

October 26, 2007

Mr. James McCarthy  
Site Vice President  
FPL Energy Point Beach, LLC  
6610 Nuclear Road  
Two Rivers, WI 54241

SUBJECT: POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2, NRC INTEGRATED  
INSPECTION REPORT 05000266/2007004 AND 05000301/2007004

Dear Mr. McCarthy:

On September 30, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Point Beach Nuclear Plant, Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on October 4, 2007, with you and members of your staff.

The inspection examined activities conducted under your license as they relate to safety and 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 your personnel.

Based on the results of this inspection, five findings of very low safety significance associated with violations of NRC requirements were identified. However, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV in this report, 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 copies 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 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, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (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/**

Jamnes L. Cameron, Chief  
Branch 5  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000266/2007004; 05000301/2007004  
w/Attachment: Supplemental Information

cc w/encl: J. Stall, Senior Vice President and Chief  
Nuclear Officer  
M. Warner, Vice President, Nuclear Operations  
North Region  
R. Kundalkar, Vice President, Nuclear Technical Services  
Licensing Manager, Point Beach Nuclear Plant  
A. Fernandez, Senior Attorney  
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

J. McCarthy

-2-

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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: 05000266/2007004;  
05000301/2007004

Licensee: FPL Energy Point Beach, LLC

Facility: Point Beach Nuclear Plant, Units 1 and 2

Location: Two Rivers, Wisconsin

Dates: July 1, 2007, through September 30, 2007

Inspectors: R. Krsek, Senior Resident Inspector  
G. Gibbs, Resident Inspector  
R. Ruiz, Resident Inspector  
K. Barclay, Reactor Engineer  
W. Slawinski, Senior Health Physicist  
C. Acosta, Reactor Engineer  
R. Daley, Senior Reactor Engineer

Observer: K. Streit, Transportation Specialist, Office of Nuclear  
Regulatory Research

Approved by: J. Cameron, Chief  
Branch 5  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000266/2007004 and 05000301/2007004; 07/01/2007 - 09/30/2007; Point Beach Nuclear Plant, Units 1 and 2; Maintenance Effectiveness; Permanent Plant Modifications; Event Followup; and Other Activities.

This report covers a three-month period of inspections by resident inspectors and regional specialists. Five Green findings with associated non-cited violations (NCVs) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 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-Revealed Findings

#### Cornerstone: Initiating Events

- Green. A self-revealing finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the failure to have procedures appropriate to the circumstances for modifying the Unit 1 Charging Pump 1P-2B wiring as part of Modification MR 04-013\*B, "CVCS [Chemical and Volume Control System] Charging Pump Variable Frequency Drives." Specifically, instructions were not provided to prevent isolation of reactor coolant letdown flow while performing wiring modifications for the 1P-2B Charging Pump. The licensee entered the issue into their corrective action program and took immediate corrective actions. The licensee continued to evaluate the causes and corrective actions to address this finding at the end of the inspection period.

The finding is greater than minor because it is associated with the design control and procedural quality attributes of the Initiating Events Cornerstone and affected the cornerstone objectives to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Additionally, the inadequate design review process that caused this problem, if left uncorrected, would become a more significant safety concern. The finding is of very low safety significance (Green) because the letdown isolation that occurred did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The inspectors also determined that the primary cause for this finding is related to the cross-cutting area of human performance. Specifically, under the component of resources, the licensee failed to ensure complete, accurate, and up-to-date installation workplans for modification of the 1P-2B Charging Pump wiring (H.2(c)). (Section 1R17)

## Cornerstone: Mitigating Systems

- Green. A self-revealing finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for the failure to take prompt corrective action for microbiologically-induced corrosion (MIC) of the service water (SW) piping. Specifically, the SW Inservice Inspection Program failed to identify SW pipe thinning prior to MIC causing a through-wall leak because the non-destructive examination method used, specifically radiography, was inadequate for detecting MIC. The limited ability for identifying MIC with radiography was a known problem and was previously documented in the licensee's corrective action program in 2005; however, prompt corrective actions were not taken. For the 2007 leak, the licensee took immediate corrective actions to replace the leaking SW pipe and proposed changes to the SW Inservice Inspection Program that would enhance the site's ability to identify potential sources of MIC in the SW system and correct the program issues initially identified in 2005.

The issue is greater than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In addition, if left uncorrected, the finding would become a more significant safety concern. The finding is of very low safety significance (Green) because there was no design deficiency, no actual loss of safety function, no single train loss of safety function for greater than the Technical Specification (TS) allowed outage time, and no risk due to external events. Additionally, the inspectors determined that the primary cause of the finding is related to the cross-cutting area of problem identification and resolution. Specifically, under the component of corrective action program, the licensee failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity (P.1(d)). (Section 1R12.1)

- Green. The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to implement prompt corrective actions for the degraded oil conditions initially identified with safety-related Component Cooling Water (CCW) Pump 1P-11B in March 2007. Following an additional oil sample with anomalous results in July 2007, the licensee declared the pump inoperable and performed troubleshooting and repair of CCW Pump 1P-11B. The licensee entered the issue into their corrective action program and took immediate corrective actions. The licensee continued to evaluate the causes and corrective actions to address this finding at the end of the inspection period.

The finding is greater than minor because it could reasonably be viewed as a precursor to a significant event. Specifically, the failure to promptly correct the cause of the oil degradation in a timely manner in March 2007 could have resulted in the failure of the CCW pump. Additionally, the finding is associated

with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance (Green) because there was no design deficiency, no actual loss of safety function, no single train loss of safety function for greater than the TS allowed outage time, and no risk due to external events. Additionally, the inspectors determined that the primary cause of the finding is related to the cross-cutting area of problem identification and resolution. Specifically, under the component of corrective action program, the licensee failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity (P.1(d)). (Section 1R12.2)

- Green. A self-revealing finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the failure to have adequate maintenance procedures for performing calibration of the Engineered Safeguards Feature Actuation System (ESFAS) instrumentation steam pressure compensator modules. Specifically, instructions were not correct or sufficiently detailed to determine mathematical values from graphical displays of circuit output used in performing the subject calibrations.

The finding is greater than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance because there was no design deficiency, no actual loss of safety function, no single train loss of safety function for greater than the TS allowed outage time, and no risk due to external events. The inspectors also determined that the primary cause of this finding is related to the cross-cutting area of human performance. Specifically, under the component of resources, the licensee failed to ensure complete, accurate and up-to-date procedures for calibration of the ESFAS instrumentation steam pressure compensator modules (H.2(c)). (Section 4OA3.1)

- Green. The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," that was of very low safety significance. Specifically, unaccounted-for delay in the operation of motor-operated valves (MOVs) caused by voltage dips during load sequencing caused significant margin reduction for MOV inservice testing acceptance criteria, and in the case of the Unit 1 and Unit 2 Containment Spray Discharge SI-860 Valves, reduced margin such that partial stroke of the valves had to be credited to ensure that adequate flow was supplied for Emergency Core Cooling System (ECCS) purposes. This time delay was not originally accounted for in the licensee's ECCS response time analysis. The licensee entered the issue into their corrective action program and took immediate corrective actions to address the inservice test acceptance criteria. The licensee continued to evaluate the causes and corrective actions to address this finding at the end of the inspection period.



The issue is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance because there was no design deficiency, no actual loss of safety function, no single train loss of safety function for greater than the TS allowed outage time, and no risk due to external events. Specifically, even though the MOV delays were non-conservative, if a Loss of Coolant Accident (LOCA) were to occur, the MOVs would still allow enough water to pass to meet LOCA flow requirements. (Section 4OA5.1.b.1)

**B. Licensee-Identified Violations**

A violation of very low safety significance which was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective actions are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 was at 100 percent power throughout the inspection period with the exception of brief reductions in power during routine auxiliary feedwater and secondary system valve testing.

Unit 2 began the inspection period at 100 percent power and remained at full power until September 18, 2007, when operators began a Technical Specification (TS) required shutdown for exceeding the allowed outage time for an inoperable refueling water storage tank, due to exceeding the tank high temperature limit. While in the process of shutting down Unit 2 on September 18, operators returned the tank to operable status by restoring the temperature to within acceptable limits, and the shutdown was averted. Unit 2 was at about 20 percent reactor power when the tank was within limits. Unit 2 returned to full power on September 21, and operated at or near full power for the remainder of the inspection period.

### 1. REACTOR SAFETY

#### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### 1R04 Equipment Alignment (71111.04)

##### .1 Partial System Walkdowns

##### a. Inspection Scope

The inspectors performed partial walkdowns of accessible portions of risk-significant systems to determine the operability of these systems. The inspectors utilized system valve lineup and electrical breaker checklists, tank level books, plant drawings, and selected operating procedures to determine whether the systems were correctly aligned to perform the intended design functions. The inspectors also examined the material condition of the components and observed operating equipment parameters to determine whether deficiencies existed. The inspectors reviewed completed work orders (WOs) and calibration records associated with the systems for issues that could affect component or train functions. The inspectors used the information in the appropriate sections of the Final Safety Analysis Report (FSAR) to determine the functional requirements of the system. Partial system walkdowns of the following systems constituted three inspection procedure samples:

- Service Water (SW) System;
- Unit 1 Containment Spray; and
- Emergency Diesel Generators (EDGs) G-01 and G-02, while EDG G-03 was out of service for maintenance.

##### b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Walkdown of Selected Fire Zones

a. Inspection Scope

The inspectors conducted fire protection walkdowns, which focused on the following attributes: the availability, accessibility, and condition of fire fighting equipment; the control of transient combustibles and ignition sources; and the condition and status of installed fire barriers. The inspectors selected fire areas for inspection based on the area's overall fire risk contribution, as documented in the Individual Plant Examination of External Events, or the potential of a fire to impact equipment that could initiate a plant transient.

In addition, the inspectors assessed these additional fire protection attributes during walkdowns: fire hoses and extinguishers were in the designated locations and available for immediate use; unobstructed fire detectors and sprinklers; transient material loading within the analyzed limits; and fire doors, dampers, and penetration seals in satisfactory condition. The inspectors also determined whether minor issues identified during the inspection were entered into the licensee's corrective action program. The walkdown of the following selected fire zones constituted eight inspection procedure samples:

- Fire Area A14 - 2P-2A Charging Pump Room;
- Fire Area A06 - Motor Control Center Room 1B32;
- Fire Area A05 - 1P-2A Charging Pump Room;
- Fire Area A42 - Lube Oil Storage Room;
- Fire Area A24 - 4160-Volt Vital Switchgear Room;
- Fire Area A25 - D-06 Battery Room;
- Fire Area A26 - D-05 Battery Room; and
- Fire Area A17/A18 - D-04/D-05 125-Volt Direct Current Electrical Equipment Rooms.

b. Findings

No findings of significance were identified.

1R06 Flooding (71111.06)

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed selected risk-important plant design features and licensee procedures intended to protect the plant and the safety-related equipment from internal flooding events. The inspectors reviewed flood analyses and design documents, including the FSAR, engineering calculations, and abnormal operating procedures (AOPs), for licensee commitments. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire

suppression system or the circulating water system. The inspectors also reviewed the licensee's corrective action documents with respect to past flood-related items identified in the corrective action program to verify the adequacy of the corrective actions. The inspectors performed walkdowns of the following areas or systems, and these reviews represented two internal flooding areas, and one external flooding area, for a total of three inspection samples:

- Subsoil Drain System;
- Auxiliary Feedwater Pump Room Drains; and
- Screenhouse.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review

a. Inspection Scope

On September 13, 2007, the inspectors observed the operating crew performance during a simulator as-found requalification examination. Observation of the requalification quarterly evaluation constituted one inspection procedure sample.

The inspectors assessed crew performance in the areas of:

- Clarity and formality of communications;
- Understanding of the interactions and function of the operating crew during an emergency;
- Prioritization, interpretation, and verification of actions required for emergency procedure use and interpretation;
- Oversight and direction from supervisors; and
- Group dynamics.

Crew performance in these areas was also compared to licensee management expectations and guidelines, as presented in nuclear plant procedure NP 2.1.1, "Conduct of Operations." The inspectors also verified that the licensee and crew assessed and critiqued crew performance accordingly.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Service Water System

a. Inspection Scope

The inspectors performed maintenance effectiveness reviews of the SW system. The inspectors reviewed repetitive maintenance activities to assess maintenance effectiveness, including maintenance rule activities, work practices, and common cause issues. Inspection activities included, but were not limited to, the licensee's categorization of specific issues, including evaluation of performance criteria, appropriate work practices, identification of common cause errors, extent of condition (EOC), and trending of key parameters. Additionally, the inspectors reviewed implementation of the Maintenance Rule (10 CFR Part 50.65) requirements, including a review of scoping, goal-setting, performance monitoring, short-term and long-term corrective actions, functional failure determinations, and current equipment performance status. Finally, the inspectors reviewed significant WOs and corrective action program documents (CAPs) to determine whether failures were appropriately identified, classified, and corrected. The reviews of maintenance effectiveness for the SW system constituted one inspection procedure sample.

b. Findings

Introduction: A self-revealing finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified for the failure to take prompt corrective action for a condition adverse to quality involving deficiencies in the SW Inservice Inspection Program to identify microbiologically-induced corrosion (MIC) of SW piping. Specifically, the licensee's SW Inservice Inspection Program failed to identify an area of pipe thinning caused by MIC prior to the area developing a through-wall leak because the non-destructive examination (NDE) method used was inadequate for detecting the MIC. These SW Inservice Inspection Program issues were previously identified in the corrective action program following a through-wall leak due to MIC in 2005.

Description: During a review of SW maintenance issues, the inspectors identified a continuing trend in SW leaks attributed to MIC. On July 15, 2007, a through-wall leak due to MIC occurred on safety-related SW piping between Valves SW-64 and SW-82 in the instrument air compressor room. The licensee's apparent cause evaluation (ACE) 01101832 concluded that the SW Inservice Inspection Program, a program subject to 10 CFR Part 50, Appendix B, did not identify the pipe thinning prior to the through-wall leak because the NDE method used, specifically radiography testing (RT), was inadequate for detecting the MIC in the SW system.

In addition to the July 15 leak, the inspectors identified that the licensee previously experienced through-wall leaks caused by MIC on service water piping on November 10, 2003, (CAP 051703) on the SW supply line to the Unit 2 Auxiliary Feedwater Pump; on March 20, 2005, on the G-01 EDG endbell; and a leak on April 22, 2005, on the G-02 EDG heat exchanger alternate SW supply line. The April 2005 leak was documented as a Green NCV in NRC Inspection

Report 05000266/2005010 and 05000301/2005010, dated October 26, 2005, for the failure to take prompt corrective action for MIC through-wall leakage on service water piping. At that time, the licensee conducted an ACE and EOC, and reached the same conclusion documented in July 2007. The SW Inservice Inspection Program did not identify the pipe thinning prior to the through-wall leak because the NDE method used, specifically RT, was inadequate for detecting the MIC in the SW system. The ACE and EOC documented that correcting the deficiencies in the SW Inservice Inspection Program by using ultrasonic testing (UT) on these lines would provide thickness data from a larger area and 360-degree coverage around the piping, in contrast to the limited coverage provided by RT.

On December 12, 2006, over a year after a UT plan was created, CAP 01067144 was written expressing concerns that the RT method still used in the SW Inservice Inspection Program did not characterize the degradation of piping caused by MIC to trend the thinnest wall thickness of the inspected SW components. Additionally, the CAP documented that the issue of UT of analyzed SW piping was previously identified in 2005, and that implementation of the SW Inspection Program still did not include UT. Additionally, no corrective actions or compensatory measures were implemented to address this continued deficiency in the SW Inservice Inspection Program. Due to a failure to take prompt corrective actions to address the SW Inservice Inspection Program deficiencies initially identified in 2005, additional SW pipe MIC through-wall leakage was self-revealed on July 15, 2007.

Analysis: The inspectors determined that the failure to take prompt corrective actions to correct deficiencies in the SW Inspection Program for identifying pipe wall thinning caused by thinning was a performance deficiency and a finding. The inspectors concluded that the finding is greater than minor in accordance with Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," issued on September 20, 2007, in that the finding is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In addition, if left uncorrected, the finding would have become a more significant safety concern.

The inspectors determined that the finding could be evaluated using the Significance Determination Process (SDP) in accordance with IMC 0609, "Significance Determination Process," because the finding was associated with the operability, availability, and reliability of a train in the Mitigating Systems Cornerstone. The inspectors determined that the finding was of very low safety significance (Green) because the finding did not involve a design deficiency, there was no actual loss of safety function, no single train loss of safety function for greater than the TS allowed outage time, and no risk due to external events.

The inspectors also determined that the primary cause of this finding was related to the cross-cutting area of problem identification and resolution, because the licensee failed to take appropriate corrective actions to address safety concerns and adverse trends such as those identified in 2005 and 2006 concerning implementation of alternate NDE methods that were more effective at identifying MIC than RT (P.1(d)).

Enforcement: 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures be established to assure that conditions adverse to quality, such as malfunctions, deficiencies, deviations, defective equipment and nonconformances are promptly identified and corrected. Contrary to this, as of July 2007, the licensee failed to promptly correct deficiencies and deviations associated with the licensee's SW Inservice Inspection Program to detect and correct MIC prior to failures of safety-related SW piping, a condition adverse to quality associated with a program subject to 10 CFR Part 50 Appendix B. Specifically, the failure to take prompt corrective actions for SW Inservice Inspection Program deficiencies originally identified in 2005, again resulted in undetected MIC and the development of a through-wall pipe leak on July 15, 2007, on a portion of safety-related SW piping. Because this violation was of very low safety significance, non-willful, and documented in the licensee's corrective action program as CAP01101832, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000266/2007004-01; 05000301/2007004-01).

The licensee entered the issue into their corrective action program and took immediate corrective actions to address the condition by replacing the leaking SW piping. In addition, the licensee is currently developing corrective actions to address the continued deficiencies associated with the SW Inservice Inspection Program .

.2 Unit 1 Component Cooling Water (CCW) Pumps

a. Inspection Scope

The inspectors performed maintenance effectiveness reviews of the Unit 1 CCW pumps. The inspectors reviewed repetitive maintenance activities to assess maintenance effectiveness, including maintenance rule activities, work practices, and common cause issues. Inspection activities included, but were not limited to, the licensee's categorization of specific issues, including evaluation of performance criteria, appropriate work practices, identification of common cause errors, EOC, and trending of key parameters. Additionally, the inspectors reviewed implementation of the Maintenance Rule (10 CFR 50.65) requirements, including a review of scoping, goal-setting, performance monitoring, short-term and long-term corrective actions, functional failure determinations, and current equipment performance status. Finally, the inspectors reviewed significant WOs and CAPs to determine whether failures were appropriately identified, classified, and corrected, and if unavailable time was correctly calculated. The review of maintenance effectiveness for the Unit 1 CCW pumps constituted one inspection procedure sample.

b. Findings

Introduction: The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," having very low safety significance (Green) for the licensee's failure to take prompt corrective actions to correct the cause of oil degradation in CCW Pump 1P-11B, a condition adverse to quality, originally identified in March 2007. Specifically, on March 13, 2007, the licensee sampled oil from safety-related CCW Pump 1P-11B and identified that the oil had a high particle count, indicating contamination; however, at that time, prompt corrective actions were

not taken to fully evaluate or correct the cause of the degradation. In July 2007, an additional oil sample revealed similar results, the pump was declared inoperable, and the licensee initiated prompt corrective actions to identify and correct the cause of the oil degradation.

Description: On March 13, 2007, an annual oil sample was taken from CCW Pump 1P-11B, which revealed that both the inboard and outboard bearing oil had high particle contamination. Onsite testing revealed that the oil condition was coded as "red," which indicated high particle counts in the oil, or an unsatisfactory condition in the oil with respect to contamination. CAP 01081855 was written and documented the oil degradation and analyses results. The CAP was screened by licensee staff and no additional actions were taken to either characterize the cause of the oil degradation through an evaluation, or correct the condition in the safety-related CCW pump which caused the oil degradation. The licensee did increase the frequency of oil sampling to six months for this pump, originally scheduling an oil change in September 2007; however, this action did not correct or address the adverse condition which caused the degraded CCW pump oil.

As a result of an increased focus on deficiencies associated with the component oil analysis program in June 2007, the licensee resampled CCW Pump 1P-11B on July 9. The initial onsite oil evaluation noted that the oil drained from the pump was visibly dark in color, with no ferrous particles present. The licensee initially reported that the oil drained showed significant evidence of oil seal degradation due to the amount of apparent seal debris in the oil. As a result of the degraded oil condition and initial oil sample results, the licensee declared CCW Pump 1P-11B inoperable and implemented emergent maintenance on the 1P-11B CCW Pump. The initial visual inspections done during the maintenance determined that all three bearing oil seals (one on the outboard side, two on the inboard side) were possibly degraded and were initially considered the cause of the abnormal oil samples.

The licensee's July 2007 troubleshooting and maintenance of the CCW pump resulted in the replacement of the pump bearings, the three oil seals, and the pump mechanical seals in accordance with Routine Maintenance Procedure (RMP) 9006-2, "Component Cooling Water Pump Mechanical Seal Overhaul," Revision 17. The maintenance work was completed and post-maintenance testing demonstrated satisfactory performance of CCW Pump 1P-11B on July 11. At the end of the inspection period, the licensee was still determining the cause of the oil degradation and high particle content.

The inspectors, as well as the licensee staff, determined that the unsatisfactory oil sample results in March 2007 identified a condition adverse to quality associated with the safety-related CCW pump; however, prompt corrective actions were not initiated at that time to understand and address the equipment deficiencies which caused the safety-related CCW Pump 1P-11B oil degradation.

Analysis: The inspectors determined that the licensee's failure to implement prompt corrective actions to address the March 2007 CCW Pump 1P-11B degraded oil sample results, a condition adverse to quality, was a performance deficiency and a finding. The inspectors concluded that the finding is greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," issued



on September 20, 2007, in that the finding could reasonably be viewed as a precursor to a significant event. Specifically, the failure to promptly correct the cause of the oil degradation in a timely manner could result in failure of the CCW pump. Additionally, the finding is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the reliability and capability of systems that respond to initiating events to prevent undesirable consequences.

The significance of this finding was evaluated using IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations, Attachment 1, "SDP Phase 1 Screening Worksheet," for the Mitigating Systems Cornerstone. The inspectors determined that the finding is of very low safety significance (Green) because the finding did not involve a design deficiency, there was no actual loss of safety function, no single train loss of safety function for greater than the TS allowed outage time, and no risk due to external events. The licensee concluded that although the CCW pump was initially declared inoperable and the oil was degraded, the CCW pump would have performed its safety function. The primary cause of this finding was related to a cross-cutting aspect in the area of problem identification and resolution for the failure to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity (P.1(d)).

Enforcement: 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures be established to assure that conditions adverse to quality, such as malfunctions, deficiencies, deviations, defective equipment and nonconformances are promptly identified and corrected. Contrary to this, a condition adverse to quality, associated with the Unit 1 CCW Pump 1P-11B, was not promptly corrected following identification in March 2007. Specifically, upon identification of the safety-related pump degraded oil condition in March 2007, a condition adverse to quality, the licensee did not take prompt corrective actions. As a result of the failure to take prompt corrective actions, the pump was declared inoperable in July 2007, following additional oil samples which revealed a continued deficient condition present in CCW Pump 1P-11B. Because of the very low safety significance of this corrective action finding and because the finding was entered into the licensee's corrective action program as CAP 01100809, this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000266/2007004-02; 05000301/2007004-02).

The licensee took immediate corrective actions to address the issue, which included rebuilding the CCW pump, and at the end of the inspection period the licensee continued to evaluate the causes associated with this finding.

### .3 Resident Inspector Routine Review

#### a. Inspection Scope

The inspectors performed maintenance effectiveness reviews of the containment spray system. The inspectors reviewed repetitive maintenance activities to assess maintenance effectiveness, including maintenance rule activities, work practices, and common cause issues. Inspection activities included, but were not limited to, the

licensee's categorization of specific issues, including evaluation of performance criteria, appropriate work practices, identification of common cause errors, EOC and trending of key parameters. Additionally, the inspectors reviewed implementation of the Maintenance Rule (10 CFR 50.65) requirements, including a review of scoping, goal-setting, performance monitoring, short-term and long-term corrective actions, functional failure determinations, and current equipment performance status. Finally, the inspectors reviewed significant WOs and CAPs to determine whether failures were appropriately identified, classified, and corrected, and if unavailability time was correctly calculated. The reviews of maintenance effectiveness for the Containment Spray System constituted one inspection procedure sample.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed risk assessments for planned and emergent maintenance activities during the specified work weeks. During these reviews, the inspectors compared the licensee's risk management actions to those actions specified in the licensee's procedures for the assessment and management of risk associated with maintenance activities. The inspectors assessed whether evaluation, planning, control, and performance of the work were done in a manner to reduce the risk and minimize the duration where practical, and whether contingency plans were in place where appropriate.

The inspectors used the licensee's daily configuration risk assessment records, observations of shift turnover meetings, and observations of daily plant status meetings to determine whether the equipment configurations were properly listed. The inspectors also verified that protected equipment was identified and controlled as appropriate, and that significant aspects of plant risk were communicated to the necessary personnel. The reviews of maintenance risk assessment and emergent work evaluation constituted five inspection procedure samples:

- Planned and emergent maintenance during the week of July 22, 2007;
- Planned and emergent maintenance during the week of August 5, 2007;
- Planned and emergent maintenance during the week of August 20, 2007;
- Planned and emergent maintenance during the week of August 27, 2007; and
- Planned and emergent maintenance during the week of September 10, 2007.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed selected operability evaluations associated with issues entered into the licensee's corrective action program. The inspectors reviewed design basis information, the FSAR, TS requirements, and licensee procedures to determine the technical adequacy of the operability evaluations. In addition, the inspectors determined whether compensatory measures were implemented, as required. The inspectors assessed whether system operability was properly justified and that the system remained available, such that no unrecognized increase in risk occurred. The reviews of the following operability evaluations constituted five samples:

- CAP 01108092, EDG G-02;
- CAP 01043614, D-06 Station Battery Specific Gravity Declining Trend;
- CAP 00889394, Calculated Short Circuit Currents Issues;
- CAP 01037554, Coordination Issues Identified by Calculation 2004-0009; and
- CAP 01102517, Effects of Diesel Fire Pump Exhaust Scaffolding on SW Pump.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17A)

a. Inspection Scope

The inspectors conducted in-plant observations of physical changes to the plant and reviewed permanent Modification MR 04-013\*B, "CVCS [chemical and volume control system] Charging Pump Variable Speed Drives." The review included associated WOs, drawings, and installation work documents, as well as effects on safety functions and emergency and normal operating procedures. The main focus of this review was the implementation of the modification and the factors affecting the loss of the Unit 1 reactor coolant letdown flow and the resultant June 30, 2007, entry into AOP 1D, "CVCS Malfunction," and Technical Specification Action Condition 3.4.9, Condition A.1, for pressurizer level being greater than the parametric value of 48 percent. This review constituted one inspection sample.

b. Findings

Introduction: A self-revealing finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," having very low safety significance (Green), was identified for failure to have procedures appropriate to the circumstances for modifying the 1P-2B Charging Pump wiring as part of Modification MR 04-013\*B, "CVCS Charging Pump Variable Speed Drives." Specifically, instructions were not provided to prevent isolation of reactor coolant letdown flow while performing wiring modifications for the 1P-2B Charging Pump.

Description: During the performance of Installation Work Plan (IWP) 04-013\*B (for 1P-2B Charging Pump Variable Frequency Drive), wiring was to be lifted from terminal points in the back section of Bus 1B-03 and re-terminated on a new MX Relay. The terminals from which the relay wires were to be lifted also contained wires that powered instrument air solenoids for Letdown Orifices 1-V200A, 1-V200B, and 1V-200C. At the time of the work, Orifice 1-V200C was in standby, Orifice 1-V200A was closed and Orifice 1-V200B was in use for letdown operations (plant operators rotate letdown between Orifices 1-V200A and 1-V200B). When the wire for the relay was lifted from the terminal point, the wire that fed power to Letdown Orifice 1-V200B was disturbed, interrupting power to the instrument air solenoids causing Orifice 1-V200B to unexpectedly close and stop letdown flow. Control room operators entered AOP 1D, "CVCS Malfunction," and Technical Specification Action Condition 3.4.9, Condition A.1, for pressurizer level being greater than the parametric value of 48 percent. All field work was stopped and letdown flow was restored through Orifice 1-V200A. The unexpected isolation of letdown flow was evaluated by Plant Operations and Engineering, and IWP 04-013\*B was revised to rotate letdown orifices during the lifting of the MX Relay wiring to preclude inadvertent isolation of letdown flow.

The ACE determined that the licensee's review of IWP 04-013\*B and associated electrical drawings failed to identify the consequence of lifting the wires for the MX Relay. Specifically, the modification reviews failed to identify that the elementary electrical drawing for the letdown orifice valves was relevant to the work. The ACE determined that reviews of drawing revisions which may impact IWPs would best be performed as a group activity including all affected departments, for example in this case, Plant Operations, Engineering, and the Installation Group. The licensee reviewed the remaining MR 04-013 modification packages for the other charging pumps to ensure no additional conditions existed that would cause a similar event.

Analysis: The inspectors determined that the failure to provide adequate IWPs for modification of the 1P-2B Charging Pump variable speed drive was a performance deficiency and a finding. The inspectors concluded the finding is greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," issued on September 20, 2007, because it is associated with the design control and procedural quality attributes of the Initiating Events Cornerstone and affected the cornerstone objectives to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Additionally, the inadequate design review process that caused this problem, if left uncorrected, would become a more significant safety concern.

The inspectors evaluated the finding using IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The transient initiator was isolation of letdown flow, which resulted in exceeding the TS parametric value of 48 percent pressurizer level. This does not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. Consequently, the finding is considered to be of very low safety significance (Green). The inspectors also determined that the primary cause for this finding is related to the cross-cutting area of human performance. Specifically, under the component of resources, the licensee failed to ensure complete, accurate, and up-to-date installation plans for modification of the 1P-2B Charging Pump wiring (H.2(c)).

Enforcement: 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures and drawings. Contrary to this, the licensee's IWP for modification of the 1P-2B Charging Pump variable speed drives did not have adequate instructions to ensure wiring modifications for the pump could be implemented without inadvertent isolation of the inservice letdown orifice. Because of the very low safety significance of this finding and because the finding was entered into the licensee's corrective action program (CAP 01099915), the violation is being treated as an NCV, consistent with Section VI.A.1 of NRC Enforcement Policy (NCV 05000266/2007004-03; 05000301/2007004-03).

The licensee entered the event into their corrective action program, took immediate actions to stop work, revised IWP 04-013\*B to rotate letdown orifices during lifting of the MX Relay wiring, and completed the work without further incident. Similar changes to the IWPs were made for the other charging pumps not yet modified. Also an ACE was performed to address the programmatic aspects that lead to the inadequate IWPs.

1R19 Post-Maintenance Testing (PMT) (71111.19)

a. Inspection Scope

During completion of the post-maintenance test inspection procedure samples, the inspectors observed in-plant activities and reviewed procedures and associated records to determine whether:

- Testing activities satisfied the test procedure acceptance criteria;
- Effects of the testing were adequately addressed prior to the testing;
- Measuring and test equipment calibration was current;
- Test equipment was within the required range and accuracy;
- Applicable prerequisites described in the test procedures were satisfied;
- Affected systems or components were removed from service in accordance with approved procedures;
- Testing activities were performed in accordance with the test procedures and other applicable procedures;
- Jumpers and lifted leads were controlled and restored where used;
- Test data and results were accurate, complete, and valid;
- Test equipment was removed after testing;
- Equipment was returned to a position or status required to support the operability of the system in accordance with approved procedures; and
- All problems identified during the testing were appropriately entered into the corrective action program.

The activities listed below were reviewed by the inspectors and constituted three quarterly inspection procedure samples:

- CCW pump oil change and PMT;
- Safety Injection (SI) pump breaker swap and manually operated controls switch issues; and

- 2P-29 Turbine-Driven Auxiliary Feedwater Pump PMT for emergent maintenance.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

.1 Unit 1 June 2007 Forced Outage Inspection Activities

a. Inspection Scope

The inspectors observed activities during the Unit 1 forced outage that occurred June 5 through June 9, 2007. The inspectors also observed activities during the Unit 1 forced outage that occurred June 14 through June 23, 2007. These inspection activities constituted two forced outage inspection samples.

This inspection consisted of an in-office review of the licensee's outage schedule, safe shutdown plan, and administrative procedures governing the outage; and periodic observations of equipment alignment and plant and control room outage activities. Specifically, the inspectors assessed the licensee's ability to effectively manage elements of shutdown risk pertaining to reactivity control, decay heat removal, inventory control, electrical power control, and containment integrity.

The inspectors conducted the following inspection activities:

- Attended outage management turnover meetings to determine whether the current shutdown risk status was accurate, well understood, and adequately communicated;
- Performed walkdowns of the main control room to observe the alignment of systems important to shutdown risk;
- Performed in-plant walkdowns to observe ongoing work activities; and
- Conducted in-office reviews of selected issues that the licensee entered into its corrective action program to determine if identified problems were being entered into the program with the appropriate characterization and significance.

Additionally, the inspectors performed the following specific in-plant activities:

- Verified that the flow paths, configurations, and alternative means for inventory addition were consistent with the outage risk plan;
- Observed operators align the residual heat removal system for shutdown cooling and verified the system was functioning properly to remove decay heat;
- Reviewed mode-change checklists to verify that selected requirements were met while transitioning from the refueling mode to full power operation; and
- Observed portions of the plant ascension to full power operations.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

During completion of the inspection procedure samples, the inspectors observed in-plant activities and reviewed procedures and associated records to determine whether:

- Preconditioning occurred;
- Effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- Acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis;
- Plant equipment calibration was correct, accurate, and properly documented; as-left setpoints were within required ranges; and the calibration frequency were in accordance with TSs, the FSAR, procedures, and applicable commitments;
- Measuring and test equipment calibration was current;
- Test equipment was used within the required range and accuracy;
- Applicable prerequisites described in the test procedures were satisfied;
- Test frequencies met TS requirements to demonstrate operability and reliability;
- Tests were performed in accordance with the test procedures and other applicable procedures;
- Jumpers and lifted leads were controlled and restored where used;
- Test data and results were accurate, complete, within limits, and valid;
- Test equipment was removed after testing;
- Where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers Code, and reference values were consistent with the system design basis;
- Where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- Where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- Where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- Prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- Equipment was returned to a position or status required to support the performance of its safety functions; and
- All problems identified during the testing were appropriately documented and dispositioned in the corrective action program.

During this inspection period, the inspectors completed the following inspection procedure samples, which constituted two inservice test surveillances and one reactor coolant system surveillance for a total of three quarterly inspection procedure samples:

- IT 07B and IT 07C, SW Pumps 32B and 32C;
- IT 08, Turbine Driven Auxiliary Feedwater Pump Cold Start and Valve Test; and
- Unit 1 and Unit 2 Unidentified Reactor Coolant System Leakrate Surveillances.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors conducted in-plant observations of physical changes to the plant and reviewed Temporary Modification TMOD 00320781, "Unit 1 Facade Steam Generator Blowdown Heat Exchanger Crane."

The review included associated WOs, temporary modification instructions/procedures, and 10 CFR 50.59 screenings. The review of the temporary modification constituted one inspection procedure sample.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed one emergency preparedness exercise and one emergency preparedness simulator drill during the inspection period, observing activities in the simulator and attending the critique session. The inspectors evaluated the drill performance and determined that the critique activities appropriately captured weaknesses identified by the inspectors and verified that deficiencies were entered into the corrective action program. These activities constituted two inspection samples.

b. Findings

No findings of significance were identified.



## 2. RADIATION SAFETY

### Cornerstone: Occupational Radiation Safety

#### 2OS1 Access Control to Radiologically Significant Areas (71121.01)

##### .1 Review of Licensee Performance Indicator (PI) for the Occupational Exposure Cornerstone

###### a. Inspection Scope

The inspectors reviewed licensee event reports (LERs) and corrective action documents, and discussed electronic dosimetry transaction information for radiologically controlled area egress and data reported on the NRC's web site relative to the licensee's occupational exposure control effectiveness PI to determine whether or not the conditions surrounding any actual or potential PI occurrences had been evaluated and reported as applicable, and that identified problems had been entered into the corrective action program for resolution.

This review represented one inspection sample.

###### b. Findings

No findings of significance were identified.

##### .2 Plant Walkdowns and Radiation Work Permit Reviews

###### a. Inspection Scope

The inspectors reviewed the licensee's physical and programmatic controls for activated and/or contaminated materials (non-fuel) stored within the spent fuel pools. Specifically, radiation protection (RP) procedures were reviewed as applicable; RP staff were interviewed; and a walkdown of the refuel floor was conducted. Although highly activated/contaminated materials were not stored in the spent fuel pool in a manner that readily allowed their inadvertent movement, the radiological controls for the storage of such materials was discussed with RP staff. Those discussions took place to ensure adequate barriers would be established to reduce the potential for the inadvertent movement of these materials should the licensee alter its current practices.

This review represented one inspection sample.

###### b. Findings

No findings of significance were identified.

### .3 Identification and Resolution of Problems

#### a. Inspection Scope

The inspectors reviewed the results of an RP department self-assessment related to the radiological access control program and the action request database along with individual condition reports related to the radiological access and exposure control programs to determine if identified problems were entered into the corrective action program for resolution. In particular, the inspectors reviewed radiological issues that occurred over the nine-month period that preceded the inspection, including the review of any high radiation area (HRA) radiological incidents (non-PI occurrences identified by the licensee in high and locked high radiation areas), to determine whether follow-up activities were conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

- Initial problem identification, characterization, and tracking;
- Disposition of operability/reportability issues;
- Evaluation of safety significance/risk and priority for resolution;
- Identification of repetitive problems;
- Resolution of NCVs tracked in the corrective action program;
- Identification of contributing causes; and
- Identification and implementation of corrective actions.

The inspectors evaluated the licensee's process for problem identification, characterization, and prioritization to determine whether problems were entered into the corrective action program and were being resolved in a timely manner. For potential repetitive deficiencies or possible trends, the inspectors determined whether the licensee's self-assessment activities were capable of identifying and addressing these deficiencies, when applicable.

The inspectors reviewed the licensee's documentation for all potential PI events occurring since the previous radiological access control inspection in April 2007 to determine whether any of these events involved dose rates greater than 25 roentgen equivalent man (rem) per hour at 30 centimeters or greater than 500 rem per hour at 1 meter, or involved unintended exposures greater than 100 millirem total effective dose equivalent (or greater than 5 rem shallow dose equivalent or greater than 1.5 rem lens dose equivalent). None were identified.

These reviews represented four inspection samples. Specifically, the samples pertained to the licensee's self-assessment capabilities, its problem identification and resolution program for radiological incidents, a review of the licensee's ability to identify and address repetitive deficiencies, and a review of those radiological incidents and potential PI occurrences of greatest radiological risk.

#### b. Findings

No findings of significance were identified.

.4 Job-In-Progress Reviews

a. Inspection Scope

The inspectors accompanied licensee staff and evaluated the radiological controls, job coverage and radiation worker practices during a Unit 2 Containment Building at-power entry to collect chemistry samples. The radiation survey information to support this work activity was reviewed by the inspectors; the radiological job requirements and the access control provisions for the entry was assessed for conformity with TSs and with the licensee's procedure; and field observations were made to determine if measures were implemented to reduce dose. The inspectors also attended the pre-job briefing for the entry to assess the adequacy of the information exchanged.

Job performance was observed to determine if the radiological conditions during the containment building entry were adequately communicated to workers through the pre-job briefing and area postings. The inspectors also evaluated the adequacy of the controls provided by the radiation protection technicians (RPTs) involved in the containment entry.

The inspectors reviewed the licensee's procedure and generic practices associated with dosimetry placement and the use of multiple whole body dosimetry for work in HRAs having significant dose gradients for compliance with the requirements of 10 CFR Part 20.1201(c) and applicable industry guidelines. Additionally, previously completed work in areas where dose rate gradients were subject to significant variation, such as work in the lower cavity or for entry into steam generator bowls were reviewed to evaluate the licensee's practices for dosimetry placement.

These reviews represented two inspection samples.

b. Findings

No findings of significance were identified.

.5 High Risk Significant, Locked High Radiation Area (LHRA) and Very High Radiation Area (VHRA) Access Controls

a. Inspection Scope

The inspectors reviewed the licensee's procedures and radiological job files and evaluated RP practices for the control of access to radiologically significant areas (high, locked high, and very high radiation areas). The inspectors assessed compliance with the licensee's TSs, procedures, and the requirements of 10 CFR Part 20. The inspectors also evaluated the licensee's procedures and policies for consistency with the guidance contained in Regulatory Guide 8.38, "Control of Access to High and Very High Radiation Areas of Nuclear Plants." In particular, the inspectors evaluated the RP staff's control of keys to LHRA and VHRA, use of access control guards during work in these areas, and methods and practices for concurrent checks to ensure locking of access doors upon area egress. The inspectors selectively reviewed LHRA and VHRA key issuance/return and door lock verification records and key

accountability logs for selected periods in 2007 through July 2007 to determine the adequacy of accountability practices and documentation. The inspectors also reviewed selected records and evaluated the RP staff's practices for RP manager approval for access into VHRAs for compliance with procedure requirements and those of 10 CFR 20.1602.

The inspectors discussed with RP staff the controls that were in place for special areas that had the potential to become VHRAs during certain plant operations to determine whether these operations required communication beforehand with the RP group, so as to allow corresponding timely actions to properly post and control the radiation hazards.

The inspectors conducted plant walkdowns to verify the posting and locking of the entrances to Units 1 and 2 Containment Buildings and for selected other LHRAs.

These reviews represented three inspection samples.

b. Findings

No findings of significance were identified.

.6 Radiation Worker Performance and RPT Proficiency

a. Inspection Scope

During inspector job performance observations, the inspectors evaluated radiation worker and RPT performance with respect to RP work requirements, conformance with radiation work permit requirements and overall proficiency associated with the assigned task, and to determine whether workers were aware of the radiological conditions, the radiation work permit controls and limits in place, and whether their performance had accounted for the level of radiological hazards present.

The inspectors also reviewed RP Department generated or assigned CAPs that were related to either radiation worker or RPT deficiencies to determine whether there was an observable pattern traceable to a similar cause and to determine whether this matched the corrective action approach taken by the licensee to resolve the identified problems.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

## **Cornerstone: Public Radiation Safety**

### 2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

#### .1 Inspection Planning

##### a. Inspection Scope

The inspectors reviewed the current revision to the licensee's Offsite Dose Calculation Manual (ODCM) and the licensee's Annual Radioactive Effluent Release Reports for 2004 and 2005, along with selected radioactive effluent release data for 2006 through July 2006. The inspectors determined whether anomalous results in those reports were entered into the licensee's corrective action program and resolved. The inspectors determined whether evaluations were completed by the licensee to assess the potential radiological impact of any modifications made to the ODCM since the previous NRC inspection of the effluent control program in August 2004. Similarly, the inspectors determined whether the ODCM modifications necessitated changes to the effluent radiation monitor alarm setpoints and whether those changes were made, as warranted. The inspectors also reviewed, as applicable, audits, self-assessments, and LERs that involved unanticipated offsite releases of radioactive effluents. The effluent reports, effluent data, and licensee evaluations were reviewed to determine whether the radioactive effluent control program was implemented as required by the radiological effluent technical specifications (RETS) and the ODCM, to determine whether public dose limits resulting from effluents were met, and to determine whether any anomalies in effluent release data were adequately understood by the licensee and were assessed and reported.

The inspectors evaluated, as applicable, each of the abnormal and unmonitored (gaseous and liquid) releases reported in the licensee's 2004 and 2005 reports and any that occurred through the first half of 2006. Additionally, the inspectors evaluated the licensee's analyses of any effluent pathways resulting from spills, leaks, or abnormal/unmonitored liquid effluent discharges for selected historical events dating back to early Point Beach operational periods. The inspectors determined whether the licensee maintained adequate records on sampling locations, sampling methods and adequately analyzed the radiological consequence of these abnormal/unmonitored effluents as required by 10 CFR 20.1501, so as to demonstrate compliance with regulatory limits. The inspectors also determined whether the licensee had either identified or otherwise was developing a mechanism to identify those systems and the associated equipment that were potentially vulnerable to leaks of contaminated fluids and whether the licensee had or was developing adequate mechanisms to identify spills/leaks should they occur.

The inspectors reviewed the ODCM to identify the gaseous and liquid effluent radiation monitoring systems and associated effluent flow paths, including in-line flow measurement devices, and reviewed the description of radioactive waste (radwaste) systems and effluent pathways provided in the FSAR in preparation for the onsite inspection.

The inspectors reviewed the licensee's RETS/ODCM, or alternatively the licensee's procedures and/or surveillance activities, to determine whether a program was either already in-place or was being developed for identifying potential spills/leaks of radioactively contaminated fluids and for their assessment.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Review of System/Program Modifications, Instrument Calibrations and Quality Control

a. Inspection Scope

Annual radioactive effluent release reports for the two years preceding the inspection were evaluated for any significant changes (factor of five) in either the quantities or kinds of radioactive effluents and for any significant changes in offsite dose, which could be indicative of problems with the effluent control program.

The inspectors reviewed records of the most recent instrument calibrations (channel calibrations) for each point-of-discharge effluent radiation monitor and for selected effluent flow measurement devices to determine whether these monitors had been calibrated consistent with industry standards and in accordance with station procedures, TSs and the ODCM. The inspectors also reviewed the methods the licensee used to determine stack and vent flow rates. Specifically, the inspectors reviewed calibration records for the following effluent radiation monitors:

- Unit 1 and 2 Containment Purge Exhaust Monitors (SPING-21/22);
- Auxiliary Building Exhaust Monitor (SPING-23);
- Unit 1 and 2 Containment Air/Noble Gas Monitors (211/212);
- Auxiliary Building Stack Noble Gas Monitor (214);
- SW Discharge Monitor (229); and
- Waste Water Effluent Monitor (230).

The inspectors reviewed effluent radiation monitor setpoint bases and alarm values for the point of discharge gaseous effluent radiation monitors to assess their technical adequacy and for compliance with ODCM criteria.

The inspectors reviewed chemistry department quality control data for those instrumentation systems used to quantify effluent releases for indications of potential degraded instrument performance. Specifically, the inspectors reviewed the most recent efficiency calibration records and lower limit of detection determinations and selected other quality control data for chemistry department gamma spectroscopy systems and for the liquid scintillation counter.

These reviews represented two inspection samples.

b. Findings

No findings of significance were identified.

.3 Effluent Release Packages, Abnormal/Unmonitored Releases, and Dose Calculations

a. Inspection Scope

The inspectors selectively reviewed batch liquid effluent release packages and gaseous effluent sampling data for 2005 and first-half of 2006, including results of chemistry sample analyses, the application of vendor laboratory analysis results for difficult to detect nuclides, and the licensee's effluent release procedures and practices. Also, the inspectors reviewed the methods for calculating the projected doses to members of the public from these releases. These reviews were performed to determine whether the licensee adequately applied analysis results in its dose calculations, consistent with the methodologies in its ODCM, and to determine whether appropriate treatment equipment was used and whether effluents were released in accordance with the RETS/ODCM to meet procedural requirements.

The inspectors reviewed, as applicable, records of abnormal/unmonitored releases that the licensee identified and documented in its 2004 and 2005 annual effluent reports and evaluated the methods used by the licensee to quantify each of these reported releases. The inspectors also reviewed the licensee's practices for compensatory sampling during periods of effluent monitor inoperability to determine if compliance with ODCM action statements was achieved.

The inspectors selectively reviewed monthly and quarterly dose calculations and projections to ensure that the licensee properly calculated the offsite dose from radiological effluent releases and to determine whether any RETS/ODCM design objectives (limits) were exceeded. The inspectors reviewed the Point Beach source term data to determine if all applicable radionuclides that were released in effluents were included in the dose calculations, as applicable.

The inspectors reviewed the licensee's 10 CFR 50.75(g) file that documented historical spills/leaks of contaminated liquids associated with its operating units that dated back to the sites early operating period. The inspectors selectively reviewed the site's historical spills/leaks focusing on those occurrences with the potential for radiological impact. The inspectors reviewed the licensee's documentation of those incidents to assess the adequacy of the licensee's evaluations including the associated projected dose to the public, as applicable. The inspectors reviewed historical vendor reports which evaluated the hydro-geologic characteristics of the site. Additionally, the inspectors discussed with the licensee its plans for enhancing its existing groundwater monitoring program for identifying potential onsite leaks and spills. These reviews were performed to determine whether the licensee had or was developing a program for early detection of spills/leaks, understood the sites groundwater flow characteristics and pathways to the environment, and had the capability through its groundwater monitoring initiatives to assess the radiological impact of a future spill/leak should it occur.

These reviews represented four inspection samples.

b. Findings

No findings of significance were identified.

2PS2 Radwaste Material Processing and Transportation (71122.02)

.1 Radwaste Material Waste System Description and Waste Generation

a. Inspection Scope

The inspectors reviewed the liquid and solid radwaste system descriptions in the FSAR, and reviewed the 2005 and 2006 Annual Monitoring Reports for information on the types and amounts of radwaste generated and disposed. The inspectors reviewed the scope of the licensee's audit and self-assessment activities with regard to the radioactive material processing and transportation programs to determine whether those activities satisfied the requirements of 10 CFR 20.1101(c), and the quality assurance audit requirements of Appendix G to 10 CFR Part 20 and of 10 CFR 71.137.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.2 Radwaste System Walkdown and Evaluation

a. Inspection Scope

The inspectors walked down portions of the liquid and solid radwaste processing systems to determine whether these systems were consistent with the descriptions in the FSAR and in the Process Control Program, and to assess the material condition of various radwaste areas including infrequently entered demineralizer vessel cubicles that were controlled as LHRAs. The inspectors reviewed the status of radwaste process equipment that was inactive or potentially abandoned in-place, which included two boric acid evaporators and a cement solidification system. The inspectors discussed with the licensee the administrative and/or physical controls that were implemented to ensure that this equipment would not contribute to an unmonitored effluent release or be a source of unnecessary exposure, as applicable. Additionally, the inspectors evaluated the applicability of the licensee's recently developed abandoned equipment procedure for these radwaste systems and discussed the licensee's plans for further review of these systems as provided in that procedure.

In 2007, the licensee installed and made operational an Advanced Liquid Processing System to replace its blowdown evaporator system for processing liquid waste collected by the waste holdup tank. The inspectors reviewed the licensee's screening evaluation for the new liquid waste processing system to determine if that evaluation satisfied 10 CFR 50.59 requirements.



The inspectors walked down the Mausoleum Storage Building and an outdoor satellite radiologically controlled area where radwaste was stored to assess material conditions and inventory control. The inspectors also reviewed a Safety Evaluation Report for the mausoleum facility and reviewed the FSAR to determine if these storage facilities were consistent with their design bases.

The inspectors reviewed the licensee's processes for transferring waste stream resins and evaporator bottoms into shipping containers and for dewatering that waste to determine if appropriate mixing was performed so as to obtain representative waste stream samples for analysis. The inspectors reviewed the licensee's practices for the collection of area smear surveys to represent the dry-active waste (DAW) stream and the methods used for determining the radionuclide mix of filter media to determine if they were representative of the intended radwaste stream. Additionally, the inspectors reviewed the methodologies for quantifying gamma emitting radionuclide waste stream content, for determining waste stream tritium concentrations, and for waste concentration averaging to determine if representative samples of the waste products were provided for the purposes of waste classification as required by 10 CFR 61.55.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.3 Waste Characterization and Classification

a. Inspection Scope

The inspectors reviewed the licensee's methods and procedures for determining the classification of radwaste shipments including the application of scaling factors to quantify difficult-to-measure radionuclides (such as pure alpha or beta emitting radionuclides and those that decay by electron capture). The inspectors reviewed the last two radiochemical sample analysis results (10 CFR Part 61 analyses) including vendor laboratory data for each of the licensee's waste streams, and reviewed the associated calculations used to account for difficult-to-measure radionuclides. These waste streams consisted of resins, blowdown evaporator bottoms, filter media, and DAW. The licensee had not shipped filters or irradiated hardware since the last inspection of this program area in 2005. The inspectors also reviewed the minimum detectable concentrations achieved for each waste stream as determined by the licensee's contract analytical laboratory compared to the corresponding radionuclide groupings in 10 CFR 61.55 to determine if the concentration values satisfied the NRC Branch Technical Position on Radwaste Classification. These reviews were conducted to determine whether the licensee's program assured compliance with 10 CFR 61.55 and 61.56, as required by Appendix G of 10 CFR Part 20. The inspectors reviewed the licensee's waste characterization and classification program to determine whether reactor coolant chemistry data were periodically evaluated to account for changing operational parameters that could potentially affect waste stream classification and thus validate the continued use of existing scaling factors between sample analysis updates. The inspectors also discussed with the licensee its plans to benchmark and formalize

the process for review of reactor coolant chemistry data for scaling factor impact to ensure its consistent implementation.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

.4 Shipment Preparation and Shipment Manifests

a. Inspection Scope

The inspectors reviewed the documentation of shipment packaging, radiation surveys, package labeling and marking, vehicle inspections and placarding, emergency instructions, determination of waste classification/isotopic identification, and licensee verification of shipment readiness for five non-excepted and one excepted radioactive material and radwaste shipment made between 2006 and May 2007. The shipment documentation reviewed consisted of:

- Two Shipments of Evaporator Bottoms to a Waste Processor;
- DAW Shipment to a Waste Processor;
- Shipment of Sludge to a Waste Processor;
- Resin Shipment to a Waste Processor; and
- Shipment of Contaminated Pump to a Vendor.

For each shipment, the inspectors determined whether the requirements of 10 CFR Parts 20 and 61, and those of the Department of Transportation (DOT) in 49 CFR Parts 170-189 were met. Specifically, records were reviewed and staff involved in shipment activities were interviewed to determine whether packages were labeled and marked properly, whether package and transport vehicle surveys were performed with appropriate instrumentation, whether radiation survey results satisfied DOT requirements, and whether the quantity and type of radionuclides in each shipment were determined accurately. The inspectors also determined whether shipment manifests were completed in accordance with DOT and NRC requirements, whether they included the required emergency response information, whether the recipient was authorized to receive the shipment, and whether shipments were tracked as required by 10 CFR Part 20, Appendix G.

Selected staff involved in shipment activities were interviewed by the inspectors to determine whether they had adequate skills to accomplish shipment related tasks, and to determine whether the shippers were knowledgeable of the applicable regulations to satisfy package preparation requirements for public transport with respect to NRC Bulletin 79-19, "Packaging of Low-Level Radioactive Waste for Transport and Burial," and 49 CFR Part 172 Subpart H. Also, lesson plans for Safety Training and Function Specific Training for RPTs and for hazardous material (hazmat) level two employees were reviewed for compliance with the hazmat training requirements of 49 CFR 172.704. Additionally, the hazmat training test and the test results for selected RP staff was reviewed by the inspectors for adequacy.

These reviews represented two inspection samples.

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems for Radwaste Processing and Transportation

a. Inspection Scope

The inspectors reviewed LERs (as applicable), selected CAPS, and reports of self-assessments and audits from 2006 and 2007 that involved the radwaste and radioactive materials shipping program to determine whether the licensee had effectively implemented its problem identification program, and that problems were identified, characterized, prioritized, and corrected. The inspectors determined whether the licensee's oversight mechanisms (audits, self-assessments, etc.) collectively were capable of identifying repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

The inspectors also selectively reviewed condition reports generated since the previous inspection that dealt with the radioactive material/radwaste shipping program or with waste processing activities, and interviewed staff and reviewed documents to determine whether the following activities were being conducted in an effective and timely manner, commensurate with their importance to safety and risk:

- Initial problem identification, characterization, and tracking;
- Disposition of operability/reportability issues;
- Evaluation of safety significance/risk and priority for resolution;
- Identification of repetitive problems;
- Identification of contributing causes;
- Identification and implementation of effective corrective actions;
- Resolution of NCVs tracked in the corrective action program; and
- Implementation/consideration of risk significant operational experience feedback.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

#### 4. OTHER ACTIVITIES (OA)

##### 4OA1 Performance Indicator Verification (71151)

###### a. Inspection Scope

###### Cornerstones: Mitigating Systems and Barrier Integrity

The inspectors reviewed the licensee's recent PI submittal, using definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 4, to assess the accuracy of the PI data. The inspectors independently re-performed calculations where applicable. The inspectors then validated the information required for each PI definition in the guideline, to determine whether the licensee reported the data accurately. The following reviewed PIs in the Mitigating Systems and Barrier Integrity Cornerstones constituted six inspection procedure samples:

###### Unit 1 and Unit 2

- Safety System Functional Failures;
- Reactor Coolant System Leakage; and
- Reactor Coolant System Specific Activity.

The inspectors reviewed Chemistry Department records, including isotopic analyses completed between November 2006 - August 2007, to determine whether the greatest dose equivalent iodine (DEI) values determined during steady state operations corresponded to the values reported to the NRC. The inspectors also reviewed selected DEI calculations including the application of dose conversion factors for accuracy. Additionally, the inspectors accompanied chemistry technicians and observed the collection and preparation of a reactor coolant system sample to evaluate compliance with the licensee's sampling procedures. Further, sample analyses and calculation methods were discussed with chemistry staff to determine their adequacy.

###### Cornerstone: Occupational Radiation Safety

The inspectors sampled licensee submittals for the PI listed below for the period indicated. To determine the accuracy of the PI data reported during this period, PI definitions and guidance contained in Revision 5 of NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," were used. The following PI was reviewed:

- Occupational Exposure Control Effectiveness

The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine whether indicator related data were adequately assessed and reported for the period of November 2006 through July 2007. The inspectors discussed the scope and breadth of its data review and the results of those reviews with RP staff to assess the adequacy of the licensee's PI data collection and analyses. The inspectors discussed with the RP staff its methods for monitoring electronic dosimetry egress

transactions for accumulated dose/dose rate alarms. The inspectors independently reviewed dose assignments for any intakes that occurred during the time period reviewed and the licensee's CAP database along with individual CAPs generated during the period reviewed to determine whether there were potentially unrecognized occurrences.

These reviews in the Occupational Radiation Safety Cornerstone represented one inspection sample.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Resident Inspector Review

a. Inspection Scope

As discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to determine whether issues were entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors also reviewed all CAPs written by licensee personnel during the inspection period. The CAPs written by the licensee as a result of inspectors' observations are included in the list of documents in the Attachment to this report.

b. Findings

No findings of significance were identified.

.2 Selected Issue Followup: Unit 1 Turbine-Driven Auxiliary Feedwater Pump Outboard Turbine Bearing Issues

a. Inspection Scope

This issue followup is to evaluate the licensee's corrective action program response to the issue that was self-revealed on June 9, 2007, when the Unit 1 Turbine-Driven Auxiliary Feedwater Pump 1P-29 outboard turbine bearing exhibited anomalous excessive temperatures, as described in NRC Special Inspection Report 05000266/2007008; 05000301/2007008.

The inspection criteria for this review include: the completeness and accuracy of identification of the problem, the EOC, generic implications of inadequate PMT, classification and resolution of the issue commensurate with the safety significance, the identification of the causes of the problem, identification of corrective actions, and verification that interim corrective and compensatory actions have been identified and implemented to mitigate the effects of the problem until permanent action can be

implemented. The review by the inspectors constituted one inspection procedure sample.

b. Assessments and Observations

The inspectors verified the adequacy of the following aspects of CAP 01090456, associated with the Unit 1 1P-29 turbine outboard bearing high temperature: the completeness and accuracy of identification of the problem; the EOC; the generic implications of inadequate post maintenance testing; the classification and resolution of the issue commensurate with its safety significance; the identification of the causes of the problem; and the identification of corrective actions. In addition, the inspectors reviewed the licensee's planned long-term corrective actions.

Finally, the inspectors verified that the interim corrective actions scheduled prior to October 1, 2007, were completed. The inspectors noted the interim corrective actions, if fully implemented by plant staff, would address the root causes identified by the licensee. The inspectors also noted that the final long-term corrective action to address the historically high outboard bearing temperatures on both the Unit 1 and Unit 2 Turbine-Driven Auxiliary Feedwater Pump Outboard Turbine Bearings, was still under development at the time of the inspection.

4OA3 Event Followup

.1 (Closed) LER 05000266/2007-003-00; 05000301/2007-003-00, Engineered Safeguards Actuation System (ESFAS) Instrumentation, Lead/Lag Time Constants for Steam Line Pressure Outside Technical Specification Values

a. Inspection Scope

On April 7, 2007, Unit 1 Procedure ICP 04.001E, "Reactor Protection and Safeguards Analog Racks Steam Pressure Refueling Calibration," was completed to satisfy TS 3.3.2 Table 3.3.2-1, Function 1e, Surveillance Requirement 3.3.2.8. Five of six steam pressure compensator modules were found to have lag time constants greater than 2.0 seconds (TS requirement was less than or equal to 2.0 seconds). The sixth module was found to have a lead time constant less than 12.0 seconds (TS requirement was greater than or equal to 12.0). The inspectors reviewed the licensee's evaluation of this TS violation and actions taken.

b. Findings

Introduction: A self-revealing finding and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the failure to have adequate maintenance procedures for performing calibration of the ESFAS instrumentation steam pressure compensator modules. Specifically, instructions were not correct nor sufficiently detailed to determine mathematical values from graphical displays of circuit output used in performing the subject calibrations.

Description: LER 266/301/2007-003-00 described a violation of TS 3.3.2, Table 3.3.2-1, Function 1e, Surveillance Requirement 3.3.2.8 for the steam pressure compensator

module lead/lag time constants identified during surveillance testing on April 7, 2007. The Point Beach System Engineering Department reviewed the calibration method and found the method produced lead/lag values of nearly 2.1 seconds, with a plus or minus 0.1 second tolerance. A check of the Unit 2 lead/lag modules found all six lag time constants greater than 2.0 seconds. For Unit 1 and Unit 2, the largest most nonconservative value found for lag was 2.2 seconds. Two Unit 2 modules exceeded the TS specified lead value. For both Units, the lowest nonconservative lead value was at 11.7 seconds. The ideal TS values are 2.000 for lag and 12.000 for lead with a resultant gain of 6.00. The range of values for both units was 1.990 - 2.200 for lag and 11.700 to 12.820 for lead with dynamic gain ranging from 5.66 - 6.10.

A review of this event revealed that the calibration procedures failed to identify the difference between actual and ideal graphical displays of circuit output. These differences occurred because a resistor in the circuit was wired such that it could not be removed from the circuit during graph production, which prevented establishment of the lead function at zero. Not being able to establish the lead function at zero caused a slight difference in the graphical output that was not easily distinguished from an ideal exponential curve. The actual curve (with the imbedded error from the resistor) was used to determine mathematical values subsequently used in performing the calibrations.

Additionally, electronic noise in the circuit was presented in the graphical displays produced during testing. The technicians failed to select the median value of the electronic noise band during performance of the calibrations. The levels of electronic noise were recognized after the Unit 2 refueling calibrations.

The licensee reviewed the safety analyses to determine whether the low steam line pressure SI setpoint (the lead/lag characteristics of the setpoint) had been credited in mitigating the effects of analyzed transients and accidents. The review identified that for a main steamline break (MSLB), core response and containment pressure response and the mass and energy releases for a MSLB outside of containment were potentially affected.

In each of the three MSLB analyses, the licensee determined that the variations in the settings of the lead/lag functions in the signal were non-consequential should an actual event have occurred. This was because the lead/lag function was not credited in the MSLB core response and in the MSLB containment pressure response the analysis concluded that the containment Hi-Hi pressure SI was received before the low steam pressure SI setpoint could be reached. For a MSLB outside of containment, the main steam isolation signal was independent of the SI low steam line pressure signal, thus minimal variations in the lead/lag module settings would not have had a significant impact on the duration and mass flow rates of postulated steamline breaks evaluated by the analysis. The inspectors reviewed the subject analyses and concluded that variations in the settings of the lead/lag time constants would not have been consequential for the reasons cited above.

Analysis: The inspectors determined that failure to have an adequate maintenance procedure for performing calibrations of the ESFAS instrumentation steam pressure compensator modules was a performance deficiency and a finding. The inspectors

concluded that the finding is greater than minor in accordance with IMC 0612, Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” issued on September 20, 2007, because the finding is associated with the equipment performance attribute of the Mitigating System Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The significance of this finding was evaluated using IMC 0609, Appendix A, “Determining the Significance of Reactor Inspection Findings for At-Power Situations, Attachment 1, “SDP Phase 1 Screening Worksheet,” for the Mitigating Systems Cornerstone. The inspectors determined that the finding is of very low safety significance (Green) because the finding did not involve a design deficiency, there was no actual loss of safety function, no single train loss of safety function for greater than the TS allowed outage time, and no risk due to external events. Consequently, the finding is considered to be of very low safety significance (Green). The inspectors also determined that the primary cause of this finding is related to the cross-cutting area of human performance. Specifically, under the component of resources, the licensee failed to ensure complete, accurate and up-to-date procedures for calibration of the ESFAS instrumentation steam pressure compensator modules (H.2(c)).

Enforcement: 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures and Drawings,” requires, in part, that activities affecting quality be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and be accomplished in accordance with these instructions, procedures, or drawings. Contrary to this, calibration procedures for the ESFAS instrumentation steam pressure compensator module lead/lag time constants did not have adequate instructions prescribed to select mathematical values from graphical displays for use in the instrument calibrations. The test procedure did not require a comparison of the developed actual curve output versus ideal curve output. Because of the very low safety significance of this finding and because the issue was entered into the licensee’s corrective action program (CAP 01090273), the violation is being treated as an NCV, consistent with Section VI.A.1 of NRC Enforcement Policy (NCV 05000266/2007004-04; 05000301/2007004-04).

The licensee entered this event into their corrective action program. Evaluation of the event resulted in changing the test method in the calibration procedure from a “step input” to a “ramp and hold” methodology, effectively removing the resistor from the circuit so that the correct curves were produced. Additionally, the test equipment software program was changed to filter the electronic noise to improve the accuracy and usability of the graphical display outputs. The licensee also took actions to address the human performance errors and address the extent-of-condition. Additionally, an ACE is being performed. The steam pressure compensator modules were successfully calibrated and returned to service. This LER is closed.



- .2 (Closed) LER 05000266/2007-001-00; 05000301/2007-001-00, Control Room Emergency Filtration System (CREFS) Inoperability; Both Control Room Charcoal Filter Fans Inoperable

Section 4OA3.1 of NRC Inspection Report 05000266/2007002; 05000301/2007002 documented the enforcement aspects of an NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance associated with inoperability of CREFS. The inoperability of CREFS occurred when the supply breaker for the Control Room Charcoal Filter Fan tripped on thermal overload due to incorrectly set breaker thermal overload trip settings following replacement of the fan motors by a plant modification.

The licensee performed a root cause evaluation which identified that fleet guidance for breaker thermal overload sizing was not completely incorporated into plant procedures for overload heater selection and the plant had no formal testing program for thermal overload devices. The licensee's corrective actions included: preparing and implementing a Design Guide to select motor overload relays consistent with the National Electrical Code guidance and providing requirements for setting and testing motor overload relays; revising procedures RMP 9374-4, "Functional Test of Safety-Related Contactors," and MI-18.6, "Instructions for Heater Element Selection for Westinghouse Motor Starters," to provide methods for setting and testing motor overload relays consistent with the new design guidance; and developing a relay testing program which addresses creating and scheduling preventive maintenance. Additional actions include strengthening the interface between site design and vendor organizations to improve communications, and comment resolution in the design phase for vendor designed modifications. This LER is closed.

- .3 (Closed) LER 05000266/2007-004-00; 05000301/2007-004-00, Manual Reactor Trip Due to Loss of Feedwater Regulating Valve Control

Section 4OA3.1 of NRC Inspection Report 05000266/2007003; 05000301/2007003 documented the enforcement aspects of an NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions Procedures and Drawings," having very low safety significance associated with a manual reactor trip of Unit 1 due to loss of feedwater regulating valve control. Multiple licensee procedures and instructions for work on air-operated valves affecting valve positioner linkage did not have adequate instructions to ensure the positioner hardware connections had adequate locking devices (specialty nuts, thread sealant, or double nuts) and prevent the linkage from becoming disconnected due to inservice motion.

The licensee performed a root cause evaluation, which identified that RMP 9138-4, "Feedwater Regulator Control Valve (CS-466/476) Maintenance," lacked the level of detail for positioner mounting. Specifically, the procedure did not contain direction to install the elastic stop nuts on the linkage arm connection to the valve positioner, as directed by the vendor manuals, when installing the valve positioner linkage. The licensee's corrective action included revising RMP 9138-4 to provide guidance to clearly define the configuration of the fasteners for both ends of the connecting linkage to the valve and the valve positioner and to confirm fastener tightness, and addressed the extent-of-condition for other affected components and procedures. This LER is closed.

#### 4OA5 Other Activities

##### .1 Closure of Unresolved Item (URI) 05000266/2006006-09; 05000301/2006006-09, Emergency Diesel Generator Testing in Surveillance Requirement 3.8.1.5 Not Bounding

###### a. Inspection Scope

During followup inspection activities this period, the inspectors were able to resolve URI 05000266/2006006-09; 05000301/2006006-09. This URI will be closed; however, resolution will include the opening and closing of an NCV.

###### b. Findings

###### b.1 Failure to Account for Motor Operated Valve Stalling Delays for Emergency Core Cooling System Response Time Analysis

Introduction: The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance (Green). Specifically, the licensee failed to account for delays due to motor-operated valve (MOV) stalling caused by momentary voltage dips during load sequencing. These delays were not accounted for in the licensee's emergency core cooling system (ECCS) analysis and were not adequately accounted for in the MOV stroke time acceptance criteria.

Description: As described in URI 05000266/2006006-09; 05000301/2006006-09, "EDG Testing in SR 3.8.1.5 Not Bounding," Surveillance Requirement (SR) 3.8.1.5, which tested the sequencing of Loss of Offsite Power (LOOP)/Loss of Coolant Accident (LOCA) loads onto each EDG, did not test all permanently connected loads at one time. Instead, the permanently connected loads were tested at different time periods. As explained by the licensee, during each Unit's refueling outage each divisional engineered safety feature (ESF) bus was tested to both LOOP and LOOP/LOCA conditions; however, the EDGs were not tested with both the LOOP and the LOOP/LOCA permanently connected loads. During the design basis accident, both LOOP and LOOP/LOCA permanently connected loads would connect almost simultaneously. The immediate effects of these loads starting simultaneously would challenge the EDG and the control systems more than the testing that was currently conducted. The inspectors were concerned because the loads that the EDG would have to connect to during an actual design basis accident were not being tested. The inspectors believed that this did not meet the intent of the surveillance.

The licensee had performed an analysis to determine how this additional loading would ultimately affect the dynamic response of the EDG and the safety-related loading during an accident, and concluded that the plant could respond acceptably during a LOOP/LOCA event. The inspectors determined that this was an acceptable approach for determining the plant's electrical system dynamic response. However, during review of the licensee's methodology, the inspectors were concerned that the licensee had not evaluated an important aspect of the response of the EDGs. During a LOOP/LOCA, as loads sequence onto the EDG, the voltage dips significantly due to the large size of the motors being started. This was only the case for EDGs G-01 and G-02; EDGs G-03 and G-04 did not exhibit as significant of a voltage swing during load starts. The

inspectors were concerned because MOVs, which are required to reposition during a LOOP/LOCA, could potentially stall during these periods of low voltage. The MOVs would recover as soon as the voltage dip was over; however, during this period of low voltage, the MOVs would not run, causing a delay in their opening or closing times. These delays could adversely affect ECCS response times.

In response to the inspectors' concerns, the licensee initiated CAP 01107355. In this corrective action document, the licensee determined that present calculations only analyzed the operation of MOVs to a minimum voltage of 420 volts. Since the voltage dips that would be seen during load sequencing on the EDG would be much lower than 420 volts, the licensee determined that the potential for stalling did exist. As a result, for MOVs required to reposition during a LOCA, the licensee added the time delay caused by stalling to the inservice testing (IST) acceptance criteria for MOV stroke times, in order to determine if this new time would exceed license and design basis times. All MOVs met this criteria with the exception of the SI-860 valves which needed to be repositioned for the purposes of containment spray.

Because the SI-860 valves did not have enough time, per the IST acceptance criteria, to fully open to support their ECCS function, the licensee performed a more in-depth evaluation to show that although the valve would not stroke fully open, the initial flow requirements for a LOCA was met. The licensee was able to successfully perform this evaluation. However, margin was significantly reduced such that full stroke times were no longer acceptable for these ECCS valves.

Analysis: The inspectors determined that this failure to account for MOV delays caused by voltage dips during ECCS load sequencing was a performance deficiency and a finding. The inspectors concluded that the finding is greater than minor in accordance with IMC 0612, Power Reactor Inspection Reports," Appendix B, "Issue Screening," issued on September 20, 2007, because it is associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the MOV delays caused by voltage dips during ECCS load sequencing were not accounted for in the licensee's design basis. This introduced non-conservatism in the margins for MOV IST acceptance criteria and in the case of the SI-860 valves, reduced margin to the point that partial stroke of the valves had to be credited to ensure that adequate flow was supplied for ECCS purposes.

The inspectors evaluated the finding using IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," Attachment 1, "SDP Phase 1 Screening Worksheet," for the Mitigating Systems Cornerstone. The inspectors determined that the finding is of very low safety significance (Green) because the finding did not involve a design deficiency, there was no actual loss of safety function, no single train loss of safety function for greater than the TS allowed outage time, and no risk due to external events. Specifically, even though the MOV delays were non-conservative and significantly affected margin, the licensee was able to ensure through calculation that flows would still be acceptable for their LOCA analysis.

The inspectors did not identify a cross-cutting aspect associated with this finding because the issue originated several years ago.

Enforcement: 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 specifications, drawings, procedures, and instructions. Contrary to this, important design basis information relating to MOV delays were not translated into and accounted for in the specifications for the IST stroke time acceptance criteria for MOVs.

Because this failure to account for delays due to MOV stalling was determined to be of very low safety significance and because it was entered in the licensee's corrective action program as CAP 01107355, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000266/2007004-05; 05000301/2007004-05).

The licensee took immediate corrective actions to address the issue, which included revising the IST for these valves. At the end of the inspection period, the licensee continued to evaluate the causes associated with this finding and develop additional corrective actions.

.2 (Closed) URI (05000266/2006006-07; 05000301/2006006-07), Broken Tie-Wraps

The inspectors were concerned that some cables were not restrained due to broken cable tie-wraps. This issue was unresolved pending further NRC review of the licensee's design specification, Seismic Qualification Utility Group (SQUG) commitments, and licensing basis.

During this inspection, the inspectors reviewed the licensee's response to Generic Letter 87-03, "Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors, Unresolved Safety Issue (USI) A-46." In their response, the licensee committed to perform the General Implementation Procedure for SQUG walkdown that included a one-time check to verify the integrity of tie-wraps to ensure the cables remained in their place. The inspectors reviewed design specifications, SQUG commitments, and the licensing basis and concluded that the licensee was not committed to routinely inspect the integrity of the plastic tie-wraps. The inspectors agreed that the SQUG General Implementation Procedure methodology involved an initial screening process meant to provide the basis for demonstrating seismic adequacy of equipment and to resolve USI A-46 for individual plants.

This issue was entered in the licensee's corrective action program as CAPs 01051182, 01052281, and 01056071. These corrective actions included performing a limited walkdown of cable trays and of containment and assessing the effect of the broken tie-wraps on the seismic adequacy of the plant. During this limited walkdown, the licensee identified four instances in which cables were found outside of trays and determined that this condition did not affect the safety-related function of the cables. The licensee has an action tracking item to place these cables in their correct location and re-secure them with tie-wraps. The licensee also committed to walkdown containment during the next outage to identify cables outside of cable trays.

Based on this review, this URI is closed. No performance deficiencies or violations of NRC requirements were identified.

#### 40A6 Meetings

##### .1 Exit Meeting

On October 2, 2007, the resident inspectors presented the inspection results to Mr. D. Koehl and members of his staff, who acknowledged the findings. The licensee did not identify any information, provided to or reviewed by the inspectors, as proprietary.

##### .2 Interim Exit Meetings

Interim exit meeting were conducted for:

- Public radiation safety, radwaste processing, and transportation program inspection with Mr. J. McCarthy and other licensee staff on September 28, 2007; and
- Radiation protection effluent treatment/monitoring and radiological access control inspections with Mr. G. Packard on August 10, 2007.

#### 40A7 Licensee-Identified Violations

The following violation of very low safety significance was identified by the licensee and is a violation of NRC requirements which met the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being disposed as an NCV.

##### Cornerstone: Occupational Radiation Safety

Technical Specification 5.7.1 governs access into HRAs with dose rates not exceeding 1.0 rem per hour and requires, in part, that: (1) access into these areas be controlled by means of a radiation work permit or equivalent that includes appropriate RP measures; and (2) entry personnel are knowledgeable of the dose rates in the area. Contrary to these requirements, on April 21, 2007, an individual entered a posted HRA (dose rates in accessible areas did not exceed 1.0 rem per hour) without knowledge of the dose rates in the area, because the individual had not be briefed by the RP staff.

This incident is documented in the licensee's corrective action program as CAP 01088845 and an associated ACE. Corrective actions included the establishment of standardized radiological briefings for HRAs, and the use of "jump tickets" for all entries into radiologically controlled areas as an added measure to ensure that workers understand radiation work permit requirements. This HRA access control problem represents a finding of very low safety significance because it did not involve As Low As Reasonably Achievable Planning, no overexposure occurred, and a substantial potential for an overexposure did not exist given the radiological conditions, the presence of RPTs in the area, and the use of electronic dosimeters. Also, the licensee's ability to assess worker dose was not compromised for this incident.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee Personnel

C. Butcher, Site Engineering Director  
G. Corell, Radiation Protection/Chemistry Manager  
F. Flentje, Regulatory Affairs Supervisor  
R. Harrsch, Operations Manager  
K. Johansen, Chemistry Specialist  
D. Koehl, Site Vice-President  
G. LeClair, Radiation Protection Supervisor/Shipping Specialist  
K. Locke, Regulatory Affairs Specialist  
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D. Schuelke, Radiation Protection and Chemistry Manager  
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J. Schweitzer, Manager of Projects  
G. Sherwood, Engineering Programs Manager  
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#### Nuclear Regulatory Commission

J. Cameron, Chief, Reactor Projects, Branch 5  
A. M. Stone, Chief, Engineering Branch 2  
P. Milano, Point Beach Project Manager, Office of Nuclear Reactor Regulation

## ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened and Closed

0500266/2007004-01; 0500301/2007004-01	NCV	Service Water System Microbiologically-Induced Corrosion Through-Wall Leak Due to Inadequate Corrective Actions (Section 1R12.1)
0500266/2007004-02; 0500301/2007004-02	NCV	Failure to Correct Previous Indication of Degraded Oil in Component Cooling Water Pump 1P-11B (Section 1R12.2)
05000266/2007004-03; 05000301/2007004-03	NCV	Inadvertent Chemical and Volume Control System Letdown Isolation Due to Inadequate Instructions, Procedures, and Drawings (Section 1R17)
05000266/2007004-04; 05000301/2007004-04	NCV	Incorrect Calibration Methods for Engineered Safeguards Actuation System Instrumentation, Lead/Lag Time Constants for Steam Line Pressure (Section 4OA3.1)
05000266/2007004-05; 05000301/2007004-05	NCV	Failure to Account for MOV Stalling Delays for ECCS Response Time Analysis (Section 4OA5.1.b.1)

### Closed

05000266/2007-001-00; 05000301/2007-001-00	LER	CREFS Inoperability, Both Control Room Charcoal Filter Fans Inoperable (Section 4OA3.2)
05000266/2007-003-00; 05000301/2007-003-00	LER	Engineered Safeguards Feature Actuation System Instrumentation, Lead/Lag Time Constants for Steam Line Pressure Outside Tech Spec Values (Section 4OA3.1)
05000266/2007-004-00; 05000301/2007-004-00	LER	Manual Reactor Trip Due to Loss of Feedwater Regulating Valve Control (Section 4OA3.3)
05000266/2006006-07; 05000301/2006006-07	URI	Broken Tie-Wraps (Section 4OA5.2)
05000266/2006006-09; 05000301/2006006-09	URI	EDG Testing in SR 3.8.1.5 Not Bounding (Section 4OA5.1)

### Opened

NONE

## LIST OF DOCUMENTS REVIEWED

### **Section 1R04: Equipment Alignment**

CAP 01094513; P-32A Service Water Pump Fails Inservice Test  
BECH 6118 M-207 SH.1A P&ID Service Water  
BECH 6118 M-207 SH.2 P&ID Service Water  
BECH 6118 M-207 SH.1 P&ID Service Water  
BECH 6118 M-207 SH.4 P&ID Service Water  
BECH 6118 M-207 SH.3 P&ID Service Water  
Safeguards Service Water System Checklist Unit 1; Revision 24  
Safeguards Service Water System Checklist Unit 2; Revision 24  
Service Water Safeguards Lineup; Revision 61  
G-01 Diesel Generator Checklist; Revision 22  
G-02 Diesel Generator Checklist; Revision 26

### **Section 1R05: Fire Protection**

Fire Hazards Analysis Report; January 2007 Revision

### **Section 1R06: Flood Protection**

CAP 01106861; Unit 1 Facade Subsoil Drain Cover Has 3/4 Inch Hole  
CAP 01107098; Missing Bolts on Subsoil Drainage System Cleanout Covers  
CAP 01107520; Debris in Subsoil Drainage System Weep Holes  
CAP 01107630; Create Engineering Documents for Flood Credited Drains/Subsoil Drains  
CAP 01107634; Formally Verify Function and Capacity of Auxiliary Feedwater Pump and EDG Drains  
HPIP 3.58; Ground Water and Subsoil Tritium Sampling; Revision 9  
NP 8.4.17; Point Beach Nuclear Plant Flooding Barrier Control; Revision 6  
TLB-16; Reactor Makeup Water Tank ID Graver L-24019 T-21; Revision 4  
TLB-34; Condensate Storage Tank; Revision 6  
Drawing C-100; Concrete Plant Foundation Plan and Sub-Drainage System; Revision 16  
Drawing C-174; Concrete Turbine Building Ground Floor Plan - Elevation 8'-0"; Revision 5  
Drawing M-1G5; Turbine building Floor and Quipment Drainage Area; Revision 6  
Drawing PB02S050002001004; Turbine Generator Building Concrete Slab Demolition and Drain Pipe Relocation Plan, Sections, and Details; dated March 19, 1999  
Drawing PB31EEIL40300131; Electrical Plot Plan Details  
Drawing SK-MR-01-089; Facade Subsoil Sump Drain Line Reroute New Piping Plan; dated September 28, 2001  
Nuclear Energy Institute NEI-07-07; Industry Ground Water Protection Initiative; dated August 2007  
Point Beach Nuclear Plant Annual Monitoring Report - 2006  
Point Beach Nuclear Plant Flooding Program Technical Basis Improvement Project; Phase 1 Study Report; Revision 0

### **Section 1R12: Maintenance Effectiveness**

2006 Service Water System Health Report; dated July 14, 2006  
2007 Service Water System Health Report; dated July 25, 2007  
2004 Service Water Inspection Program Annual Report



2005 Service Water Inspection Program Annual Report  
2006 Service Water Inspection Program Annual Report  
Service Water / Microbiologically Influenced Corrosion Program Status; dated July 25, 2007  
2005 List of Radiographic Testing (RT) Shots; dated July 20, 2007  
2006 List of Radiographic Testing (RT) Shots; dated July 20, 2007  
List of Planned Radiographic Testing (RT) Shots for 2007  
CAP 00822004; Through-Wall Leak on HX-55A1 G-01 EDG Heat Exchanger; dated March 20, 2005  
CAP 00839445; Pitting of Service Water Piping Upstream of SW-315; dated April 29, 2005  
CAP 00837116; Service Water Leakage; G-02 EDG; dated April 22, 2005  
CAP 00874301; Develop a Plan for UT of Service Water Piping Inspections; dated August 5, 2005  
5-Year NDE Plan for Service Water Inspection; dated October 2005  
CAP 00897400; Service Water (GL 89-13) Program (FSA); dated October 26, 2005  
CAP 01053645; SW Line for K-2A Instrument Air Compressor Has Pits, Radiography Revealed a 1" HB-19 SW Line With Pitting; dated October 4, 2006  
CAP01067144; RT Data Collection of SW May Not Be Adequately Monitoring the Service Water (SW) System for Wall Thinning; dated December 12, 2006  
CAP 01071212; Issues With Evaluation of Service Water Piping Wall Thinning; dated January 11, 2007  
CAP 01101832; Service Water Piping Leak between SW-64 and SW-82; dated July 15, 2007  
CAP 01105359; NDE Data of Service Water Line in EDG-01 Room; dated August 6, 2007  
ACE 00001869; Service Water Leakage; G-02 EDG Room; dated April 26, 2005  
ACE 01067144-01; Multiple Weaknesses Have Been Identified in the Implementing Procedures for the SW Program Related to Inspection and Evaluation Methodologies, Application of Code Rules and CAP Triggers; dated March 15, 2007  
ACE 01101832-01; Service Water Piping Leak Between SW-64 and SW-82  
FP-PE-SW-01; Service Water and Fire Protection Inspection Program Procedure; Revision 2  
2006 Component Cooling Water System Health Report; dated May 26, 2006  
AR 01100809; Seal Compatibility Issue Identified on 1P-11B

### **Section 1R13: Maintenance Risk Assessment and Emergent Work Evaluation**

NP 10.3.6; Shutdown Safety Review and Safety Assessment; Revision 19  
Safety Monitor Calculation Reports for Units 1 and 2 for Applicable Work Weeks  
Work Week Execution Schedules for the Applicable Work Weeks  
Operator Logs for the Applicable Work Weeks

### **Section 1R15: Operability Evaluations**

OPR 0103755401; Coordination Issues Identified by Calculation 2004-0009; Revision 0  
CAP 00889394/OPR153; Calculated Short Circuit Currents Issues; Revision 1  
OI 35C; 480V Electrical Load Conservation; Revision 3  
NRC Event Notification Report 42020; Postulated Faults Have Electrical Current in Excess of the Maximum Listed Interrupting Ratings; dated April 7, 2006  
CAP 01040558; Industry TSG [Transformer, Switchyard and Grid] AFIs [Areas for Improvement] Review; dated July 20, 2006  
QF-1113 Operational Decision-Making Matrix for CAP 01112232; Revision 0  
CAP 01112232; D-06 Replacement Cell Posts Fail (Pb) Re-plating Inspections; dated September 20, 2007  
OPR 0104361401; D-06 Had Exhibited Declining Specific Gravity Trend; Revision 0

CAP 01108374; Materials Received Are Not Suitable for D-06 Installation; dated August 23, 2007

**Section 1R17: Permanent Modifications**

CAP 01099915; Loss of U1 Letdown Flow Due to Charging Pump Mod Process  
ACE 01099915-01; U1 "B" Letdown Orifice Closed Unexpectedly  
IWP 04-013-B; Installation Work Plan for Charging Pump 1P-2B Renovation, FCN 7374

**Section 1R19: Post-Maintenance Testing**

WO Package 00335531-01; 2P-11B Obtain Oil Sample as Required per NRC Commitment; dated July 19, 2007  
CAP 01102455; Oil Sample Process to Release to Clean Side is Challenged; dated July 19, 2007  
CAP 01099386; Overall Concerns with the Oil Analysis Program; dated June 27, 2007  
WO Package 00279747-02; 2A52-74, Locate and Stage a Spare Breaker; dated June 18, 2007  
WO Package 00279747-04; 2A52-74, Perform Breaker Swap Using a Prepared Spare; dated June 18, 2007  
WO Package 00279747-06; A52-70, Remove Lower Pivot Mounting Plate from Cubicle; dated June 18, 2007  
WO Package 00279747-07; 2A52-74, Remove and Re-Inst Lower Pivot Mounting Plate; dated June 18, 2007  
WO Work Plan for WO# 279747-07; Perform Removal of Old and Re-installation of Replacement Cell Switch Lower Pivot Point Mounting Plate; dated July 18, 2007

**Section 1R22: Surveillance Testing**

OI 55; Primary Leak Rate Calculation; Revision 19  
PBF-2131; Control Room Miscellaneous Shift Log - Modes 1-3, Unit 1; Revision 6  
PBF-2132; Control Room Miscellaneous Shift Log - Modes 1-3, Unit 2; Revision 6  
Unit 1 and 2 Leakrate Graph Data for September 2007  
IT 8A; Cold Start of Turbine-Driven Auxiliary Feed Pump and Valve Test (Quarterly) Unit 1; Revision 46; Performed September 12, 2007

**Section 1R23: Temporary Plant Modifications**

Temporary Plant Modification EC010136; Temporary Modifications Associated with the Steam Generator Blowdown Heat Exchanger Replacement for Unit 1; dated March 23, 2007  
SCR 2007-0046; 50.59 Screening for Temporary Plant Mod EC010136; dated March 23, 2007  
Calculation 07C0650-C-001; Crane Configuration Design

**Section 1EP6: Drill Evaluation**

August 29, 2007, Off-Year Full Scale Drill Documentation  
September 13, 2007, Simulator Drill Documentation

**Section 2OS1: Access Control to Radiologically Significant Areas**

HPIP 1.66; Dosimetry Placement for Extremity and Multiple Whole Body Locations and Extremity Dose Determination; Revision 12  
HP 2.17; Very High Radiation Area Personnel Access; Revision 6  
HP 2.5; Radiation Work Permit; Revision 33  
HP 2.6; Locked and Very High Radiation Area Key Control; Revision 28

HP 2.14; Containment Keyway Personnel Access; Revision 12  
NP 4.2.19; Entry Requirements into Various Radiologically Controlled Areas; Revision 10  
Self-Assessment No. SAR 01024831; Control of High, Locked High and Very High Radiation  
Areas at Point Beach; Assessment dates October 23 - 27<sup>th</sup>, 2006  
RWP 618; Locked High Radiation Area/Airborne Radioactivity/Neutron Areas at Power;  
Revision 0  
Job File No. 123; Lower Cavity Entry; dated May 1, 2007  
Job File No. 50; Spent Fuel Pool Transfer Canal Entry; dated March 22, 2007  
Root cause Evaluation Report; Individual Entered Locked High Radiation Area on the Incorrect  
Radiation Work Permit; dated May 10, 2007  
CAP 01087780; High Radiation Area Entry on a Non-High Radiation Area RWP; dated  
April 14, 2007  
CAP 01088861; Adverse Trend in RP Boundary Control; dated April 21, 2007  
CAP 01101405; Potential Challenge to High Radiation Area and Locked High Radiation Area  
Entrance at Pillbox; dated July 11, 2007  
CAP 01101376; LHRA Key Inventory; dated July 11, 2007  
CAP 01097649; Unclear Guidance in Work Order Could Have Led to LHRA Violation; dated  
June 19, 2007  
CAP 01091980; LHRA and VHRA Key Control not Followed; dated May 10, 2007  
CAP 01087452; Discrepancies in Posting for Fuel Boundaries; dated April 12, 2007

### **Section 2PS1: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems**

Snapshot Self-Assessment; Radioactive Gaseous and Liquid Effluent Monitoring Systems;  
Assessment dates July 23 - 31, 2007  
NP 3.2.1; Point Beach Analytical Quality Assurance Program; Revision 11  
CAMP 300; Multi-Channel Analyzer Efficiency Calibrations; Revision 14  
Daily Performance Checks for Selected Gamma Spectroscopy Detectors and the Liquid  
Scintillation Counter; December 2006 - July 2007  
CAMP 332; Packard Tri-Carb Liquid Scintillation Analyzer; Revision 11  
Calibration Checks and Lower Limit of Detection Determinations for Gamma Spectroscopy  
System Detectors 1, 2, 3, 5 and 6 for Various Geometries; dated various periods in 2007  
HPIP 3.58; Groundwater and Subsoil Tritium Sampling; Revision 9  
Groundwater, Subsoil Drain and Onsite Creek Sampling Results; January 2005 - May 2007  
Woodward-Clyde Consultants Report of Hydrogeologic Investigation; dated September 1992  
Haley and Aldrich Report of Preliminary Subsurface Investigation in the Vicinity of the Retention  
Basin; dated February 11, 1999  
Condition Report 007578 and Associated 10 CFR Part 50.75(g) File Information; Effluent Sump  
Pump Discharge Piping Fails; dated February 5, 1997  
Spent fuel Pit Leak Investigation and Groundwater Tritium and Associated 10 CFR50.75(g) File  
information; Various Data from 1979 - 1986  
Incident Report for Unit 1 "B" Steam Generator Tube Failure; dated March 14, 1975 and Associated  
10 CFR Part 50.75(g) File Information  
Annual Monitoring Report - 2005; Point Beach Nuclear Power Plant; dated April 28, 2006  
CAMP 601; Primary Auxiliary System Sample Points; Revision 12  
HPCAL 3.1; Liquid Monitor Calibration Procedure (RE230); dated November 15, 2005  
HPCAL 3.1; Liquid Monitor Calibration Procedure (2RE229); dated November 15, 2005  
HPCAL 3.1; Liquid Monitor Calibration Procedure (1RE229); dated September 14, 2005  
HPCAL 3.4; SPING Calibration Procedure (SPING 22); dated May 16, 2005

HPCAL 3.4; SPING Calibration Procedure (SPING 23); dated February 14 and 15, 2005  
HPCAL 3.8; Stack Exhaust Monitor Calibration (RE-214); dated December 12, 2005  
HPCAL 3.6; PNG Calibration Procedure (1RE 211/212); dated March 14, 2005  
HPCAL 3.6; PNG Calibration Procedure (2RE211/212); dated August 16, 2005  
HPCAL 3.4; SPING Calibration (SPING 21); dated March 15, 2006  
HPIP 11.50; Filter Testing; dated August 23, 2004  
HPIP 11.54; Control Room F-16 Filter Testing; dated June 3, 2006  
HPIP 11.54; Control Room F-16 Filter Testing; dated May 2, 2006  
HPIP 3.52; Airborne Radioactivity Surveys; Revision 32  
HPIP 3.52.1; Radiological Sampling for Release Accountability; Revision 25  
NP 3.2.1; Point Beach Nuclear Plant Analytical Quality Assurance Program; Revision 10  
PCR 29457; Revise HPCAL 3.1 for Use of Disc Calibration Source; dated February 28, 2003  
RAM 5.1; Radioactive Airborne Effluent Releases; Revision 10  
RAM 3.2; Radioactive Batch Liquid Releases; Revision 13  
Construction Closeout Report: Abandonment of the Waste Water Retention Pond; dated December 2002  
EM; Environmental Manual; Revision 18  
Groundwater Radionuclide Monitoring Project - Project Plan; undated  
ODCM; Off-site Dose Calculation Manual; Revision 17  
RECM; Radiological Effluent Control Manual; Revision 4

### **Section 2PS2: Radioactive Material Processing and Transportation**

Annual Monitoring Reports for 2005 and 2006; Tables Summarizing Solid Waste and Irradiated Fuel Shipments; dated April 28, 2006, and April 30, 2007, respectively  
Process Control Program; Revision 4  
RDW 15.1; Determining Shipment Type and Packaging Requirements; Revision 10  
RDW 15.0; Radioactive Material Shipping; Revision 8  
RDW 15.16; Packaging and Shipping of Low Specific Activity and SCO Material in an Exclusive Use Vehicle; Revision 2  
RDW 16.7; Dry Active Waste Processing for Transport in Sea-Land Vans; Revision 4  
Energy Solutions Procedure DM-OP-046-161043; Operation of the ALPS System at Point each; Revision 4  
FP-E-ABN-01; Abandoned Equipment; Revision 0  
Radiation Protection Job File 160; Resin Transfers; Revised June 29, 2006  
RDW 18.1.1; 10 CFR Part 61 Sampling Program; Revision 3  
RDW 18.2; Radwaste Classification, Shipment Type and Waste Stability Determination; Revision 2  
Safety Evaluation Report 89-088-02; Evaluation to Allow for the Storage of Low-Level Radwaste in the Steam Generator Storage Facility South Bay; dated February 24, 1994  
Inventory of Radioactive Material in the Mausoleum; dated September 25, 2007  
RDW 14.3; Steam Generator Storage Facility low-Level Radwaste Storage Requirements; Revision 2  
Shipment Manifest, Radiological Surveys and Associated Documentation for Shipment No. 06-022; Sludge in High Integrity Container to Waste Processor; dated September 12, 2006  
Shipment Manifest, Radiological Surveys and Associated Documentation for Shipment No. 07-026; Dry Active Waste to Waste Processor; dated May 1, 2007  
Shipment Manifest, Radiological Surveys and Associated Documentation for Shipment No. 06-044; Blowdown Evaporator Bottoms to Waste Processor; dated November 14, 2006  
Shipment Manifest, Radiological Surveys and Associated Documentation for Shipment No. 06-003; Blowdown Evaporator Bottoms to Waste Processor; dated January 23, 2006

Shipment Manifest, Radiological Surveys and Associated Documentation for Shipment No. 06-032; Contaminated Equipment to Vendor; dated October 23, 2006  
Shipment Manifest, Radiological Surveys and Associated Documentation for Shipment No. 07-002; Resin to Waste Processor; dated February 19, 2007  
Training Lesson Plan HPI-02-LP015; 49 CFR Regulatory Awareness Training for Radiation Protection; Revision 2  
Training Lesson Plan PB-SHE-DOT-071L; DOT Hazardous Materials for Employees that Load/Unload Hazardous Materials  
10 CFR Part 50.59 Screening No. SCR 2007-0003-02; Engineering Change 7578-Replacement of the Liquid Radwaste Processing System; Revision 4  
Nuclear Oversight Observation Report No. 2006-004-3-008; Radiation Protection; dated December 12, 2006  
Nuclear Oversight Observation Report No. 2006-002-3-006; Radiation Protection; dated June 6, 2006  
CAP 01049349; Improve Postings on Seavans; dated September 11, 2006  
CAP 01037839; Unexpected RMS Alarm During Resin Dewatering; dated June 29, 2006  
CAP 00904444; Reduce Radioactive Material Stored in Seavans Outdoors; dated June 29, 2007  
CAP 00902021; Update Radwaste Streams to Reflect Latest Sample Results; dated December 2, 2005

#### **Section 4OA1: Performance Indicator Verification**

CAMP 410; Determination of Radioactive Iodine and Iodine 131 Equivalents in Reactor Coolant; Revision 6  
Dose Equivalent Iodine Summary and Trending Data for November 2006 - August 2007  
CAMP 600.6; Primary Side Sampling Procedure - Mixed Bed Inlet/Outlet Sampling; Revision 2  
CAMP 600.3; Primary Side Sampling Procedure - Hot Leg Liquid Sampling of Depressurized Liquid; Revision 3  
NP 3.2.2; Primary Water Chemistry Monitoring Program; Revision 18  
CAP 01104075; Alternate RCS Sample Point; dated July 29, 2007  
Occupational Exposure Performance Indicator Data and Associated Assignment Report Database Information; Monthly Data for November 2006 - July 2007

#### **Section 4OA2: Identification and Resolution of Problems**

RCE 01090456; 1P-29 Turbine Driven Auxiliary Feedwater Pump Outboard Turbine Bearing Issues

#### **Section 4OA3: Event Followup**

WEP-06-23; dated March 28, 2006  
CN-CRA-01070; dated October 2001  
CN-TA-96-075; Revision 1, dated March 22, 2007  
CAP 01090273; S/G Safeguards Logic Steam Pressure Compensator Modules OOT  
CAP 01111043; LER 2007-003 Related AR Severity Levels Not Correct - No Causal Evaluation  
CAP 01086551; Module 1-PM-00479A As-Found Out of Tolerance (cross referenced CAPs also)  
CAP 01104762; Bent 1CS-476 Arm Not Captured in CAP or Work Management  
CAP 01095358; Unit 1 Reactor Trip Due to Oscillating Feed Reg Valve  
RCE 01075472-01; Root Cause Analysis of Control Room Emergency Filter Fan System (CREFS) Motor Tripping, March 26, 2006, Revision 0  
RCE 01095358; Root Cause Analysis of Unit 1 CS-00476: "1HX-1B Steam Generator Feedwater Regulator Control" Valve Positioner Linkage Fastener Failure

**Section 40A5: Other**

CAP 01051182; Cables Found Outside of Cable Trays; dated September 20, 2006

CAP 01052281; Cables Found Outside of Cable Trays CL01; dated September 20, 2006

CAP 01056071; Follow-up on the URI on Tie-Wraps Identified During the CDBI; dated October 17, 2006

USI A-46; Seismic Evaluation Report; dated June 30, 1995

AR 01105237; Interruption of Power to MOV Contractors While on the EDG; dated August 6, 2007

AR 01107355; Stalling of MOVs While Load Sequencing on the EDG; dated August 16, 2007

AR 00004262; Design Basis Calc Did Not Include Necessary Field Inputs; dated March 30, 2000

AR 00531827; Calculation E-09334-369-DG.1 Enhancement; dated September 25, 2003

AR 00713352; EDG Transient Calculations Issues Identified; dated May 17, 2004

AR 00811477; Place Calculations on Administrative Hold; dated February 23, 2005

**Section 40A7: Licensee Identified Violations**

CAP 01088845; Worker Violation of High Radiation Posting; dated April 21, 2007

Apparent Cause Evaluation for CAP 01088845; approved June 26, 2007

## LIST OF ACRONYMS USED

ACE	Apparent Cause Evaluation
AOP	Abnormal Operating Procedure
CAP	Corrective Action Program Document
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CREFS	Control Room Emergency Filtration System
CVCS	Chemical and Volume Control System
DAW	Dry-Active Waste
DOT	Department of Transportation
DRS	Division of Reactor Safety
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EOC	Extent of Condition
ESF	Engineered Safety Feature
ESFAS	Engineered Safeguards Feature Actuation System
FSAR	Final Safety Analysis Report
Hazmat	Hazardous Material
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IST	Inservice Testing
IWP	Installation Work Plan
LER	Licensee Event Report
LHRA	Locked High Radiation Area
LOCA	Loss of Coolant Accident
LOOP	Loss of Offsite Power
MCC	Motor Control Cabinet
MIC	Microbiologically-Induced Corrosion
MOV	Motor-Operated Valve
MSLB	Main Steamline Break
NCV	Non-Cited Violation
NDE	Non-Destructive Examination
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PBNP	Point Beach Nuclear Plant
PI	Performance Indicator
PMT	Post-Maintenance Testing
Radwaste	Radioactive Waste
Rem	Roentgen Equivalent Man
RETS	Radiological Effluent Technical Specifications
RMP	Routine Maintenance Procedure
RP	Radiation Protection
RPT	Radiation Protection Technician
RT	Radiography Testing
SDP	Significance Determination Process
SI	Safety Injection
SQUG	Seismic Qualification Utility Group

**LIST OF ACRONYMS USED (continued)**

SR	Surveillance Requirement
SW	Service Water
TS	Technical Specification
URI	Unresolved Item
USI	Unresolved Safety Issue
UT	Ultrasonic Testing
VHRA	Very High Radiation Area
WO	Work Order