



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
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August 11, 2008

EA-06-178

Mr. Larry Meyer  
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 05000266/2008003 AND 05000301/2008003**

Dear Mr. Meyer:

On June 30, 2008, 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 July 16, 2008, 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, 10 NRC-identified and two self-revealed findings of very low safety significance were identified. Nine of these findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are 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 a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Point Beach Nuclear Plant.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document

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Sincerely,

*/RA/*

Michael A. Kunowski, Chief  
Branch 5  
Division of Reactor Projects

Docket Nos. 50-266; 50-301; 72-005  
License Nos. DPR-24; DPR-27

Enclosure: Inspection Report 05000266/2008003; 05000301/2008003  
w/Attachment: Supplemental Information

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J. Stall, Executive Vice President, Nuclear and  
Chief Nuclear Officer  
Abdy Khanpour, Vice President, Engineering Support  
Licensing Manager, Point Beach Nuclear Plant  
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Town of Two Creeks  
Chairperson  
Public Service Commission of Wisconsin  
J. Kitsembel, Electric Division  
Public Service Commission of Wisconsin  
P. Schmidt, State Liaison Officer

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INSPECTION REPORT 05000266/2008003 AND 05000301/2008003

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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: 05000266/2008003; 05000301/2008003

Licensee: FPL Energy Point Beach, LLC

Facility: Point Beach Nuclear Plant, Units 1 and 2

Location: Two Rivers, Wisconsin

Dates: April 1, 2008, through June 30, 2008

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Enclosure

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## SUMMARY OF FINDINGS

IR 05000266/2008003, 05000301/2008003; 04/01/2008-06/30/2008; Point Beach Nuclear Plant, Units 1 & 2; Adverse Weather Protection; Fire Protection; Maintenance Risk Assessments and Emergent Work Control; Post Maintenance Testing; Outage Activities; As-Low-As-Is-Reasonably-Achievable (ALARA) Planning Controls; and Other Activities.

This report covers a three-month period of inspections by resident inspectors and regional and headquarters specialists. Twelve Green findings were identified. Nine of the findings that were identified had associated NCVs. 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 4, dated December 2006.

### A. NRC-Identified and Self-Revealing Findings

#### Cornerstone: Initiating Events

- Green. A finding of very low safety significance was identified by the inspectors for the licensee's failure to maintain control over the proper storage and placement of materials within the protected area that were classified as tornado hazards per station Procedure PC 99. Specifically, these unsecured items were identified near the Unit 1 and Unit 2 main and auxiliary transformers, as well as the switchyard boundary. Once notified, the licensee entered the issue into its corrective action program and removed or secured the materials appropriately. At the end of the inspection period, the licensee continued to perform a causal evaluation and develop additional long-term corrective actions.

The finding was determined to be more than minor because if left uncorrected, the loose items would become a more significant safety concern. The inspectors evaluated the finding using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of findings." The finding is of very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. Additionally, the inspectors determined that the finding had a cross-cutting aspect in the area of problem identification and resolution in that the licensee failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance [P.1(d)]. (Section 1R01.1)

- Green. A finding of very low significance was self-revealed for the failure to implement appropriate design and configuration control for the Unit 2 polar crane upgrade project, which resulted in issues associated with reliable operation of the polar crane during the first reactor vessel head lift. Specifically, a lack of configuration control on the crane radio system resulted in a loss of radio communications during the initial reactor vessel head lift over the reactor vessel head stand, which resulted in unreliable crane operation. The licensee implemented remedial corrective actions to address the design issues with the polar crane bridge drive motors which resulted in unavailability at the beginning of the outage and ensured the radio receivers were appropriately configured and installed.

The licensee performed a root cause analysis to determine the cause of the design and configuration control issues associated with the polar crane and developed additional corrective actions to address this performance deficiency.

The finding was determined to be more than minor because it is associated with the Initiating Events Cornerstone attribute of design control and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding is of very low safety significance (Green) because the finding did not meet the criteria for a Phase 2 or Phase 3 Analysis, as specified in IMC 0609 Appendix G, Attachment 1, Checklist 3. The inspectors did not identify a cross-cutting aspect associated with this finding. (Section 1R19.2)

### **Cornerstone: Mitigating Systems**

- Green. A finding of very low safety significance and associated NCV of License Condition 4.F was identified by the inspectors for the failure to address fire suppression sprinkler head obstructions in the 'B' train emergency diesel generator (EDG) rooms. The inspectors identified that five sprinkler heads were obstructed in the 'B' train EDG rooms. National Fire Protection Association (NFPA) 13-1991, "Installation of Sprinkler Systems", was the applicable standard for sprinkler systems installed in the two rooms. The inspectors determined that failure to address sprinkler head obstructions was contrary to NFPA 13-1991 and was a performance deficiency.

The finding was determined to be more than minor because the failure to address sprinkler head obstructions was associated with the Mitigating Systems Cornerstone attribute of protection against external factors (fire) and affected the cornerstone objective of ensuring the capability of systems that respond to initiating events. Specifically, the identified obstructions to sprinkler heads would affect the sprinkler spray patterns and distribution, thereby impacting the sprinkler systems capability to control a fire. In accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," and IMC 0609, Appendix F, "Fire Protection Significance Determination Process," the inspectors considered the finding to represent a moderate degradation of the water based suppression system for both rooms. As such, the inspectors performed a Phase 2 Analysis. The inspectors concluded that potential fire scenarios associated with the finding were effectively FDS0 fire scenarios as described in Section 2.2 of IMC 609, Appendix F, and that the issue was of very low safety significance (Green). The inspectors did not identify a cross-cutting aspect associated with this finding. (Section 1R05.1)

- Green. A finding of very low safety significance and associated NCV of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," was identified by the inspectors when the licensee failed to adequately manage the risk associated with work on the 480-VAC breaker 1B52-16C, coincident with a large number of other out-of-service components, which resulted in an unplanned risk condition for Unit 1 without the appropriate risk management actions. Specifically, the licensee incorrectly assumed that planned work on breaker 1B52-16C did not render the breaker unavailable, and that the breaker was not utilized in Modes 1, 2, or 3. Consequently, the component was not factored into the Safety Monitor online risk model. However, breaker 1B52-16C was in fact unavailable and also utilized in



abnormal operating procedures for Modes 1, 2, and 3. Therefore, unavailability of the breaker was required to have been factored into Safety Monitor with appropriate risk management actions taken. The licensee took corrective actions to perform an apparent cause evaluation that identified the apparent cause of the issue and recommended a number of corrective actions to address the procedural and human performance deficiencies that were identified.

The finding was determined to be more than minor because the finding was based on incorrect assumptions that changed the outcome of the risk assessment. The inspectors evaluated this finding using the Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process", worksheets of IMC 0609 because the finding is a maintenance risk assessment issue. Flowchart 1, "Assessment of Risk Deficit," requires the inspectors to determine the risk deficit associated with this issue. This finding was determined to be of very low safety significance because the incremental core damage probability deficit was less than 1E-6. The inspectors also determined that the finding has a cross-cutting aspect in the area of human performance. Specifically, the licensee failed to use conservative assumptions in decision-making and adopt a requirement to demonstrate that the proposed action was safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action [H.1(b)]. (Section 1R13.1)

- Green. A finding of very low safety significance and associated NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed for the failure to have appropriate maintenance procedures and work instructions in place to identify improperly installed components prior to the attempted restoration of the DY-0C white channel instrument inverter. Specifically, the routine maintenance procedure did not contain instructions to check for direct current (DC) grounds following maintenance and prior to restoration, which allowed a ground to go undetected and cause a number of unplanned Technical Specification Action Condition (TSAC) entries as well as the unplanned inoperability of the G-01 and G-02 EDGs and the 2PI-9046 containment pressure indicator. At the end of the inspection period, the licensee continued to perform a causal evaluation and develop additional long-term corrective actions.

The finding was determined to be more than minor because the finding was associated with the Mitigating Systems Cornerstone attribute of procedure quality and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors evaluated the finding using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings." The inspectors determined that the finding was of very low safety significance (Green) because the finding did not involve a design or qualification deficiency, there was 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. The inspectors also determined that the finding had a cross-cutting aspect in the area of human performance. Specifically, procedures were not complete or adequate to ensure that installation errors would be detected prior to restoration of the DY-0C inverter [H.2(c)]. (Section 1R19.1)

- Green. A finding of very low safety significance and associated NCV of TS 5.4.1, "Procedures," was identified by the inspectors for the failure to protect all of the safety equipment necessary for safe shutdown while in reduced inventory with the reactor

coolant system (RCS) intact. Specifically, the licensee failed to ensure that an auxiliary feedwater source and steam generator (SG) were available for decay heat removal when a reduced inventory condition was entered and the RCS was intact. The licensee's responses to Generic Letter 88-17, "Loss of Decay Heat Removal," indicated that the first drain of the RCS to reduced inventory following shutdown could be accomplished with the RCS intact and reflux cooling (with a SG and auxiliary feedwater source) as an alternate decay heat removal path. The licensee was performing a causal evaluation of this issue and developing corrective actions at the end of the assessment period.

The finding was determined to be more than minor because the finding was associated with the Mitigating Systems Cornerstone attribute of human performance 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 (Green) because the finding did not meet the criteria for a Phase 2 or Phase 3 Analysis, as specified in IMC 0609 Appendix G, Attachment 1, Checklist 3. The inspectors also determined that the finding has a cross-cutting aspect in the area of human performance. Specifically, the licensee failed to ensure that procedures were adequate and accurate to assure nuclear safety [H.2(c)]. (Section 1R20.1)

- Green. A finding of very low safety significance and associated NCV of TS 5.4.1, "Procedures," was identified by the inspectors for the failure to implement operations procedures to remain above the  $\frac{3}{4}$  pipe level indications for draining the RCS while in reduced inventory. Specifically, during the second planned orange risk condition of the Unit 2 refueling outage to facilitate removal of the SG nozzle dams, operators drained the RCS below the procedurally required 22 percent level, as indicated by the most conservative reactor vessel level indication. The licensee took immediate corrective actions to address the issue and was performing a causal evaluation and developing corrective actions at the end of the assessment period.

The finding was determined to be more than minor because it is associated with the Mitigating Systems Cornerstone attribute of human performance and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The finding is of very low safety significance (Green) because the finding did not meet the criteria for a Phase 2 or Phase 3 Analysis, as specified in IMC 0609 Appendix G, Attachment 1, Checklist 3. The inspectors also determined that the finding has a cross-cutting aspect in the area of human performance. Specifically, the licensee failed to use conservative assumptions in decision-making and adopt a requirement to demonstrate that the proposed action was safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action [H.1(b)]. (Section 1R20.2)

- Green. A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the failure to ensure that procedures associated with the maintenance of the turbine for the turbine-driven auxiliary feedwater pump were appropriate to the circumstances. Specifically, the licensee's maintenance procedures did not address the following significant issues: 1) proper application of sealant material used on turbine casing joints; 2) proper cure time of sealant material used on turbine casing joints;

3) prescribed methods for tightening of the oil deflector ring set screw was not discussed; and 4) acceptable clearances between the turbine shaft and the inner diameter of the oil deflector ring were not specified. The licensee took immediate corrective actions to address the issue, conducted a root cause evaluation, and developed corrective actions to address the root causes, contributing causes, and extent of condition associated with this finding.

The finding was more than minor because it affected the Mitigating Systems Cornerstone attributes of equipment performance availability and reliability, and maintenance procedure quality, as well as the cornerstone objective of ensuring the availability and reliability of systems. The inspectors evaluated the finding in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings." The inspectors determined this finding was not a design qualification deficiency resulting in a loss of function per Generic Letter 91-18, did not represent an actual loss of safety function of a system or train of equipment, and was not potentially risk-significant due to a seismic, fire, flooding, or severe weather initiating event. Therefore, the finding was considered to be of very low safety significance (Green). The primary cause of this finding was related to a cross-cutting aspect in the area of human performance because the licensee failed to ensure that procedures were adequate and accurate to assure nuclear safety [H.2(c)]. (Section 40A5.1)

**Cornerstone: Barrier Integrity**

- Green. A finding of very low safety significance and associated NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the failure to maintain adequate control over the status of containment penetrations during the Unit 2 core reload evolution. Specifically, the licensee failed to adequately track the open and closed status of two isolation valves, such that an unexpected pathway from containment to the atmosphere existed. The containment closure checklist indicated that the valves were closed and secured; however, they were in fact open during a period of fuel movement inside containment. At the end of the inspection period, the licensee continued to perform a causal evaluation and develop additional long-term corrective actions.

The finding was determined to be more than minor because the failure to maintain the accuracy of the containment closure checklist affected the Barrier Integrity Cornerstone attribute of configuration control and affected the cornerstone objective of providing reasonable assurance that physical design barriers, such as containment, protect the public from radionuclide releases caused by accidents. Specifically, in the event of a fuel handling accident inside containment, the unknown position of these two vent valves could have resulted in the inability to restore containment closure in a timely manner. The finding is of very low safety significance (Green) because the finding did not meet the criteria for a Phase 2 or Phase 3 Analysis, as specified in IMC 0609 Appendix G, Attachment 1, Checklist 4. Additionally, the inspectors determined that the finding had a cross-cutting aspect in the area of human performance in that the licensee failed to use conservative assumptions in decision-making [H.1(b)]. (Section 1R20.3)

### **Cornerstone: Occupational Radiation Safety**

- Green. A finding of very low safety significance and associated NCV of 10 CFR 20.1501 was identified by the inspectors for the failure to perform an adequate survey (evaluation) to determine the use of respiratory protection equipment and/or engineering controls so as to maintain the total effective dose equivalent (TEDE) ALARA. Specifically, TEDE ALARA evaluations completed in April 2008 prior to SG maintenance and maintenance support activities did not adequately assess the planned use of engineering controls to reduce the concentration of radioactive material in air. As a result, respirators were specified to be used when not warranted based on the engineering controls to be implemented. As corrective actions, the licensee planned to reevaluate its TEDE ALARA evaluations for pending SG work activities, planned to develop a procedure specific to the performance of these evaluations, and was considering the need for supervisory or health physics staff review of these evaluations. The licensee entered the issue into its corrective action program as action request (AR) 01125284.

The finding was determined to be more than minor because it impacted the Occupational Radiation Safety Cornerstone attribute of program and process and potentially affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation, in that not performing adequate evaluations to determine the use of respiratory protection equipment consistent with the engineering controls for the work would result in additional dose to workers. The finding was determined to be of very low safety significance because it was not an ALARA planning issue, there was no overexposure nor potential for overexposure, and the licensee's ability to assess dose was not compromised. The finding was determined to have a cross-cutting aspect in the resource component of the human performance area, because procedures were not adequate to ensure that TEDE ALARA evaluations were performed properly [H.2(c)]. (Section 2OS2.2)

### **Cornerstone: Other**

- Green. A NCV of Confirmatory Order EA-06-178 having very low safety significance (Green) was identified by the inspectors for the licensee's failure to ensure that new employees holding supervisory positions and higher were trained on safety conscious work environment (SCWE) principles within nine months of their hire dates, unless they have had the same or equivalent SCWE training within the previous two years of the hire dates. Specifically, the inspectors identified that four new employees holding supervisory positions for greater than nine months of their hire dates as supervisors, had not received SCWE training, nor the same or equivalent training within the previous two years. At the end of the inspection period, the licensee was performing a causal analysis and developing corrective actions to address the issues identified by the inspectors.

The finding was determined to be more than minor because if left uncorrected the finding would become a more significant safety concern. The finding would have been greater than very low significance had an action by the new supervisor resulted in a violation of 10 CFR 50.7 against an employee. The finding is not suitable for SDP evaluation, but has been reviewed by NRC management and is determined to be a finding of very low safety significance. The inspectors determined that the finding had a cross-cutting area aspect in the area of human performance. Specifically, the licensee failed to ensure that

supervisory and management oversight of the Confirmatory Order actions, such that nuclear safety was supported [H.4(c)]. (Section 4OA5.2)

- Green. A finding of very low safety significance was identified by the inspectors for the failure to take timely and effective corrective actions to address four of nine nuclear safety culture action plans and the “quick hitter” plans. Specifically, the licensee developed the action plans and “quick hitter” plans in response to the Confirmatory Order in the first quarter of 2007, to correct longstanding safety culture issues identified by the licensee’s comprehensive safety culture assessments conducted in 2004 and 2006. At the end of the inspection period, the licensee was performing a causal analysis and developing corrective actions to address the issues identified by the inspectors.

The finding was determined to be more than minor because if left uncorrected the finding would become a more significant safety concern. The finding would have been greater than very low significance had the failure to take corrective actions resulted in a more safety significant issue as a result of the incomplete action plans. The finding is not suitable for SDP evaluation, but has been reviewed by NRC management and is determined to be a finding of very low safety significance. The inspectors determined that the finding had a cross-cutting area aspect in the area of problem identification and resolution. Specifically, the licensee failed to take appropriate corrective actions to address safety issues in a timely manner, commensurate with their safety significance and complexity [P.1(d)]. (Section 4OA5.2)

**B. Licensee-Identified Violations**

A violation of very low safety significance that was identified by the licensee has been reviewed by inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee’s corrective action program. This violation and corrective action tracking number 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 a brief downpower to 50 percent power on June 7, 2008, to repair the 1P-25A condensate pump, and reductions in power during routine auxiliary feedwater pump and secondary system valve testing.

Unit 2 was at 100 percent power at the onset of the inspection period but shutdown for refueling outage U2R29 from April 5 through May 17, 2008. For the remainder of the inspection period, Unit 2 remained at 100 percent power with the exception of brief reductions in power during routine auxiliary feedwater pump and secondary system valve testing.

### 1. REACTOR SAFETY

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

#### 1R01 Adverse Weather Protection (71111.01)

##### .1 Readiness For Impending Adverse Weather Condition – Tornado Season Readiness

##### a. Inspection Scope

To assess the licensee's preparedness for the onset of tornado season and preparation for general adverse summer weather conditions, the inspectors reviewed the licensee's overall preparations and protection for the expected weather conditions. On June 17, 2008, the inspectors walked down important outdoors areas within the protected area, in addition to the licensee's emergency alternating current (AC) power systems, because their safety-related functions could be affected by, or required as a result of, high winds or tornado-generated missiles or the loss of offsite power. The inspectors evaluated the licensee's preparations against the procedures to determine if the staff's actions were adequate. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. Finally, the inspectors also reviewed a sample of corrective action program items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the corrective action program in accordance with station corrective action procedures.

This inspection constitutes one readiness for impending adverse weather condition sample as defined in Inspection Procedure (IP) 71111.01-05.

##### b. Findings

Introduction: A finding of very low safety significance was identified by the inspectors for the licensee's failure to maintain control over the storage and placement of materials within the protected area. Specifically, items that were classified as tornado hazards per station Procedure PC 99 were identified near the Unit 1 and Unit 2 main and auxiliary transformers, as well as near the switchyard boundary.

Description: On June 17, 2008, the inspectors conducted an outdoors walkdown of the protected area with a focus on the risk significant portions of the main and auxiliary power systems to assess the licensee's preparations to prevent or minimize potential damage from high winds associated with severe storms or tornadoes. During the walkdown, the inspectors identified a significant quantity of unsecured and improperly secured materials meeting the definition of tornado hazards provided in Point Beach procedure PC 99, "Tornado Hazards Inspection Checklist," near the subject transformers and switchyard. The inspectors concluded that severe weather induced high winds in combination with the proximity of the unsecured materials to the transformers increased the potential of damage to the transformers or related electrical equipment. The inspectors informed the licensee of the concern, and the licensee entered the issue into the corrective action program as action request (AR) 01129874. Additionally, the licensee took immediate corrective actions to perform independent walkdowns of the outdoors protected area and either removed or secured the improperly stored items. The licensee also provided all work groups with a focused communication to reiterate the seasonal readiness requirements and expectations for storage of materials outside. A common cause evaluation will also be performed by the licensee to address the organizational aspects associated with this finding, given that this has been a repeat occurrence at Point Beach.

Analysis: The inspectors determined that the licensee's failure to control materials in the protected area near risk significant equipment is a performance deficiency. The finding was determined to be more than minor because, if left uncorrected, the loose items in the vicinity of the main and auxiliary transformers, and near the switchyard, would become a more significant safety concern. The inspectors concluded that this finding is associated with the Initiating Event Cornerstone.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Tables 3b and 4a for the Initiating Events Cornerstone. The inspectors determined that the finding did not contribute to the likelihood of a primary or secondary system loss-of-coolant accident initiator; the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available; and the finding did not increase the likelihood of a fire or internal or external flooding. Therefore, the finding is determined to be of very low safety significance (Green).

This finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program component, because 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. Specifically, inspectors noted that on two recent occasions, the NRC identified identical findings (FINs) related to tornado hazards within the protected area as described in NRC Inspection Report 05000266/2006004 and 05000301/2006004 issued in July 2006 and 05000266/2007005 and 05000301/2007005 issued in February 2008. [P.1(d)]

Enforcement: The failure to maintain the protected area free of tornado hazards was not an activity affecting quality, subject to 10 CFR Part 50, Appendix B; nor was a procedure required by license conditions or TSs violated. Therefore, while a performance deficiency existed, no violation of regulatory requirements occurred. This is considered a finding of very low safety significance (FIN 05000266/2008003-01;

05000301/2008003-01). The licensee included this finding in the corrective action program as AR 01129874.

The licensee initiated immediate corrective actions to address the issues. At the end of the inspection period, the licensee continued to perform a causal evaluation and develop additional long-term corrective actions.

.2 External Flooding

a. Inspection Scope

The inspectors evaluated the design, material condition, and procedures for coping with the design basis probable maximum flood. The evaluation included a review to check for deviations from the descriptions provided in the Final Safety Analysis Report (FSAR) for features intended to mitigate the potential for flooding from external factors. As part of this evaluation, the inspectors checked for obstructions that could prevent draining, and determined that barriers required to mitigate the flood were in place and operable. Additionally, the inspectors performed a walkdown of the protected area to identify any modification to the site which would inhibit site drainage during a probable maximum precipitation event or allow water ingress past a barrier.

This inspection constitutes one external flooding sample as defined in IP 71111.01-05.

b. Findings

No findings of significance were identified.

.3 Readiness of Offsite and Alternate AC Power Systems

a. Inspection Scope

The inspectors verified that plant features and procedures for operation and continued availability of offsite and alternate AC power systems during adverse weather were appropriate. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator (TSO) and the plant to verify that the appropriate information was being exchanged when issues arose that could impact the offsite power system. Examples of aspects considered in the inspectors' review included:

- the coordination between the TSO and the plant during off-normal or emergency events;
- the explanations for the events;
- the estimates of when the offsite power system would be returned to a normal state; and
- the notifications from the TSO to the plant when the offsite power system was returned to normal.

The inspectors also verified that plant procedures addressed measures to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system prior to or during adverse weather conditions. Specifically, the inspectors verified that the procedures addressed the following:



- the actions to be taken when notified by the TSO that the post-trip voltage of the offsite power system at the plant would not be acceptable to assure the continued operation of the safety-related loads without transferring to the onsite power supply;
- the compensatory actions identified to be performed if it would not be possible to predict the post-trip voltage at the plant for the current grid conditions;
- a re-assessment of plant risk based on maintenance activities which could affect grid reliability, or the ability of the transmission system to provide offsite power; and
- the communications between the plant and the TSO when changes at the plant could impact the transmission system, or when the capability of the transmission system to provide adequate offsite power was challenged.

The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures.

This inspection constitutes one readiness of offsite and alternate AC power systems sample as defined in IP 71111.01-05.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly 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 FSAR to determine the functional requirements of the system.

Partial system walkdowns of the following systems constituted three inspection procedure samples as defined in IP 71111.04-05:

- spent fuel pool cooling system;
- essential 480-volt and 4160-volt breakers during bus 2A06 work; and
- residual heat removal (RHR) system realignment for safety injection readiness.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Failure to Address Sprinkler Head Obstructions in 'B' Train EDG Rooms (71111.05Q)

a. Inspection Scope

The inspectors conducted a fire protection walkdown, 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 a fire area 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 the walkdown: 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 G03 and G04 Emergency Diesel Generator (EDG) Building fire zone constituted one inspection procedure sample as defined in IP 71111.05-05.

b. Findings

Introduction: A finding of very low safety significance and associated NCV of license condition 4.F was identified by inspectors for the failure to address fire suppression sprinkler head obstructions in the 'B' train EDG rooms.

Description: The inspectors identified that five sprinkler heads were obstructed in the 'B' train EDG rooms. National Fire Protection Association (NFPA) 13-1991, "Installation of Sprinkler Systems", was the applicable standard for sprinkler systems installed in the two rooms.

In the G-03 EDG room (Unit 1 'B' train), the inspectors identified one sprinkler partially obstructed by a junction box and another sprinkler more significantly obstructed by the exhaust pipe for the EDG. Additionally, the sprinkler located directly to the west of the sprinkler obstructed by the exhaust pipe was partially blocked by a light fixture. The sprinkler head was located 13.5 inches from the light fixture and 3.5 inches above the

fixture. Table 4-4.1.3.1.2 of NFPA 13-1991 specified that a sprinkler head located 3.5 inches from the bottom of an obstruction maintain at least 2.5 feet from the obstruction. The deflector for the sprinkler head near the junction box was 2.5 inches above the bottom of the box and 6.5 inches horizontally from the box. Table 4-4.1.3.1.2 of NFPA 13-1991 specified a maximum allowable distance of zero inches for a deflector above the bottom of an obstruction for obstructions less than 1 foot from the sprinkler. The deflector for the sprinkler that was above the G-03 exhaust pipe was 8 inches above the 45-inch diameter pipe. Section 4-4.1.3.2.3 of NFPA 13-1991 specified that sprinklers are permitted to be installed more than 6 inches above the centerline of a truss or beam, provided the dimension of the truss or beam is not more than 8 inches in diameter.

In the room for the G-04 EDG (Unit 2 'B' train), the inspectors identified one sprinkler partially obstructed by a light fixture, one sprinkler obstructed by a structural support for the EDG exhaust pipe, and another sprinkler obstructed by the EDG exhaust pipe itself. The deflector for the sprinkler head located near the light fixture was 3.5 inches above the bottom of the light fixture and was 12.5 inches horizontally from the light fixture. Table 4-4.1.3.1.2 of NFPA 13-1991 specified a maximum allowable distance of 2 inches for a deflector above the bottom of an obstruction for obstructions 2 to 2.5 feet from the sprinkler. The sprinkler obstructed by the structural support for the EDG exhaust pipe was located 18 inches horizontally from the structural support. The structural support was a vertical obstruction with a maximum dimension of approximately 6 inches. Table 4-4.1.3.1.1 of NFPA 13-1991 specified a minimum horizontal distance of 2 feet for vertical obstructions with a maximum dimension greater than 4 inches. The sprinkler in the G-04 EDG room obstructed by EDG exhaust pipe was obstructed in a similar manner to the sprinkler in the G-03 EDG room with no sprinklers installed underneath the exhaust pipe.

When the inspectors notified the licensee of the identified issues, the licensee placed the issues into their corrective action program as AR 01129141 and initiated fire watches as a compensatory measure. The inspectors concluded that the licensee would not have identified these deficiencies as part of their transition to NFPA-805.

Analysis: The inspectors determined that failure to address sprinkler head obstructions was contrary to NFPA 13-1991 and was a performance deficiency. The finding was determined to be more than minor because the failure to address sprinkler head obstructions was associated with the Mitigating Systems Cornerstone attribute of protection against external factors (fire) and affected the cornerstone objective of ensuring the capability of systems that respond to initiating events. Specifically, the identified obstructions to sprinkler heads would affect the sprinkler spray patterns and distribution, thereby impacting the sprinkler systems capability to control a fire.

In accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 3b, the inspectors determined the finding degraded the fire protection defense-in-depth strategies. Therefore, screening under IMC 0609, Appendix F, "Fire Protection Significance Determination Process," was required. Based on two sprinkler heads being affected in the D-03 EDG room and three sprinkler heads being affected in the D-04 EDG room, the inspectors considered the finding to represent a moderate degradation of the water-based suppression system for both rooms. As such, the inspectors performed a Phase 2 SDP Analysis. The inspectors noted that the EDG rooms only contained equipment associated with their respective EDG and no issues associated with the fire

barriers for the rooms had been identified. As such, the inspectors concluded that potential fire scenarios associated with the finding were effectively FDSO fire scenarios as described in Section 2.2 of IMC 609, Appendix F, and that no further analysis was required. The inspectors determined that this issue was of very low safety significance (Green).

The inspectors did not identify a cross-cutting aspect associated with this finding.

Enforcement: License Condition 4.F required the licensee to implement and maintain in effect all provisions of the approved fire protection program as described in the FSAR and as approved through Safety Evaluation Reports and supplements dated August 2, 1979; October 21, 1980; January 22, 1981; July 27, 1988; and January 8, 1997. Section 9.10 of the FSAR stated that the design philosophy and specifics of the fire protection system were contained in the Point Beach Fire Protection Evaluation Report. Section 6.3.1 of the Point Beach Fire Protection Evaluation Report stated that water suppression systems had been designed and installed in using applicable codes and standards. NFPA 13-1991 was the applicable standard for design and installation of the sprinkler system for the G-03 and G-04 EDG rooms. NFPA 13-1991 specified criteria for obstructions near sprinkler heads.

Contrary to the above, as of June 4, 2008, the licensee failed to design and install the water suppression system in accordance with the applicable standard for the G-03 and G-04 EDG rooms. Specifically, the sprinkler systems designed for and installed in the G-03 and G-04 EDG rooms did not meet the criteria for obstructions near sprinkler heads specified by NFPA 13-1991.

The licensee was in transition to NFPA 805 and, therefore, this NRC-identified violation was evaluated in accordance with the criteria established by Section A of the NRC's Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR Part 50.48) for a licensee in NFPA 805 transition. The inspectors determined that, for this violation, the criteria that the licensee would have identified the violation during the scheduled transition to 10 CFR Part 50, Section 48(c) was not met. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as AR 01129141, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000266/2008003-02; 05000301/2008003-02).

The licensee initiated prompt corrective actions to ensure compensatory measures were in place. At the end of the inspection period, the licensee continued to perform a causal evaluation and develop corrective actions.

.2 Routine Resident Inspector Tours (71111.05Q)

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 walkdowns of the following selected fire zone constituted five inspection procedure sample as defined in IP 71111.05-05:

- unit 2 containment elevations 8-foot, 10-foot and 66-foot at the onset of refueling outage;
- cable spreading room;
- unit 2 turbine-driven auxiliary feedwater (TDAFW) pump 2P29 area;
- unit 2 containment all elevations at the end of refueling outage; and
- main control room.

b. Findings

No findings of significance were identified.

1R07 Annual Heat Sink Performance (71111.07)

.1 Heat Sink Performance

a. Inspection Scope

The inspectors reviewed the licensee's inspection and cleaning of the G-02 EDG heat exchanger to verify that potential deficiencies did not mask the licensee's ability to detect degraded performance, to identify any common cause issues that had the potential to increase risk, and to ensure that the licensee was adequately addressing problems that could result in initiating events that would cause an increase in risk. The inspectors reviewed the licensee's observations as compared against acceptance criteria, the correlation of scheduled inspection and cleaning, and the required frequency.

This inspection constitutes one sample as defined in IP 71111.07-05.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08P)

From April 9 through April 23, 2008, the inspector conducted a review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the RCS, SG tubes, risk significant piping and components, and containment systems. The licensee did not perform ultrasonic inspections, mitigation, or repairs during the current outage, or in previous outages, to fulfill the requirements of

Materials Reliability Project -139, "Reactor Coolant System Dissimilar Metal Butt Welds," therefore, no inspections were conducted for Temporary Instruction (TI)-172, "Primary System Piping Butt Weld Inspection and Evaluation Guidelines." Inspection for TI-172 is planned for later this year.

The inspections described in Sections 1R08.1, 1R08.2, 1R08.3, 1R08.4, and 1R08.5 below count as one inspection sample as defined by IP 71111.08-05.

.1 Piping Systems ISI

a. Inspection Scope

The inspectors observed and performed record reviews of the following nondestructive examinations mandated by the American Society of Mechanical Engineers (ASME) Section XI Code to evaluate compliance with the ASME Code Section XI and Section V requirements, and if any indications and defects were detected, to determine if these were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement.

- ultrasonic examination of safety injection system piping weld SIS-06-SI-2005-17 (observed);
- ultrasonic examination of RHR welds AC-06-SI-2002-19 and AC-06-SI-2002-37 (observed); and
- visual (VT-3) examination of RHR supports AC-601R-6-2H20A, AC-601R-6-2H14 and AC-601R-6-R2376 (record review).

The inspectors reviewed the following examination completed during the previous outage with relevant/recordable conditions/indications accepted for continued service to determine if acceptance was in accordance with the ASME Code Section XI or an NRC approved alternative.

- ultrasonic examination of weld AC-10-AC-2001-19, elbow to pipe weld in the RHR system.

The inspectors reviewed the following pressure boundary weld repairs completed for risk significant systems since the beginning of the last refueling outage to determine if the licensee applied the preservice non-destructive examinations and acceptance criteria required by the construction Code and ASME Code Section XI. Additionally, the inspectors reviewed the welding procedure specification and supporting weld procedure qualification records to determine if the weld procedure(s) were qualified in accordance with the requirements of Construction Code and the ASME Code Section IX.

- WO 222725, replace class 1 valve 2SI-839D, SI 'B' cold leg test line isolation, and associated piping; and
- WO 215334, cut out and replace class 2 valve 2MS-00237, auxiliary feed pump isolation valve.

b. Findings

No findings of significance were identified.

## .2 Reactor Pressure Vessel Upper Head Penetration Inspection Activities

### a. Inspection Scope

There were no visual or non-visual examinations of the reactor vessel upper head required this outage to comply with NRC Order EA-03-009 and none were performed. Therefore, this procedure inspection attribute was not inspected.

### b. Findings

No findings of significance were identified.

## .3 Boric Acid Corrosion Control (BACC)

### a. Inspection Scope

The inspectors observed licensee BACC visual examinations for portions of the systems containing primary coolant water inside containment to determine if these visual examinations emphasized locations where boric acid leaks can cause degradation of safety significant components.

The inspectors performed an independent walkdown of portions of the 'A' train of the safety injection system which had received a recent licensee boric acid walkdown and VT-2 examination to determine if the licensee's BACC visual examinations emphasized locations where boric acid leaks can cause degradation of safety significant components.

The inspectors reviewed the following licensee evaluations of RCS components with boric acid deposits. The inspectors also evaluated corrective actions for any degraded RCS components to determine if they met the component Construction Code and ASME Code Section XI requirements.

- boric acid evaluation, 08-0131, 2P-15A, safety injection pump;
- boric acid evaluation, 08-0233, 2RH-709B, RHR pump 'B' discharge; and
- boric acid evaluation, 08-0210, 2RH-713B, RHR pump 'B' discharge cross-connect.

The inspectors reviewed the following corrective actions related to evidence of boric acid leakage to determine if the corrective actions completed were consistent with the requirements of the ASME Code Section XI and 10 CFR Part 50, Appendix B, Criterion XVI.

- AR 01124816, active wet packing leak on 2SI-829A;
- AR 01106685, large amount of boric acid on components; and
- AR 01062216, active packing leak on 2CV-1298.

### b. Findings

No findings of significance were identified.

#### .4 Steam Generator Tube Inspection Activities

##### a. Inspection Scope

The NRC inspectors observed acquisition of eddy current (ET) data, interviewed ET data analysts, and reviewed documentation related to the SG ISI program to determine if:

- in-situ SG tube pressure testing screening criteria used were consistent with those identified in the Electric Power Research Institute (EPRI) TR-107620, SG In-Situ Pressure Test Guidelines and that these criteria were properly applied to screen degraded SG tubes for in-situ pressure testing (note: no in-situ pressure tests were required based on the ET results);
- the numbers and sizes of SG tube flaws/degradation identified were bound by the licensee's previous outage Operational Assessment predictions;
- the SG tube ET examination scope and expansion criteria were sufficient to meet the TSs, and the EPRI 1003138, Pressurized Water Reactor Steam Generator Examination Guidelines, Revision 6;
- the SG tube ET examination scope included potential areas of tube degradation identified in prior outage SG tube inspections and/or as identified in NRC generic industry operating experience applicable to these SG tubes;
- the licensee identified new tube degradation mechanisms and implemented adequate extent of condition inspection scope and repairs for the new tube degradation mechanism;
- the licensee implemented repair methods which were consistent with the repair processes allowed in the plant TS requirements and to determine if qualified depth sizing methods were applied to degraded tubes accepted for continued service;
- the licensee implemented an inappropriate "plug on detection" tube repair threshold (e.g., no attempt at sizing of flaws to confirm tube integrity);
- the licensee primary-to-secondary leakage (e.g., SG tube leakage) was below 3 gallons-per-day or the detection threshold during the previous operating cycle;
- the ET probes and equipment configurations used to acquire data from the SG tubes were qualified to detect the known/expected types of SG tube degradation in accordance with Appendix H, Performance Demonstration for ET Examination, of EPRI 1003138, Pressurized Water Reactor Steam Generator Examination Guidelines, Revision 6;
- the licensee performed secondary side SG inspections for location and removal of foreign materials;
- foreign objects were removed or evaluated if left within the secondary side of the SGs; and
- the licensee did not find any tubes damaged by foreign material so there was no opportunity for the inspectors to evaluate repairs.

##### b. Findings

No findings of significance were identified.



.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a review of ISI/SG related problems entered into the licensee's corrective action program and conducted interviews with licensee staff to determine if:

- the licensee had established an appropriate threshold for identifying ISI/SG related problems;
- the licensee had performed a root cause evaluation (if applicable) and taken appropriate corrective actions; and
- the licensee had evaluated operating experience and industry generic issues related to ISI and pressure boundary integrity.

The inspectors performed these reviews to evaluate compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. The corrective action documents reviewed by the inspectors are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

.1 Resident Inspector Quarterly Review

a. Inspection Scope

In June 2008, inspectors reviewed licensed operator training for the procedures associated with the start up and running of a portable diesel-driven fire pump utilized by the plant fire brigade. The inspectors observed sessions conducted with different operating crews and verified that the training focused on the high-risk operator actions, changes in operations procedures, and actual use of the new portable diesel-driven fire pump. Observation of the training evolutions constituted one inspection procedure sample as defined in IP 71111.11-05.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations (71111.12Q)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- 125-volt direct current (VDC) electrical and 120-volt alternating current (VAC) yellow channel vital instrument bus;
- core exit thermocouples; and
- Unit 1 charging pumps.

The inspectors reviewed events where ineffective equipment maintenance had resulted in valid or invalid automatic actuations of engineered safeguards systems, and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components/functions classified as (a)(2) or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization.

This inspection constitutes three quarterly maintenance effectiveness samples as defined in IP 71111.12-05.

b. Findings

No findings of significance were identified.

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

.1 Inadequate Risk Management

a. Inspection Scope

The inspectors reviewed risk assessments for planned and emergent maintenance activities during the specified work week. 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 planned and emergent maintenance during the week of April 21, constituted one inspection procedure sample as defined in IP 71111.13-05.

b. Findings

Introduction: A finding of very low safety significance and associated NCV of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," was identified by the inspectors when the licensee failed to adequately manage the risk associated with work on 480-VAC breaker 1B52-16C, coincident with a large number of other out-of-service components, which resulted in an unplanned risk condition for Unit 1 without the appropriate risk management actions.

Description: On April 21, 2008, inspectors identified that breaker 1B52-16C, the 1B03 480-VAC safeguards bus cross-tie to the 1B-04 safeguards bus, was not included in the licensee's online work risk assessment for Unit 1. When licensee personnel entered the breaker unavailability into the risk model, an unplanned entry into an Orange risk path resulted. The evening prior to the work, operations staff, who perform the online risk look-ahead, questioned whether the breaker should be factored into the risk assessment based upon the planned scope of work. However, the operations staff initially concluded that the planned breaker cleaning task would be done with the breaker still installed in its cubicle and therefore the breaker remained available. This was an incorrect assumption, as the breaker was actually removed from the cubicle, as prescribed in the work order, for preventive maintenance.

Day shift operations staff again questioned why breaker 1B52-16C was excluded from the day's planned work activities. However, the operations staff incorrectly concluded this time that breaker 1B52-16C did not need to be included in the risk model because it was not used in any procedure for Modes 1, 2, or 3. The maintenance on the Unit 1 breaker 1B52-16C was scheduled as a result of a Unit 2 refueling outage procedure and Unit 2 was in a refueling outage at that time. Therefore, the operators, with concurrence from site engineering, concluded that the model was incorrect and the breaker did not need to be counted as unavailable. In addition, no additional risk management actions were put in place for the work.

Subsequently, the inspectors questioned the licensee about the exclusion of breaker 1B52-16C from the risk model. The inspectors identified that breaker 1B52-16C was used in Abnormal Operating Procedure 10A, "Safe Shutdown – Local Control," which was applicable in Modes 1, 2, and 3. The licensee corrected the online risk model in accordance with their procedure and Unit 1 was found to have inadvertently been in an Orange risk condition. Because the licensee had not known an Orange risk condition existed, the risk management actions to address the higher risk condition associated with the unavailable breaker had not been implemented. However, further evaluation by the licensee following completion of the work determined there were additional errors associated with the licensee's procedures, such that the resultant online risk was actually a high yellow throughout the period in question.

Analysis: The inspectors determined that the failure to adequately manage online risk in accordance with station procedures and the Maintenance Rule was a performance deficiency. The finding was determined to be greater than minor because the licensee's

risk assessment was based on incorrect assumptions that changed the outcome of the assessment.

The inspectors evaluated this finding using the Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process", worksheets of Manual Chapter 0609 because the finding is a maintenance risk assessment issue. Flowchart 1, "Assessment of Risk Deficit," requires the inspectors to determine the risk deficit associated with this issue. This finding was determined to be of very low safety significance because the incremental core damage probability deficit was less than 1E-6.

This finding has a cross-cutting aspect in the area of human performance, decision-making component, because the licensee failed to use conservative assumptions in decision-making and adopt a requirement to demonstrate that the proposed action was safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action. [H.1(b)]

Enforcement: 10 CFR 50.65(a)(4) requires, in part, that the licensee assess and manage the increase in risk that may be associated with performing maintenance activities prior to performing the maintenance.

Contrary to the above, on April 21, 2008, the licensee failed to properly assess and manage the increase in risk associated with the breaker 1B52-16C prior to performing maintenance. As a result, the licensee's risk assessment was based on incorrect assumptions that changed the outcome of the assessment and the appropriate risk management actions for this work activity were not implemented. Because this violation was of very low safety significance and the issue was entered into the corrective action program as AR 01126309, the issue is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 05000266/2008003-03; 05000301/2008003-03)

The licensee identified the apparent cause of the issue and took a number of corrective actions to address the procedural deficiencies and human performance enhancements that were identified.

## .2 Routine Quarterly Review

### 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 four inspection procedure samples as defined in IP 71111.13-05:

- planned and emergent outage/online maintenance during the week of April 7;
- planned and emergent outage/online maintenance during the week of April 14;
- planned and emergent outage/online maintenance during the week of April 26; and
- planned and emergent online maintenance during the week of May 26.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

.1 Operability Evaluations

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 seven samples as defined in IP 71111.15-05:

- AR 1124455 – non-conservative TS on pressurizer level;
- AR 1125112 – Unit 2 polar crane and containment structure;
- AR 1115726 – thermal stress issue related to sample lines CPP-28 and 34;
- AR 1126736 – Unit 2 fuel assembly top nozzle burrs;
- AR 1126476 – change in hydraulic performance of 2P-10A RHR pump;
- AR 1128271 – Unit 1 and Unit 2 plant process computer system analog to digital converter error; and
- AR 1128827 – reactor core peak cladding temperature during loss of coolant accident.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

Engineering Change Package 11595, "Diesel Fire Engine Exhaust System," was reviewed, and selected aspects were discussed with engineering personnel. This

package and related documentation were reviewed for adequacy of the associated 10 CFR 50.59 safety evaluation screening, consideration of design parameters, implementation of the modification, and post-modification testing. The inspectors observed ongoing and completed work activities to verify that installation was consistent with the design control documents. The modification was installed to replace the degraded exhaust pipe with an improved system meeting seismic design criteria and remove the temporary modification that had been installed to protect service water components from a failure of overhead exhaust system components.

This inspection constitutes one permanent modification sample as defined in IP 71111.18-05.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Restoration of DY-0C Swing White Channel Instrument Inverter

a. Inspection Scope

The inspectors reviewed the post-maintenance testing (PMT) activities associated with the DY-0C white channel 125-VDC to 120-VAC swing instrument inverter following scheduled maintenance on May 27, 2008. The inspectors assessed whether procedures and test activities were adequate to ensure system operability and functional capability and whether the licensee's troubleshooting activities were appropriate to address any equipment issues encountered throughout the maintenance and PMT activities. This inspection constitutes one sample as defined in IP 71111.19-05.

b. Findings

Introduction: A finding of very low safety significance and associated NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed for the failure to have appropriate maintenance procedures and work instructions in place to identify improperly installed components prior to the attempted restoration of the DY-0C white channel instrument inverter. Specifically, routine maintenance procedure (RMP) 9045-1, "DY-0C White Channel Instrument Bus Static Inverter Maintenance Procedure," did not contain steps to check for direct current (DC) grounds following maintenance and prior to restoration. This allowed a ground to go undetected and caused a number of unplanned Technical Specification Action Condition (TSAC) entries, as well as the unplanned inoperability of the G-01 and G-02 EDGs and the 2PI-9046 containment pressure indicator.

Description: On May 28, 2008, during pre-charging of the capacitors on the DY-0C white channel swing instrument inverter, following maintenance that replaced eight capacitors, the white channel static transfer switch unexpectedly transferred the power supply of the 2DY-03 white channel instrument inverter from its safety-related supply to its nonsafety-related backup power supply. This transfer brought in a number of control room alarms, rendered the 2DY-03 inverter inoperable and resulted in an unplanned entry into an 8-hour TSAC. In accordance with the annunciator response book

instructions, operators attempted to reestablish safety-related power to the 2DY-03 inverter; however, the initial attempt failed.

The licensee analyzed the event and system response, and came to the initial conclusion that a voltage transient of unknown origin caused 2DY-03 to transfer to backup power. A likely culprit was found to be a relay associated with the transfer switch. The licensee subsequently isolated DY-0C inverter and was able to realign safety-related power to 2DY-03 and return it to service, exiting the TSAC. The licensee continued its troubleshooting and system analysis efforts and engineering believed that a success path was developed that would reduce the likelihood of causing another undesired 2DY-03 power supply transfer. This method utilized an external power supply to pre-charge DY-0C before attempting to restore it to service.

On May 30, 2008, the new pre-charging method was utilized and a second attempt was made to start the DY-0C inverter. However, as soon as the DY-0C DC output breaker was closed, a transient occurred on the associated 125-VDC bus D-03. As a result of this transient, the 2DY-03 inverter blew its input fuse and again swapped over to its nonsafety-related backup power supply, rendering the inverter inoperable. In addition to this second unplanned entry into an 8-hour TSAC, the transient caused both G-01 and G-02 EDGs to be declared inoperable as a result of lockout signals that were generated. Other safety-related components affected by the transient included the Unit 2 containment pressure indicator 2PI-946, which was rendered inoperable, and station battery charger D-107, which sensed a hard DC ground and alarmed.

The licensee subsequently isolated DY-0C, replaced the blown fuse on 2DY-03, and returned 2DY-03 to service. Pressure indicator 2PI-946 was also returned to service. Additionally, the G-01 and G-02 EDGs were returned to service after the alarms were cleared and an engineering evaluation determined that the cause of the lockout was known and confirmed that the initiating conditions no longer existed.

Following that event, the licensee troubleshooting utilized the inverter vendor for technical assistance. The troubleshooting team later identified that one of the eight capacitors that was replaced in the May 27 maintenance had an unexpected ground path present. The grounded case of this particular capacitor was found to be in contact with a mounting bolt internal to the DY-0C inverter, as a result of improper installation. Subsequent engineering analysis determined that this grounded capacitor was the cause of the inverter malfunctions and caused the DC system transients responsible for the May 28 and May 30 events.

Subsequently, on June 10, the licensee returned DY-0C to service without further incident. Upon review of RMP 9045-1, "DY-0C White Channel Instrument Bus Static Inverter Maintenance Procedure," and associated work package instructions, the licensee determined that no instructions existed to direct staff to check for DC grounds following maintenance and prior to attempting system restoration. The performance of ground checks prior to restoration would have prevented affecting other safety-related equipment during restoration.

Analysis: The inspectors determined that the licensee's failure to properly perform maintenance on the DY-0C inverter, which caused the inoperability of two EDGs and a Unit 2 containment pressure indicator, was a performance deficiency. The finding was determined to be more than minor because the finding was associated with the

Mitigating Systems Cornerstone attribute of procedure quality and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage).

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Tables 3b and 4a for 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 or qualification 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.

This finding has a cross-cutting aspect in the area of human performance, resources component, because licensee procedures were not complete or adequate to ensure that installation errors would be detected prior to restoration of the DY-0C inverter. [H.2(c)]

Enforcement: 10 CFR 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, and drawings.

Contrary to the above, procedure RMP 9045-1 was not appropriate to the circumstances, in that, it did not prescribe appropriate instructions or acceptance criteria to ensure that installation of the capacitors did not induce errors which affected the component or other safety-related equipment during restoration. Because of the very low safety significance of this finding and because the finding was entered into the licensee's corrective action program as AR 01128920 and AR 01128951, the violation is being treated as an NCV, consistent with Section VI.A.1 of NRC Enforcement Policy (NCV 05000266/2008003-04; 05000301/2008003-04).

The licensee took corrective actions to remove the electrical ground and verified that no additional grounds were present. The licensee also ensured that additional precautions were taken to ensure that any additional DY-0C component failures would not impact interrelated safety systems during final restoration attempts. At the end of this inspection period, the licensee planned to develop a procedure change request to add a requirement to check for electrical DC grounds after the installation or replacement of electrolytic capacitors.

## .2 Unit 2 Polar Crane Design and Configuration Control Issues

### a. Inspection Scope

The inspectors reviewed the circumstances surrounding the issues encountered with the Unit 2 polar crane during the refueling outage. The inspectors reviewed licensee documentation, interviewed licensee personnel, and observed polar crane troubleshooting and maintenance activities. This inspection constitutes one sample as defined in IP 71111.19-05.



b. Findings

Introduction: A finding of very low safety significance was self-revealed for the failure to implement appropriate design and configuration control for the Unit 2 polar crane upgrade project, which resulted in issues associated with reliable operation of the polar crane during the first reactor vessel head lift. Specifically, a lack of configuration control on the crane radio system resulted in a loss of radio communications during the initial reactor vessel head lift over the reactor vessel head stand, which resulted in unreliable crane operation. Design and configuration control issues were also identified with the upgraded crane bridge drive synchronization unit which prevented the crane from initially operating properly and crane rail structure configuration control, both of which contributed to the unavailability of the polar crane.

Description: In November 2006, the Unit 2 polar crane upgrade was installed during the Unit 2, 2R28, Refueling Outage. Several problems were encountered with the installation including crane rail alignment problems, failure of the crane bridge to traverse, inadvertently running the crane hoist into the containment liner, and inadvertently running the hoist into and subsequently damaging a SG vent line. Due to the nature of the latter issues, the licensee stopped work and closed out the installation work procedure. Performance deficiencies associated with this event were documented in NRC Inspection Report 05000266/2006013 and 05000301/2006013.

On April 5, 2008, the licensee commenced the current refueling outage and discovered that the crane failed to operate during initial testing. The licensee formed a failure investigation team and over the course of the next seven days determined the following issues existed: the central processing unit of the programmable logic controller lost its memory due to a backup battery failure causing the crane to not operate; once operational, the crane bridge motors continually tripped while bridging over a section of crane rails similar to what occurred in November 2006; structural inspections revealed that some support bolts of the crane rail system were found loose, however, this was not the cause of the operational issues; and the licensee discovered that an undocumented new design feature which required synchronization of the bridge motor drives was the cause of the polar crane bridge motor trips. The licensee released the polar crane for limited use; however, the polar crane radio controls sporadically and intermittently would lose communications with the crane, causing the crane to fail safe. The licensee monitored these intermittent issues and determined the crane could be released for the reactor vessel head lift.

On April 16, 2008, the reactor vessel head was lifted from the flange and moved over to the reactor vessel head stand. The polar crane experienced a loss of radio communications three times during the lowering of the reactor vessel head. The licensee later determined following the head lift that attenuators on the crane radio receivers were not installed, which directly contributed to the unreliable crane operation during the lowering of the reactor vessel head to the stand. The licensee subsequently corrected this issue and the polar crane was operated without incident for the remainder of the refueling outage.

The licensee subsequently concluded that the original design, initiated in 2003 and 2004, was flawed, in that, the crane bridge drive motor synchronization feature was not recognized as a design feature in the licensee's design documents. Also, the licensee determined the PMT conducted in 2006 was not adequate and did not ensure proper

operation of the polar crane, following the modification. At the end of the inspection period, the licensee continued to evaluate the root cause and contributing causes to the event; however, corrective actions were initiated to ensure that the Unit 1 polar crane upgrade modification was appropriately implemented in the Fall 2008 Refueling Outage.

Analysis: The inspectors determined that the failure to implement appropriate design and configuration control for the Unit 2 polar crane upgrade project, which resulted in unavailability and reliability issues with the Unit 2 polar crane, was a performance deficiency. The finding was determined to be more than minor because the finding was associated with the Initiating Events Cornerstone attribute of design control and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the reliable operation of the containment polar crane is essential in reactor vessel head lifts, as discussed in Appendix A.3, "Control of Heavy Loads," in the FSAR.

The inspectors determined that the finding could be evaluated in accordance with IMC 0609, Appendix G, "Shutdown Operations SDP." The inspectors used Checklist 3 contained in Attachment 1 and determined that the finding did not require a Phase 2 or Phase 3 analysis because the plant had appropriately met the safety function guidelines for core heat removal, inventory control, power availability, containment integrity, and reactivity control. The issue did not need a quantitative assessment and screened as Green using Figure 1.

The inspectors did not identify a cross-cutting aspect associated with this finding.

Enforcement: The failure to implement appropriate design and configuration control for the Unit 2 polar crane upgrade project was not an activity affecting quality subject to 10 CFR Part 50, Appendix B, nor was a procedure required by license conditions or TSs violated. Therefore, while a performance deficiency existed, no violation of regulatory requirements occurred. This is considered a finding of very low safety significance (FIN 05000266/2008003-05; 05000301/2008003-05) and was documented in the licensee's corrective action program as AR 01125186.

The licensee took immediate corrective actions which included installation of the required attenuators on the crane radio receivers, removal of the bridge drive motor synchronization feature, and repair of the crane rail. At the end of the inspection period, the licensee was completing a root cause evaluation and developing long-term corrective actions to address this performance deficiency.

### .3 Post-Maintenance Testing

#### a. Inspection Scope

The inspectors reviewed the following PMT activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- G-03 EDG TS-83 monthly run on April 11;
- IT-4A Unit 2 'A' RHR pump and valve tests in decay heat removal mode (shutdown cooling) on April 22;
- IT-325 chemical volume control system valves (cold shutdown) Unit 2 on April 30;

- service water pump P-32B lower bearing replacement the week of April 28;
- TS-31, for SI valves on May 4; and
- IT-295B for turbine driven auxiliary feedwater pump 2-P29 on May 5.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following: the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing; and test documentation was properly evaluated. The inspectors evaluated the activities against TSs, the FSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with PMTs to determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety.

This inspection constitutes six samples as defined in IP 71111.19-05.

b. Findings

No findings of significance were identified.

1R20 Outage Activities (71111.20)

.1 Procedures for Reduced Inventory with an Intact RCS

a. Inspection Scope

The inspectors reviewed the circumstances surrounding the licensee's procedures for draining down to a reduced inventory and  $\frac{3}{4}$  pipe condition with the RCS intact. The inspectors reviewed licensee documentation, interviewed licensee personnel, and observed polar crane troubleshooting and maintenance activities. The inspectors also reviewed all of the licensee's responses made to the NRC as part of a response to Generic Letter (GL) 88-17, "Loss of Decay Heat Removal."

b. Findings

Introduction: A finding of very low safety significance and associated NCV of TS 5.4.1, "Procedures," was identified by inspectors for the failure to protect all of the safety equipment necessary for safe shutdown while in reduced inventory with the RCS intact. Specifically, operating procedures and the shutdown safety assessment failed to ensure that an auxiliary feedwater source and SG were available for decay heat removal when a reduced inventory condition was entered and the RCS was intact.

Description: On April 14, 2008, the inspectors observed and reviewed the licensee's first draindown to reduced inventory which was conducted in accordance with Operating Procedures OP 4F, "Reactor Coolant System Reduced Inventory Requirements Unit 2," and OP 4D Part 1, "Draining the Reactor Coolant System." The inspectors noted that

operators followed the procedure for draindown, which prescribed the following actions: drain down to 70 percent reactor vessel level; establishment of a nitrogen back pressure of 1 to 2 pounds per square inch gauge to assist with SG tube bundle draining; drain down to reduced inventory (55 percent reactor vessel level); drain down to 22 – 25 percent level ( $\frac{3}{4}$  of the level in a RCS pipe, commonly referred to as mid-loop); and finally venting of the RCS to containment atmospheric pressure.

The inspectors verified through review of all the licensee's responses to GL 88-17, "Loss of Decay Heat Removal," that the licensee had described this methodology of RCS draining to the NRC at that time. In addition, the inspectors also noted that the licensee took credit in its response for the ability to remove decay heat through a SG with a feed source via reflux cooling. The inspectors also consulted NRC Office of Nuclear Reactor Regulation (NRR) technical staff to review the licensee's methodology and credit for reflux cooling.

However, after further review, the inspectors questioned why neither procedure OP 4F nor OP 4D ensured that a SG combined with a motor-driven auxiliary feedwater source were protected to ensure that reflux cooling would be available. In addition, a review of procedure NP 10.3.6, "Shutdown Safety Review and Safety Assessment," also did not ensure that, while the RCS was intact and in a reduced inventory condition, a SG and feedwater source were protected to ensure availability of reflux cooling. The concern was that while in reduced inventory with a loss of decay heat removal event, an intact RCS will pressurize rapidly, thus removing the ability to gravity feed from the refueling water storage tank to the RCS. Therefore, a SG must be available for decay heat removal with a feedwater source.

The inspectors determined that, fortuitously, a SG was available for decay heat removal and an auxiliary feedwater source was available to supply water to that SG. In addition, the inspectors reviewed the past two refueling outages for each Unit and determined that when a draindown to reduced inventory was performed, a SG and auxiliary feedwater source were available to support decay heat removal. The inspectors determined, and NRR technical staff agreed, that while the licensee's processes did not ensure protection of all the necessary safe shutdown equipment to support decay heat removal while in reduced inventory with the RCS intact, a SG and auxiliary feedwater source had been available to support decay heat removal.

Analysis: The inspectors determined that the licensee's failure to protect all of the safety-related equipment necessary for safe shutdown was a performance deficiency. The finding was determined to be more than minor because the finding was associated with the Mitigating Systems Cornerstone attribute of human performance and affected the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences.

The inspectors determined that the finding could be evaluated in accordance with IMC 0609, Appendix G, "Shutdown Operations SDP." The inspectors used Checklist 3 contained in Attachment 1 and determined that the finding did not require a Phase 2 or Phase 3 analysis because the plant had appropriately met the safety function guidelines for core heat removal, inventory control, power availability, containment integrity, and reactivity control. The issue did not need a quantitative assessment and screened as Green using Figure 1.

This finding has a cross-cutting aspect in the area of human performance, resources component, because the licensee did not ensure that the shutdown operations procedures were complete, accurate, and up-to-date to support the protection of equipment necessary for safe shutdown. [H.2(c)]

Enforcement: Technical Specification Section 5.4.1, "Procedures," requires, in part, that written procedures be established, implemented, and maintained for normal sequences of operation and shutdown of the overall plant.

Contrary to the above, on April 14, 2008, the licensee failed to establish and maintain procedures NP 10.3.6, "Shutdown Safety Review and Safety Assessment," and OP-4F, "Reactor Coolant System Reduced Inventory Requirements," to ensure that an auxiliary feedwater source and SG are available for decay heat removal when a reduced inventory condition is entered and the RCS is intact. Because of the very low safety significance of this finding and because the finding was entered into the licensee's corrective action program as AR 01125721, the violation is being treated as an NCV, consistent with Section VI.A.1 of NRC Enforcement Policy (NCV 05000266/2008003-06; 05000301/2008003-06).

At the end of the inspection period, the licensee continued to perform a causal evaluation and develop corrective actions. The licensee planned to implement corrective actions to address this issue prior to the start of the Unit 1 Refueling Outage in the Fall of 2008.

.2 RCS Drained Below Procedurally Allowed Level During Reduced Inventory

a. Inspection Scope

The inspectors reviewed the circumstances surrounding the licensee's implementation of procedures for the second drain down to a reduced inventory condition during the Unit 2 Refueling Outage. The inspectors reviewed licensee documentation, interviewed licensee personnel, and observed operations activities during the reduced inventory condition. The inspectors also reviewed the licensee's responses to GL 88-17, "Loss of Decay Heat Removal."

b. Findings

Introduction: A finding of very low safety significance (Green) and associated NCV of TS 5.4.1, "Procedures," was identified by inspectors for the failure to implement operations procedures to remain above the  $\frac{3}{4}$  pipe level indications for draining the RCS while in reduced inventory. Specifically, during the second planned orange risk condition of the Unit 2 refueling outage to facilitate removal of the SG nozzle dams, operators drained the RCS below the procedural limit of 22 percent level, as indicated by the most conservative reactor vessel level indication. The licensee took immediate corrective actions to address the issue and was performing a causal evaluation and developing corrective actions at the end of the assessment period.

Description: On April 27, 2008, operations staff commenced draining of the reactor cavity and RCS to a reduced inventory condition, specifically  $\frac{3}{4}$  pipe level. The licensee had completed the Unit 2 core reload and operators were in this planned orange risk condition for reactor coolant inventory to facilitate removal of the SG nozzle dams. The

operations staff had three indications of reactor vessel level; however, only two indications were independent of each other, as defined by the licensee's response to GL 88-17. The first two level indications, which were not independent, but were both read locally in the control room by operators were level indicators LI-447 and LI-447A. These two level indicators shared a common reference point for indication, were processed by separate level transmitters inside containment, and had both control board and plant process computer indications available to the operators. The second independent level indicator, LI-447B, was the most accurate indication in reduced inventory conditions, and was a stand-pipe which was read locally in containment by auxiliary operators.

Operations procedures OP 4D Part 3, "Draining the Reactor Cavity and Reactor Coolant System," and OP 5A, "Reactor Coolant Volume Control," both governed Unit 2 operations in this reduced inventory condition. Both procedures stated, in part, that the RCS shall not be drained to less than 22 percent reactor vessel level, which was equivalent to a reactor coolant pipe at  $\frac{3}{4}$  level. The  $\frac{3}{4}$  pipe level was commonly referred to by licensee personnel as "mid-loop" and the procedure requirements to not drain below  $\frac{3}{4}$  pipe arose from licensee commitments in response to GL 88-17. Draining below the mid-loop pipe level may affect the ability of the RHR system to perform the safety function of removing decay heat from the reactor core.

During control room observations the morning of April 28, 2008, the inspectors noted that the auxiliary operators communicated to the control room that LI-447B read 21.75 percent. The control room operator acknowledged the reading, which was logged into the electronic control room log. The inspectors noted that LI-447 and LI-447A, in the control room, read 23.5 percent and 24.4 percent, respectively. The inspectors informed the control room operators that the RCS level, as indicated by the most conservative and accurate indication was below the level specified by procedures OP 4D and OP 5A. Shortly after identification of the issue, control room operators took immediate corrective actions to commence refilling the RCS and ensure that the in-service RHR pumps did not exhibit signs of degradation. The inspectors noted that the control room logs from the initial drain down at 10:45 pm on April 27 indicated that operators had originally drained the RCS to below 22 percent as indicated by LI-447B.

The inspectors also identified several other issues associated with the level instrumentation and operations practices during reduced inventory, which included the following: while in reduced inventory conditions, operators only checked LI-447B once every 8 hours; operators did not typically use the local indication during reactor coolant drain downs while in reduced inventory as an independent means of verifying reactor vessel level; some operators did not recognize that LI-447B was the most accurate level indication and the only independent level indication for reactor vessel level while in reduced inventory conditions; and while level transmitters LT-447 and LT-447A were calibrated at the start of the outage prior to the first reduced inventory condition, the associated level indicators LI-447 and LI-447A were not calibrated until after the second reduced inventory condition in the refueling outage.

Finally the inspectors reviewed the control room logs for the first reduced inventory condition for this outage, as well as the first and second reduced inventory conditions for the last Unit 1 Refueling Outage. The inspectors concluded that for all three previous instances, the operators remained above 22.5 percent level indication, as indicated by the lowest of the three available reactor vessel level indications.

Analysis: The inspectors determined that the failure to implement procedures for draining the RCS while in reduced inventory to remain above the  $\frac{3}{4}$  pipe level indications was a performance deficiency. The finding is more than minor because the finding was associated with the Mitigating Systems Cornerstone attribute of human performance and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The inspectors determined that the finding could be evaluated in accordance with IMC 0609, Appendix G, "Shutdown Operations SDP." The inspectors used Checklist 3 contained in Attachment 1 and determined that the finding did not require a Phase 2 or Phase 3 analysis because the plant had appropriately met the safety function guidelines for core heat removal, inventory control, power availability, containment integrity, and reactivity control. The issue did not need a quantitative assessment and screened as Green using Figure 1.

This finding has a cross-cutting aspect in the area of human performance, decision-making component, because the licensee failed to use conservative assumptions in decision-making and adopt a requirement to demonstrate that the proposed action was safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action. [H.1(b)]

Enforcement: Technical Specification 5.4.1, "Procedures," requires, in part, that written procedures be implemented for normal sequences of operation and shutdown operations of the overall plant. Procedures OP 4D Part 3, "Draining the Reactor Cavity and Reactor Coolant System," and OP 5A, "Reactor Coolant Volume Control," both require, in part, that operators not drain the RCS to less than 22 percent reactor vessel level, equivalent of  $\frac{3}{4}$  pipe.

Contrary to the above, on April 28, 2008, operations staff drained the RCS below 22 percent to 21.75 percent, as evidenced by the most conservative and accurate indication while the RCS was in reduced inventory. Because of the very low safety significance of this finding and because the finding was entered into the licensee's corrective action program as AR 01126879, the violation is being treated as an NCV, consistent with Section VI.A.1 of NRC Enforcement Policy (NCV 05000266/2008003-07; 05000301/2008003-07).

At the end of the inspection period, the licensee continued to perform a causal evaluation and develop corrective actions. The licensee planned to implement corrective actions to address this issue prior to the start of the Unit 1 Refueling Outage in the Fall of 2008.

### .3 Containment Closure Readiness

#### a. Inspection Scope

As part of the inspectors' routine review of outage activities, inspectors assessed the licensee's readiness to expeditiously restore containment closure in the event of an accident inside the Unit 2 containment. The inspectors reviewed the requirements of CL-1E, "Containment Closure Checklist, for Unit 2," and assessed the licensee's implementation of those requirements. Specifically, the inspectors verified that operating crews were briefed on the use of CL-1E and that dedicated individuals in the field were

assigned with the specific emergency response duties to isolate those open containment penetrations listed on the checklist. The inspectors also performed a walkdown of a sample of containment barriers listed on CL-1E to verify the accuracy of the licensee's tracking of these penetrations.

b. Findings

Introduction: A finding of very low safety significance and associated NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by inspectors for the failure to maintain adequate control over the position of containment penetrations during the Unit 2 core reload evolution. Specifically, the licensee failed to adequately track the open/closed status of two isolation valves, such that an unexpected pathway from containment to the atmosphere existed.

Description: On April 24, 2008, at approximately 10:00 p.m., the inspectors performed a walkdown of a sample of containment barriers that were listed on CL-1E to evaluate the licensee's ability to accurately track the off-normal positions of containment penetrations. The purpose of this checklist was to serve as a tool for plant operators to maintain reasonable assurance that the containment penetrations that were in an off-normal position could be secured in a timely manner in the event of an accident inside containment. The inspectors identified that the containment closure checklist erroneously indicated that the primary and secondary 'A' SG vent line isolation valves 2MS-235A and 2MS-235B were closed when they were in fact red danger tagged in their off-normal open position, which created an unknown pathway from containment to the atmosphere because the secondary side steam generator manways were also removed.

Upon discovery of the condition in the field, the inspectors immediately notified a nearby fuel handling Senior Reactor Operator, who in turn notified the control room of the inspectors' concern via radio. The inspectors verified that Outage Control Center (OCC) management and the operating crew were aware of the issue and discussed the licensee's plans to address the extent of condition. The inspectors subsequently noted that the licensee's initial response to the issue was not commensurate with the potential significance of the issue. Specifically, operations staff, incorrectly concluded that valves 2MS-235A and 2MS-235B did not create a pathway from containment to the atmosphere; hence, the issue was initially treated as an administrative anomaly. In addition, the licensee's initial response was inadequate, in that, fuel movements were not suspended until the extent of condition was understood. While at the time of discovery, fuel motion was on hold due to the failure of the spent fuel pool hoist, fuel motion immediately resumed upon repairs to the hoist, but prior to the completion the extent of condition. Although the extent of condition walkdown was completed seven hours after discovery and identified six additional valve position discrepancies, it was fortuitous that no additional direct containment pathways existed as a result.

This finding did not violate TS because, at the time that the open pathway existed, the fuel being reloaded into the core had not recently (within the previous 65 hours) been irradiated in a critical core; as such, TS 3.9.3, "Containment Penetrations," was not applicable. However, Technical Requirements Manual (TRM) 3.9.3, "Containment Penetrations," was violated due to the unknown containment pathway that existed during movement of non-recently irradiated fuel assemblies within containment. Per Condition A of TRM 3.9.3, if one or more controls specified in TRM Table 3.9.3-1 (e.g., Item 5.1 – One valve in each open containment penetration is capable of being



closed; and Item 5.3 – Personnel are designated each shift with the responsibility for expeditious closure of open penetrations following a fuel handling accident inside containment) were not met, then the licensee was required to suspend fuel movement immediately. With two containment penetrations in an unexpected open position, there was no reasonable assurance that plant operators were capable of expeditiously closing the valves following a fuel handling accident.

Analysis: The inspectors determined that the failure to maintain the accuracy of information within the containment closure checklist CL-1E such that eight valves were in an unexpected configuration was a performance deficiency. The finding was determined to be more than minor because the finding was associated with the Barrier Integrity Cornerstone attribute of configuration control and affected the cornerstone objective of providing reasonable assurance that physical design barriers, such as containment, protect the public from radionuclide releases caused by accidents. Specifically, in the event of a fuel handling accident inside containment, the unknown position of these two vent valves could have resulted in the inability to restore containment closure in a timely manner.

The inspectors determined that the finding could be evaluated in accordance with IMC 0609, Appendix G, "Shutdown Operations SDP." The inspectors used Checklist 4 contained in Attachment 1 and determined that the finding did not require a Phase 2 or Phase 3 analysis because the plant had appropriately met the safety function guidelines for core heat removal, inventory control, power availability, containment integrity, and reactivity control. The issue did not need a quantitative assessment and screened as Green using Figure 1.

This finding has a cross-cutting aspect in the area of human performance, decision-making component, because the work groups responsible for danger tagging the valves open in the field did not verify the valve positions were accurately recorded in the containment closure checklist. In addition, following discovery, the licensee failed to use conservative assumptions in decision-making and adopt a requirement to demonstrate that the proposed action was safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action. [H.1(b)]

Enforcement: 10 CFR 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. The CL-1E procedure required, in part, that the licensee log the location of penetrations and boundaries to be opened, as well as the closure instructions and reason for opening the penetration.

Contrary to the above, the licensee failed to enter the required information into the checklist when containment penetrations were tagged open for work. Because this finding was of very low safety significance (Green) and because it was entered into the licensee's corrective action program as AR 01126640, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000266/2008003-08; 05000301/2008003-08).

The licensee took immediate corrective actions to close the two discrepant valves and perform an extent of condition walkdown. Additionally, licensee management conducted

a site-wide stand down and discussed the issue in detail. At the end of the inspection period, the licensee continued to evaluate the causes associated with this finding in a root cause evaluation.

#### .4 Refueling Outage Activities

##### a. Inspection Scope

The inspectors observed activities during the Unit 2 refueling outage that occurred April 5 through May 15, 2008. 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, 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;
- observed the operability of reactor system instrumentation and compared channels and trains against one another;
- 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;
- performed Mode 3 walkdowns at the start and end of the refueling outage to check for active boric acid leak indications;
- observed head lift activities and containment closure and integrity;
- observed core unloading activities in the containment, spent fuel pool, and control room, and reactivity control;
- observed reduced inventory, mid-loop operations, and inventory controls;
- observed outage clearance activities;
- verified the status and configuration of electrical systems against TSs and the licensee's outage risk management plan;
- observed operators align the RHR system for shutdown cooling and verified the system was functioning properly to remove decay heat;
- observed core reload from containment;
- observed placement of the over-pressure protection system into operation;
- performed a closeout inspection of the Unit 1 containment, including a review of the emergency core cooling sump final installation;

- reviewed shutdown margin calculations;
- reviewed spent fuel pool cooling and service water pump configurations during partial core offload;
- observed operation of the fuel handling bridges in containment and over the spent fuel pool;
- performed a containment closeout inspection;
- reviewed mode-change checklists to verify that selected requirements were met while transitioning from the refueling mode to full power operation;
- observed portions of low power physics testing and approach to criticality; and
- observed portions of the plant ascension to full power operations.

These inspection activities constituted one refueling outage inspection sample as defined in IP 71111.20-05.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- Unit 2 ORT-3A SI actuation with loss of all AC (train A) (routine)
- Unit 2 ORT-3B SI actuation with loss of all AC (train B) (routine)
- 2X04 tan delta cable testing (routine)
- Unit 2 ORT-59 train A spray system containment isolation valve leak test (ISO valve)
- IT-9A for 2P29 on May 10 (IST)
- 0-PT-FP-002 monthly diesel engine-driven fire pump functional test (routine)
- reactor coolant leakage surveillance (RCS)

The inspectors observed in-plant activities and reviewed procedures and associated records to determine whether: any 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, ASME 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.

This inspection constitutes four routine surveillance testing samples, one inservice test sample, one RCS leak detection inspection sample, and one containment isolation valve sample as defined in IP 71111.22, sections -02 and -05.

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 Indicators (PIs) for the Occupational Exposure Cornerstone

a. Inspection Scope

The inspectors reviewed the licensee's occupational exposure control cornerstone PIs to determine whether the conditions resulting in any PI occurrences had been evaluated, and whether identified problems had been entered into the corrective action program for resolution.

This inspection constitutes one sample as defined in IP 71121.01-5.

b. Findings

No findings of significance were identified.

## .2 Plant Walkdowns and Radiation Work Permit (RWP) Reviews

### a. Inspection Scope

The inspectors reviewed licensee controls and surveys in the following radiologically significant work areas within radiation areas, high radiation areas, and airborne radioactivity areas in the plant to determine if radiological controls including surveys, postings and barricades were acceptable:

- Unit 2 containment building (various areas);
- Unit 2 SG platforms; and
- Unit 1/2 transfer canal.

The inspectors walked down these areas to verify that the prescribed RWP, procedure, and engineering controls were in-place, that licensee surveys and postings were complete and accurate, and that air samplers were properly located.

The inspectors reviewed RWPs and associated radiological work planning documents for potential airborne radioactivity areas to determine whether appropriate engineering controls were specified to reduce the potential for airborne radioactivity. For these selected areas, the inspectors determined through observations if barrier integrity and engineering controls (e.g., high-efficiency particulate air ventilation system) were established or were being established as required, and to determine if there was a potential for individual worker internal exposures of >50 millirem committed effective dose equivalent. These included all RWPs governing SG maintenance, reactor vessel channel head removal, and reactor coolant pump maintenance.

Work areas having a history of, or the potential for, airborne transuranics were evaluated to verify that the licensee had considered the potential for transuranic isotopes and provided appropriate worker protection.

This inspection constitutes three samples as defined in IP 71121.01-5.

### b. Findings

No findings of significance were identified.

## .3 Problem Identification and Resolution

### a. Inspection Scope

The inspectors reviewed a sample of the licensee's self-assessments, audits, Licensee Event Reports, and Special Reports, as applicable, related to the access control program to verify that identified problems were entered into the corrective action program for resolution.

The inspectors reviewed corrective action reports related to access controls and high radiation area radiological incidents (issues that did not count as PI occurrences identified by the licensee in high radiation areas <1R/hr). Staff members were interviewed and corrective action documents were reviewed to verify that follow-up

activities were being 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;
- identification of contributing causes;
- identification and implementation of effective corrective actions;
- resolution of NCVs tracked in the corrective action system; and
- implementation/consideration of risk significant operational experience feedback.

The inspectors evaluated the licensee's process for problem identification, characterization, prioritization, and verified that problems were entered into the corrective action program and resolved or were being resolved.

For repetitive deficiencies or significant individual deficiencies in problem identification and resolution, the inspectors determined if the licensee's self-assessment activities were also identifying and addressing these deficiencies.

The inspectors reviewed licensee documentation packages for all PI events occurring since the last inspection to determine if any of these PI events involved dose rates >25 R/hr at 30 centimeters or >500 R/hr at 1 meter. Barriers were evaluated for failure and to determine if there were any barriers left to prevent personnel access. Unintended exposures >100 millirem total effective dose equivalent (TEDE) (or >5 rem shallow dose equivalent or >1.5 rem lens dose equivalent) were evaluated to determine if there were any regulatory overexposures or if there was a substantial potential for an overexposure.

This inspection constitutes four samples as defined by IP 71121.01-5.

b. Findings

No findings of significance were identified.

.4 Job-In-Progress Reviews and Work Practices in Radiologically Significant Areas

a. Inspection Scope

As described in Section 2OS2.4, the inspectors observed refueling outage work activities that were being performed in radiation areas or high radiation areas for observation of work activities that presented radiological risk to workers. The inspectors reviewed radiological job requirements for these activities including RWP requirements, and attended the pre-job briefing for repair of the fuel transfer limit switch.

Job performance was observed with respect to these requirements to assess whether radiological conditions in the work area were adequately communicated to workers through the pre-job briefing and postings.

No sample was accredited under IP 71121.01 for this effort.

b. Findings

No findings of significance were identified.

.5 Radiation Worker Performance

a. Inspection Scope

The inspectors reviewed radiological problem reports for which the cause of the event was due to radiation worker errors to determine if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. Problems or issues with the corrective actions taken or planned were discussed with radiation protection supervision.

This inspection constitutes one sample as defined in IP 71121.01-5.

b. Findings

No findings of significance were identified.

.6 Radiation Protection Technician Proficiency

a. Inspection Scope

The inspectors reviewed radiological problem reports for which the cause of the event was radiation protection technician error to determine if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

This inspection constitutes one sample as defined in IP 71121.01-5.

b. Findings

No findings of significance were identified.

2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning And Controls (71121.02)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed plant collective exposure history, current exposure trends, and ongoing and planned activities for the Unit 2 refueling outage in order to assess current performance and exposure challenges. This included determining the plant's current 3-year rolling average for collective exposure in order to help establish resource allocations and to provide a perspective of significance for any resulting inspection finding assessment.

The inspectors reviewed the Unit 2 outage work scheduled during the inspection period and associated work activity exposure estimates for the following five activities which were likely to result in the highest personnel collective exposures:

- SG maintenance;
- reactor coolant pump maintenance;
- containment scaffolding;
- reactor vessel head removal and set; and
- reactor coolant pump flange inspection and tensioning.

The inspectors reviewed documents to determine if there were site-specific trends in collective exposures and source-term measurements.

The inspectors reviewed procedures associated with maintaining occupational exposures ALARA and processes used to estimate and track work activity specific exposures.

This inspection constitutes four samples as defined in IP 71121.02-5.

b. Findings

No findings of significance were identified.

.2 Radiological Work Planning.

a. Inspection Scope

The inspectors evaluated the licensee's list of U2R29 refueling outage work activities ranked by estimated exposure and reviewed the following work activities of highest exposure significance:

- SG maintenance, inspection and ET testing;
- reactor vessel channel head removal and re-installation;
- reactor coolant pump maintenance, inspection and flange tensioning;
- cavity decontamination;
- RHR system valve maintenance; and
- safety injection test line seal replacement.

For these activities, the inspectors reviewed the ALARA work activity evaluations, exposure estimates, TEDE ALARA evaluations (i.e., respirator use and engineering control evaluations), and exposure mitigation requirements in order to determine if the licensee had established procedures and engineering and work controls that were based on sound radiation protection principles in order to achieve occupational exposures that were ALARA. This also involved determining that the licensee had reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances.

The integration of ALARA requirements into work procedure and RWP documents was evaluated to verify that the licensee's radiological job planning would reduce dose.

This inspection constitutes two required samples and one optional sample as defined in IP 71121.02-5.



b. Findings

Introduction: A finding of very low safety significance and associated NCV of 10 CFR 20.1501 (to demonstrate compliance with 10 CFR 20.1701 and 20.1702) was identified by the inspectors for the failure to perform an adequate evaluation to determine the use of respiratory protection equipment and/or engineering controls so as to maintain the TEDE ALARA.

Description: In preparation for its Unit 2 refueling outage (U2R29), the licensee performed ALARA analyses for various work activities to determine whether respiratory protection equipment should be used in addition to engineering controls, consistent with maintaining the TEDE ALARA. These evaluations assessed the need for respiratory protection equipment given the work activity, the expected radiological conditions, and the use of various engineering controls to limit the concentration of radioactive material in air.

These evaluations were performed by radiation protection technicians using a mathematical formula established by the licensee's health physics staff. The formula included airborne radioactivity reduction factors which were to be applied in the evaluation, as applicable for the work activity, to credit the use of engineering controls including the use of ventilation systems.

On April 9 – 10, 2008, the inspectors identified that in some instances, the licensee did not apply the airborne radioactivity reduction factors in its TEDE ALARA evaluations even though the engineering controls were planned to be used. The factors were not applied primarily because the individual(s) that performed the evaluations failed to recognize their proper application. These instances included two TEDE ALARA evaluations completed on April 7, 2008, for Unit 2 SG nozzle dam installation/removal support work, and for Unit 2 SG primary diaphragm cleaning. These evaluations concluded that respiratory protection equipment was needed in order to maintain TEDE ALARA, which was incorrect had the reduction factors for various engineering controls been applied as intended. Consequently, the TEDE ALARA evaluations for these work activities were not adequate in that the use of respiratory protection equipment was not warranted to achieve dose ALARA. The SG maintenance work had not yet commenced due to schedule delays so these evaluation problems had no actual dose consequence.

As corrective actions, the licensee planned to reevaluate its TEDE ALARA evaluations for the pending Unit 2 SG work, planned to develop a procedure specific to the performance of these evaluations, and was considering the need for supervisory and/or health physics staff review of these evaluations before the work was initiated.

Analysis: The inspectors determined that the licensee's failure to meet the regulatory requirement for the performance of evaluation(s) necessary to demonstrate compliance with requirements of 10 CFR 20.1701 and 20.1702 for the use of respirators and/or engineering controls was a performance deficiency. The inspectors determined that the cause of the performance deficiency was reasonably within the licensee's ability to foresee and correct. The finding was determined to be more than minor because the finding was associated with the Occupational Radiation Safety Cornerstone attribute of program and process and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation, in that not performing adequate evaluations to determine the use of respiratory protection equipment

consistent with the engineering controls planned for the work would result in additional dose to workers.

The inspectors determined the finding could be evaluated in accordance with IMC 0609, Appendix C, "Occupational Radiation Safety SDP." The finding was determined to be of very low safety significance because it was not an ALARA planning issue, there was no overexposure nor potential for overexposure, and the licensee's ability to assess dose was not compromised.

This finding has a cross-cutting aspect in the area of human performance, resources component, because procedures were not adequate to ensure that TEDE ALARA evaluations were performed properly and associated conclusions were technically sound. [H.2(c)]

Enforcement: 10 CFR 20.1501 requires, in part, that the licensee make or cause to be made surveys that are necessary to comply with the regulations in 10 CFR Part 20, and that are reasonable under the circumstances to evaluate the potential radiological hazards that could be present. Pursuant to 10 CFR 20.1003, survey is defined, in part, as an evaluation of the radiological conditions and potential hazards incident to the production, use, and presence of radioactive material or other sources of radiation. 10 CFR 20.1701 and 20.1702 require the licensee to use engineering controls to control the concentration of radioactive material in air and/or to maintain the TEDE ALARA through the use of respiratory protection equipment or other controls.

Contrary to the above, the licensee failed to complete adequate TEDE ALARA evaluations on April 7, 2008, associated with Unit 2 refuel outage SG maintenance and maintenance support work. Since the failure to comply with 10 CFR 20.1501 was of very low safety significance, corrective actions were established as described above, and the issue was entered into the licensee's corrective action program as AR 01125284, the violation is being treated as a NCV consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000266/2008003-09; 05000301/2008003-09).

### .3 Verification of Dose Estimates and Exposure Tracking Systems

#### a. Inspection Scope

The inspectors reviewed the assumptions and bases for the U2R29 collective exposure estimate, including procedures, in order to evaluate the licensee's methodology for estimating work activity-specific exposures and the intended dose outcome. Dose rate and man-hour estimates were evaluated for reasonable accuracy.

The licensee's process for adjusting exposure estimates or re-planning work, when unexpected changes in scope, emergent work, or higher than anticipated radiation levels were encountered, was discussed with the radiation protection staff.

This inspection constitutes one sample as defined in IP 71121.02-5.

#### b. Findings

No findings of significance were identified.

.4 Job Site Inspections and Controls

a. Inspection Scope

The inspectors observed the following three jobs that were being performed in radiation areas or high radiation areas for observation of work activities that presented radiological risk to workers:

- spent fuel pool transfer canal limit switch repair;
- SG platform set-up; and
- SG nozzle dam preparations.

The licensee's use of ALARA controls including engineering controls for these work activities was evaluated to determine whether these controls were consistent with the licensee's ALARA reviews, that sufficient shielding of radiation sources was provided for, and that overall radiological controls were adequate.

This inspection constitutes one sample as defined in IP 71121.02-5

b. Findings

No findings of significance were identified.

.5 Source Term Reduction and Control

a. Inspection Scope

The inspectors reviewed licensee records to determine the historical trends and current status of plant source terms and to determine if the licensee was making allowances and had developed or was developing contingency plans for changes in the source term due to plant fuel performance issues or changes in plant primary chemistry. The inspectors determined whether the licensee had developed an understanding of the plant source term, that this included knowledge of input mechanisms to reduce the source term and that the licensee was developing a source term control strategy that included a cobalt reduction strategy which was designed to minimize the source term external to the core.

This inspection constitutes one sample as defined in IP 71121.02-5.

b. Findings

No findings of significance were identified.

.6 Radiation Worker and Radiation Protection Technician Performance

a. Inspection Scope

Radiation worker and radiation protection technician performance was observed during work activities being performed in radiation areas and high radiation areas that presented radiological risk to workers. The inspectors evaluated whether workers demonstrated the ALARA philosophy in practice by being familiar with the work activity scope and tools to be used, and that work activity controls were being complied with.

No sample was accredited under IP 71121.02 for this effort.

b. Findings

No findings of significance were identified.

.7 Declared Pregnant Workers

a. Inspection Scope

The inspectors reviewed dose records and declaration forms of declared pregnant workers for the current assessment period to determine whether exposure results and monitoring controls employed by the licensee complied with the requirements of 10 CFR Part 20.

This inspection constitutes one sample as defined in IP 71121.02-5.

b. Findings

No findings of significance were identified.

.8 Problem Identification and Resolution

a. Inspection Scope

The inspectors verified that problems identified through licensee self-assessments and through other problem identification mechanisms were entered into the corrective action program for resolution, and that they had been properly characterized, prioritized, and were being resolved. This included the post-outage ALARA critiques of exposure performance from the Unit 1 outage completed in 2007.

Corrective action reports related to the ALARA program were reviewed and staff members were interviewed to determine if follow-up activities had been conducted in an effective and timely manner commensurate with their importance to safety and risk using the following criteria:

- 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 system; and
- implementation/consideration of risk significant operational experience feedback.

The licensee's corrective action program was also reviewed to determine if repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution were being addressed.

This inspection constitutes one required sample and two optional samples as defined in IP 71121.02-5.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the FSAR to identify applicable radiation monitors associated with measuring transient high and very high radiation areas, including those intended for remote emergency assessment. The inspectors identified the types of portable radiation detection instrumentation used for job coverage of high radiation area work, including instruments used for underwater surveys, portable and fixed area radiation monitors used to provide radiological information in various plant areas, and continuous air monitors used to assess airborne radiological conditions and, consequently, work areas with the potential for workers to receive a 50 millirem or greater committed effective dose equivalent. Whole body counters used to monitor for internal exposure and those radiation detection instruments utilized to conduct surveys for the release of personnel and equipment from the radiologically controlled area (RCA), including contamination monitors and portal monitors, were also identified.

These reviews represented one inspection sample.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator (PI) Verification (71151)

.1 Data Submission Validation

a. Inspection Scope

The inspectors performed a review of the data submitted by the licensee for the first quarter 2008 PIs for any obvious inconsistencies prior to its public release in accordance with IMC 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings of significance were identified.

## .2 Reactor Coolant System Leakage

### a. Inspection Scope

The inspectors sampled licensee submittals for the RCS Leakage PI for Unit 1 and Unit 2 for the fourth quarter of 2007 through the first quarter of 2008. To determine the accuracy of the PI data reported during those periods the inspectors use PI definitions and guidance contained in NEI document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5. The inspectors reviewed the licensee's operator logs, RCS leakage tracking data, issue reports, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified.

This inspection constitutes two reactor coolant system leakage samples as defined in IP 71151-05.

### b. Findings

No findings of significance were identified.

## .3 Occupational Exposure Control Effectiveness

### a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Radiological Occurrences PI from September 2007 through March 2008. To determine the accuracy of the PI data reported during those periods the inspectors used PI definitions and guidance contained in NEI document 99-02. The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's PI data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review, and the results of those reviews. The inspectors also discussed with radiation protection staff its practices for electronic dosimetry transaction report generation and review, and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of locked high radiation area entrances to determine the adequacy of the controls in place for these areas.

This inspection constitutes one sample as defined in IP 71151-05.

### b. Findings

No findings of significance were identified.

## 4OA2 Problem Identification and Resolution (71152)

### .1 Routine Review of Items Entered Into the Corrective Action Program

#### a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program (CAP) at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: the complete and accurate identification of the problem; that timeliness was commensurate with the safety significance; that evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the attached List of Documents Reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

#### b. Findings

No findings of significance were identified.

### .2 Daily Corrective Action Program Reviews

#### a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

These daily reviews were performed by procedure as part of the inspectors' daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

#### b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the six month period of January 2008 through June 2008, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

This review constituted a single semi-annual trend inspection sample as defined in IP 71152-05.

b. Findings

No findings of significance were identified.

.4 Selected Issue Follow-up Inspection: Review of Confirmatory Order Action Plans

a. Inspection Scope

The inspectors selected review of the licensee's corrective actions related to the Confirmatory Order Action Plans for a more in-depth review in accordance with IP requirements.

This review of the licensee's corrective actions constituted one selected issue follow-up inspection sample as defined in IP 71152-05.

b. Findings

The findings and assessment associated with the review of this selected issue follow-up sample are discussed in Section 4OA5.2 of this report.

.5 Selected Issue Follow-up Inspection: Containment Coatings Management Program

a. Inspection Scope

The inspectors elected to review the licensee's corrective actions associated with recent issues with the containment coatings management program. The inspectors performed a search of corrective action program records relating to this topic and reviewed a



number of previously documented ARs that addressed the issue of degraded or unqualified containment coatings, as well as an NRC NCV that was issued in November 2006 for licensee containment coatings program weaknesses as described in NRC Inspection Report 05000266/2006005 and 05000301/2006005. The inspectors also interviewed plant staff responsible for maintaining the containment coatings management program.

The inspectors revisited the circumstances surrounding the 2006 NCV and followed up on the resulting corrective actions to verify that the actions had been taken and were effective at addressing the condition identified by the inspectors at the time, as well as the programmatic weaknesses identified through the licensee's root cause evaluation.

The above constitutes completion of one selected issue follow-up sample as defined in IP 71152-05.

b. Findings

No findings of significance were identified.

4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 Licensee Response to the DY-0C/2DY-03 Inverter Event

a. Inspection Scope

The inspectors reviewed the plant's response to the DY-0C and 2DY-03 white channel instrument inverter event of May 30 in which a ground in DY-0C caused a bus disturbance that blew a fuse on the 2DY-03 inverter, causing a number of unplanned TSAC entries. A detailed description of this event can be found in Section 1R19.1 of this report.

This inspection constitutes one sample as defined in IP 71153-05

b. Findings

The findings and assessments associated with the licensee's response to this event are documented in Section 1R19.1.

.2 (Closed) Licensee Event Report (LER) 05000266/2007007-00; 050000301/2007007-00: One Overpower Delta T Channel Setpoint Outside Technical Specification Allowed

This event occurred on October 19, 2007, during the performance of procedure 2ICP 2.001WH, "Reactor Protection & Engineered Safety Features White Channel Analog 92 Day Surveillance Test," when the as-left voltage settings for channel 2TM-402V were left outside TS limits. The licensee had declared the channel operable; however, during final work package close-out prior to the end of the day, the maintenance supervisor discovered the settings were outside TS limits. At the time of discovery, the one hour TSAC for TS 3.3.1 to place an inoperable channel in trip had been exceeded. The licensee placed the channel in trip, recalibrated the channel, and returned the channel to service.

The licensee entered this issue in its corrective action program as AR 01108211. The corrective actions (from an apparent cause evaluation) included an instrumentation and control department briefing on proper validation/verification and peer checking, increased Supervisor oversight and a follow-up evaluation concerning the instrument and control department's human performance actions. This licensee identified performance deficiency is discussed in detail in Section 4AO7.1 of this report. This LER is closed.

This inspection constitutes one sample as defined in IP 71153-05.

#### 4OA5 Other Activities

##### .1 (Closed) Unresolved Item (URI) 05000301/2007005-07: September 2007 Maintenance Activities Associated with TDAFW Pump 2P-29

Introduction: A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the failure to ensure that procedures associated with the maintenance of the turbine of the TDAFW pump were appropriate to the circumstances. Specifically, the licensee's maintenance procedures did not address the following significant issues: 1) proper application of sealant material used on turbine casing joints; 2) proper cure time of sealant material used on turbine casing joints; 3) prescribed methods for tightening of the oil deflector ring set screw was not discussed; and 4) acceptable clearances between the turbine shaft and the inner diameter of the oil deflector ring.

Description: The elevated moisture content in the outboard bearing for the 2P-29 turbine was present since the last ten-year overhaul was performed in November 2006. However, while the moisture content levels in the oil from November 2006 until the September 21, 2007, overhaul were elevated, the levels were below the 5,000 part per million value documented as acceptable in EPRI and vendor guidance. Steam leakage from the gland seal or turbine casing joints prior to the September overhaul would not have been vented away from the bearing housing since the turbine insulation extended over the top of the gland seal casing and up to the bearing housing. In addition, original cement-based insulation also blocked the gland seal area vent holes.

The licensee concluded, based on test data, that the 2P-29 turbine maintenance overhaul that was completed on September 23, 2007, significantly increased the moisture content in the outboard bearing oil. A silicone seal applied at the gland casing to turbine casing joint failed upon initial service resulting in a steam leak in the area of the outboard bearing housing. The failure of the sealant could not be attributed to one factor; however, the licensee did conclude one of the root causes was that maintenance procedures did not address the special requirements needed when applying sealants, and, therefore, site personnel did not have adequate instruction or training on the use of sealants. In addition, the licensee identified that the September 2007 maintenance did not allow for the proper cure time of 24 hours for the sealant and exceeded the process time of 30 minutes from when the sealant was applied and the joint was torqued.

In a review of the site maintenance procedures, the licensee also identified additional root causes associated with a continued lack of adequate procedure guidance on specific assembly details of the turbine. Specifically, for the oil deflector ring on the

turbine shaft, the tightening of the oil deflector ring set screw was not discussed, and acceptable clearances between the turbine shaft and the inner diameter of the oil deflector ring were not specified.

The licensee identified three additional contributing causes: receipt and installation of a gland casing from the vendor that had incorrect critical dimensions; previous insulation work blocked the gland seal vents; and plant personnel did not have adequate guidance on the installation of insulation.

On November 13, 2007, due to the continued high water content, the licensee elected to overhaul the turbine. The licensee, with vendor assistance, identified the as-found conditions previously discussed as the root cause and contributing causes. Following the November 2007 overhaul, the pump underwent PMT and the outboard bearing oil samples showed less than 100 part per million of water.

#### Past Operability and Availability Analysis

From December 2007 through July 2008, the licensee evaluated the past operability and availability of the Unit 2 TDAFW pump. The inspectors, in conjunction with a technical matter expert from the Office of Nuclear Reactor Regulation and a Regional Senior Reactor Analyst, reviewed the licensee's past availability analysis, and verified the assumptions, calculations, and conclusions made by the licensee in AR 01115748. The inspectors verified the conclusion made by the licensee that the as-found condition of the turbine would have allowed the turbine to perform its function for the 24-hour mission time for the probabilistic risk assessment and the 54-hour mission time for Appendix R. The basis for concluding that the TDAFW pump would have performed its function for the mission times were as follows: the location of the most likely source of the steam leak combined with the geometry of the bearing housing prevented the steam from directly entering the bearing clearance around the turbine shaft; the total amount of steam entering the housing would not have affected the ability of the oil slinger rings to lubricate the outboard bearing; the increase in volume of the oil/water mixture in the outboard bearing housing would slow the rotation of the oil rings and reduce the oil delivery rate to the bearing, however, the subsequent reduction in oil film thickness in the bearing clearance was still above the minimum design criterion and would not result in an unacceptable operating temperature of the bearing; and while the oil would be subjected to accelerated degradation, as a result of exposure to water, the expected operating life for the oil would be significantly larger than the required 54 hours. Therefore, the licensee concluded the TDAFW pump would have performed the required function for the most limiting mission time with the degraded condition.

Analysis: The inspectors determined that the failure to perform appropriate corrective maintenance on the TDAFW pump turbine which resulted in a significant increase in the ingress of steam into the outboard bearing housing, was a performance deficiency. The finding was determined to be more than minor because the finding was associated with the Mitigating Systems Cornerstone attributes of equipment performance availability and reliability, and maintenance procedure quality, and affected the cornerstone objective of ensuring the availability and reliability of systems.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of findings," Tables 3b and 4a for the

Mitigating Systems Cornerstone. The inspectors determined this programmatic finding was not a design qualification deficiency resulting in a loss of function per GL 91-18, did not represent an actual loss of safety function of a system or train of equipment, and was not potentially risk-significant due to a seismic, fire, flooding, or severe weather initiating event. Therefore, the finding was considered to be of very low safety significance (Green).

This finding has a cross-cutting aspect in the area of human performance, resources because the licensee did not ensure that the shutdown operations procedures were complete, accurate and up-to-date to support the protection of equipment necessary for safe shutdown. [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 include appropriate quantitative or qualitative acceptance criteria to determine that the activities were satisfactorily accomplished.

Contrary to the above, the licensee's turbine maintenance procedure was not appropriate to the circumstances, and did not include appropriate acceptance criteria because: 1) proper application of sealant material used on turbine casing joints was not prescribed; 2) proper cure time of sealant material used on turbine casing joints was not prescribed; 3) tightening of the oil deflector ring set screw was not prescribed; and 4) acceptable clearances between the turbine shaft and the inner diameter of the oil deflector ring were not prescribed. Because of the very low safety significance of this finding and because the finding was entered into the licensee's corrective action program as AR 01115748, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000266/2008003-10; 05000301/2008003-10).

The licensee took immediate corrective actions to address the issue, conducted a root cause evaluation, and developed corrective actions to address the root causes, contributing causes and extent of condition associated with this finding.

.2 (Discussed) Confirmatory Order, EA-06-178 Apparent Violation (AV) 05000266/2006013-05; 05000301/2006013-05

a. Inspection Scope

In a letter dated January 3, 2007, (ADAMS Accession Number ML063630336), the NRC issued a Confirmatory Order to the licensee as part of a settlement agreement through the NRC's Alternative Dispute Resolution (ADR) process. The NRC investigated an alleged violation of 10 CFR 50.7, "Employee Protection," to determine whether a senior reactor operator was the subject of retaliation for raising a nuclear safety concern in the licensee's corrective action program. This issue was resolved through the NRC's ADR program and is being tracked as Apparent Violation (AV) 05000266/2006013-05; 05000301/2006013-05 pending continuing NRC review of the licensee's completion of items specified in the Confirmatory Order. The inspectors utilized IPs 92702 and 71152 to assess the licensee's completion of the Items contained in the Order. The modifications to the facility license as a result of the Confirmatory Order included the following four items, in part:

1) The Licensee shall review, revise, and communicate to employees and managers its policy relating to the writing of corrective action program reports, and provide training to employees and managers to clarify management's expectation regarding the use of the program with the goal to ensure employees are not discouraged, or otherwise retaliated or perceived to be retaliated against, for using the corrective action program;

2) The Licensee shall communicate its safety culture policy (including Safety Conscious Work Environment (SCWE)) to employees, providing employees with the opportunity to ask questions in a live forum;

3) The Licensee shall train its employees holding supervisory positions and higher who have not had formal training on SCWE principles within the previous two years of the issuance of the Confirmatory Order. The Licensee shall review and enhance, if necessary, its refresher SCWE training consistent with the licensee's training program and provide such training to its employees. New employees holding supervisory positions and higher shall be trained on SCWE principles within nine months of their hire dates unless within the previous two years of their hire dates, they have had the same or equivalent SCWE training; and

4) The Licensee agrees to develop action plans to address significant issues identified as needing management attention in the NMC 2004 and 2006 Comprehensive Cultural Assessments at Point Beach; to conduct focus group interviews with Priority 1 & 2 organizations to understand the cause of the survey results; and to review and, as appropriate, reflect nuclear industry best practices in its conduct of focus groups and action plans to address the issues at Point Beach.

In NRC Inspection Report 05000266/2007003 and 05000301/2007003, Section 4OA2.3, the inspectors reviewed the licensee's completion of Order Items 1 and 2, in addition to the short-term portions of Item 3. The inspectors identified observations during this June 2007 inspection, which the licensee subsequently entered into the corrective action program as AR 01096862.

As part of the current inspection, the inspectors verified the licensee's corrective actions taken in response to the previous observations, documented in AR 01096862; reviewed the refresher training program and new supervisor training program as required by Order Item 3; and reviewed the licensee's actions in response to Order Item 4.

As part of the review, the inspectors interviewed site personnel, observed training conducted in response to the Confirmatory Order, observed meetings held by the licensee in response to the Confirmatory Order, and reviewed some of the applicable corrective actions the licensee had taken in response to the Confirmatory Order. An Office of Enforcement Specialist assisted the inspectors in their review.

b. Findings and Observations

The inspectors identified two Green findings, one of which had an associated NCV, as a result of the inspection activities.

b.1 Failure to Ensure Completion of New Supervisory Training

Introduction: A finding of very low safety significance and associated NCV of Confirmatory Order EA-06-178 was identified by inspectors for the licensee's failure to ensure that new employees holding supervisory positions and higher were trained on SCWE principles within nine months of their hire dates, unless they have had the same or equivalent SCWE training within the previous two years of the hire dates. Specifically, the inspectors identified that four new employees holding supervisory positions for greater than nine months of their hire dates as supervisors had not received SCWE training nor the same or equivalent training within the previous two years.

Description: The inspectors reviewed the licensee's response to Order Item 3 which required that new supervisors receive SCWE training within 9 months of becoming a supervisor at the plant. The inspectors reviewed the licensee documentation for completion of the programmatic changes to ensure that the new supervisor training program reflected the Order Item. The inspectors verified that the current revision of the Supervisory Leadership Development Program, Section 3.2, "Initial Training," stated, in part, that per the Order, supervisory positions or higher are required to complete training on SCWE principles within six months of hire. The procedure requirement allowed for a grace period of three months in order to ensure compliance with the Order.

The inspectors then reviewed the training records for newly hired supervisors since July 2007 and determined that four new supervisors (one from engineering and three from operations) not only exceeded the Supervisory Leadership Development Program requirement of six months, but also, the Order requirement of nine months. The inspectors also noted that four additional new supervisors had received the training within the required nine months, but did not meet the site's administrative procedural requirement of six months. Based on interviews with licensee managers, the inspectors learned that inadequate oversight of the new supervisors' training contributed to the failure to meet the procedure and Order requirements.

Analysis: The inspectors determined that the licensee's failure to implement the commitments specified in Confirmatory Order EA-06-178 for new supervisor training on SCWE principles within nine months of their hire dates, was a performance deficiency. The finding was determined to be more than minor because the finding, if left uncorrected, would become a more significant safety concern. The finding would have been greater than very low significance had an action by the new supervisor resulted in a violation of 10 CFR Part 50.7, "Employee Protection," against an employee. The finding is not suitable for SDP evaluation, but has been reviewed by NRC management and is determined to be a finding of very low safety significance.

This finding has a cross-cutting aspect in the area of human performance, work practices component, because the licensee failed to ensure that supervisory and management oversight of the Confirmatory Order actions, such that nuclear safety was supported. [H.4(c)]

Enforcement: Confirmatory Order EA-06-178, requires, in part, that new employees holding supervisory positions and higher be trained on SCWE principles within nine months of their hire dates, unless within the previous two years of the hire dates, they have had the same or equivalent SCWE training.

Contrary to the above, as of June 13, 2008, the licensee failed to ensure that four new employees holding supervisory positions for greater than nine months of their hire dates

as supervisors, received SCWE training, or the same or equivalent training within the previous two years. Because of the very low safety significance of this finding and because it was entered into the licensee's corrective action program as AR 01129565, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000266/2008003-11/05000301/2008003-11).

The licensee took immediate corrective actions to address the issue, which included training of the four supervisors, and at the end of the inspection period the licensee continued to evaluate the causes and develop corrective actions associated with this finding.

b.2 Inadequate Corrective Actions to Address Licensee Action Plans

Introduction: A finding of very low safety significance was identified by the inspectors for the failure to take timely and effective corrective actions to address four of the nuclear safety culture action plans and the "quick hitter" plans. Specifically, the licensee developed the action plans and quick hitter plans to correct long standing safety culture issues identified by the licensee's comprehensive safety culture assessments conducted in 2004 and 2006.

Description: In a letter dated March 29, 2007, the licensee outlined the planned corrective actions to address the safety culture issues identified during the 2004 and 2006 surveys. The issues identified in the 2004 culture survey were still applicable because the licensee had not taken adequate corrective actions to address the 2004 culture survey. The nuclear safety culture improvement team (NSCIT) was formed in the fall of 2006 to develop action plans in response to the 2004 and 2006 culture surveys. The NSCIT was composed of plant employees who volunteered to conduct interviews with the affected plant organizations and to develop action plans to address the underlying issues identified in the culture surveys. As a result of the reviews and interviews conducted, the NSCIT identified six common drivers, which included: communication; problem resolution; training; trust/respect; resource loading; and corrective action program participation.

The NSCIT developed nine long-term action plans which were entered into the corrective action program and scheduled for completion within 18 months, or prior to the 2008 culture survey. Those action plans were the following: Communications; Succession and Retention Planning; Timeliness of Training Prior to Using New Equipment; Curriculum Review Committees; Radiation Protection Resources; Issue Resolution within Priority One and Two Groups; Planned Prioritization and Resolution of Equipment Issues; Familiarity of Corrective Action Program Processes; and Work Management. In addition, the team developed 23 quick hitter action plans, which were tangible, prompt action items that were developed as a direct result of communication between the NSCIT and Point Beach personnel related to the 2006 culture survey. The quick hitter action plans were not entered into the corrective action program for tracking, but were tracked by the NSCIT. The long-term action plans were entered into the corrective action program and corrective actions were assigned to the organization for implementation.

The inspectors reviewed the 2004 and 2006 culture surveys and NSCIT employee interviews and concluded that the NSCIT identified the underlying issues affecting the organizations. The inspectors also verified that the action plans addressed the six

common drivers. The inspectors verified that five of the long-term actions plans were completed and the corrective actions appeared timely and effective. Those action plans included: Timeliness of Training Prior to Using New Equipment; Curriculum Review Committees; Issue Resolution within Priority 1 and 2 Groups; Familiarity of Corrective Action Program Processes; and Work Management. However, the inspectors noted that for the remaining long-term action plans and quick hitter plans, the corrective actions were neither timely nor effective, as evidenced by the following:

- Quick Hitter Action Plan: The “quick hitter” action plan consisted of 23 items, which were prompt action items that could be quickly implemented by the line organizations to address the 2006 culture survey. The inspectors noted that as of June 2008, 9 of the 23 original quick hitter items initiated in January 2007 remained open or were not complete;
- Communications Action Plan: Communications was an underlying common driver of safety culture issues due to the inadequate horizontal and vertical communications among site organizations. The NSCIT identified several opportunities for interpersonal and interdepartmental communications enhancements as evidenced by employees’ perception of a continual reactionary mode; inconsistent feedback provided on corrective action documents; lack of communication on how priorities are set; and changes to policies and procedures not explained to affected personnel and reasons for decisions not explained. While marginal improvements may have been noted in some organizations, the major communications issues remain within the organization, as evidenced by the inspectors’ observations and interviews with plant personnel. The employees interviewed by the inspectors and the resident inspectors’ observations of licensee performance validated that the four areas discussed above continue to remain, with little progress noted. In addition, the corrective action program history documented a lack of timely and effective implementation of corrective actions to address this action plan. Finally, the inspectors directly observed in licensee meetings during the refueling outage, several occasions where management’s messages of production and schedule goals were not appropriately balanced with messages of quality and safety;
- Succession and Retention Planning: The NSCIT had identified that Point Beach had decreased the effectiveness in succession and retention planning for some work groups. The inspectors noted that while all the corrective actions were closed, those actions were neither timely nor effective. In addition, the actions referenced did not address the original issues identified in the NSCIT interviews and reviews. Furthermore, while plans were developed in July 2007, those plans remained static, and at the time of the inspection, were significantly outdated and inaccurate for some organizations. This was primarily due to a significant loss of personnel in the 4<sup>th</sup> quarter of 2007 and 1<sup>st</sup> quarter of 2008; however, the plans were not updated. Therefore, the inspectors concluded the licensee’s actions were not effective;
- Radiation Protection Resources: The NSCIT had identified that radiation protection resource issues were identified as the primary reason for this organization’s low overall nuclear safety culture rating. The inspectors noted that the actions taken to address this issue were ineffective, as the issues continued to remain; and



- **Planned Prioritization and Resolution of Equipment Issues:** The NSCIT identified that there were opportunities for enhancement in communication of planned prioritization and resolution of equipment issues. The inspectors reviewed the corrective action program documents and determined that while the corrective action items were closed, the licensee had not fully completed the corrective actions and the issue continued to remain as evidenced by a continued lack of communication on the prioritization and resolution of equipment issues. The employees interviewed also discussed that there was a continued lack of communication for these type issues.

The inspectors noted that in several cases regarding the deficiencies listed above, the NSCIT had initiated condition reports to document the ineffectiveness or lack of timely corrective actions. However, in most cases those condition reports were closed with a lack of timely and effective corrective actions. Therefore, the inspectors concluded that while five of the nine action plans were addressed in a timely and effective manner, the remaining four action plans and open quick hitter action plans were not corrected in a timely or effective manner.

Analysis: The inspectors determined that the failure to implement the long-term and quick hitter action plans to address the safety culture issues identified by the licensee's comprehensive safety culture assessment, was a performance deficiency. The finding was determined to be more than minor because the finding, if left uncorrected, would become a more significant safety concern. The finding would have been greater than very low significance had the failure to take corrective actions resulted in a more safety significant issue as a result of the incomplete action plans. The finding is not suitable for SDP evaluation, but has been reviewed by NRC management and is determined to be a finding of very low safety significance.

This finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program component, because the licensee failed to take appropriate corrective actions to address safety issues in a timely manner, commensurate with their safety and complexity. [P.1(d)]

Enforcement: The failure to implement the action plans and quick hitter list to address the safety culture issues was not an activity affecting quality subject to 10 CFR Part 50, Appendix B, and did not violate a procedure required by license conditions or TSs. Therefore, while a performance deficiency existed, no violation of regulatory requirements occurred. This is considered a finding of very low safety significance (FIN 05000266/2008003-12; 05000301/2008003-12). The licensee included this finding in its corrective action program as AR 01129659.

At the end of the inspection period the licensee continued to evaluate the causes associated with this finding and develop corrective actions to address the issues.

### .3 Institute of Nuclear Power Operations Plant Assessment Report Review

#### a. Inspection Scope

The inspectors reviewed the final report for the Institute of Nuclear Power Operations plant assessment conducted in January 2008. The inspectors reviewed the report to ensure that issues identified were consistent with the NRC perspectives of licensee

performance and to determine if any significant safety issues were identified that required further NRC follow-up.

b. Findings

No findings of significance were identified.

.4 (Closed) NRC Temporary Instruction (TI) 2515/166, Pressurized Water Reactor Containment Sump Blockage

a. Inspection Scope

The inspectors reviewed the licensee's implementation of commitments documented in its September 1, 2005 (ADAMS Accession Number ML052500302) and February 29, 2008, (ADAMS Accession Number ML080630613) responses to GL 2004-02. The GL addresses Generic Safety Issue (GSI) 191, "Assessment of Debris Accumulation on PWR Sump Performance." The inspectors reviewed licensee procedures, engineering design changes, and associated analyses. The inspection was conducted in accordance with TI 2515/166, "Pressurized Water Reactor Containment Sump Blockage."

b. Inspection Documentation

The questions posed by TI 2515/166 and associated status are outlined below:

- (1.) Question: Did the licensee implement the plant modifications and procedure changes committed to in their GL 2004-02 responses? List the commitments and the actions taken to meet each commitment. List when each action to meet each commitment was completed. State whether additional inspections are required to ensure all commitments have been met by the plant.

Unless otherwise noted, activities were completed either before or during the April 2007 refueling outage with no additional inspection required to verify completion of commitments.

- Commitment: Perform modifications to containment sump.

The containment sumps were modified under EC 1602, "Install New ECCS Strainer (Sump B) U1" and EC 1603, "Install New ECCS Strainer (Sump B) U2." As part of the supporting analyses, the structural integrity was verified through performance of calculations PCI-5344-SO3, "Evaluation of Sump Cover and Piping for the Containment Sump Strainers," Revision 1. Inspection of the modified Unit 2 containment sump was documented in NRC Inspection Report 05000266/2006013 and 05000301/2006013, and the Unit 1 containment sump was documented in NRC Inspection Report 05000266/2007003 and 05000301/2007003. Inspection of the engineering products, including the 10 CFR 50.59 safety evaluations, associated with the containment sump modifications were documented in NRC Inspection Report 05000266/2007007 and 05000301/2007007.

- Commitment: Perform walkdowns of containment and evaluate debris source term.

The results of containment walkdowns and the evaluation of the debris source term were documented in the Inspection Reports listed above.

- Commitment: Perform evaluation of strainer performance.

Strainer performance was evaluated in 51-9022588-000, "Point Beach 1 & 2 ECCS Strainer Performance Test Report," dated July 6, 2006. As stated below in Question (3), the licensee was granted an extension to perform and further evaluate the strainer tests.

- Commitment: Perform evaluation of chemical effects.

Chemical effects were evaluated by calculations 32-5050092 (Unit 1), 32-5052938 (Unit 2); 2006-0012, 2006-0029, and 2006-0002.

- Commitment: Perform evaluation of downstream effects.

Downstream effects were evaluated in 38-9024150-000, "Point Beach Strainer Downstream Results." The calculations will be updated pending the results of the June 2008 flume testing.

- Commitment: Determine minimum available net positive suction head margin for the RHR pumps at switchover to sump recirculation.

Minimum available net positive suction head margin was determined as part of calculations supporting modifications EC 1602 and 1603. The calculations were documented in the previously noted NRC Inspection Reports. The calculations will be updated pending the results of the June 2008 flume testing.

- Commitment: Establish programmatic controls to ensure that potential sources of debris introduced into containment are assessed for adverse effects.

Procedure NP 7.2.28, "Containment Debris Control Program," Revision 2, implemented this commitment as documented in NRC Inspection Report 05000266/2007007 and 05000301/2007007.

- Commitment: Reduce post-accident debris source term.

Latent Debris condition assessments will be performed every other refueling outage in each respective unit. A containment latent debris report will be prepared and compared to the latent debris limits in Calculation 2006-0002.

- (2.) Question: Has the licensee updated its licensing bases to reflect the corrective actions taken in response to GL 2004-02? Licensing bases may not be updated until the licensee fully addresses GL 2004-02 (by December 31, 2007, unless an extension has been granted).

The licensee revised its FSAR in June 2007 to reflect the sump modifications. The FSAR update also discussed the containment coating program requirements.

- (3.) Question: If the licensee or plant has obtained an extension past the completion date of this TI, document what actions have been completed, what actions are outstanding, and close the TI for the plant that has the extension. Items not finished by the TI completion date can be inspected in the future using the generic refueling outage inspection procedure.

Physical modifications had been completed and programmatic controls had been put in place. At the time of this inspection, the licensee was in the process of updating analyses as follows:

- The strainer performance analysis will be updated to integrate results of the June 2008 flume tests. By letter dated June 23, 2008, (ADAMS Accession Number ML081760129), the licensee had requested an extension for updating this analysis. As discussed in the letter, the licensee has scheduled this analysis to be updated by September 30, 2008.
- The licensee's downstream effects calculations and chemical effects will be updated following the June 2008 flume tests.

This documentation of TI 2515/166 completion as well as any results of sampling audits of licensee actions will be reviewed by the NRC technical staff in NRR as input along with the GL 2004-02 responses to support closure of GL 2004-02 and GSI-191. The NRC will notify each licensee by letter of the results of the overall assessment as to whether GSI-191 and GL 2004-02 have been satisfactorily addressed at that licensee's plant. Completion of TI 2515/166 does not necessarily indicate that a licensee has finished all testing and analyses needed to demonstrate the adequacy of its modifications and procedure changes. Licensees may also have obtained approval of plant-specific extensions that allow for later implementation of plant modifications. Licensees will confirm completion of all corrective actions to the NRC. The NRC will track all such yet-to-be-performed items identified in the TI 2515/166 inspection reports to completion and may choose to inspect implementation of some or all of them.

This TI is closed for both units at Point Beach Nuclear Plant.

.5 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On July 16, 2008, the inspectors presented the inspection results to Mr. Larry Meyer and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meeting

An interim exit meeting was conducted for:

- the results of the occupational radiation safety ALARA program inspection with the Site Vice-President, Mr. J. McCarthy on April 11, 2008.
- the results of the Inservice IP 711108 with Ms. F. Flentje on April 23, 2008.
- pressurized water reactor containment sump blockage (Temporary Instruction 2515/166) inspection with plant General Manager, Mr. John Bjorseth on April 11, 2008.

4OA7 Licensee-Identified Violations

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

- On October 19, 2007, during the performance of procedure 2ICP 2.001WH, "Reactor Protection & Engineered Safety Features White Channel Analog 92 Day Surveillance Test," the as-left voltage settings for channel 2TM-402V were outside TS limits. The licensee declared the channel operable; however, by the time the licensee discovered that the settings were outside of the TS allowable limits, the 1-hour TS Action Condition 3.3.1 requirement to place an inoperable channel in trip, had been exceeded. The licensee identified the issue as part of a normal review of the completed field paperwork at the end of the day by the supervisor. The licensee placed the channel in trip, recalibrated the channel, and returned the channel to service. The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a for the Initiating Events Cornerstone. Because the incorrect setting was identified by the licensee, and of very short duration, and due to the very low probability of a trip condition for the Unit 2 Overpower Delta T with one channel of the 2TM-402V voltage settings incorrectly set, the finding is considered to be of very low safety significance. The licensee entered this issue into its corrective action program as AR 01108211.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

R. Amundson, General Supervisor Operations Supervisor  
R. Bardo, ISI Program Engineer  
J. Bjorseth, Plant Manager  
G. Gozdziwski, Construction Supervisor  
B. Harrigan, SG Program Engineer  
R. Harrsch, Operations Manager  
J. Hofstra, Boric Acid Program Engineer  
B. Jensen, NDE Level III  
C. Jilek, Site Maintenance Rule Coordinator  
J. Keltner, SG Program Engineer  
K. Locke, Regulatory Assurance  
L. Meyer, Site Vice-President  
S. Pfaff, Performance Assessment Supervisor  
C. Sizemore, Training Manager  
B. Vandervelde, Maintenance Manager  
G. Young, Nuclear Oversight Manager

#### Nuclear Regulatory Commission

J. Cushing, Point Beach Project Manager, Office of Nuclear Reactor Regulations  
M. Kunowski, Chief, Division of Reactor Projects, Branch 5

### LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

#### Opened and Closed

05000266/2008003-01; 05000301/2008003-01	FIN	Failure to Properly Store or Secure Tornado Missile Hazards in the Protected Area (Section 1R01.1)
05000266/2008003-02; 05000301/2008003-02	NCV	Failure to Address Sprinkler Head Obstructions in 'B' Train EDG Rooms (Section 1R05.1)
05000266/2008003-03; 05000301/2008003-03	NCV	Failure to Adequately Manage Online Risk for Breaker 1A52-16C Work(Section 1R13.1)
05000266/2008003-04; 05000301/2008003-04	NCV	Inadequate Procedures for DY-0C Inverter Maintenance (Section 1R19.1)
05000266/2008003-05; 05000301/2008003-05	FIN	Failure to Implement Appropriate Design and Configuration Control for the Unit 2 Polar Crane (Section 1R19.2)
05000266/2008003-06; 05000301/2008003-06	NCV	Inadequate Procedures for Reduced Inventory with an Intact Reactor Coolant System (Section 1R20.1)
05000266/2008003-07; 05000301/2008003-07	NCV	Failure to Maintain RCS Within Procedurally Allowed Level During Reduced Inventory (Section 1R20.2)
05000266/2008003-08; 05000301/2008003-08	NCV	Failure to Maintain Control of Containment Penetration Status (Section 1R20.3)

05000266/2008003-09; 05000301/2008003-09	NCV	Failure to Perform Adequate Total Effective Dose Equivalent ALARA Evaluations (Section 20S2.2)
05000266/2008003-10; 05000301/2008003-10	NCV	Inadequate Maintenance Procedure for Turbine-Driven Auxiliary Feedwater (TDAFW) Pump 2P-29 (Section 4OA5.1)
05000266/2008003-11; 05000301/2008003-11	NCV	Failure to Ensure Completion of New Supervisory Training (Section 4OA5.2)
05000266/2008003-12; 05000301/2008003-12	FIN	Inadequate Corrective Actions to Address Licensee Action Plans (Section 4OA5.2)

Closed

05000266/2007007-00; 05000301/2007007-00	LER	One Overpower Delta T Channel Setpoint Outside Technical Specification Allowed Value (Section 4OA3.2)
05000266/2007005-07; 05000301/2007005-07	URI	September 2007 Maintenance Activities Associated with Turbine-Driven Auxiliary Feedwater (TDAFW) Pump 2P-29 (Section 4OA5.1)
05000266/2515/166; 05000301/2515/166	TI	Pressurized Water Reactor Containment Sump Blockage (Section 4OA5.4)

Discussed

05000266/2006013-05; 05000301/2006013-05	AV	Confirmatory Order, EA-06-178 Follow-up (Section 4OA5.2)
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## LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

### 1R01 Adverse Weather Protection

- CAP01129721; Potential Water Damage to Equipment in Facade Area
- CAP01129699; Water Ponding Reported Near 1X04 Transformer on 6/12/08
- CAP01129702; Water in Unit 1 and Unit 2 Façade
- AR 00908558; Turbine Building Flood Dampers have No Periodic Functional Check
- PC 80 Part 7; Lake Water Level Determination; Revision 2
- FP-E-ABN-01; Abandoned Equipment; Revision 1
- PC 99; Tornado Hazards Inspection Checklist; Revision 1
- NP 8.4.17; PBNP Flooding Barrier Control; Revision 8
- DBD-T-41; Hazards – Internal and External Flooding (Module A) Topical Design Basis Document; Revision 5
- WO 00315358-011Z-329; Functional Check and Lubricate Flood Damper
- EC11877; Install Temporary Power Cables from 1X-04 to 1A-03 and 1A-04; Revision 0
- Point Beach Site Summer Readiness Report; May 14, 2008
- AR 00908558; Turbine Building Flood Dampers Have No Periodic Functional Check

### 1R04 Equipment Alignment

- 2-SOP-4KV-A06; Unit 2 Vital Train B 4160V Bus; Revision 3
- 2-SOP-4KV-A05; Unit 2 Vital Train A 4160V Bus; Revision 5
- 2-SOP-480-001; 480V System Normal Operations; Revision 9
- 2-SOP-480-B03; Unit 2 Vital Train A 480V Buses; Revision 9
- 2-SOP-480-B04; Unit 2 Vital Train B 480V Buses; Revision 9
- 0-SOP-FH-001; Fuel/Insert/Component Movement in the Spent Fuel Pool; Revision 13
- OP 8A; Spent Fuel Pool Cooling Water System Operation; Revision 22
- CL 5C; Spent Fuel Pool Cooling and refueling Water Circulating Pump Normal Valve Lineup; Revision 12
- AOP 8F; Loss of Spent Fuel Pool Cooling; Revision 13
- Design Basis Document 13; Spent Fuel Pool Cooling and Filtration; Revision 5
- OP 7B; Removing Residual Heat Removal System From Operation; Revision 42

### 1R05 Fire Protection

- Fire Hazards Analysis Report; January 2007 Revision
- NP 1.9.9; Transient Combustible Control
- AR 01129141; Diesel Generator Building Sprinkler System Design
- V878-04-TD-05; NFPA Code Compliance Assessment; March 24, 1999
- Engineering Planning and Management, Inc., Point Beach Nuclear Plant, Fire Protection Code Conformance Review; Draft A; December 2007



## 1R07 Annual Heat Sink Performance

- 0-SOP-G02-002; G-02 EDG Service Water HX Isolation; Revision 5
- HX-01; Heat Exchanger Condition Assessment Program; Revision 6

## 1R08 Inservice Inspection Activities

- AR 01125810; Lack of Complete RT Exam Coverage
- AR 01126093; Document NRC Observations from Routine Inspection
- AR 01126787; NRC Observation Differing Program Requirements
- AR 01126786; NRC Observation for Trending BA Program
- AR 01125008; During Conduct of the 2-PT-RH-1 Pressure Test, All Components May Not Have Been Examined
- AR 01125102; Conditions Reported On Support AC-601R-6-2H14 During VT-3 Exam
- AR 01124200; Machining Chips Found in Replacement Steam Generators
- AR 01123041; Foreign Material Introduced into Primary System from Eddy Current Probes
- AR 01067268; NRC Information Notice 2006-027 Issued
- AR 01117888; Review of Unacceptable Surface Indications on RHR Heat Exchanger Reinforcement Plates
- AR 01119161; Pressure Test Basis
- 2008UT-021; UT Data Sheet for Weld SIS-06-SI-2005-17; April 17, 2008
- 2008UT-025; UT Data Sheet for Weld AC-06-SI-2002-19; April 17, 2008
- 2008UT-032; UT Data Sheet for Weld AC-06-SI-2002-37; April 17, 2008
- 2008CA-020; UT Exam Calibration Report; April 17, 2008
- 2008CA-022; UT Exam Calibration Report; April 17, 2008
- 2008VT-001; VT-3 Data Sheet for Support AC-601R-6-2H20A; March 3, 2008
- 2008VT-002; VT-3 Data Sheet for Support AC-601R-6-R2376; March 3, 2008
- 2008VT-003; VT-3 Data Sheet for Support AC-601R-6-2H14; March 3, 2008
- IDR 2006-025; Indication Disposition Report for SI-2501R-5-2SI-12; January 29, 2007
- IDR 2006-029; Indication Disposition Report for AC-601R-6-2H23; January 12, 2007
- IDR 2006-036; Indication Disposition Report for AC-10-AC-2001-19; January 12, 2007
- WO 00215334 01; 2MS-00237: Cut Out and Replace Valve
- NDE-201; Radiographic Examination Procedure; Revision 2
- Data sheet 50163; Radiographic Data Sheets for 2MS-00237, Welds FW-1 and FW-2; November 10, 2006
- Weld Specification; FP-PE-B31-P1P1-GTSM-001 Groove Weld and Fillet Welds, P1-P1, GTAW/SMAW, without PWHT; Revision 2
- PQR WP-6; Weld Procedure Qualification Report for Carbon Steels Group P-1 to P-1 GTAW- Pipe Size Over 1" OD; Revision 1
- PQR SM-1-1 ; Weld Procedure Qualification Report for Manual SMAW; Revision 5
- PQR GMP-102-311-GS-PQR; Weld Procedure Qualification Report for Gas Tungsten Arc (GTAW) and Shielded Metal Arc (SMAW); July 24, 1987
- R/R 2006 0033; Repair Replacement Form for MS-00237; November 31, 2006
- WO 00222725 01; SI-839D Remove per MR 05-023
- Weld Specification FP-PE-B31-P8P8-GTSM; Groove Welds and Fillet Welds, P8-P8, GTAW/SMAW, Without PWHT; Revision 2
- PQR SM-8-8(2); Weld Procedure Qualification Report for Manual SMAW; January 23, 1975
- PQR PrQR-W-12; Weld Procedure Qualification Report for GTAW; June 4, 1975
- PQR W-66; Weld Procedure Qualification Report for GTAW; November 12, 1989
- RR 2006-0009; Repair Replacement Form for Pipe SE-2501R-01; August 16, 2006
- Data sheet 451489; Dye Penetrant Data Sheet for 2SI-839D Weld "D"; January 8, 2007

- AR 01124816; Active Wet Packing Leak on 2SI-829A
- BAE- 07-166 ; Boric Acid Evaluation for 2SI-829A; April 2, 2007
- BAE 08-0085A; Boric Acid Evaluation for 2SI-829A; March 30, 2008
- BAE 08-0085A; Boric Acid Evaluation for 2SI-829A; April 04, 2008
- BAE 08-0233; Boric Acid Evaluation for 2RH-709B; April 8, 2008
- BAE 08-0210; Boric Acid Evaluation for 2RH-713B; April 11, 2008
- BAE 08-0131; Boric Acid Evaluation for 2P-15A; March 31, 2008
- 2-PT-SI-4; High Head Safety Injection (HHSI) 'A' Train Pressure Test-Outside Containment Unit 2 Test Conducted April 3, 2008
- BAE 08-131; Boric Acid Evaluation for 2P-15A; March 31, 2008
- NDE-753; Procedure for Visual Examination (VT-2) Leakage Detection of Nuclear Power Plant Components ; Revision 13
- NP 7.4.14; Boric Acid Leakage and Corrosion Monitoring; Revision 4
- BALCM Program; Boric Acid Leakage and Corrosion Monitoring Program; Revision 4
- AR 01106685; Large Amounts of Boric Acid on Components
- AR 01062216; Active Packing Leak on 2CV-1298
- AR 01106773; Active (Wet) Boric Acid Leaks on 2GS-73 and 2P-130B
- SG-SGDA-03-46; Point Beach Unit 2 Steam Generator Condition Monitoring Assessment of Fall 2003 Inspection Results and Operational Assessment for Operating Cycle 27 and 28; Revision 0
- MRS-TRC-1879; Point Beach Unit 2 Appendix H Techniques, Spring 2008 S/G Inspection; April 4, 2008
- SG-CDME-08-5; Steam Generator Degradation Assessment for Point Beach Unit 2; Revision 0
- NWT 747; Evaluation of Steam Generator Hideout Return at Point Beach 1 and 2; June 2007
- ETSS 96511.2; Eddy Current Examination Technique Specification Sheet for Detection of Circumferential and Axial PWSCC in Low Row U-Bend Regions; Revision 16
- ETSS 96004.1; Eddy Current Examination Technique Specification Sheet for Wear at Tube Supports, Anti-vibration Bars, Vertical and Diagonal Struts; Revision 11
- ETSS 20510.1; Eddy Current Examination Technique Specification Sheet for Detection of Circumferential PWSCC at Expansion Transitions; Revision 7
- NDE-173; PDI Generic Procedure for the Ultrasonic Examination of Austenitic Piping Welds; Revision 11
- NDE-754; Visual Examination (VT-3) of Nuclear Power Plant Components; Revision 16
- EC 12148; Engineering Evaluation of Unit 2 Reactor Vessel Head Effective Degradation Year (EDY) Determination; April 16, 2008

#### 1R11 Licensed Operator Regualification Program

- Point Beach Licensed Operator Regualification Schedule for Cycle 08B

#### 1R12 Maintenance Rule Implementation

- ACE 01043614; D-06 Battery Exhibited a Declining Specific Gravity Trend
- ACE 01071742-06; Faulty Regulating Diode in Chargers Voltage Comparator
- ACE 01089918-02; D-108 Battery Charger Did Not Reliably Maintain Voltage on the D-04 DC Bus
- ACE 1108211; As-Left Data was Outside of Technical Limits
- AR 01085065; 2C20B 2-8 D-02/D-04 125VDC Bus Under/Over Voltage Alarm
- AR 01078095; D-09 Battery Charger Failed While Aligned to D-01 DC Bus
- AR 01086450; In-service Inverter DY0A Fails During 1Y101 Restoration

- OPR 01043614 Operability Recommendation D-06 125VDC Station Battery
- CAO 01069350 02; 125 VDC (a)(1) Action Plan January 24, 2007
- MRE01089918-01; D-108 Current Sensing Card A3 Failure
- MRE01086450-01; Inverter DY-0A Transferred to Non-safeguards Source When Energized
- MRE01058436-02 D01/D03 Under/Over Voltage Alarm
- Maintenance Rule (a)(1) System Action Plan Checklist and Approval - 125 V DC; December 20, 2005, January 24, 2007 and November 26, 2007
- Point Beach Nuclear Plant System Health Report; 125 VDC; Third Quarter of 2006 to Fourth Quarter of 2007
- Point Beach Nuclear Plant System Health Report; Vital Instrument; Third Quarter of 2006 to Third Quarter of 2007
- Maintenance Rule System Scope; Y Vital Instrument Bus 120 VAC; June 2, 2008
- Maintenance Rule System Performance Criteria; Y Vital Instrument Bus 120 VAC; Revision 3
- Performance Criteria Assessments; ; Y Vital Instrument; April 1, 2006 to October 16, 2007
- Maintenance Rule System Scope; 125 VDC Electrical; June 2, 2008
- Maintenance Rule System Performance Criteria; 125 VDC Electrical; Revision 3
- Performance Criteria Assessments; 125 VDC Electrical; April 1, 2006 to May 14, 2008
- WO search for Y Vital Instrument Bus 120 VAC; June 1, 2006 to June 1, 2008
- WO search for 125 VDC Electrical; June 1, 2006 to June 1, 2008
- Performance Criteria Assessments; 125 VDC Electrical; April 1, 2006 to May 14, 2008
- WO search for Y Vital Instrument Bus 120 VAC; June 1, 2006 to June 1, 2008
- WO search for 125 VDC Electrical; June 1, 2006 to June 1, 2008
- AR 01129614; NRC Discussion on Maintenance Rule and CET Failures
- Maintenance Rule Data Packages for Chemical Volume Control System
- Maintenance Rule Data Packages for Reactor Coolant System
- AR 01119172; 2P-2B Charging Pump Leak Rate Change

### 1R13 Maintenance Risk Assessments and Emergent Work Control

- 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
- NP 10.3.7; Online Safety Assessment; Revision 16
- U2R29 Reduced Inventory Orange Path Contingency Plan
- U2R29 Shutdown Safety Profile; All Revisions

### 1R15 Operability Evaluations

- AR 01128827; Reactor Core Peak Clad Temperature During a Large Break LOCA
- AR 01124455; Non-conservative Pressurizer Level Parametric Values
- AR 01125112; Unit 2 Polar Crane and the Containment Structure
- PBNP-994-34.001; Automated Engineering Services Corporation Independent Assessment of Polar Crane Unit 2; April 11, 2008
- 2RMP 9118-1; Containment Building Crane OSHA Operability Inspections Performed on April 5, 2008; Revision 2
- EC 12120; Engineering Evaluation of U2 Polar Crane for Rated Load; Dated April 11, 2008
- EC 12106; Engineering Evaluation of U2 Polar Crane for Lifts up to 1,500 lbs; Dated April 10, 2008
- AR 01126736; Fuel Assembly Top Nozzle Burrs (Recommended Mode 4 Hold)
- AR 01128271; Unit 1 and Unit 2 A-D [Analog to Digital] Converter Error

### 1R18 Plant Modifications

- EC 11595, Diesel Fire Pump Engine Exhaust System, September 24, 2007
- Calculation 07-108, Diesel Fire Pump Engine Exhaust Piping System Pipe Stress and Pipe Supports, March 24, 2008
- Drawing SK-051443-M-001, Rev C, Diesel Fire Pump Engine Exhaust System
- Drawing SK-051443-M-002, Rev D, Diesel Fire Pump Engine Exhaust System
- WO 347172, P-035B, Replace Exhaust EC-11595
- Weld Procedure Specification FP-PE-B31-P8P8-GTSM-037, Rev 3

### 1R19 Post-Maintenance Testing

- WO 330935; ORT 9; ILRT Prep Remove Polar Crane Controls
- WO 337385; Z2-013 Inspect Polar Crane for Small Conduit, etc.
- WO 348628; Z2-013 Polar Crane Contingency Troubleshooting for U2R29
- IT 235; Leak Test of Class 1 Components Following a Refueling Shutdown; Revision 32
- TS 31; High and Low Head Safety Injection Check Valve Leakage Test Unit 2 performed on May 4, 2008; Revision 30;
- IT 295B; Overspeed Test Turbine Driven Auxiliary Feedwater Pump Refueling Interval Unit 2 performed on May 5, 2008; Revision 20
- WO 316161; Oil Change on Turbine Bearing and Uncouple/Recouple Pump
- WO 317592; SW-112A 2P-29 AFW Inlet Check Inspection
- WO 342567; Correct Gland Line Pitch
- AR 01125112; Polar Crane Bridge Drive Motor Torque Settings
- AR 01125187; Polar Crane Rail Misalignment Problem
- TS 83; Emergency Diesel Generator G-03 Monthly Performed the Week of April 6, 2008; Revision 23
- IT 04A; RHR Pump and Valve Tests in DHR (Cold Shutdown) Unit 2 Performed April 22, 2008; Revision 25
- IT 325; CVCS Valves (Cold Shutdown) Unit 2 Performed on April 30, 2008; Revision 18
- PBTP 165; DY-0C White Inverter Troubleshooting Procedure; Revision 0
- DY-0C Causal White Paper
- AR 01128695; Unplanned Instrument Inverter Transfer to Alternate Supply
- AR 01128891; Control Room Alarms During DY0C Workplan
- AR 01128913 2DY-03 Blew a Fuse
- AR 01128920; Ground on DY0C
- IT 07B; P-32B Service Water Pump Quarterly; Revision 32

### 1R20 Refueling Outage

- Boric Acid Leakage and Corrosion Monitoring Program; Revision 4
- NP 7.4.14; Boric Acid Leakage and Corrosion Monitoring
- Licensee Response to Generic Letter 88-05; dated May 24, 1988
- CL 4D; Outage Valve Inspection Unit 2
- OP 3A; Power Operation to Hot Standby Unit 2; Revision 0
- OP 3B; Reactor Shutdown; Revision 39
- OP 1A; Cold Shutdown to Hot Standby; Revision 92
- OP 1B; Reactor Startup; Revision 56
- OP 1C; Startup to Power Operation Unit 2; Revision 11
- OP 2A; Normal Power Operation; Revision 61
- OP 3C; Hot Standby to Cold Shutdown; Revision 104

- OP 4A; Filling and Venting the Reactor Coolant System; Revision 70
- OP 4D Part 1; Draining the Reactor Coolant System; Revision 74
- OP 4D Part 3; Draining the Reactor Cavity and Reactor Coolant System; Revision 24
- OP 4F; Reactor Coolant System Reduced Inventory Requirements; Revision 8
- OP 4G; Steam Generator Nozzle Dam Operational Requirements; Revision 3
- OP 5A; Reactor Coolant Volume Control; Revision 41
- OP 13A; Secondary Systems Startup; Revision 73
- OP 13B; Secondary Systems Shutdown; Revision 28
- NP 7.7.14; Reactor Vessel Integrity Program; Revision 5
- NP 1.2.6; Infrequently Performed Tests or Evolutions (IPTEs); Revision 13
- SLP 2; Safe Load Path and Rigging Manual; Revision 20
- ADAMS Accession Number ML080420595
- AR 01127245; IPTE Brief Not Performed Prior to HAUP Lift
- RP 1C; Refueling; Revision 61 and 62
- 0-SOP-FH-001; Fuel/Insert/Component Movement in the Spent Fuel Pool; Revision 13
- American Transmission Company Initial Energization of Replacement Kewaunee Generator Step-Up Transformer Analysis of Expected System Impacts; March 11, 2008 and subsequent revisions
- FP-OP-ROM-01; Refueling Outage Management; Revision 2
- CL 2D; Mode 4 to Mode 3 Checklist for U2R29; Revision 10
- CL 2C; Mode 5 to Mode 4 Checklist for U2R29; Revision 12
- CL 2B; Mode 6 to Mode 5 Checklist for U2R29; Revision 9
- CL 2A; Defueled to Mode 6 Checklist for U2R29; Revision 10
- CL 2E; Mode 3 to Mode 2 Checklist for U2R29; Revision 14
- CL 2F; Mode 2 to Mode 1 Checklist for U2R29; Revision 14
- Outage Additions and Deletions for U2R29
- U2R29 Reduced Inventory Orange Path Contingency Plan
- U2R29 Shutdown Safety Profile; All Revisions
- WO 00315739; Reactor Vessel Level Transmitters Outage Calibration
- WO 00347923; Miscellaneous Electronic Instruments Calibration
- FP-PE-PM-01; Preventive Maintenance Program; Revision 2
- 2ICP 06.0067; Miscellaneous Electronic Instrument Calibrations; Revision 10

## 1R22 Surveillance Testing

- 98-0029; CR97-2141: Response to Lack of Extended Threads Past the Nut; April 1, 1998
- MI 32.1; Point Beach Nuclear Plant Maintenance Instructions, Flange and Closure Bolting; Revision 14
- 0-PT-FP-002; Monthly Diesel Engine-Driven Fire Pump Functional Test; June 11, 2008
- 0-PT-FP-002; Monthly Diesel Engine-Driven Fire Pump Functional Test; June 20, 2008
- OI 3.19; Reactor Coolant System Leakage Determination, Revision 6
- OI 55; Primary Leak Rate Calculation; Revision 19
- Form PBF-2131; Control Room Miscellaneous Shift Log - Modes 1-3, Unit 1; Revision 7 for dates of May 19, 2008, June 4, 2007 and June 24, 2008.
- Form PBF-2132; Control Room Miscellaneous Shift Log - Modes 1-3, Unit 2; Revision 7 for dates of May 20, 2008, June 16, 2008 and June 22, 2008
- Unit 1 and 2 Leakrate Graph Data for May 18, 2008 through June 24, 2008.
- IT 09A; Cold Start of Turbine Driven Auxiliary Feed pump and Valve Test (Quarterly) Unit 2 performed on May 10, 2008; Revision 47
- ORT 3A; Safety Injection Actuation with Loss of Engineered Safeguards AC Train A Unit 2; Revision 40

- ORT 3B; Safety Injection Actuation with Loss of Engineered Safeguards AC Train B Unit 2; Revision 39
- IT-305; Main Feed Line Check Valves Unit 2; Revision 20
- ORT 59; Train A Spray System CIV Leakage Test Unit 2; Revision 28
- PCR 1125264; Revision to ORT3A Unit 1 and Unit 2 Acceptance Criteria Change
- WO 350700; 2X-04; Test 2A52-45 To 2X-04
- WO 351174; Test 2A52-89 / 2X-14 Cabling from 2A06 to 2X-14
- Tan Delta Cable Testing Result Spreadsheets and Graphs

#### 2OS1 Access Control to Radiologically Significant Areas

- AR 01108316; Little Procedural Guidance Exists in Procedures for Preventing Unauthorized Access to Very High Radiation Areas
- AR 01113672; High Radiation Area/Locked High Radiation Area Concerns
- AR 01113673; Potential Un-posted High Radiation Area in the Overhead
- HP 2.17; Very High Radiation Area Personnel Access; Revision 6
- RWP 818; Spent Fuel Pool Transfer Canal Work; Revision 0
- RWP 422; High Radiation Area Class 2; Revision 4

#### 2OS2 As-Low-As-Is-Reasonably-Achievable Planning and Controls

- AR 01120599; Radiation Protection Has not Implemented Alpha Monitoring Recommendation
- AR 01107046; Remote Monitoring Program Enhancements Needed
- AM 2-12; Maintaining Exposures to Radiation and Radioactive Material As-Low-As-Reasonably-Achievable; Revision 2
- NP 4.2.1; ALARA Program; Revision 19
- FP-RP-JPP-01; Radiation Protection Job Planning; Revision 4
- NP 4.2.29; Source Term Reduction Program; Revision 8
- NP 4.2.15; Fetal Protection Policy Implementation; Revision 5
- AM 2-2; Fetal Protection; Revision 2
- RWP and Associated Radiological Work Assessment Forms for Steam Generator Sludge Lancing; February and March 2008
- RWP and Associated Radiological Work Assessment Forms for Steam Generator Nozzle Dam Installation/Removal; February – April 2008
- RWP and Associated Radiological Work Assessment Forms for Steam Generator Eddy Current Testing; March 2008
- RWP and Associated Radiological Work Assessment Forms for Steam Generator Manway & Diaphragm Removal/Installation; February, March and April 2008
- RWP and Associated Radiological Work Assessment Forms for Reactor Vessel Head Removal/Reinstallation; March and April 2008
- RWP and Associated Radiological Work Assessment Forms for Reactor Coolant Pump Maintenance, Inspection and Flange Tensioning; March and April 2008
- RWP and Associated Radiological Work Assessment Forms for Cavity Decontamination; March and April 2008
- RWP and Associated Radiological Work Assessment Forms for RHR System Valve Disassembly and Inspection; March 30 and April 1, 2008
- RWP and Associated Radiological Work Assessment Forms for Safety Injection test Line Seal Replacement; April 4, 2008
- U1R30 Radiation Protection Outage Report
- Point Beach Nuclear Plant 5-Year ALARA Plan; Revision 0
- Nuclear Oversight Daily Quality Observation Summary; Various Radiation Protection Program Related Topics; April 2008

- Nuclear Oversight Quality Report No. 08-007; Radiation Protection; March 6, 2008
- Nuclear Oversight Observation Report No. 2007-04-008; Radiation Protection; October 24-31, 2007

#### 4OA1 Performance Indicator Verification

- Occupational Exposure Performance Indicator Data Packages; September 2007 – March 2008
- Unplanned Scrams with Complications Data Packages; April 2007 – March 2008
- Reactor Coolant System Leakage Data Packages; April 2007 – March 2008

#### 4OA2 Problem Identification and Resolution

- Point Beach Long-Term Containment Coatings Management Strategy; Dated May 23, 2006
- NDE 802; Condition Monitoring & Assessment of Containment Coatings; Revision 4
- Calculation 2006-0012; Coatings Inputs for ECCS Strainer Design & Testing; Revision 1

#### 4OA3 Follow-up of Events and Notices of Enforcement Discretion

- AR 01108211; Setpoint 2 Module Left OOT During 2ICP 02.001WH
- ACE 01108211; Setpoint 2 Module Left OOT During 2ICP 02.001W

#### 4OA5 Other Activities

- March 29, 2007 NMC Letter to NRC; Nuclear Management Company, LLC Plan to Address the Safety Culture Issues at Point Beach Nuclear Plant
- Confirmatory Order EA-06-178; January 3, 2007
- Nuclear Safety Culture Improvement Team Action Item Tracking List; June 10, 2008
- Status of Nuclear Safety Culture Improvement Team Action Plan; June 7, 2008
- FPLE Confirmatory Order EA-06-178 Closure Documentation, Volumes 1 and 2
- FL-LDP-INI-037L; FPLE Managing a Safety Conscious Work Environment Training Program; Revision 1
- Supervisory Leadership Development Program Training Program Description; Revision 4
- Root Cause Evaluation AR 01115748; 2P-29 AFW Pump Moisture in Oil
- MPR-3184; Operability of the Point Beach 2P-29 TDAFW Pump with Steam Intrusion in the Outboard Turbine Bearing Housing; Revision 1
- AR 00752162; NRC Issues GL 2004-02 Regarding ECCS Sump Recirculation Blockage
- AR 01113710; Mode 1 Containment Cleanliness Inspection No Longer Performed
- AR 01115757; Station Unable to Make Required Year-End Submittal to NRC
- AR 01118429; Potential to Exceed NRC GSI-191 Commitment Date
- AR 01125368; CAP 01113710 Closed Without Full Resolution
- EC 1602; Install New ECCS Sump Strainer (Sump B) Screen – Unit 1; Revision 2
- EC 1603; Install New ECCS Sump Strainer (Sump B) Screen – Unit 2; Revision 2
- CL 20; Post Outage Containment Closeout Inspection – Unit 1; Revision 17
- CL 20; Post Outage Containment Closeout Inspection – Unit 2; Revision 19
- EOP-1.4 Unit 2; Transfer to Containment Sump Recirculation – High Head Injection; Revision 21
- OP 1.4 Unit 1; Transfer to Containment Sump Recirculation – High Head Injection; Revision 20
- FP-E-MOD-02; Engineering Change Control; Revision 3
- FP-E-MOD-04; Design Inputs; Revision 4
- NDE-802; Condition Monitoring and Assessment OF Containment Coatings; Revision 4

- NP 1.9.6; Plant Cleanliness and Storage; Revision 21
- NP 7.2.15; Fleet Modification Process; Revision 8
- NP 7.2.28; Containment Debris Control Program; Revision 2
- NP 8.4.8; Requirements for Scaffold Near Safety-Related Equipment; Revision 12
- NP 8.4.10; Exclusion of Foreign Material From Plant Components And Systems; Revision 20
- NP 8.4.15; Protective Coating Program; Revision 7
- RMP 9367; Level 1 and Level 3 Coatings; Revision 16

#### Section 4OA7: Licensee Identified Violations

- AR 01108211; Setpoint 2 Module Left OOT During 21CP 02.001WH
- Human Performance Event Investigation Tool Investigation

#### NRC-Identified Condition Reports

- AR 01129874; High Wind / Tornado Readiness Issues Identified
- AR 01129873; Abandoned Duct Banks from 1X04 Temp Mod and 2X04 Mod
- AR 01129941; Threads Not Fully Engaged on Valve FP-00020
- AR 01129614; NRC Discussion on Maintenance Rule and CET Failures
- AR 01127245; IPTE Brief Not Performed Prior to HAUP Lift
- AR 01126640; 2MS-235A/B Not Being Tracked Properly by CL-1E Cont Closure
- AR 01128774; Safety Monitor Factor for Transformer Cleaning



## LIST OF ACRONYMS USED

AC	Alternating Current
ADR	Alternative Dispute Resolution
AR	Action Request
ALARA	As-Low-As-Is-Reasonably-Achievable
ASME	American Society of Mechanical Engineers
AV	Apparent Violation
BACC	Boric Acid Corrosion Control
CAP	Corrective Action Program
CFR	Code of Federal Regulations
DC	Direct Current
DG	Diesel Generator
DRP	Division of Reactor Projects
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EPRI	Electric Power Research Institute
ET	Eddy Current
FIN	Finding
FSAR	Final Safety Analysis Report
GL	Generic Letter
GSI	Generic Safety Issue
I&C	Instrumentation and Controls
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IPE	Individual Plant Examination
IR	Inspection Report
ISI	Inservice Inspection
LCO	Limiting Condition for Operation
LER	Licensee Event Report
LOCA	Loss of Coolant Accident
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NFPA	National Fire Protection Association
NP	Nuclear Procedure
NRC	U.S. Nuclear Regulatory Commission
NSCIT	Nuclear safety Culture Improvement Team
OCC	Outage Control Center
OP	Operating Procedure
OWA	Operator Workaround
PI	Performance Indicator
PI&R	Problem Identification and Resolution
PMT	Post-Maintenance Testing
PWR	Pressurized-Water Reactor
RCA	Radiological Controlled Area
RCS	Reactor Coolant System
RFO	Refueling Outage
RHR	Residual Heat Removal
RMP	Routine Maintenance Procedure

RP	Radiation Protection
RWP	Radiation Work Permit
SCWE	Safety Conscious Work Environment
SDP	Significance Determination Process
SG	Steam Generator
TDAFW	Turbine Driven Auxiliary Feedwater Pump
TEDE	Total Effective Dose Equivalent
TI	Temporary Instruction
TRM	Technical Requirements Manual
TS	Technical Specification
TSAC	Technical Specification Action Condition
TSO	Transmission System Operator
U2R29	Unit 2 Refueling Outage
URI	Unresolved Item
VAC	Volts Alternating Current
VDC	Volts Direct Current
WO	Work Order