SW 32C. For five of these seven repair areas, the licensee ground out in excess of 20 percent of the disk wall thickness. The licensee documented in these work orders that these repairs were exempt from the Code repair/replacement requirements and did not perform the repairs in accordance with a Code or standard. The inspectors noted that if the licensee had implemented the ASTM A-216 material standard to which these valve disks were originally made, a post weld heat treatment would have been required following these repairs. Because the licensee had not performed the weld repair in accordance the Owners Design Specification and original Construction Code or Section III, they were in violation of Article IWA-4120 of Section XI. Additionally, the licensee had not performed liquid penetrant or magnetic particle examinations of the repair cavities nor documented the method of cavity measurement in accordance with Section XI, Article IWD-4200(b)(1) and Article IWA-4130(a)(2). The licensee documented this issue in CAP 057903 and considered these valves operable based upon passing their quarterly surveillance tests.

Analysis: The inspectors determined that the failure to properly classify the SW pump discharge check valves SW 32C and SW 32F as pressure boundary material was a performance deficiency warranting a significance evaluation. Consequently, the licensee failed to perform the nondestructive examinations and repair requirements from Section XI of the ASME Code. The inspectors concluded that this finding was greater than minor in accordance with IMC 0612, “Power Reactor Inspections Reports,” Appendix B, “Issue Disposition Screening,” because, if left uncorrected, the failure to perform the required surface examinations could have allowed unacceptable base metal flaws to remain in service. The licensee’s failure to select and follow a repair Code may have resulted in inadequate post weld heat treatments for the weld repairs that could result in high welding residual stresses and untempered martensite formation. Untempered martensite is a hard brittle phase of steel (e.g., not flaw tolerant) and can serve to allow rapid crack propagation that could jeopardize the pressure retaining function of the valve disk. The finding was assigned to the Mitigating System Cornerstone because the affected valve was in the SW system (mitigating system) and the finding affected the Mitigating System Cornerstone objective of equipment reliability. The inspectors evaluated the finding using Inspection Manual Chapter 0609, “Significance Determination Process,” Appendix A, “Significance Determination of Reactor Inspection Findings for At-Power Situations,” Phase 1 screening, and determined that the finding screened as Green because it was not a design issue resulting in loss of function per GL 91-18, did not represent an actual loss of a system’s

safety function, did not result in exceeding a TS allowed outage time, and did not affect external event mitigation.

Enforcement: Title 10 CFR 50.55a(g)(4) requires, in part, that throughout the service life of a boiling or pressurized water reactor facility, components classified as ASME Code Class 1, 2 and 3 must meet requirements of Section XI. Section XI, Article IWD-4200(b)(1) required "After final grinding, the affected surfaces, including surfaces of cavities prepared for welding, shall be examined by magnetic particle or liquid penetrant method to ensure that the indication has been reduced to an acceptable limit in accordance with IWA-3000." Article IWA-4120(a) of Section XI required "Repairs shall be performed in accordance with the Owners Design Specification and the original Construction Code of the component or system."

Contrary to these requirements, on July 15, 2004, inspectors identified that on April 17, 2003, in work order No. 9938090, the licensee weld repaired six pitted areas on the check valve disk for SW pump discharge check valve SW 32F and did not perform a liquid penetrant or magnetic particle examination on repair cavities and did not perform the repair in accordance with a documented Code or standard.

Contrary to these requirements, on July 15, 2004, inspectors identified that on December 3, 2003, in work order No. 0304633, the licensee weld repaired seven pitted areas on the check valve disk for SW pump discharge check valve SW 32C and did not perform a liquid penetrant or magnetic particle examination on repair cavities and did not perform the repair in accordance with a documented Code or standard.

However, because of the very low safety significance of this finding and because the issue was entered into the licensee's corrective action program (CAP 057903), it is being treated as an NCV, consistent with Section VI.A.1 of the Enforcement Policy (NCV 05000266/2004004-03).

b.4 Higher than Allowed Condensate Storage Tank Temperature

Introduction: The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance (Green), for failure to ensure design bases for the maximum Condensate Storage Tank (CST) temperature was correctly translated into procedures and instructions. Specifically, the Main Steam Line Break (MSLB) Containment Integrity Analysis assumed a maximum value of 100°F for the temperature of the water in the CST, while operations procedures allowed a maximum of 120°F for the CST temperature.

Description: On June 29, 2004, the inspectors identified that the daily rounds performed by the in-plant operators in accordance with PBF-2032, "Turbine Bldg Log - Unit 1," Revision 73, allowed a maximum of 120°F for the CST temperature. The inspectors requested the licensee to affirm that all the applicable analyses used a CST temperature of 120°F or higher.

On June 30, 2004, the licensee determined that the current MSLB Containment Integrity Analysis (Calculation Note Number CN-CRA-01-070, which became effective on November 26, 2002), assumed a maximum value of 100°F for the auxiliary feedwater

(AFW) temperature (the water source for the AFW system is taken from the CST and is thus equivalent to an assumption of a maximum of 100°F in the CST). Other analyses that used AFW temperature as an input (e.g., Loss of Normal Feedwater, Small Break LOCA, and AFW Pump NPSH analyses) assumed an AFW temperature of 120°F.

The licensee reviewed the daily rounds performed by the in-plant operators in accordance with PBF-2032, "Turbine Bldg Log - Unit 1," and determined that for the past year CST temperatures were well below 100°F unless procedure OI 150, "Condensate Storage Tank Operations," was in use. When OI 150 was performed during unit startup/shutdown operations, the CST was intentionally heated to a temperature of greater than 100°F (with a target temperature of 110°F) so that the steam generators (SGs) could be filled with warm water to ensure SG pressure/temperature limits were met when performing procedures that involve pressurizing the SG shells for system leak checks. During the performance of OI 150, the AFW pumps for both the shutdown unit and the operating unit were aligned to the heated CST. A review determined that at various times from October 5, 2003, through October 11, 2003, the CST was heated to a temperature of greater than 100°F (with a maximum recorded value of 108°F) with Unit 1 in power operations and aligned to the heated CST. Also, at various times from April 11, 2004, through April 16, 2004, the CST was heated to a temperature of greater than 100°F (with a maximum recorded value of 108°F) with Unit 2 in power operations and aligned to the heated CST.

To address current operability, the licensee reviewed the most recent available CST temperature data from June 30, 2004, and determined that CST temperatures were well within the bounds of the MSLB Containment Integrity Analysis of 100°F (the temperature for CST T-24A was 56°F and the temperature for CST T-24B was 57°F).

To address the past adequacy of the current MSLB Containment Integrity Analysis, the licensee determined that the analysis assumed a containment spray (CS) temperature of 100°F, an initial containment temperature of 120°F, and an AFW temperature (i.e., CST temperature) of 100°F. This analysis resulted in a peak containment pressure of 59.8 psig when all bounding assumptions were applied (which was within the containment design pressure of 60 psig). An informal analysis performed by Westinghouse at the time of the analysis found that if AFW (or CST) temperature were decreased by 20°F, the peak containment pressure could be reduced by approximately 0.2 psi. Therefore, if the CST temperature was at the procedurally allowed maximum limit of 120°F and all remaining bounding assumptions applied, a peak containment pressure of 60.0 psig could have occurred. Since the actual CST temperatures never exceeded 110°F, the actual penalty for exceeding 100°F was less than 0.2 psi. Therefore, the containment design pressure of 60 psig would not have been exceeded.

Formal sensitivity analyses performed by Westinghouse at the time of the MSLB Containment Integrity Analysis found that if CS temperature (i.e., Refueling Water Storage Tank (RWST) temperature) were decreased by 20°F, the peak containment pressure would be reduced by approximately 0.5 psi. Also, if the initial containment temperature were decreased by 20°F, the peak containment pressure would be reduced by approximately 0.9 psi. The actual containment and RWST temperatures during the time periods when the CST temperature was greater than 100°F, were less than the 120°F values assumed in the analysis. The containment temperatures did not exceed

100°F and the RWST temperatures did not exceed 80°F during the time periods of elevated CST temperature. Based on the results of the sensitivity analyses and the actual plant parameters (i.e., containment and RWST temperatures) when CST temperatures exceeded 100°F, the licensee concluded that if a MSLB had occurred on the operating unit during the time periods of elevated CST temperature, that the peak containment pressure for the operating unit would not have been exceeded.

The licensee immediately placed procedure OI 150, "Condensate Storage Tank Operations," on administrative hold so that the procedure could not be used until the CST temperature limitation was revised to reflect analysis limits. The licensee also revised the daily operator rounds PBF-2032, "Turbine Bldg Log - Unit 1," on July 15, 2004, to reflect the limit of 100°F for CST temperature. The licensee entered this issue into the corrective action program as CAP 057671.

Analysis: The inspectors determined that the failure to correctly translate the design bases for the maximum CST temperature into procedures and instructions was a performance deficiency warranting a significance evaluation. The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspections Reports," Appendix B, "Issue Disposition Screening," because an evaluation was required to ensure that accident analysis requirements were met and the CST was heated up to greater than the maximum analysis value of 100°F during unit startup/shutdown operations with the CST aligned to an operating unit.

The inspectors evaluated the finding using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening, and determined that the finding screened as Green because it was not a design issue resulting in loss of function per GL 91-18, did not represent an actual loss of a system's safety function, did not result in exceeding a TS allowed outage time, and did not affect external event mitigation.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures be established to assure that applicable regulatory requirements and the design basis are correctly translated into procedures and instructions.

Contrary to this requirement, on June 30, 2004, it was identified that since November 26, 2002, the design basis for the maximum allowable value for the CST temperature was not correctly translated into procedures and instructions, in that the MSLB Containment Integrity Analysis assumed a maximum value of 100°F for the temperature of the water in the CST, while operations procedures OI 150, "Condensate Storage Tank Operations," Revision 6, and PBF-2032, "Turbine Bldg Log - Unit 1," Revision 73, allowed a maximum of 120°F for the CST temperature. In addition, during the performance of OI 150, "Condensate Storage Tank Operations," at various times during the time period of October 5, 2003, through October 11, 2003, the CST was heated to a temperature of greater than 100°F with Unit 1 in power operations and aligned to the heated CST. Also, at various times during the time period of April 11, 2004, through April 16, 2004, the CST was heated to a temperature of greater than 100°F with Unit 2 in power operations and aligned to the heated CST. The CST temperature during portions of these time periods exceeded the maximum allowable

analysis limit of 100°F. However, because this violation was of very low safety significance and because the issue was entered into the licensee's corrective action program, this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000266/2004004-04; NCV 05000301/2004004-04).

b.5 Valves Not Meeting Technical Specification Requirements for Position Verification

Introduction: The inspectors identified an NCV of Technical Specifications (TS) having very low safety significance (Green) for failing to perform the required periodic verification of the position of approximately 100 valves in the SW system flow path servicing safety-related equipment. In addition, the licensee did not verify that 12 containment isolation manual valves were closed and two pipe fittings associated with containment isolation were in place at the required periodic frequency.

Description: On June 30, 2004, the inspectors identified approximately 80 valves in the SW system flow path servicing safety-related equipment that were not periodically verified per TS Surveillance Requirement (SR) 3.7.8.1 to be in the correct position every 31 days while the Units were in Mode 1, 2, 3, or 4.

As a result the licensee placed both Units 1 and 2 in a 24 hour TS Surveillance Requirement (SR 3.0.3) for completion of the TS 3.7.8.1 surveillance. Temporary procedure changes were written and completed to address the valves identified. The licensee either locked the affected valves in the correct position or verified the valves to be in the correct position.

On July 1, July 6, and July 13, 2004, additional SW and containment isolation valves were identified by the NRC and licensee which were also required to be periodically verified to be in correct position to satisfy TS SR 3.7.8.1 and TS SR 3.6.3.2. On each date, the licensee placed both Units 1 and 2 in a 24 hour TS Surveillance Requirement (SR 3.0.3) for completion of the surveillance. Temporary procedure changes were written and completed to address the valves identified. The licensee either locked the affected valves in the correct position or verified the valves to be in the correct position.

In the extent of condition review, the licensee identified additional discrepancies in the component cooling system valve lineup checklists 1-CL-CC-001 and 2-CL-CC-001. This issue was entered into the corrective action program as CAP 057700 for evaluation.

The licensee entered these issues into the corrective action program as CAP 057665, CAP 057700, CAP 057712, CAP 057765, CAP 057766, CAP 057787, and CAP 057882. The licensee planned to perform a root cause evaluation on the issue of locked valves to investigate the issues that led to non-compliance with the TS surveillance requirements.

Analysis: The inspectors determined that the failure to perform TS SR 3.7.8.1 associated with periodic verification of the position of valves in the SW system flow path servicing safety-related equipment, and failure to perform TS SR 3.6.3.2 associated with periodic verification of the closed position of containment isolation manual valves/blind flanges was a performance deficiency warranting a significance evaluation. The

inspectors determined that the finding was more than minor in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Dispositioning Screening,” because it was, in most part, associated with the Mitigating Systems attribute of Configuration Control, which affected the Mitigating Systems Cornerstone objective of ensuring the availability and reliability of the SW system to respond to initiating events to prevent undesirable consequences. A potentially mispositioned valve in the safety related SW system flow path could render the affected equipment incapable of performing its required safety function.

The inspectors evaluated the finding using Inspection Manual Chapter 0609, “Significance Determination Process,” Appendix A, “Significance Determination of Reactor Inspection Findings for At-Power Situations,” Phase 1 screening, and determined that the finding screened as Green because it was not a design issue resulting in loss of function per GL 91-18, did not represent an actual loss of a system’s safety function, did not result in exceeding a TS allowed outage time, and did not affect external event mitigation.

Enforcement: Technical Specification Surveillance Requirement SR 3.7.8.1 requires, in part, that each SW valve in the flow path servicing safety-related equipment, that was not locked, sealed, or otherwise secured in position, be verified in the correct position every 31 days while the Units were in Mode 1, 2, 3, or 4.

Contrary to these requirements, on various occasions from June 30, 2004 through July 13, 2004, it was identified that since November 20, 2001 (following implementation of the Improved Technical Specifications per License Amendment Number 201 for Unit 1 and License Amendment Number 206 for Unit 2), the licensee did not verify the position of approximately 100 valves in the SW system flow path servicing safety-related equipment that were not locked, sealed, or otherwise secured in position, every 31 days while the Units were in Mode 1, 2, 3, or 4.

Technical Specification Surveillance Requirement SR 3.6.3.2 required, in part, that each containment isolation manual valve and blind flange that was located outside containment and was not locked, sealed, or otherwise secured and was required to be closed during accident conditions, be verified closed every 31 days while the Units were in Mode 1, 2, 3, or 4.

Contrary to these requirements, on July 6, 2004, it was identified that since November 20, 2001 (following implementation of the Improved Technical Specifications per License Amendment Number 201 for Unit 1 and License Amendment Number 206 for Unit 2), the licensee did not verify that 12 containment isolation manual valves were closed and two pipe fittings associated with containment isolation located outside containment were in place every 31 days while the Units were in Mode 1, 2, 3, or 4.

However, because this violation was of very low safety significance and because the issue was entered into the licensee’s corrective action program (CAP 057665, CAP 057700, CAP 057712, CAP 057765, CAP 057766, CAP 057787, and CAP 057882), this violation is being treated as an NCV, consistent with Section VI.A.1 of the Enforcement Policy (NCV 05000266/2004004-05; NCV 05000301/2004004-05).

b.6 Additional Information Needed to Determine Adequacy of Piping Anchor Design for SW Subsystems to Containment Fan Coolers

Introduction: The inspectors identified an unresolved item concerning piping anchors that were not evaluated in detail to demonstrate compliance with the design codes associated with SW supply and return subsystems for primary containment fan coolers (CFCs).

Description: The inspectors reviewed a sample of design calculations for the reroute of SW supply and return piping subsystems associated with the replacement of primary CFCs. Calculations chosen for review were WE-200093, Revision 1 including Addendum B and WE-200095, Revision 2 including Addendum A.

These SW piping subsystems were evaluated by computer analysis methods. Separate computer models were developed for piping between modeling anchors such as containment wall penetrations, pipe anchors attached to the containment floor, and CFC heat exchanger nozzles. Due to this modeling technique, the total piping forces on each pipe anchor attached to the containment floor had reaction components from two piping models.

Pipe stresses were determined from loads and load combinations due to internal pressure, pipe system dead weight, pipe thermal expansion, seismic excitation, and hydraulic transient effects for a LOCA event coincident with a loss of offsite power (LOOP). Pipe support loads were determined from load combinations due to pipe system dead weight, pipe thermal expansion, seismic excitation, and hydraulic transient effects for a LOCA event coincident with a LOOP.

The original design code for these piping subsystems was United States Activities Board (USAB) B31.1.0-1967, “Power Piping.” The design calculations used the ASME Boiler and Pressure Vessel Code, Section III, Subsection NC and ND, 1977 Edition up to and including 1978 Addenda for design acceptance criteria. Design code differences were reconciled in documentation referenced in the design calculations.

As detailed on drawing P-438, sheet 12, the 8-inch nominal pump size (NPS) SW supply and return lines were routed vertically through a primary containment floor penetration and an oversized, concentric 14-inch NPS pipe cap. The pipe anchor design welded the 8-inch NPS SW process pipe to the 14-inch pipe cap, and the 14-inch NPS cap was also welded to a steel plate attached to the containment floor.

Both calculation WE-200093 for anchor HB-19-A2 and calculation WE-200095 for anchor HB-19-A2 qualified the anchor design and the anchor integral attachment weld to the 8-inch pipe using engineering judgement, determining that the structural capacity of the 14-inch NPS pipe cap was equal or greater than the 8-inch SW pipe. The calculations indicated a full penetration weld attached the SW pipe to the 14-inch pipe cap. Since the piping met code acceptance criteria, the anchor’s integral weld to the pipe was qualified by comparison.

The inspectors inquired why pipe stress at the floor anchor locations were not evaluated using pipe reactions combined from two models since the anchor integral weld was

subjected to pipe reaction forces from two distinct piping models. Also, drawings P-415, sheet 9 and P-438, sheet 12 indicated that the integral attachment welds may only be partial penetration groove welds, and therefore, could have less structural capacity than the 14-inch pipe cap.

The inspectors further reviewed ASME Section III, Division 1, Subsection NF, "Component Supports," for code jurisdictional boundaries, design requirements and acceptance criteria related to integrally attached pipe supports. When applying the combined piping reactions into the 14-inch pipe cap, the inspectors determined that the engineering judgment used in the design calculations to qualify the 14-inch pipe cap and integral weld to the SW pipe was not valid. Specifically, the resultant stress in the pipe caps needed to be determined using all piping reaction forces and bending moments, not just the piping reaction moments used to calculate SW piping stress. Also, some of the piping reactions would cause localized bending stress in the 14-inch pipe caps. Therefore, the anchor 14-inch pipe caps may not have greater structural capacity than the SW pipe. Based on the magnitude of the piping reaction forces determined in calculation WE-200093 for Unit 2 anchors HB-19-A1, HB-19-A2, HB-19-A3 and HB-19-A4, the inspectors could not verify design code compliance without a detailed evaluation of all anchor structural components.

This item is considered to be unresolved pending additional information from the licensee to demonstrate that the integral piping anchor supports for SW supply and return subsystems to primary CFCs meet applicable design code requirements. The licensee has entered this issue into their corrective action system as condition report CAP 057947 (URI 05000266/2004-06; 05000301/2004-06).

.3 Components

a. Inspection Scope

The inspectors examined the SW and 480 Vac systems to ensure that component level attributes were satisfied. Specifically, the following attributes of the SW and 480 Vac systems were reviewed:

Equipment/Environmental Qualification: This attribute verifies that the equipment is qualified to operate under the environment in which it expected to be subjected to under normal and accident conditions. The inspectors reviewed design information, specifications, and documentation to ensure that the SW and 480 Vac components were qualified to operate in the temperatures and radiation fields specified in the environmental qualification documentation.

Equipment Protection: This attribute verifies that the SW and 480 Vac systems are adequately protected from natural phenomenon and other hazards, such as high energy line breaks, floods or missiles. The inspectors reviewed design information, specifications, and documentation to ensure that the SW and 480 Vac systems were adequately protected from those hazards identified in the UFSAR that could impact their ability to perform their safety function.

b. Findings

b.1 Failure to Procure Electrical Equipment for an Ungrounded Electrical System

Introduction: The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance (Green) associated with for the licensee's failure to adequately translate original design requirements for the 480 Vac system into specifications during procurement of new and replacement equipment. The original specifications for equipment such as motors and cables identified the intended service as suitable for a 480 Vac ungrounded system. Specifications for replacement motors and battery chargers did not specify the intended service as an ungrounded system.

Description: The 480 Vac system for each unit consisted of two 480 Vac load center buses supplied through separate 4160/480 Vac transformers from the redundant 4160V safety buses. The transformers are connected in a delta-delta configuration so that the 480 Vac system is ungrounded. Ungrounded systems are susceptible to overvoltage conditions resulting from a single line to ground fault. A solid line to ground fault will result in a sustained 73 percent higher voltage to ground on the ungrounded phases, while an intermittent or sputtering ground fault can cause line to ground voltages several times normal voltage on all three phases. Because of the potential for overvoltage conditions, specifications for equipment such as motors, cables, and switchgear should identify that the equipment is intended for use on an ungrounded system. The original specification for PBNP safety-related motors, 6118-E-32, "Specification for Electric Motors," appropriately identified the intended service condition as a 480 Vac ungrounded system. Specification PB 580 for the safety-related service water motors installed in 2001 did not contain this provision. Specification PB 92 for new battery chargers installed in 1985 similarly did not contain this provision. Equipment intended for service on ungrounded systems is designed to withstand the sustained higher line to ground voltages than can occur on grounded systems. These insulation systems are not typically provided unless the purchaser specifies an ungrounded system.

Interviews with plant personnel indicated that PBNP has experienced 480 Vac system grounds on several occasions. While the 480 Vac system was provided with ground alarms, these devices did not provide automatic protection, and did not indicate the location of the ground. Consequently, ground faults could persist for several hours before being located and cleared. If a ground fault occurred during an accident, the lack of the proper insulation system would increase the likelihood of secondary failures elsewhere in the 480 Vac system. The inspectors noted that some non safety-related circuits are supplied from, and remain connected to, or can be manually connected to, the safety-related 480 Vac system during emergencies. A ground fault on a non-safety circuit would cause an overvoltage that would propagate to the safety-related supply without operation of protective devices to isolate the fault, thereby increasing the risk to safety-related equipment.

The inspectors noted that the licensee performs regular insulation checks of motors and other 480 Vac equipment to detect degradation of insulation, and that ground faults experienced to date have not resulted in secondary failures of safety-related equipment.

The licensee initiated CAP 057803 and reviewed maintenance records to confirm that equipment insulation was not currently in a deteriorated condition.

Analysis: The inspectors determined that the failure to correctly specify equipment for use on an ungrounded system was a performance deficiency warranting a significance determination. The inspectors determined that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Dispositioning Screening," because the finding involved the design control attribute of the mitigating systems cornerstone and affected the mitigating systems objective of ensuring the capability of the 480 Vac system in response to initiating events to prevent undesirable consequences. Specifically, the failure to specify the proper service for safety-related equipment increases the likelihood of its failure due to stresses that could occur during a postulated accident scenario.

The inspectors evaluated the finding using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," Phase 1 screening, and determined that the finding was a design or qualification deficiency confirmed not to result in loss of function per Generic Letter 91-18. Therefore, the inspectors determined that the finding was of very low safety significance (Green). The licensee initiated CAP 057803 and reviewed maintenance records to confirm that equipment insulation was not currently in a deteriorated condition.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that the design basis, is correctly translated into specifications, drawings, procedures, and instructions. In addition, design changes, including field changes, shall be subject to design control measures commensurate to those applied to the original design. Contrary to these requirements, the licensee failed to specify the ungrounded service requirement for 480 Vac equipment procured after the original plant construction. Because this violation was of very low significance, and documented in the licensee's corrective action program as Condition Report CAP 057803, this finding is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000266/2004004-07; NCV 05000301/2004004-07).

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution

.1 Review of Condition Reports

a. Inspection Scope

The team reviewed a sample of SW and 480 Vac system problems that were identified by the licensee and entered into the corrective action program. The inspectors reviewed these issues to verify an appropriate threshold for identifying issues and to evaluate the effectiveness of corrective actions related to design issues. In addition, condition reports written on issues identified during the inspection were reviewed to verify

adequate problem identification and incorporation of the problem into the corrective action system. The specific corrective action documents that were sampled and reviewed by the team are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

.2 Confirmatory Action Letter (CAL) Follow-up Items

EQ-15-011 - Bolted Fault

The licensee committed to address bolted fault calculation issues. The inspectors reviewed the status of the following action steps:

Action Step 5: The licensee committed to revise the degraded grid calculations to support changing transformer tap settings as well as revise short circuit calculations based on the new tap settings. In support of these revisions, the licensee referenced these actions in LER 266/97-032-00, which also included actions to update the site one-line electrical model of the 345 kV bus down through the 480 Vac bus loads. The licensee made progress on the completion of the calculations and was on schedule to complete step 5 by the specified due date of September 30, 2004.

Action Step 12: The licensee committed to complete the procurement of the transformer tap change material by December 31, 2004. The licensee made progress on step 12 and was scheduled to complete Step 12 by December 15, 2004.

Action Step 16: The licensee committed to document interim progress confirming that the project was on track in accordance with the established schedule. The licensee was not scheduled to begin this step until May 9, 2005; therefore, no information regarding step 16 was available for review.

EQ-15-012 - Manhole and Cable Vault Flooding

The license committed to install a de-watering modification in Manhole 1 and Manhole 2 to eliminate cable vault flooding.

Action Steps 8 and 9: The licensee committed to implement the de-watering equipment and establish callups to inspect and maintain the modification. The licensee completed the modification package, which included a fire protection conformance checklist, a 10 CFR 50.59 screening and review, and a plant impact checklist. The effectiveness of the installed modification will be reviewed during future CAL close out inspections.

OP-14-003 - Validate Design Basis for High Risk Systems

The licensee determined that the Design Basis Documents (DBDs) needed to be updated to reflect the current plant configuration for the following high risk significant systems: AFW, SW, Fire Protection (FP), Emergency Diesel Generators, Component Cooling, 480 Vac and 13.8kV.

a. OP-14-003.3: Revise and implement NP 7.7.3, "Design Basis Document Creation, Revision, and Maintenance," and DG-G10, "Design Basis Document Writer's Guide," to support validation and streamlining of the subject DBD's. The licensee committed to issuing NP 7.7.3 and DG-G10 by November 10, 2004.

As of July 16, 2004, the revision of NP 7.7.3 had not begun. The licensee was waiting for a contractor to complete the Validation Guideline, which will be incorporated into NP 7.7.3. The licensee informed the inspectors that the revision will be complete by the commitment due date of November 10, 2004. A draft revision of DG-G10 was completed on July 12, 2004.

b. OP-14-003.4: Issue validation plan and process for performing validation, performing revisions, and identifying open items and entering them into the CAP system. The licensee committed to having a completed Validation Guideline by March 25, 2005.

As of July 16, 2004, the Validation Guideline had not been completed. The Validation Guideline will be completed by the contractor performing the validation of the AFW DBD, and then incorporated into NP 7.7.3. The inspectors noted a problem with the commitment due date of March 25, 2005. Since the revision of NP 7.7.3 is due on November 10, 2004, the Validation Guideline needs to be completed before that date in order to be included in the revision of NP 7.7.3. The licensee informed the inspectors that the due date for OP-14-003.4 should be changed to November 10, 2004.

c. OP-14-003.6.A: Complete validation for AFW, SW, and FP, perform a progress review, and validate schedule and quality of completed work. The licensee committed to completing a progress review by May 26, 2005.

As of July 16, 2004, the progress review had not been completed. The licensee informed the inspectors that a contractor would complete the AFW DBD validation by September 30, 2004, and PBNP staff would model the validation of the SW and FP DBDs after the completed AFW DBD validation. The inspectors did not identify any issues with the progression of this action step in meeting a May 26, 2005 due date.

d. OP-14-003.6.B: Complete validation for AFW. The licensee committed to completing an updated and validated DBD for AFW by September 30, 2004.

As of July 16, 2004, the AFW DBD validation had not been completed. A bid specification and proposal were expected to be issued and a contract awarded the week of July 19, 2004. The inspectors were provided with a scope of the AFW DBD validation project, which was to be translated into a request for proposal. PBNP staff informed the inspectors that the project was on schedule for completion by the committed due date and the AFW DBD validation will focus primarily on significant changes to the AFW system.

OP-14-005 Validate and Integrate Calculations and Setpoints

The licensee determined that discrepancies existed in system calculations and that some setpoints did not have a clear and retrievable design basis.

a. OP-14-005.2.D: Revise/Update/Create calculations. The licensee committed to having a copy of the signature page from each calculation within the scope of the project showing approval signatures by June 5, 2005.

As of July 16, 2004, this action step had not been completed. The calculations had been selected and were currently in the process of being reviewed. The signature pages would become available after the final revisions or validations have been completed. Since this action step was in its early stages and was due in June 2005, the inspectors did not identify any issues regarding its progression.

b. OP-14-005.2.E: Final review and acceptance of the revised emergency operating procedures (EOP) setpoint calculations. The licensee committed to providing a copy of each signature page from the revised EOP setpoint calculations showing Operations acceptance signatures by April 4, 2005.

As of July 16, 2004, this action step had not been completed. This step was a subset of step 2.d and had a start date of December 29, 2004. Therefore, no information regarding this step was available for review. Since this action step had not been scheduled to begin until December 2004, the inspectors did not identify any issues regarding its progression.

c. OP-14-005.3: Identify the population of calculations subject to validation by April 8, 2004.

This action step had been completed. The licensee provided the list of 1401 calculations to the inspectors. The inspectors did not identify any issues regarding the progression of this action step. The effectiveness of the installed modification will be reviewed during future CAL close out inspections.

d. OP-14-005.7: Prepare semi-annual progress report. The licensee committed to completing a progress report by July 2, 2004.

This action step had been completed. The licensee provided the draft and final versions of the progress report to the inspectors. The effectiveness of the installed modification will be reviewed during future CAL close out inspections.

e. OP-14-005.8: Perform mid-project effectiveness review report by August 20, 2004.

As of July 16, 2004, this action step had not been completed. This step had a start date of August 16, 2004; therefore, no information regarding this step was available for review. The inspectors did not identify any issues regarding the progression of this step.

4OA6 Meetings, Including Exits

.1 Exit Meeting

The inspectors presented the inspection results to Mr. D. Koehl and other members of licensee management at the conclusion of the inspection on July 16, 2004. The inspectors determined that proprietary information was reviewed during the inspection. The inspectors confirmed that the proprietary material had been returned to the licensee or indicated it would be handled in accordance with NRC policy on proprietary information.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
J. Brander, Maintenance Manager
T. Carter, System Engineering Manager
B. Cole, Acting NOS Manager
J. Connolly, Regulatory Affairs Manager
G. Corell, Chemistry Manager
R. Davenport, Acting Plant Manager (Production Planning Mgr)
B. Dungan, Operations Manager
F. Flentje, Excellence Team/Regulatory Affairs Principal Analyst
D. Hettick, Performance Improvement Manager
R. Hopkins, Nuclear Oversight Supvr/Equip Reliability Mgr
T. Kendall, Engineering Sr Technical Advisor
D. Koehl, Site Vice President
J. Marean, Mechanical/Structural Design Engineering Supervisor
J. McCarthy, Site Director
L. Peterson, Engineering Continuous Performance Manager
T. Petrowsky, Design Engineering Manager
M. Ray, EP Manager
A. Reiff, Acting Training Manager
M. Rosseau, Electrical/I&C Design Engineering Supervisor
G. Sherwood, Engineering Programs Manager
J. Schweitzer, Engineering Director
D. Shannon, Acting Radiation Protection Manager
T. Vandenbosch, Operating Supervisor/Operations Procedures
J. Walsh, Projects Manager

Nuclear Regulatory Commission
R. Caniano, Deputy Director, Division of Reactor Safety
J. Lara, Chief, Electrical Engineering Branch, Division of Reactor Safety
P. Louden, Chief, Branch 7, Division of Reactor Projects
P. Krohn, Senior Resident Inspector

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000266/2004004-01 05000301/2004004-01	NCV	Failure to Test Service Water Headers (Section 1R21.2b.1)
05000266/2004004-02	NCV	Non-Code Repair to Valve SW 0322 (Section 1R21.2b.2)
05000266/2004004-03	NCV	Non-Code Repair to Valve SW 32C and SW 32F (Section 1R21.2b.3)
05000266/2004004-04 05000301/2004004-04	NCV	Failure to Correctly Translate Condensate Storage Tank Temperature Limits into Procedures and Instructions (Section 1R21.2b.4)
05000266/2004004-05 05000301/2004004-05	NCV	Failure to Periodically Verify Position of Valves in the SW System (Section 1R21.2b.5)
05000266/2004004-07 05000301/2004004-07	NCV	Failure to Translate Original Design Requirements for the 480 Vac System (Section 1R21.3b)

Opened

05000266/2004004-06 05000301/2004004-06	URI	Additional Information Needed to Determine Adequacy of Piping Anchor Design for SW to CFCs (Section 1R21.2b.6)

Discussed

None.

LIST OF DOCUMENTS REVIEWED

The following is a list of licensee documents reviewed during the inspection, including documents prepared by others for the licensee. Inclusion on this list does not imply that NRC inspectors reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document in this list does not imply NRC acceptance of the document, unless specifically stated in the inspection report.

1R21 Safety System Design and Performance Capability

Drawings

Number	Title	Revision or Date
P-163	Service Water Pump Discharge HB-19	Revision 7
31 MWSG26903404	31 MWSG26903404 16" 150lb Swing Check Valve Disc	Revision 4
P6118-M85-054-1	2” to 16" 150lb Swing Check Valve	January 25, 2000
WM Powell Co. 05860	12" - Class 150 Globe Valve Weld End Fig No. 1531 WE	Revision 0
EAPK00000711	Primary Auxiliary Building Safeguards 480 Vac MCC 2B32	
EAPK00000120	480 Vac One Line Diagram, Point Beach N.P. Unit 2	
EAPK16600308	Primary Auxiliary Building 480 Vac MCC 1B32	
EAPK16600412	Primary Auxiliary Building Safeguards 480 Vac MCC 1B42	
EAPK24100302	480 Vac One Line Diagram, Alternate Shutdown SWGR 41F153 (SH.3)	
FSAR Figure 8-1	Unit 1&2 Main One Line Diagram	
FSAR Figure 8-8	Unit 1&2 480 Vac One Line Diagram	
Sheet 1	P&ID Service Water Unit 1	Revision 65
PB02E22303505805	Connection Diagram Rack 2C171B-F CD2-16	Revision 5
PB01E22303506005	Connection Diagram Rack 1C171B-F CD1-16	Revision 5

PB01EAPS00003500	Elementary Wiring Diagram 1B-03 480 Vac Ground Detail Scheme	Revision 00
PB31EAPS03101304	Elementary Wiring Diagram Alternate Supply P-032C/E Breaker B52-57D	Revision 4
PB01MWSK00000365	P&ID Service Water	Revision 65
PB01MWSK00001025	P&ID Service Water	Revision 25
PB02EAPK00000120	480 Vac One Line Diagram Unit 2	Revision 20
PB31EAPK24100302	480 Vac One Line Diagram Alternate Shutdown SWGR 541F153 SH. 3	Revision 02
GLD M-207 Sheet 1	QA Classification Diagram, Service Water	Revision 26
FSAR Figure 8-9	Unit 1&2 480 Vac One Line Diagram	
GLD M-207 Sheet 1A	QA Classification Diagram, Service Water	Revision 23
GLD M-207 Sheet 2	QA Classification Diagram, Service Water	Revision 20
GLD M-207 Sheet 3	QA Classification Diagram, Service Water	Revision 30
GLD M-207 Sheet 4	QA Classification Diagram, Service Water	Revision 12
GLD M-2207 Sheet 1	QA Classification Diagram, Service Water	Revision 17
GLD M-2207 Sheet 2	QA Classification Diagram, Service Water	Revision 11
M-82 Sheet 1	Piping and Mechanical, Detail of Containment Piping Penetration Closure	Revision 12
M-82 Sheet 2	Piping and Mechanical, Containment Piping Penetration Closure Details	Revision 4
M-89	Service Water Discharge Piping to Circulating Water Discharge, Area 2 & 4	Revision 2
M-212 Sheet 1	P&ID - Circulating Water System, Condenser Air Removal & Priming, Unit 1	Revision 61
M-2212	P&ID - Circulating Water System, Condenser Air Removal & Priming, Unit 2	Revision 59
M-2089	Service Water Discharge Piping to Circulating Water Discharge, Area 3 & 9	Revision 2
P-139 Sheet 1	Service Water from HX-12A, B & C to Circulating Water Discharge Header HB-19, JB-1 & JB-2	Revision 1

P-139 Sheet 2 - 2	Service Water from HX-12A, B & C to Circulating Water Discharge Header HB-19, JB-1 & JB	Revision 1
P-313 Sheet 35A	Pipe Hanger / Support Detail, JB-2-S624A	Revision 3
P-313 Sheet 35B	Pipe Hanger / Support Detail, JB-2-S624A	Revision 3
P-415 Sheet 9	Pipe Hanger / Support Detail, HB-19-A1 & A2	Revision 0
P-438 Sheet 12	Pipe Hanger / Support Detail, HB-19-A1 & A4	Revision 0
Flowserve W0125880	8" - 150 LB Butterfly Valve, Wfer Style, Stainless Steel for Limitorque H1BC/SMB-000-2 Actuator, Blind Shaft Hole Design	Revision A
Powell 034954	4" to 18" 150 Pound O.S.Y. Gate Valve	Revision 2
Powell 035104	6" - 150 Pound O.S.Y. Gate Valve, Fig. No. 1523WE, Motor Operated with Rod Indicator	Revision 2
Powell 062427	NPS 6" - Class 150, Converting a 6" Fig. 1503 Hand Operated Valve to a Motor Operated Valve	Revision 1
M-207 Sheet 1	Service Water	Revision 65; dated May 20, 2004
M-207 Sheet 1A	Service Water	Revision 25; dated January 24, 2004
M-207 Sheet 2	Service Water	Revision 45; dated May 16, 2004
M-207 Sheet 3	Service Water	Revision 59; dated May 20, 2004
M-207 Sheet 4	Service Water	Revision 23; dated May 21, 2004
M-208 Sheet 2	Fire Protection Water	Revision 33; dated April 19, 2004
M-212 Sheet 1	Circulating Water System Condenser Air Removal & Priming Unit 1	Revision 60; dated August 23, 2003
M-217 Sheet 1	Auxiliary Feedwater System	Revision 73; dated June 13, 2002

M-217 Sheet 2	Auxiliary Feedwater System	Revision 39; dated January 31, 2004
M-2207 Sheet 1	Service Water	Revision 54; dated June 17, 2000
M-2207 Sheet 2	Service Water	Revision 11; dated June 21, 2004
M-2212	Circulating Water System Condenser Air Removal & Priming Unit 2	Revision 58; dated April10, 2004
Drawing Number D-9643	Component Cooling Water Heat Exchanger; Atlas Industrial Manufacturing Co.	Revision 4 dated September 9, 1985
Drawing Number D-322730	Heat Exchanger Equip. #1 & 2 HX-55A1 & B1; Young Radiator Co.	dated May 3, 1990

Job Orders, Work Orders and Work Requests

JO No. 38101	Perform UT thickness measurements of SW 0307	Nov 18, 2002
JO No. 38101	Perform UT thickness measurements of SW 0322	Nov 22, 2002
JO No. 88917	Perform UT thickness measurements of SW 0360	Nov 27, 2002
JO No. 38101	Perform UT thickness measurements of SW 0315	Nov 18, 2003
MWR No. 901997	P-32A SW Pump Discharge Check Valve	May 25, 1993
MWR No. 901460	P-32A SW Pump Discharge Check Valve	April 9, 1990
MWR No. 901998	P-32B SW Pump Discharge Check Valve	March 16, 1993
MWR No. 901999	P-32C SW Pump Discharge Check Valve	May 17, 1993
MWR No. 03-017	P-32F Service Water Pump Discharge Check Valve Disk Repair	April 15, 2003.
WO No. 9704458	P-32A SW Pump Discharge Check Valve	January 30, 1998
WO No. 0309375	P-32A SW Pump Discharge Check Valve	March 3, 2004.
WO No. 9807124	P-32C SW Pump Discharge Check Valve	July 15, 1998
WO No. 0304633	P-32C SW Pump Discharge Check Valve	December 3, 2003
WO No. 9938090	P-32F SW Pump Discharge Check Valve	April 17, 2003.
WO No. 9921857	Open and Inspect Check Valve SW 0135A	February 15, 2004

WO No. 9709004	SW-0322 Valve Body is Eroded	August 28, 1997
WO 9707311	Post installation testing of Compressor aftercooler SA-HX-50A	10/30/97
WO 9707311	Post installation testing of Compressor aftercooler SA-HX-50B	10/30/97
WO 9707307	Post installation testing of Compressor aftercooler IA-HX-49A	10/27/98
WO 9707307	Post installation testing of Compressor aftercooler IA-HX-49B	10/27/98
WO 0207548	Replace IA Compressor aftercooler IA-HX-49A HX with floating" moisture seperator end.	2/21/04
0301141	Bio/Silt Fouling Inspection HX-015A5	April 28, 2004
0301142	Bio/Silt Fouling Inspection HX-015A6	April 28, 2004
0301143	Bio/Silt Fouling Inspection HX-015A7	April 28, 2004
0301144	Bio/Silt Fouling Inspection HX-015A8	April 28, 2004
0301145	Bio/Silt Fouling Inspection HX-015B5	April 15, 2004
0301146	Bio/Silt Fouling Inspection HX-015B6	April 15, 2004
0301147	Bio/Silt Fouling Inspection HX-015B7	April 18, 2004
0301148	Bio/Silt Fouling Inspection HX-015B8	April 15, 2004
0306443	Bio/Silt Fouling Inspection HX-015A1	April 27, 2004
0306444	Bio/Silt Fouling Inspection HX-015A2	April 27, 2004
0306445	Bio/Silt Fouling Inspection HX-015A3	April 27, 2004
0306446	Bio/Silt Fouling Inspection HX-015A4	April 27, 2004
0306449	Bio/Silt Fouling Inspection HX-015B1	April 27, 2004
0306450	Bio/Silt Fouling Inspection HX-015B2	April 23, 2004
0306	Bio/Silt Fouling Inspection HX-015B3	April 23, 2004
0306452	Bio/Silt Fouling Inspection HX-015B4	April 23, 2004
0310177	P-31A Pipe Supports Missing Bolts	November 7, 2003

Calculations

N–91-038	480 Vac Safeguards Motor Protection	Revision 1
N-94-59	CCW HX-012A-D Service Water Flow versus Temperature Requirement	1
N-94-064	VNBI [HX-105A/B] Service Water Flow vs. Temperature Requirement	3
N-94-064-3-A	Addendum to VNBI [HX-105A/B] Service Water Flow vs. Temperature Requirement	April 22, 2003
2004-0002	Engineering Eval - Loss of SW to TDAFWP brg	0
N–91-039	Safeguards Transformer Protection,	Revision 0
N– 91-044	480 Vac Buses B-08/B-09 Circuit Breaker Settings	Revision 1
N–92-004	480 Vac MCC and Power Panel Coordination Analysis,	Revision 3
P-94-004	MOV Overload Heater Evaluation	Revision 12
95-0040	Determination of Voltage Drop in Safety Related MCC Control Circuits	Revision 0
97-0250	Overload Heater Sizing for Motor Protection of AFW MOVs MS-2082	
2001-0049	Coordination 480 Vac Switchgear	Revision 0
2001-0049-00-A	480 Vac Switchgear Coordination, Effects of B52-56B Setpoint Change	
STPT 21.2	480 Vac Breaker Overloads, Protective Relay Setpoints	Revision 18
692301-2.2-004-00-A	AFW Pump Room Loss of HVAC Analysis	Addendum A
96-0059	Service Water Model Input Deck Updates	Revision 8
97-0118	Capability to Achieve Cold Shutdown in Both Units with One CCW Pump and Two CCW Heat Exchangers	Revision 0 & Addenda A and B
97-0126	Service Water System - LOCA	Revision 5
98-0051	Service Water System Heat Exchanger HX-55A/B Flow Requirements	Revision 2
98-0172	Containment Fan Cooler Acceptance Criteria	Revision 2 & Addendum A

99-0032	Application of Uncertainty to Hydraulic Modeling of the Service Water System	Revision 1
2002-0003	Service Water System Design Basis	Revision 0 & Addenda A thru D
2003-0007	Engineering Evaluation: CCW Tube Plugging & Stabilization Criteria	Revision 0
2003-0008	CCW HX Plugging Limit	Revision 1
2004-0014	Engineering Evaluation: Preliminary Evaluation of Containment Fan Cooler Test Results	Revision 0
FAI/97-60	Point Beach Containment Fan Cooler Analysis in Response to NRC Generic Letter 96-06	Revision 5
N-94-059	CCW, HX-12A-D, Service Water Flow Verses Temperature Requirement	Revision 1
N-94-082	Service Water Flow Balance for Hot Shutdown After Appendix R Fires	Revision 2
N-93-040	Estimation of Leak Rates in Non-Seismic Portions of the Service Water System	Revision 1
P-89-037	Determination of SW Pump Minimum Submergence	Revision 2
2002-0003	Service Water System Design Basis	Revision 0
2001-0022	Diesel Generator Service Water Flow Loop Uncertainty Calculation	Revision 0
98-0051	Service Water System Heat Exchanger HX-55A/B Flow Requirements	Revision 2
Calculation Book Section 5.3.2	I&C Calculation Sheet: Service Water Pressure Instrumentation Uncertainty Calculation	07/12/1996
PBNP-IC-03	Foxboro Spec 200 Plant Process Computer Point String Drift Calculation	Revision 0
PBNP-IC-07	Westinghouse 252 Indicator Drift Calculation	Revision 0
PBNP-IC-13	Foxboro N-E11GM Transmitters Drift Calculation	Revision 0
96-0265	Post-LOOP CFC Service Water Void Refill Rate	Revision 0

FAI/97-60	Point Beach Containment Fan Cooler Analysis in Response to NRC Generic Letter 96-06	Revision 5
FAI/97-88	Verification Experiments for Water Hammer Events in Power Plant Service Water Systems	Revision 0
N-93-082-00-A	SW-4478, SW4479 MOV Differential Pressure Calculations	Revision 0
P-94-005	MOV Stem Thrust Calculation for Gate and Globe Valves	Revision 9
TR00.114	Flowserve Report: Design, Seismic, and Weak Link Analysis, 3-Inch Class 1630 Stainless Steel Double Disc Gate Valve with SMB-00 Limitorque Motor Actuator	August 14, 2000
TR01.124	Flowserve Report: Design, Seismic, and Weak Link Analysis, 8-Inch Class 150 Stainless Steel Wafer Butterfly Valve with H1BC/SMB-000-2 Limitorque Actuator	Revision A
WE-200093	Piping System Qualification Report; Subsystem: 8"-HB-19; Service Water Return Piping From Containment Penetration 2-P43 to Floor Anchor HB-19-A-2 (HB-19)	Revision 1
WE-200093	Addendum B Piping System Qualification Report; Subsystem: 8"-HB-19; Service Water Return Piping From Containment Penetration 2-P43 to Floor Anchor HB-19-A-2 (HB-19)	Revision 1
WE-200095	Piping System Qualification Report; Subsystem: 8" & 2.5-HB-19; Service Water Supply and Return Piping from Anchor HB-19-A4 to Containment Cooler 2HX15D	Revision 2
WE-200095 / Addendum A	Piping System Qualification Report; Subsystem: 8" & 2.5-HB-19; Service Water Supply and Return Piping from Anchor HB-19-A4 to Containment Cooler 2HX15D	Revision 2
WE-300023 / Addendum E	Piping System Qualification Report; Subsystem: 3HB19AA; Service Water Piping; HB-19 Piping from Anchor A-110 to CCW/HX, to Containment Penetrations, to Anchors SW-1-S15, A113 and WEPCO-471	Revision 0
WE-300023S	Calculation for Support JB2-S624A	Revision 0

WE-300060-02	Service Water Supply to Spent Fuel Pool Heat Exchangers HX-13A and HX-13B	Revision 2
96-0246	Uncertainty of Service Water Pump In-Service Testing (IST)	Revision 4
Calculation 96-0059	Service Water Model Input Deck Updates	Revision 8
Calculation 99-0032-01-A	Application of Uncertainty to Hydraulic Modeling of the Service Water System	December 26, 2002
Calculation 2003-0014	MOV Operating Parameters	Revision 0
P-89-037	Determination of SW Pump Minimum Submergence	Revision 2
P-90-017	Motor Operated Valve Undervoltage Stem Thrust and Torque Calculation	Revision 18
PBNP -IC-42	Condensate Storage Tank Water Level Instrument Loop Uncertainty/Setpoint Calculation	Revision 0
WE Calculation No. P94-005	Attachment A, MOV Stem Thrust Spreadsheet,	December 8, 2003
Calculation P-89-037	Determination of SW Pump Minimum Submergence	Revision 2 dated April 6, 2001
Calculation N-92-087	Service Water Computer Model Field-Determined Flow Resistances	Revision 6 dated December 11, 2001
Calculation N-94-056	Spent Fuel Pool - HX013A/B - Service Water Flow VS Temperature Requirement	Revision 0 dated May 4, 1994
Calculation N-94-059	CCW, HX-012A-D, Service Water Flow Verses Temperature Requirements	Revision 1 dated July 17, 2003
Calculation N-94-082	Service Water Flow Balance for Hot Shutdown After Appendix R Fires	Revision 2 dated June 10, 2002
Calculation 96-0246	Uncertainty of Service Water Pump In-Service Testing (IST)	Revision 4 dated December 23, 2002
Calculation 97-0126	Service Water System - LOCA	Revision 5 dated June 10, 2002
Calculation 98-0051	Service Water System Heat Exchanger HX-55 A/B Flow Requirements	Revision 2 dated December 9, 2003

Calculation Note CN-CRA-01-70	Point Beach SLB and Containment Response at 102% of 1524.5 Mwt with FRV Failure	Revision 0 dated October 18, 2001
Calculation 2002-0003	Service Water System Design Basis	Revision 0 dated June 13, 2002
Calculation 2002-0003-00-B	Service Water System Design Basis	Revision 0 dated July 9, 2003
Calculation 2002-0003-00-D	Service Water System Design Basis	Revision 0 dated December 30, 2003
Calculation 2003-0037	Diesel Cooler Lakegrass Fouling Acceptance Criteria	dated September 5, 2003

Condition Reports Generated Due to the Inspection

Number	Title	Revision or Date
OTH014067	Evaluate enhancing the Flow Check of FW Supply to TDAFW Pumps	July 15, 2004
CAP032559	NRC SSDPC Identified as Having No Justification Assumption 10 of Calculation N-94-64, Revision 3 (ignoring fan heat load)	July 15, 2004
CAP32563	Revise Calculation N-94-059	Revision 1
CAP057708	Required Update to Service Water DBD-12, Page 3-124, Revision 6	
CAP057786	CAP Did Not Provide Sufficient Information for Basis for Operability	
CAP057845	Possible Equipment Shortage for AOP-10A	
CAP057880	NRC Questions PBNP's Categorization of Service Water Valves Within IST Program	July 13, 2004
LL014066	Difficult to Find/ Interpret Additional Condition for Operating License	July 15, 2004
OPR000110	CAP [031870] Did Not Provide Sufficient Information for Basis for Operability [Temperature Sensitive Equipment]	July 9, 2004
CAP057902	QA Scoping Discrepancy between ICP 06-006 and CHAMPS	07/14/2004

Condition Reports Generated Due to the Inspection

Number	Title	Revision or Date
CAP057689	FSAR description misleading	07/01/2004
CA 032563	NRC SSDPC identified that Assumption 1 for Calc N-94-059 Required Clarification	7/1/04
CAP057665	Missed Surveillance SR 3.7.8.1	June 30, 2004
CAP057671	MSLB Containment Analysis is Non-Conservative with Respect to OI-150 Temp Limits	June 30, 2004
CAP057679	Inconsistencies Between Inservice Test Procedures	July 1, 2004
CAP057683	Steps Lack Direction to Lock Service Water Overboard Valves	July 1, 2004
CAP057697	Service Water Pump Operation Should Be Enhanced in OI-70	July 1, 2004
CAP057700	Discrepancies Found During the Review of 1(2)CL-CC-001 Revision 9 (8) CC Checklist	July 1, 2004
CAP05771	Missed Surveillances	July 1, 2004
CAP057721	ARB C01 A 1-6 Needs Updating	July 2, 2004
CAP057765	Extent of Condition for Service Water System	July 6, 2004
CAP057766	CCW Valve Redlock Discrepancies	July 6, 2004
CAP057787	Extent of Condition Findings Related to NRC 2004 SSDI Inspection	July 7, 2004
CAP057882	Potential Missed Surveillance	July 13, 2004
CAP057895	DBD-12 Section 4.3.4 Does Not Provide a Complete List of GL 89-10 SW Valves	July 14, 2004
OTH013895	Remove Caution from AOP-9A Concerning Low SW Pressure	June 30, 2004
OTH013904	Enhance Various SW Procedures to Use the Installed Larger Flushing Lines	July 2, 2004
OTH013970	Update FSAR Description of CFC Alignments During ILRT	July 7, 2004
OTH013999	Procedural Enhancement to OI 70 Involving Main Zurn Strainer Bypass Valves	July 9, 2004

Condition Reports Generated Due to the Inspection

Number	Title	Revision or Date
Procedure Feedback Request Number OPS 2004-1214;	AOP-8F Loss of Spent Fuel Pool Cooling; Delete Reference to Using Service Water in Step A18 and Step B18 to Add Makeup Water to SFP	July 1, 2004
Procedure Feedback Request for SEP-3.0 Unit 1	Change Steps 17 and 42 Check of Service Water Header Pressure from Greater Than 40 psig to Greater Than 50 psig	Revision 19; July 15, 2004
Procedure Feedback Request for SEP-3.0 Unit 2	Change Steps 17 and 42 Check of Service Water Header Pressure from Greater Than 40 psig to Greater Than 50 psig	Revision 20; July 15, 2004
CAP 057853	Non Conservative Service Water System Pressures Used in MOV Analysis	July 9, 2004
CAP 057902	QA Scoping Discrepancy Between (CP 06-006 and CHAMPS	July 14, 2004
OTH 014040	Misleading Information in SW DBD	July 14, 2004

Condition Reports Reviewed During the Inspection

Number	Title	Revision or Date
CAP 031247	GL 89-13 fouling issues with HX-105A&B - PAB Battery Room Coolers	Feburary 20, 2003
CAP 034548	Calculation weaknesses in Calculation N-94-64, Revision 3	August 4, 2003
CAP 032238	SW-0032F Inspection Results	April 15, 2003
CAP 032548	Main Service Water Zurn Strainers Have No Safety Function	April 29, 2003
CAP 034942	Misposition of SW-123A and SW-132A P-38A/B SW Strainer Bypasses	August 18, 2003
CAP 053169	SW Piping Blockage	January 25, 2004
CAP 028771	480 Vac Solution for Breaker Coordination	
ACE000835	Improper Traveling Screen Operation	July 29, 2002

Condition Reports Reviewed During the Inspection

Number	Title	Revision or Date
ACE001458	High Delta P on Unit 2 Turbine Hall Basket Strainer	September 25, 2003
ACE001543	SW Pump Room Cleanliness and Appearance is Unsatisfactory	January 2, 2004
ACE001562	Improper 2003 Assembly of PAB Battery Room Cooler	January 8, 2004
ACE001568	Tag Series 0 SW SW-2817 Tech Spec Ops Revision 0-1 Not Hung As Required	January 14, 2004
ACE001415	Planned Entry into a TSAC without a Contingency Plan	August 21, 2003
ACE001443	GL 89-13 Related Callups Are Not Identified As NRC Commitments in CHAMPS	September 15, 2003
ACE001589	Service Water Piping Blockage	January 27, 2004
ACE001619	SW-457A, P-41 Flow Switch Bypass Was Found Shut	February 19, 2004
ACE001657	K-3A Service Air Compressor SW Strainer Found Plugged with Grass	March 22, 2004
ACE000856	RMP Had Out of Spec Motor Amp Current for P32A SW Pump	August 12, 2002
ACE000862	SW-2911-BS Reversing Cam Mispositioned During Reassembly	August 16, 2002
ACE000875	Inadvertent Over Pressure of Gauge	August 26, 2002
ACE000921	Near Miss Incident	September 20, 2002
ACE000926	Valve Studs Overtorqued	September 20, 2002
ACE000952	South SW Header Work Not Included in Unit 2 Risk Profile Look-Ahead	September 25, 2002
ACE001105	Less than Adequate Work Documentation for P-32D SW Pump Maintenance	December 6, 2002
ACE001107	SW Valves for 1P-41 and P-41 Vacuum Priming Pumps Found Out of Position	December 10, 2002
ACE001139	Good Catch by CO Identified Valve SW-88 Out of Position	December 27, 2002
ACE001249	SOER 02-04 Evaluation Service Water System Fouling	March 28, 2003
ACE001282	SW-534 Opened Instead of WT-534	April 16, 2003

Condition Reports Reviewed During the Inspection

Number	Title	Revision or Date
ACE001341	G-02 Throttle Valve Found Not Locked	June 17, 2003
ACE001354	SPEED 95-053 Does Not Provide Sufficient Documentation for Seismic Qualification	July 10, 2003
ACE001373	Non-Conservative AFW/SW Technical Specifications/ Inappropriate CAP Closure	July 29, 2003
ACE001404	DPI-2843 G-01 Duplex Strainer Found Isolated	August 13, 2003
ACE001414	Misposition of SW-123A and SW-132A SW Strainer Bypass	August 20, 2003
ACE001682	Three Danger Tagged Valves Found Out of Position	April 17, 2004
CA021825	Service Water System Hydraulic Model May Be Non-Conservative	April 27, 1993
CA021826	Service Water System Hydraulic Model May Be Non-Conservative	April 27, 1993
CA021827	Service Water System Hydraulic Model May Be Non-Conservative	April 27, 1993
CA021828	Service Water System Hydraulic Model May Be Non-Conservative	April 27, 1993
CA021829	Service Water System Hydraulic Model May Be Non-Conservative	April 27, 1993
CA028876	Revise Calculations - Current Plant Alignment for AFW Pump Room Heatup	March 31, 2003
CA051874	Evaluate Options for Long-Term AFW Pump Room Heatup Issue	August 28, 2003
CAP027768	Service Water System Hydraulic Model May Be Non-Conservative	March 12, 1993
CAP028850	Improper Traveling Screen System Operation	July 25, 2002
CAP028995	RMP Had Out of Spec Motor Amp Current for P32A SW Pump	August 8, 2002
CAP029010	Basis for VNPAB System’s Non-Safety Related Scope Questioned	August 9, 2002
CAP029043	SW-2911-BS Reversing Cam Mispositioned During Reassembly	August 15, 2002

Condition Reports Reviewed During the Inspection

Number	Title	Revision or Date
CAP029132	Inadvertent Over Pressure of Gauge	August 23, 2002
CAP029387	Near Miss Incident	September 18, 2002
CAP029403	Valve Studs Overtorqued	September 18, 2002
CAP029509	South SW Header Work Not Included in Unit 2 Risk Profile Look-Ahead	September 23, 2002
CAP030315	Less Than Adequate Work Documentation for P-32D SW Pump Maintenance	December 4, 2002
CAP030334	SW Valves for 1P-41 and P-41 Vacuum Priming Pumps Found Out of Position	December 7, 2002
CAP030493	Good Catch by CO Identified Valve SW-88 Out of Position	December 19, 2002
CAP031246	Macro-Fouling Expected on Shell Side of SFP HXs Based on SW Flow Data	February 20, 2003
CAP031247	GL 89-13 Fouling Issues with HX-105A&B - PAB Battery Room Coolers	February 20, 2003
CAP031578	Service Water System Fouling	March 12, 2003
CAP031870	Calculation Does Not Reflect Current Plant Alignment for AFW Pump Room Heatup	March 27, 2003
CAP031908	SW Duplex Strainers F-215 and F-222 May Fail When Exposed to Full SW dP	March 28, 2003
CAP032226	SW-534 Opened Instead of WT-534	April 14, 2003
CAP032238	SW-00032F Inspection Results	April 15, 2003
CAP032548	Main Service Water Strainers Have No Safety Function to Strain Water	April 29, 2003
CAP033568	G-02 SW Throttle Valve Found Not Locked	June 15, 2003
CAP033941	SPEED 95-053 Does Not Provide Sufficient Documentation for Seismic Qualification	July 8, 2003
CAP034296	Non-Conservative AFW/SW Technical Specifications/ Inappropriate CAP Closure	July 25, 2003
CAP034758	DPI-2843 G-01 Duplex Strainer Found Isolated	August 12, 2003

Condition Reports Reviewed During the Inspection

Number	Title	Revision or Date
CAP034942	Misposition of SW-123A and SW-132A P-38A/B Strainer Bypasses	August 18, 2003
CAP034979	Planned Entry into a TSAC With Out a Contingency Plan	August 19, 2003
CAP050116	GL 89-13 Related Callups Are Not Identified as NRC Commitments in CHAMPS	September 11, 2003
CAP050342	High Delta P on Unit 2 Turbine Hall Basket Strainer	September 23, 2003
CAP052054	SW Pump Room Cleanliness and Appearance is Unsatisfactory	November 29, 2003
CAP052658	Improper 2003 Assembly of HX-105B Battery Room Cooler	January 6, 2004
CAP052765	Tag Series 0 SW SW-2817 Tech Spec Ops Revision 0-1 Not Hung as Required	January 12, 2004
CAP053169	Service Water Piping Blockage	January 25, 2004
CAP053986	SW-457A, P-41 Flow Switch Bypass Was Found Shut	February 18, 2004
CAP054996	K-3A Service Air Compressor SW Strainer Found Plugged with Grass	March 20, 2004
CAP055731	Three Danger Tags Found Out of Position	April 15, 2004
CE007165	Service Water System Hydraulic Model May Be Non-Conservative	March 12, 1993
CR 00-0377	Abandoned Fish Rearing Piping	January 31, 2000
OPR000031	Possible Common Mode Failure of Aux Feed Recirculation Lines	October 29, 2002
OPR000045	Macro-Fouling Expected on Shell Side of SFP HXs Based on SW Flow Data	February 24, 2003
OPR000046	GL 89-13 Fouling Issues with HX-105A&B - PAB Battery Room Coolers	February 24, 2003
OPR000052	SW Duplex Strainers F-215 and F-222 May Fail When Exposed to Full SW dP	March 31, 2003
OPR000058	SW-00032F Inspection Results	April 15, 2003

Condition Reports Reviewed During the Inspection

Number	Title	Revision or Date
CAP030227	Service Water (SW) to Auxiliary Feedwater (AFW) Pump Suction Power Supply Issues	11/22/2002
CAP011404	Significant Amount of Silt in Seal and Baseplate Leakage - SW Pumps	January 25, 2000
CAP012032 SI	Valves Not Red Locked - Status Control	May 15, 2000
CAP01203	Valves Not Red Locked As Required	May 18, 2000
CAP025673	Status of Red Locked Valves	July 3, 2000
CAP004443	RH and SI System Valve Positions	August 14, 2000
CAP001125	Intrusion of Some Sort of Lake Grass	October 15, 2001
CAP001861	Diesel Cooler Fouling	January 14, 2002
CAP028437	G-01 Diesel Cooler Zebra Mussel and Lake Weed Fouling	June 11, 2002
CAP029092	G-02 Diesel Cooler Fouling	August 20, 2002
CAP030334	SW Valves for 1P-41 and P-41 Vacuum Priming Pumps Found Out of Position	December 7, 2002
CAP030353	Continuing G0-2 Diesel Cooler Fouling	December 9, 2002
CAP030493	Good Catch by CO Identified Valve SW-88 Out of Position	December 19, 2002
CAP030499	Major G0-1 Diesel Cooler Fouling	December 19, 2002
CAP031246	Macro-Fouling Expected on Shell Side of SFP H/Xs Based on SW Flow Data	February 20, 2003
CAP031247	GL 89-13 Fouling Issues with HX-105A & B - PAB Battery Room Coolers	February 20, 2003
CAP031578	SOER 02-04 Evaluation Service Water System Fouling	March 12, 2003
CAP031908	SW Duplex Strainers F-215 and F-222 May Fail When Exposed to Full SW DP	March 28, 2003
CAP033365	G0-2 Diesel Cooler Fouling	June 6, 2003
CAP033568	G-02 SW Throttle Valve Found Not Locked	June 15, 2003
CAP033890	G0-2 Diesel Cooler Fouling	July 2, 2003
CAP034296	Non-Conservative AFW/SW Technical Specifications/Inappropriate CAP Closure	July 25, 2003
CAP034365	G0-2 Diesel Cooler Fouling	July 28, 2003

CAP034758	DPI-2843 G-01 Duplex Strainer Found Isolated	August 12, 2003
CAP034942	Misposition of SW-123A and SW-132A P-38A/B SW Strainer Bypasses	August 18, 2003
CAP0500040	G0-1 Diesel Cooler Fouling & G0-2 Concerns	September 10, 2003
CAP050119	G0-2 Diesel Cooler Fouling - Post Operability Determination Required	September 11, 2003
CAP051874	Significant G0-2 Diesel Cooler Fouling. Past Operability Determination Required	November 17, 2003
CAP051944	G0-1 Diesel Cooler Fouling	November 20, 2003
CAP052753	G02 EDG H/X-055B-1 & HX-055B-2 Inspection Results	January 12, 2004
CAP053209	Jan 04 G0-1 Diesel Cooler Fouling	January 26, 2004
CAP053569	G0-1 Diesel Cooler Fouling	February 5 2004
CAP053900	Feb 13 G0-1 Diesel Cooler Fouling	February 16, 2004
CAP053986	SW-457A, P-41 Flow Switch Bypass was Found Shut	February 18, 2004
CAP054615	March G0-2 Diesel Cooler Fouling	March 9, 2004
CAP054789	Mar 14 G0-1 Diesel Cooler Fouling	March 15, 2004
CAP054996	K-3A Service Air Compressor SW Strainer Found Plugged With Grass	March 20, 2004
CAP055100	Mar 25 G0-1 Diesel Cooler Fouling	March 25, 2004
CAP055182	Mar 29 G0-2 Diesel Cooler Fouling	March 29, 2004
CAP055905	April 19 G0-1 Diesel Cooler Fouling	April 20, 2004
CAP056354	May 3 G0-2 Diesel Cooler Fouling	May 3, 2004
CAP056853	May 18 G0-1 Diesel Cooler Fouling	May 20, 2004
CAP057186	June 3 G0-2 Diesel Cooler Fouling	June 3, 2004
CR 99-2241	Installed Instrumentation, existing procedures and available data are inadequate	September 23, 1999
CAP 053035	Calculation N-92-004 not being Updated for Breaker Changes	January 21, 2004
CAP 054534	Unanalyzed Load Discovered on G03/G04 Emergency Diesel Generator	March 5, 2004
ACE001107	SW Valves for 1P-41 and P-41 Vacuum Priming Pumps Found Out of Position	December 10, 2002
ACE001139	Good Catch by CO Identified Valve SW-88 Out of Position	December 27, 2002
ACE 001157	Apparent Cause Evaluation of CAP030619 and CAP030640	February 7, 2003

ACE 001249	SOER 02-04 Evaluation Service Water System Fouling	March 28, 2003
ACE001341	G-02 SW Throttle Valve Found Not Locked	June 17, 2003
ACE001373	Non-Conservative AFW/SW Technical Specifications/Inappropriate CAP Closure	July 29, 2003
ACE001404	DPI-2843 G-01 Duplex Strainer Found Isolated	August 13, 2003
ACE001414	Misposition of SW-123A and SW-132A P-38A/B SW Strainer Bypasses	August 20, 2003
ACE001619	SW-457A, P-41 Flow Switch Bypass was Found Shut	February 19, 2004
ACE001657	K-3A Service Air Compressor SW Strainer Found Plugged With Grass	April 21, 2004

Surveillances (completed)

Number	**Title**	**Date performed**
IT 07A	P-32A Service Water Pump (Quarterly), Revision 14	June 2, 2004
PC 10 PART 3	SW to SFP MOVs and Radwaste System AOVs Leak Check, Revision 4	March 15, 2004
IT 8A	Cold Start of TDAFWP and valve test	September 18, 2003
IT 07B	P-32B Service Water Pump (Quarterly	April 21, 2004
IT 07C	P-32C Service Water Pump (Quarterly)	April 21, 2004
IT 07D	P-32D Service Water Pump (Quarterly)	May 9, 2004
IT 07E	P-32E Service Water Pump (Quarterly)	May 9, 2004
IT 07F	P-32F Service Water Pump (Quarterly)	May 9, 2004
IT 07G	Service Water Valves (Quarterly)	May 9, 2004
IT 08A	Cold Start of Turbine-Driven Auxiliary Feed Pump and Valve Test (Quarterly) Unit 1	March 5, 2004
IT 08A	Cold Start of Turbine-Driven Auxiliary Feed Pump and Valve Test (Quarterly) Unit 1	June 8, 2004
IT 08B	TDAFP Suction From SW MOV Exercise Test (Quarterly) Unit 1	May 4, 2004
IT 09B	TDAFP Suction From SW MOV Exercise Test (Quarterly) Unit 2	May 31, 2004
IT 10C	AF-4009, P-38A MDAFP Suction From SW MOV Exercise Test (Quarterly)	May 28, 2004
IT 10D	AF-4016, P-38B MDAFP Suction From SW MOV Exercise Test (Quarterly)	May 28, 2004
IT 15	Chill Water Pumps and Valves (Quarterly)	March 24, 2004

Surveillances (completed)

Number	Title	Date performed
IT 72	Service Water Valves (Quarterly)	May 13, 2004
IT 270	1SW-2880, Unit 1 Turbine Bldg Service Water Inlet (Cold Shutdown)	April 27, 2004
IT 295	Manual Valve Stroke of AFW Pump Discharge and Service Water Supply Valves (Cold Shutdown), Unit 2	October 25, 2003
	Portions of Completed PBF-2032; Daily Log Sheet, Turbine Bldg Log - Unit 1	September 29, 2003 through October 12, 2003
	Portions of Completed PBF-2032; Daily Log Sheet, Turbine Bldg Log - Unit 1	April 9, 2004 through April 18, 2004
TS 33	Containment Accident Recirculation Fan-Cooler Units (Monthly) Unit 1	May 28, 2004
TS 34	Containment Accident Recirculation Fan-Cooler Units (Monthly) Unit 2	June 2, 2004

Procedures

Number	Title	Revision or Date
SMP 534	Acceptance Testing of M-623	August 31, 1984
SMP 535	Acceptance Testing of M-624	August 31, 1984
0-SOP-SW-100	South Service Water Return Header Isolation and Restoration	Revision 0
0-SOP-SW-101	South Service Water Supply Header Isolation and Restoration	Revision 1
0-SOP-SW-102	North Service Water Return Header Isolation and Restoration	Revision 0
1-SOP-CC-001	Component Cooling System	Revision 11
AOP-9A	Service Water System Malfunction	Revision 19
AOP-18	Electrical System Malfunction	Revision 2
ARP 1C04 1C 4-8	1TR-2000A or B Temperature Monitor Unit 1	Revision 0
ARP 2C04 2C 4-4	2TR-2000A or B Temperature Monitor Unit 2	Revision 4
BG AOP-9A	Background Documents - Service Water System Malfunction	Revision 16

Procedures

Number	Title	Revision or Date
PC 73 Part 6	Periodic Check - AFW Emergency Bearing Cooling (Annual)	Revision 6
ECA-0.0	Loss of All AC Power	Revision 36
ECA-0.1	Loss of All AC Power Recovery Without SI Required	Revision 18
ECA-0.2	Loss of All AC Power Recovery With SI Required	Revision 22
ECA-2.1	Uncontrolled Depressurization of Both Steam Generators	Revision 33
IT 07G	Service Water Valves (Quarterly)	Revision 3
IT 08B	TDAFP Suction from SW MOV Exercise Test (Quarterly) Unit 1	Revision 5
IT 09B	TDAFP Suction from SW MOV Exercise Test (Quarterly) Unit 2	Revision 5
IT 10C	AF-4009, P-38A MDAFP Suction from SW MOV Exercise Test (Quarterly)	Revision 2
IT 10D	AF-4016, P-38B MDAFP Suction from SW MOV Exercise Test (Quarterly)	Revision 2
IT 72	Service Water Valves (Quarterly)	Revision 25
IT 270	1SW-2880, Unit 1 Turbine Bldg Service Water Inlet (Cold Shutdown)	Revision 10
IT 275	2SW-2880, Unit 2 Turbine Bldg Service Water Inlet (Cold Shutdown)	Revision 9
IT 290	Manual Valve Stroke of AFW Pump Discharge and Service Water Supply Valves (Cold Shutdown), Unit 1	Revision 37
IT 295	Manual Valve Stroke of AFW Pump Discharge and Service Water Supply Valves (Cold Shutdown), Unit 2	Revision 33
OI 70	Service Water System Operation	Revision 49
OI 130	Performance Test of 1HX-15D1-D8 Containment Fan Cooler Unit 1	Revision 6
OI 131	Performance Test of 2HX-15D1-D8 Containment Fan Cooler Unit 2	Revision 7
OM 3.7	AOP and EOP Procedure Sets Use and Adherence	Revision 12
OM 4.3.2	EOP/AOP Verification/ Validation Process	Revision 9
OP 7A	Placing Residual Heat Removal System in Operation	Revision 43
PC 43, PART 5	Service Water to Auxiliary Feedwater Pump Line Flush Monthly	Revision 10

Procedures

Number	Title	Revision or Date
OI 70	Service Water System Operation	Revision 49
ICP 06.006	Service Water System Non-Outage Instruments Calibrations	Revision 4
ICP 06.059	Service Water Header Pressure Transmitter Calibrations	Revision 3
1ICP 06.050-2	Spec 200 Cabinet 1C-171 Rack Instrument Calibrations	Revision 2
ORT 3A	Safety Injection Actuation with Loss of Engineered Safeguards AC (Train A) Unit 1	Revision 37
ORT 3B	Safety Injection Actuation with Loss of Engineered Safeguards AC (Train B) Unit 1	Revision 34
AOP-10A	Safe Shutdown-Local Control	Revision 37
AOP-13A	Abnormal Operating Procedure	Revision 15
ARB C01A4-5	Traveling Screen Differential Level High	Revision 7
ARPI-PPCS-006	Priority Alarm Forebay/Pumpbay Level Unit 1	Revision 0
0I 35	480 Vac Electrical Equipment Operation	Revision 3
0I 70	Service Water Operation	Revision 49
ICP 06.042	Lake Water Intake Surge Chamber Level Channels	Revision 1
ICP 06.003	Meteorological and Circulating Water System Calibration	Revision 4
ICP 06.006	Service Water System non-outage Instruments Calibrations	Revision 4
ICP 6.15	Auxiliary Coolant System (Non-Outage)	Revision 29
TRM 3.7.7	Service Water (SW) System	Revision 5
OI 38	Circulating Water System Operation	Revision 34; dated May 6, 2004
OI 70	Service Water System Operation	Revision 49; dated May 24, 2004

Procedures

Number	Title	Revision or Date
OI 150	Condensate Storage Tank Operations;	Revision 6; dated April 26, 2004
CL 1B	Containment Barrier Checklist Unit 1	Revision 49; dated June 28, 2004
CL 2C	Mode 5 to Mode 4 Checklist	Revision 5; dated April1, 2004
CL 10B	Service Water Safeguards Lineup	Revision 54; dated September 22, 2003
CL 10C	Service Water Turbine Building Valve Lineup Unit 1	Revision 21; dated October 24, 2002
CL 10C	Service Water Turbine Building Valve Lineup Unit 2	Revision 17; dated March 4, 2002
CL 10J	Safeguards Service Water System Checklist Unit 1	Revision 22; dated May 6, 2004
CL 10J	Safeguards Service Water System Checklist Unit 2	Revision 21; dated April 26, 2004
CL 13E Part 1	Auxiliary Feedwater Valve Lineup Turbine-Driven Unit 1	Revision 35; dated June 7, 2004
CL 13E Part 1	Auxiliary Feedwater Valve Lineup Turbine-Driven Unit 2	Revision 19; dated December 15, 2003
CL 13E Part 2	Auxiliary Feedwater Valve Lineup Motor-Driven	Revision 37; dated December 15, 2003
0-TS-SW-001	Service Water Flow Path Valve Position Verification (Monthly)	Revision 0; dated November 20, 2001
1-TS-AF-001	Documentation of AFW Flow Path Alignment	Revision 0; September 10, 2001

Procedures

Number	Title	Revision or Date
2-TS-AF-001;	Documentation of AFW Flow Path Alignment	Revision 0; dated September 10, 2001
0-TS-AFW-002	Auxiliary Feedwater System Valve and Lock Checklist (Monthly)	Revision 2; dated July 17, 2003
NP 2.1.3	Administrative Control of Red Locks, Lead Seal Wires, and Padlocks on Plant Equipment (Valves, Switches, Etc)	Revision 4; dated February 18, 2004
AOP-8F	Loss of Spent Fuel Pool Cooling	Revision 10; dated September 23, 2002
AOP-9A	Service Water System Malfunction	Revision 19; dated May 27, 2004
BG AOP-9A	Background Documents Service Water System Malfunction	Revision 16; dated January 15, 2004
AOP-10A	Safe Shutdown - Local Control	Revision 37; dated January 5, 2004
BG AOP-10A	Background Documents Safe Shutdown - Local Control	Revision 5; dated January 5, 2004
AOP-13A	Circulating Water System Malfunction	Revision 15; dated January 9, 2003
BG AOP-13A	Background Documents Circulating Water System Malfunction	Revision 14; dated September 23, 2002
AOP-13C	Severe Weather Conditions; Revision 14	June 30, 2003
BG AOP-13C	Background Documents Severe Weather Conditions	Revision 13; dated June 30, 2003
AOP-18A Unit 1	Train “A” Equipment Operation	Revision 8; June 12, 2003
AOP-18A Unit 2	Train “A” Equipment Operation	Revision 8; June 12, 2003
AOP-22 Unit 1	EDG Load Management	Revision 2; dated April 14, 2003

Procedures

Number	Title	Revision or Date
AOP-23 Unit 1	Establishing Alternate AFW Suction Supply	Revision 4; dated January 4, 2004
BG AOP-23	Background Documents Establishing Alternate AFW Suction Supply	Revision 2; dated January 5, 2004
EOP-1.3 Unit 1	Transfer to Containment Sump Recirculation - Low Head Injection	Revision 32; dated October 3, 2003
EOP-1.4 Unit 1	Transfer to Containment Sump Recirculation - High Head Injection	Revision 13; dated January 22, 2004
ECA 0.0 Unit 1	Loss of All AC Power	Revision 36; dated October 3, 2003
SEP-2.1 Unit 1	Shutdown LOCA with RHR Aligned for Low Head	Revision 11; dated October 3, 2003
SEP-2.1 Unit 2	Shutdown LOCA with RHR Aligned for Low Head	Revision 11; dated October 3, 2003
SEP-3.0 Unit 1	Loss of All AC Power to a Shutdown Unit	Revision 19; dated January 5, 2004
SEP-3.0 Unit 2	Loss of All AC Power to a Shutdown Unit	Revision 20;January 5, 2004
ARB C01 A 1-5	Service Water Strainers ΔP High	Revision 6; dated August 25, 2003
ARB C01 A 1-6	Unit 1 or 2 Turbine Bldg Zurn Strainer ΔP High	Revision 4; dated December 7, 1993
ARB C01 A 2-5	North or South Service Water Header Strainers	Revision 4; dated March 27, 1997
ARB C01 A 4-5	Traveling Screen Differential Level High	Revision 7; dated October 14, 2002
ARB C02 D 3-6	G-01 Emerg Diesel Cooler Low Flow	Revision 5; dated November 8, 2001
ARB C02 F 3-1	G-02 Emerg Diesel Cooler Flow Low	Revision 9; dated July 26, 2001

Procedures

Number	Title	Revision or Date
OM 4.3.2	EOP/AOP Verification/Validation Process	Revision 9; dated June 24, 2004
OP 7A	Placing Residual Heat Removal System in Operation	Revision 43; dated April 22, 2004
OP 7B	Removing Residual Heat Removal System from Operation	Revision 35; dated June 24, 2004
OP 13A	Secondary Systems Startup	Revision 63; dated March 25, 2004
OP 13B	Secondary Systems Shutdown	Revision 20; dated April 19, 2004
ORT 9	Preparation for Integrated Leak Rate Test Unit 1	Revision 18; dated February 19, 2004
1-PT-SW-1	Service Water System Pressure Test - Inside Containment Unit 1;	Revision 2; dated September 4, 2002
PBF-2031	Daily Log Sheet, Aux Bldg Log	Revision 71
PBF-2032	Daily Log Sheet, Turbine Bldg Log - Unit 1	Revision 73
PBF-2033	Daily Log Sheet, Turbine Bldg Log - Unit 2	Revision 60
0-SOP-SW-100	South Service Water Return Header Isolation and Restoration	Revision 0; dated April 6, 2001
0-SOP-SW-102	North Service Water Return Header Isolation and Restoration	Revision 0; dated October 6, 2003
1-SOP-CC-001	Component Cooling System	Revision 11; dated January 5, 2004
2-SOP-CC-001	Component Cooling System	Revision 11; dated January 5, 2004
PC 10 Part 3	SW to SFP MOVs and Radwaste System AOVs leak Check	Revision 4; dated January 15, 2004

Procedures

Number	Title	Revision or Date
PC 43 Part 3	Service Water System Strainers and Flushing	Revision 28; dated May 10, 2004
PC 43 Part 7	G01/G02 Diesel Generator Heat Exchanger Flush	Revision 0; dated March 14, 2003
PC 73 Part 5	Service Water to Auxiliary Feed Pump Line Flush Monthly	Revision10; dated May 3, 2004
PC 73 Part 6	Auxiliary Feed Pump Emergency Bearing Cooling (Annual)	Revision 6; dated January 13, 2003
PC 97 Part 1	SW Flush of 1HX-015A1-A8 Containment Fan Cooler Coils and 1HX-015A Motor Cooler Unit 1	Revision 5; dated July 30, 2001
TS 81	Emergency Diesel Generator G-01 Monthly	Revision 67; dated April 26, 2004
TS 82	Emergency Diesel Generator G-02 Monthly	Revision 68; dated April 26, 2004
CAMP 917	Copper Ion Generator	Revision 6; dated March 23, 2004
HX-01	Heat Exchanger Condition Assessment Program	Revision 2; dated May 18, 2004
HX-01	Heat Exchanger Condition Assessment Program Appendix C; Unit 1 Outage Cycle Inspection Schedule	Revision 1; dated February 25, 2004
HX-01	Heat Exchanger Condition Assessment Program; Appendix D; Unit 2 Outage Cycle Inspection Schedule	Revision 1; dated February 25, 2004
HX-01	Heat Exchanger Condition Assessment Program; Appendix E; Annual Cycle Inspection Schedule	Revision 1; dated February 25, 2004
AM 3 -19	Biofouling Control Program	Revision 1; dated November 29, 2000
NP 7.7.15	Biofouling Control Methods	Revision 1; dated November 29, 2000
NP 7.7.22	Service Water and Fire Protection Inspection Program	Revision 1; dated March 10, 2004
DG-CH01	Zebra Mussel Tracking and Evaluation	Revision 0; dated December 9, 1999

Procedures

Number	Title	Revision or Date
CD 5.25	Generic Letter 89-13 Standard	Revision 0; dated June 12, 2003

Miscellaneous Documents

Number	Title	Revision or Date
EWR 96-041	Engineering Work Request: Service Water Pump Room Overhead Crane Seismic Interaction Analysis	January 11, 1996
Bulletin 3472	John Crane Seal Performance Testing for Nuclear Power Plant Safety Injection Systems	12/24/69
OPR 00046	CAP 31247 GL 89-13 fouling issues with HX-105A&B - PAB Battery Room Coolers	2/27/03
	System Health Report Instrument Air System (IA)	April 30, 2004
	System Health Report Service Air System (SA)	May 5, 2004
SCR 97-2785	10CFR50.59 screening of Replacing Air Compressor Aftercooler Heat Exchangers	11/4/97
IWP MR-93-005-01	Installation Work Plan to Replace Compressor aftercooler SA-HX-50A	10/30/97
IWP MR-93-005-02	Installation Work Plan to Replace Compressor aftercooler SA-HX-50B	10/30/97
IWP MR-93-005-03	Installation Work Plan to Replace Compressor aftercooler IA-HX-49A	10/30/97
IWP MR-93-005-04	Installation Work Plan to Replace Compressor aftercooler IA-HX-49B	10/30/97
	Letter from Flowserve to PBNP about TDAFWP bearing coolers	2/11/00
WPS-1	Weld procedure	Revision 5
	Procedure Qualification Record WR-34	Revision 0
	Procedure Qualification Record WR-46	Revision 0
PSA, Section 6	Internal Flooding Analysis	Revision 0

Miscellaneous Documents

Number	Title	Revision or Date
IT 72	Service Water Valves	Revision 25
	Service Water In-Service Inspection Program	Revision 12
Speed 2003-90	Replace Disk Stud SW 0032A-32F	August 11, 2003
PBM 93-0482	Service Water Pump Discharge Check Valves SW-32A Through SW-32F	June 10, 1993
Engineering Eval 2003-0019	P-32 Service Water Pump Discharge Check Valve Repair	December 1, 2003
MR 88-012	SW Chlorination System	January 27, 1988
PC 49 Part 5	Cold Weather Checklist Outside Areas and Miscellaneous	Revision 6
WE Calculation M-09334-357-HE2	High Energy Line Breaks in Selected Piping Systems	Revision 1
	Point Beach Nuclear Plant Units 1 and 2 Inservice Testing Program Fourth Ten-Year Interval, Appendix D, Page 2	Revision 1
DG-CO2	Internal Flooding	Revision 2
S&L Calculation - M-09334-357-HE1	Appendix D; Design Basis Criteria & Selection of High Energy Pipe Rupture Locations	June 30, 1998
DBD-T-36	Overcurrent Coordination and Protection	Revision 0
TRHB 11.8	Secondary System Descriptions: Service Water System	Revision 10
N/A	PBNP Inservice Testing Program 4th Interval	Revision 1
NRC Letter	Issuance of Amendments Re: Technical Specification Changes for Revised System Requirements to Ensure Post-Accident Containment Cooling Capability (TAC Nos. M96741 and M96742)	July 9, 1997
NRC Letter	Issuance of Amendments Re: Service Water System Operability (TAC Nos. MB4630 and MB4631)	August 29, 2002

Miscellaneous Documents

Number	Title	Revision or Date
PBSA-ENG-03-05	Point Beach Self-Assessment Report - Service Water Main Zurn Strainers (SW-02911-BS & SW-02912-BS) Self-Assessment	Revision 1
SL-WE-97-142	Sargent & Lundy Letter: White Paper on the Limiting Accident for Service Water Hydraulic Modeling	June 20, 1997
STPT 14.6	Setpoint Document - Secondary Systems: Service Water	Revision 21
STPT 14.11	Setpoint Document - Auxiliary Feedwater	Revision 17
NSD-SEA-ESI-97-669	Westinghouse Letter: Seismic Considerations in Licensing Basis Accident Analyses	December 8, 1997
TS Appendix C	Additional Conditions Operating License DPR-24 (Amendment Number 174)	Amendment No. 201
TS Appendix C	Additional Conditions Operating License DPR-27 (Amendment Number 178)	Amendment No. 206
DBD-12	Service Water System Design Basis Document	Revision 6
TRM 3.7.7	Service Water (SW) System	Revision 5
TRM 3.7.7 Bases	Service Water (SW) System	Revision 5
UFSAR 9.6	Service Water System	June 2002
DBD-12	Service Water System Design Basis Document	Revision 6
TFI 8.5 CIX_003131	Technical Manual: Models 288A, 289A, 290A, & 291A Differential Pressure Indicating Switch; ITT Barton	N/A
Manual No. 90K3	Installation and Operation Manual; Models 289A & 291A/B Differential Pressure Indicating Switches	1990
DG-101	Instrument Setpoint Methodology	Revision 3
DP 020-165	Foxboro Dimensional Print: N-E11GM Nuclear Electronic Gauge Pressure Transmitter	March 1982
TRHB 11.8	Point Beach Nuclear Plant Training Handbooks: Secondary Systems Descriptions: Service Water System	Revision 10

Miscellaneous Documents

Number	Title	Revision or Date
PSS 9-1B1 A	Foxboro Product Specifications: N-E11 and N-E13 Series Nuclear Electronic Pressure Transmitters	1984
STPT 21.1 Sheet 84	Setpoint Documents: Protective Relay Setpoints: 480 Vac Bus 1B03 Cable Spreading Room Unit 16A and 16R	Revision 4
I.L. 41-201G	Westinghouse Installation, Operation, Maintenance Instructions: Type CV Voltage Relay	October 1967
FHAR FZ 311 Fire Area A01-E	Fire Hazards Analysis Report AFP Tunnel	April 2004
FHAR FZ 304 Fire Area A23	Fire Hazards Analysis Report Auxiliary Feedwater Pump Room	April 2004
ARB C01 A 3-5	Alarm Response Book: North or South Service Water Header Pressure Low	Revision 7
STPT 14.6	Setpoint Document: Secondary Systems: Service Water	Revision 21
DBD-21	480 Vac System Design Basis Document	Revision 3
3.7.8	Service Water (SW) System	N/A
7.5.4	Emergency Shutdown Control	June 2003
9.6	Service Water System (SW)	June 2001
8.5	480 Vac Electrical Distribution System (480 Vac)	June 2000
NP 7.7.3	Design Basis Document Creation, Revision, and Maintenance	December 23, 2003
DG-G10	Design Basis Document Writer's Guide	Revision 3
CA055452	Commitment Excellence Plan - Validate/Integrate Calcs/Setpoints	February 3, 2004
NPM 2004-0436	Calculation Project Semi-Annual Progress Report	July 9, 2004
NU-PB-CRR-2004-003	Calculation Review and Reconstitution Project Status Update for June 2004 (nuenergy Innovative Solutions letter to Mr. Petrowsky)	June 28, 2004
(nuenergy manual)	Methodology for Review of Safety Related Calculations	Revision 1

Miscellaneous Documents

Number	Title	Revision or Date
OPR000031	Possible Common Mode Failure of Aux Feed Recirculation Lines	October 29, 2002
OPR000042	Service Water (SW) to Auxiliary Feedwater (AFW) Pump Suction Power Supply Issues	January 30, 2003
OBD000050	Service Water (SW) to Auxiliary Feedwater (AFW) Pump Suction Power Supply Issues	April 7, 2003
CA027167	Docketed Excellence Plan - OBD Item - SW to AFP Suction Power Supply	November 26, 2002
OBD000108	OBD Item - SW to AFP Suction Power Supply	November 5, 2003
MR 03-005	Repower Turbine-Driven AFW Pump Recirculation Valves 1AF-4002 & 2AF-4002	May 27, 2004
MR 03-006	Repower AFW Pump Recirculation Valve DPIS Devices from Safety Related Power Supplies	January 7, 2004
MR 03-007	Repower Service Water to 1P-29 AFW Pump suction MOV 1AF-4006	June 25, 2004
OPR000031	Possible Common Mode Failure of Aux Feed Recirculation Lines	October 31, 2002
OPR000052	SW Duplex Strainers F-215 and F-222 May Fail When Exposed to Full SW dp	April 1, 2003
USAS B31.1.0	Power Piping Code	1967 Edition
	ASME Boiler & Pressure Vessel Code; Section III; Division 1; Subsection NC; Class 2 Components	1977 Edition through Winter 1978 Addenda
	ASME Boiler & Pressure Vessel Code; Section III; Division 1; Subsection NF; Component Supports	1977 Edition through Winter 1978 Addenda
SE 98-053	Unit 1 Service Water Pipe Support Modifications (Inside Containment) - Revised Thermal Mode and Hydraulic Loads	March 26, 1998
MR 96-064A	Service Water System Upgrades (Boiling)	September 30, 1996

Miscellaneous Documents

Number	Title	Revision or Date
Modification 01-098	Upgrade Service water Zurn Strainer D/P Indication and Alarm Instrumentation	July 16, 2001
Plan BECH 6118 E-94	Connection Diagram Local Control Boards & Racks SH 1.1	January 8, 1996
CR-00-0267	Revision 1	March 17, 2000
MRE000147	Significant G0-2 Diesel Cooler Fouling. Past Operability Determination Required	December 12, 2003
OPR000045	Macro-Fouling Expected on Shell Side of SFP H/Xs Based on SW Flow Data;	February 24, 2003
OPR000046	GL 89-13 Fouling Issues with HX-105A & B - PAB Battery Room Coolers	February 24, 2003
Temporary Procedure Change Number 2004-0610	CL 10J: Safeguards Service Water System Checklist Unit 1	June 30, 2004
Temporary Procedure Change Number 2004-0611	CL 10J: Safeguards Service Water System Checklist Unit 2	June 30, 2004
Temporary Procedure Change Number 2004-0613	0-TS-SW-001 Service Water Flow Path Valve Position Verification (Monthly)	June 30, 2004
Temporary Procedure Change Number 2004-0618	CL 10B: Service Water Safeguards Lineup	July 1, 2004
Temporary Procedure Change Number 2004-0619	0-TS-SW-001; Service Water Flow Path Valve Position Verification (Monthly)	July 1, 2004
Temporary Procedure Change Number 2004-0625	0-TS-SW-001; Service Water Flow Path Valve Position Verification (Monthly)	July 8, 2004
Temporary Procedure Change Number 2004-0626	CL 10B; Service Water Safeguards Lineup	July 8, 2004
Temporary Procedure Change Number 2004-0631	CL 10J; Safeguards Service Water System Checklist Unit 1	July 8, 2004

Miscellaneous Documents

Number	Title	Revision or Date
Temporary Procedure Change Number 2004-0635	CL 10J; Safeguards Service Water System Checklist Unit 2	July 8, 2004
Temporary Procedure Change Number 2004-0637	CL 13A; Main Steam Valve Lineup Unit 1	July 9, 2004
Temporary Procedure Change Number 2004-0638	CL 13A; Main Steam Valve Lineup Unit 2	July 9, 2004
Temporary Procedure Change Number 2004-0650	1-TS-CONT-001; Containment Isolation Valve and Flange Verification (Monthly)	July 14, 2004
Temporary Procedure Change Number 2004-0651	2-TS-CONT-001; Containment Isolation Valve and Flange Verification (Monthly)	July 14, 2004
Point Beach FSAR Section 6.3	Containment Air Recirculation Cooling System (VNCC)	June 2003
Point Beach FSAR Section 7.5.4	Emergency Shutdown Control	June 2003
Point Beach FSAR Section 9.1	Component Cooling Water (CC)	June 2003
Point Beach FSAR Section 9.6	Service Water System (SW)	June 2002
Point Beach FSAR Section 9.9	Spent Fuel Cooling & Filtration (SF)	June 2002
Point Beach FSAR Section 10.2	Auxiliary Feedwater System (AF)	June 2003
Point Beach FSAR Section 14.3.4	Containment Integrity Evaluation	June 2003
Point Beach FSAR Appendix A	Shared System Analysis	June 1998
Point Beach FSAR Appendix A	Station Blackout	June 2002
FCR 04-007	Final Safety Analysis Report Change Request	February 3, 2004

Miscellaneous Documents

Number	Title	Revision or Date
Point Beach Technical Specification 3.0.3	Surveillance Requirement (SR) Applicability and associated Bases B 3.0.3	Unit 1 - Amendment No. 202; Unit 2 - Amendment No. 207
Point Beach Technical Specification 3.6.3	Containment Isolation Valves and associated Bases B 3.6.3	Unit 1 - Amendment No. 201; Unit 2 - Amendment No. 206
Point Beach Technical Specification 3.6.6	Containment Spray and Cooling Systems and associated Bases B 3.6.6	Unit 1 - Amendment No. 201; Unit 2 - Amendment No. 206
Point Beach Technical Specification 3.7.5	Auxiliary Feedwater (AFW) System and associated Bases B 3.7.5	Unit 1 - Amendment No. 201; Unit 2 - Amendment No. 206
Point Beach Technical Specification 3.7.6	Condensate Storage Tank (CST) and associated Bases B 3.7.6	Unit 1 - Amendment No. 201; Unit 2 - Amendment No. 206
Point Beach Technical Specification 3.7.7	Component Cooling Water (CC) System and associated Bases B 3.7.7	Unit 1 - Amendment No. 201; Unit 2 - Amendment No. 206
Point Beach Technical Specification 3.7.8	Service Water (SW) System and associated Bases B 3.7.8	Unit 1 - Amendment No. 201; Unit 2 - Amendment No. 206
Point Beach Technical Specification 3.8.1	AC Sources - Operating and associated Bases B 3.8.1	Unit 1 - Amendment No. 201; Unit 2 - Amendment No. 206
TRM 3.7.7	Service Water (SW) System	Revision 5; dated April 5, 2004
WEP-013-002	Single Active Failure Analysis Report for the PBNP Service Water System	Revision 0; dated June 25, 1993
Letter NPL 2001-0338 from NMC to Westinghouse	Main Steam Line Break (MSLB) Containment Analysis Input Assumptions, Point Beach Nuclear Plant, Units 1 & 2	October 11, 2001
Letter WEP-01-060 from Westinghouse to NMC	Containment Response to Steamline Break at 1524.5 MWt NSSS Power	October 29, 2001

Miscellaneous Documents

Number	Title	Revision or Date
Engineering Evaluation Number 2004-0002	Loss of Turbine Bearing Service Water Cooling for 1(2) P-029-T	Revision 0; dated January 14, 2004
Time Validation Results for AOP-10A	Safe Shutdown - Local Control	January 6, 2004
PRA 6.2	Probabilistic Risk Assessment Type C Post Initiator Events HRA Notebook; Section 5.63; AF–HEP-CST-Low-, Pc Component to CST Backup Due to Low Level	Revision 0; dated January 30, 2004
Heat Exchanger Specification Sheet	Component Cooling Heat Exchanger	February 24, 1992
TRHB 11.8	Secondary Systems Descriptions; Service Water System	Revision 10; dated March 26, 2004
	Point Beach 2004 Safety System Design Inspection (SSDI) Self Assessment Report	5/31/04 - 6/18/04
	System Health Report Service Water	January 30, 2004
	System Health Report Service Water	April 13, 2004
	System Health Report Component Cooling Water System	January 8, 2004
	System Health Report Diesel Generator System	April 23, 2004
	System Health Rating Status - CW	May 2004
	Performance Criteria Assessments for CC since 6/1/2001	June 3, 2004
	Performance Criteria Assessments for DG since 6/1/2001	June 3, 2004
	Performance Criteria Assessments for SW since 6/1/2001	June 3, 2004
DBD-02	Component Cooling System Design Basis Document	Revision 4; dated March 19, 2004
DBD-10	Residual Heat Removal System Design Basis Document	Revision 3; dated March 19, 2004
DBD-12	Service Water System Design Basis Document	Revision 6; dated May 26, 2004

Miscellaneous Documents

Number	Title	Revision or Date
DBD-16	Emergency Diesel Generator System Design Basis Document	Revision 4; dated April 30, 2004
	Service Water System Operational Performance Inspection	October 6, 1993
	Service Water System In-Service Inspection Program	Revision 2; dated June 11, 2004
	PBNP Inservice Testing Program 4th Interval	Revision 1; dated April 15, 2004
TIN NO. 97-1177	Test Protocol Wisconsin Electric Power Company Point Beach Nuclear Plant Component Cooling Water Heat Exchanger	Revision 1; dated January 17, 2001
PBSA-ENG-03-02	Component Cooling (CC) Water System Self-Assessment	September 8, 2003
	GL 89-13 Annual Report for 2001	March 22, 2002
	Point Beach GL 89-13 Program - 2003 Annual Report	March 22, 2004
	Point Beach GL 89-13 Program Self-Assessment # PBSA-ENG-03-15	December 23, 2003
Program Health Status	Service Water / Microbiologically Induced Corrosion	May 21, 2004
Program Health Status	Heat Exchanger Safety Related NRC GL 89-13	May 28, 2004
	GL-89-13 Program Document	Revision 3; dated January 29, 2004
	2003 EVAC Treatment Effectiveness Report	September 29, 2003
	Zebra Mussel Program Effectiveness Report - Annual	November 13, 2003
	4th Quarter 2003 Service Water System Maintenance Rule Summary	January 15, 2004
GL 89-13 Program	2003 SW System Engineer Report	February 13, 2004
	Response to Generic Letter 89-13 Safety Related Service Water Problem Point Beach Nuclear Plant	January 12, 1990

Design Change Packages

Number	Title	Revision or Date
MR 93-005	Replace Air Compressor Aftercooler Heat Exchangers	11/4/96
MR 88-012	Circulating Water System Chlorination/ Dechlorination Systems	August 17, 1988
MR 98-024*H U0	Add Motor Operator to Service Water WT Isolation Valve - Manual Only	June 16, 1999
MR 98-024*U	Modify SI Logic for Non-Essential Service Water Load Isolation Valves	July 13, 1999
MR 02-017	Top Hat and Stay Bushing Modification for the Service Water Motors P-32A-M thru P-32F-M	April 19, 2002
SPEED	2003-093 Steady Bushings for Service Water Pumps P-032A-F	August 18, 2003
Modification Number 97-081 *A	U0 Add Motor Operators to SW to SFP Cooling HX Isolation Valves	March 16, 1999
Modification Number 97-081*C	U2 Spent Fuel Pool Heat Exchanger Redundant MOVs - Unit 2 Safeguards Rack Work	October 2, 1998
Modification Number 98-024 *O	Install Copper Ion Generator	March 5, 2001
Modification Number 00-102	Service Water Upgrades to Emergency Diesel Generator G01	November 13, 2000
Modification Number 00-103	Service Water Upgrades to Emergency Diesel Generator G02	December 8, 2000

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
AFW	Auxiliary Feedwater
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing & Materials
CAL	Confirmatory Action Letter
CAP	Corrective Action Program
CFC	Containment Fan Cooler
CFR	Code of Federal Regulations
CS	Containment Spray
CST	Condensate Storage Tank
DBD	Design Basis Document
DRS	Division of Reactor Safety
EOP	Emergency Operating Procedure
FP	Fire Protection
IMC	Inspection Manual Chapter
ISI	Inservice Inspection
LOCA	Loss of Coolant Accident
LOOP	Loss of Offsite Power
MSLB	Main Steam Line Break
NCV	Non-Cited Violation
NPS	Nominal Pipe Size
NPSH	Net Positive Suction Head
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
OD	Operability Determination
OI	Operating Instruction
PARS	Publicly Available Records
RWST	Refueling Water Storage Tank
SDP	Significance Determination Process
SG	Steam Generator
SR	Surveillance Requirement
SW	Service Water
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
USAB	United States Activities Board
Vac	Volts - alternating current