



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE ROAD, SUITE 210  
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May 14, 2008

Mr. David A. Christian  
President and Chief Nuclear Officer  
Virginia Electric and Power Company  
Innsbrook Technical Center  
5000 Dominion Boulevard  
Glen Allen, VA 23060-6711

**SUBJECT: KEWAUNEE POWER STATION - NRC INTEGRATED  
INSPECTION REPORT 05000305/2008002**

Dear Mr. Christian:

On March 31, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Kewaunee Power Station. The enclosed report documents the inspection findings, which were discussed on April 9, 2008, with Mr. Steve Scace and other 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 personnel.

Based on the results of this inspection, one NRC-identified and one self-revealed finding of very low safety significance were identified. The findings involved a violation of NRC requirements. However, because of their very low safety significance, and because the issues were entered into your corrective action program, the NRC is treating the issues as Non-Cited Violations (NCVs) in accordance with Section VI.A.1 of the NRC Enforcement Policy.

If you contest the subject or severity of an NCV, 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 Kewaunee Power Station.

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Mr. D. Christian

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Sincerely,

**/RA/**

Michael Kunowski, Chief  
Branch 5  
Division of Reactor Projects

Docket No. 50-305  
License No. DPR-43

Enclosure: Inspection Report 05000305/2008002  
w/Attachment: Supplemental Information

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Mr. D. Christian

-2-

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Letter to D. Christian from M. Kunowski dated May 14, 2008

SUBJECT: KEWAUNEE POWER STATION NRC INTEGRATED INSPECTION REPORT  
05000305/2008002

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-305  
License No: DPR-43

Report No: 05000305/2008002

Licensee: Dominion Energy Kewaunee, Inc.

Facility: Kewaunee Power Station

Location: Kewaunee, WI

Dates: January 1, 2008, through March 31, 2008

Inspectors: S. Burton, Senior Resident Inspector  
P. Higgins, Resident Inspector  
J. Cassidy, Health Physicist  
K. Barclay, Reactor Engineer  
R. Langstaff, Senior Reactor Inspector

Approved by: M. Kunowski, Chief  
Branch 5  
Division of Reactor Projects

Enclosure

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## SUMMARY OF FINDINGS

IR 05000305/2008002; 01/01/2008 – 03/31/2008; Kewaunee Power Station; Equipment Alignment and Post-Maintenance Testing.

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Two Green findings, one NRC-identified and one self-revealed, were identified by the inspectors. These findings were considered Non-Cited Violations (NCVs) of NRC regulations. 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: Mitigating Systems**

- Green. A finding of very low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the licensee's failure to install scaffolding in accordance with station procedures. Specifically, more than ten examples where scaffolding was built within 2-inches of safety-related systems without an engineering evaluation, and six examples where non-seismic scaffolding was built in safety-related areas were identified. The licensee suspended all scaffold building pending the completion of their corrective actions. The corrective actions included training scaffold builders on proper scaffold building techniques and how to identify operational and seismic concerns, revising procedures for scaffold building to address operations and engineering involvement in the scaffold building process, and a complete plant walkdown of all scaffolding by engineering or operations.

This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the improperly installed scaffolding could have impeded or prevented proper operation of the safety-related components. Using Attachment 4 of IMC 0609, the inspectors answered "no" to all the screening questions in the SDP Phase 1 Screening Worksheet in the Mitigating Systems column; therefore, this finding is of very low safety significance (Green). The inspectors determined that this finding had a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because the licensee did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner. (P.1(d)) (Section 1R04.1)

#### **Cornerstone: Barrier Integrity**

- Green. A finding of very low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors following surveillance testing of containment isolation valve LOCA-3A in accordance with plant procedure SP 55 167 4B, "Post LOCA Valves Timing

Test (IST) from Local Panel-Train B." Specifically, the licensee failed to initiate a condition report in accordance with procedure PI-KW-200, "Corrective Action," following a review of the test results by the inservice testing program engineer who subsequently identified a potential condition which called into question the operability of LOCA-3A.

The finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 20, 2007, because the finding was associated with the structure, system and component (SSC) and barrier performance attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective to provide reasonable assurance that the physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the licensee failed to implement the provisions of Corrective Action Procedure, PI-KW-200, which resulted in a failure to ensure operability of containment isolation valve LOCA-3A. The inspectors also determined that the primary cause for this finding was related to the cross-cutting area of human performance, work practices, because personnel have been trained in need for procedural use and adherence but did not follow applicable procedures. (H.4(b)) (Section 1R19)

**B. Licensee-Identified Violations**

No violations of significance were identified.



## **REPORT DETAILS**

### **Summary of Plant Status**

Kewaunee operated at full power during the entire first quarter of 2008 until early on March 29, 2008, when the unit was shutdown for a scheduled refueling outage.

#### **1. REACTOR SAFETY**

##### **Cornerstones: Initiating Events, Mitigating Systems, Barrier Control, and Emergency Preparedness**

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

##### **.1 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 Updated Safety Analysis Report (USAR) 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, checked that the roofs did not contain obvious loose items that could clog drains in the event of heavy precipitation, 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. The inspectors also reviewed the abnormal operating procedure for mitigating the design basis flood to ensure it could be implemented as written.

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

###### **b. Findings**

No findings of significance were identified.

##### **.2 Readiness For Impending Adverse Weather Condition – Extreme Cold Conditions**

###### **a. Inspection Scope**

Extreme cold conditions were forecast in the vicinity of the facility for January 29 - 30, 2008. On these dates, the inspectors reviewed the licensee's preparation and performance for the cold weather including external equipment walk-downs, reviews of the cold weather checklist and reviews of susceptible systems in the auxiliary and turbine buildings because their safety-related functions could be affected or required as a result of the extreme cold conditions forecast for the facility. The inspectors observed insulation, heat trace circuits, space heater operation, and weatherized enclosures to ensure operability of affected systems. The inspectors reviewed licensee procedures and discussed potential compensatory measures with

control room personnel. The inspectors focused on plant management's actions for implementing the station's procedures for ensuring adequate personnel for safe plant operation and emergency response would be available. Specific documents reviewed during this inspection are listed in the Attachment.

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

b. Findings

No findings of significance were identified.

.3 Readiness For Impending Adverse Weather Condition – Heavy Snowfall & Ice Conditions

a. Inspection Scope

On February 18, 2008, a winter weather advisory was issued for expected icing and snow squalls. The inspectors observed the licensee's preparations and planning for the significant winter weather potential. The inspectors reviewed licensee procedures and discussed potential compensatory measures with control room personnel. The inspectors focused on plant management's actions for implementing the station's procedures for ensuring adequate personnel for safe plant operation and emergency response would be available. The inspectors conducted a site walkdown including walkdowns of various plant structures and systems to check for maintenance or other apparent deficiencies that could affect system operations during the predicted significant weather. The inspectors also reviewed corrective action program (CAP) items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the Attachment.

This inspection constitutes one readiness for impending adverse weather condition sample as defined in Inspection Procedure 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 system walkdowns of the following risk-significant systems:

- bus 6 and emergency diesel generator following bus 6 auto inhibit relay test;
- auxiliary feedwater (AFW) system "A" following maintenance; and
- safety injection train "B" with train "A" out-of-service.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, the USAR, Technical Specification (TS) requirements, Administrative TSs, outstanding work orders (WOs), condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

These activities constituted three partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

(1) Scaffolding in Close Proximity to Multiple Safety-Related Systems Affects Operability

Introduction: A finding of very low safety significance (Green) and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the licensee's failure to install scaffolding in accordance with station procedures. Specifically, more than ten examples were identified where scaffolding was built within 2-inches of safety-related systems without an engineering evaluation, and six examples where scaffolding built in a safety-related area was not seismically qualified.

Description: On March 11, 2008, while performing a quarterly partial system walkdown of the AFW system, the inspectors identified scaffolding that was constructed within 2-inches of the instrument sensing line for AFW flow to the 1A steam generator without an associated engineering evaluation. Step 4.2.5 of general maintenance procedure GMP-127, "Requirements and Guidelines for Scaffold Construction and Inspection," Revision 17, required a 2-inch clearance or approved engineering evaluation. The inspectors examined additional scaffolding in the area and identified that the instrument sensing line for AFW flow to 1B steam generator also had scaffolding constructed within 2-inches without an engineering evaluation. The inspectors notified the shift manager about the two deficiencies and continued to inspect scaffolding throughout the plant. Subsequently, engineering evaluated the scaffolding and determined that it was adequately braced to prevent interaction with the AFW sensing lines and would not affect the operability.

During the expanded walkdown, the inspectors identified that scaffolding built over the safety-related steam supply line to the turbine-driven auxiliary feedwater (TDAFW) pump was not seismically qualified. Step 4.1.23 of procedure GMP-127 requires scaffold built-in safety-related areas to be stabilized in accordance with Section 4.2, "Safety-Related Area Scaffold Stabilization." Engineering evaluated the scaffolding and

determined that it was not seismically qualified. The licensee declared the TDAFW pump inoperable and entered TS 3.4.b.4.A, "One Train of AFW Inoperable," while they modified the scaffolding to meet the seismic qualification standards. In total, the licensee modified five different sets of scaffolding over or in the vicinity of the TDAFW pump steam supply line prior to declaring the pump operable.

The licensee began inspecting scaffolding after the NRC notified them about the first AFW sensing line issue. During the licensee's inspections they identified additional examples where non-seismic scaffolding was built in a safety-related area and where scaffolding was within 2-inches of safety-related components without engineering evaluations. One set of scaffolding was built in-contact with safety-related piping for two reactor coolant sampling outboard containment isolation valve actuators, RC-413 and RC-423, which was also not built to the seismic qualification standards of Step 4.2.3 of procedure GMP-127. The licensee declared both valves inoperable and entered TS 3.6.b.3.A, "Inoperable Containment Isolation Valve," while they disassembled the scaffolding.

Analysis: The inspectors determined that the installation of scaffolding too close to safety-related components without an engineering evaluation and the installation of non-seismic scaffolding in the area of safety-related components, was contrary to procedural requirements, and was a performance deficiency. The finding was determined to be more than minor because it is associated with the equipment performance attribute of the Mitigating System Cornerstone and affected the cornerstone objective to ensure availability, reliability and capability of systems that respond to initiating events to preclude undesirable consequences. Specifically, the improperly installed scaffolding could have impeded or prevented proper operation of the safety-related components.

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 Mitigating Systems Cornerstone. The inspectors answered "no" to all screening questions in the Mitigating Systems Column, therefore, the finding is of very low safety significance (Green).

The inspectors determined that this finding had a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because the licensee did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner. Specifically, scaffolding construction within 2-inches of safety-related components without engineering evaluations was identified by the NRC during the last outage and documented in CAP 038722. Additionally, in December of 2007, the NRC identified that the safety-related steam supply line to the TDAFW pump was a safety-related area and that procedure GNP-01.31.01, "Plant Cleanliness and Storage," failed to identify it as such and prevent uncontrolled storage (CAP027377). Both examples show that the licensee had past opportunities to identify and correct the underlying causes of the recent scaffolding problems. (P.1(d))

Enforcement: Title 10 CFR, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states in part that, activities affecting quality, shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions,

procedures, or drawings. Kewaunee General Maintenance Procedure GMP-127 specifies in Step 5.2.5 that scaffolding shall be no closer than 2-inches from any safety-related equipment, unless otherwise evaluated and approved by engineering. Procedure GMP-127 also specifies in Step 4.1.23 that a scaffold built in safety-related areas be stabilized in accordance with Section 4.2, "Safety-Related Area Scaffold Stabilization."

Contrary to the above, the licensee failed to follow procedures during the installation of scaffolding. Specifically, on March 11, 2008, the inspectors found scaffolding constructed within 2-inches of safety-related components without an engineering evaluation and non-seismic scaffolding constructed in a safety-related area. The licensee suspended all scaffold building pending the completion of their corrective actions. The corrective actions included training scaffold builders on proper scaffold building techniques and how to identify operational and seismic concerns, revising procedures for scaffold building to address operations and engineering involvement in the scaffold building process, and a plant walkdown of all scaffolding by engineering or operations. Because this violation was of very low safety significance and it was entered into the licensee's CAP as CAP092794, CAP092776 and CAP09279, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 5000305/2008002-01).

## .2 Semi-Annual Complete System Walkdown

### a. Inspection Scope

On March 13, 2008, the inspectors performed a complete system alignment inspection of the service water to verify the functional capability of the system. This system was selected because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding WOs was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. The documents used for the walkdown and issue review are listed in the Attachment.

These activities constituted one complete system walkdown sample as defined in Inspection Procedure 71111.04-05.

### b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

The inspectors conducted fire protection walkdowns which were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- Fire Zones TU-90, -91, -92, -93, 1A and 1B emergency diesel generator rooms and associated day tank rooms;
- Fire protection Impairments;
- Fire Zones TU-94, SC-70A, -70B, screen house, screen house tunnel, and CO2 room;
- Fire Zones TU-22, -96, turbine building basement and turbine building mezzanine;
- Fire Zones TU -95A, -95B, -95C, auxiliary feed pump area, and 480V buses 1-51, -52, -61, -62;
- Fire Zones TC-100, -101, -102, technical support center;
- Fire Zones AX -23B, -25, -23D, auxiliary building 606' elevation general area; and
- Fire Zone Auxiliary Building 606', north penetration room.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and had implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the Attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed, that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP.

These activities constituted eight quarterly fire protection inspection sample as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On February 11, 2008, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- licensed operator performance;
- crew's clarity and formality of communications;
- ability to take timely actions in the conservative direction;
- prioritization, interpretation, and verification of annunciator alarms;
- correct use and implementation of abnormal and emergency procedures;
- control board manipulations;
- oversight and direction from supervisors; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements.

This inspection constitutes one quarterly licensed operator requalification program sample as defined in Inspection Procedure 71111.11.

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:

- spent fuel pump and cooling system - preps for full core offload in outage; and
- containment isolation system.

The inspectors reviewed events such as where ineffective equipment maintenance has 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 CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

This inspection constitutes two quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings of significance were identified.

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

.1 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- risk assessments for work changes during the week ending January 26, 2008, including charging pump "C" isolation and restoration due to work on charging pump "B" ducts seal leak, and the addition of substation work;
- charging pump "C" being returned to operation with a seal leak to allow maintenance on charging pump "A";
- charging pump "C" isolated due to seal leak;
- spent fuel pool cooling isolated for various maintenance activities;
- risk assessments for work changes during the week ending March 1, 2008, including scope change for residual heat removal (RHR) pump seal replacement, added substation work, date change for battery room fan coil unit work; and
- emergent pre-outage activities during the week ending March 29, 2008.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were



consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

These activities constituted six samples as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- baseline core damage frequency threshold changes for core damage frequency and large early release frequency;
- operability evaluation for the interface between condensate storage and the AFW system;
- steam generator 1B sample valve, declared inoperable and was closed and de-energized to meet TSs;
- auxiliary building fan loading was determined to be non-conservative;
- emergency diesel generator power spiked abnormally during surveillance testing; and
- pressure locking of safety injection valves SI-350A, -350B.

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and USAR to the licensee's evaluations, to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment.

This inspection constitutes six samples as defined in Inspection Procedure 71111.15-05

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the following temporary modification(s):

- Removal of fence and steel from main transformer bay.

The inspectors compared the temporary configuration changes and associated 10 CFR 50.59 screening and evaluation information against the design basis, the USAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system(s). The inspectors also compared the licensee's information to operating experience information to ensure that lessons learned from other utilities had been incorporated into the licensee's decision to implement the temporary modification. The inspectors, as applicable, performed field verifications to ensure that the modifications were installed as directed; the modifications operated as expected; modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. Lastly, the inspectors discussed the temporary modification with operations, engineering, and training personnel to ensure that the individuals were aware of how extended operation with the temporary modification in place could impact overall plant performance.

This inspection constitutes one temporary modification sample as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings of significance were identified.

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

.1 PM Testing

a. Inspection Scope

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

- loss-of-coolant accident valve, LOCA-3A, failed PM test following overhaul;
- post-maintenance test for service water valve SW-301A following replacement of solenoid valve SV-3033;
- post-maintenance test on auxiliary building basement fan coil unit "D" following inspection and back-flush;
- post-maintenance test following replacement of service water pump regulators B1 & B2;
- post-maintenance test following replacement of plant equipment water pump 1B; and

- post-maintenance test on steam generator power-operated relief valve SD-3A following maintenance on the related Foxborough controller.

These activities were selected based upon the SSCs ability to impact risk. The inspectors evaluated these activities for the following (as applicable): 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 (temporary modifications or jumpers required for test performance were properly removed after test completion), and test documentation was properly evaluated. The inspectors evaluated the activities against TSs, the Updated Final Safety Analysis Report (UFSAR), 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 PM tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment.

This inspection constitutes six samples as defined in Inspection Procedure 71111.19.

b. Findings

Failure to Follow the Provisions of Corrective Action Procedure PI-KW-200 Following Surveillance Testing of Containment Isolation Valve LOCA-3A

Introduction: A finding of very low safety significance (Green) and an NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors following surveillance testing of containment isolation valve LOCA-3A in accordance with plant procedure SP-55-167-4B, "Post LOCA Valves Timing Test (IST) from Local Panel-Train B." Specifically, the licensee failed to initiate a condition report in accordance with procedure PI-KW-200, "Corrective Action," following a review of the test results by the inservice testing (IST) program engineer who subsequently identified a potential condition which called into question the operability of LOCA-3A.

Description: On November 27, 2007, Surveillance Procedure SP-55-167-4B, "Post-LOCA Valve is Timing Test (IST) from Local Panel-Train B," was performed on containment isolation valve LOCA-3A. The surveillance procedure identified that the opening time of this valve had degraded but had not exceeded the code allowable action value. Condition Report (CR) 025595 was written to evaluate the valve stroke time and determine if additional actions were required. This condition report concluded that since the opening time had not exceeded the action value, LOCA-3A remained operable, however, a corrective action was generated to evaluate the observed change in stroke times. On November 28, the IST program engineer completed the Corrective Action CA022013, and documented an evaluation of the change in valve stroke times. This conclusion documented in this corrective action stated, "Since the valve is opening slower and closing faster the most probable cause for the change in performance would be a control air leak." A Condition Report describing this potential control air leak was

not written and an operability evaluation for such a leak was not performed. Work order KW100309607 was initiated for inspection of the valve and controller, however, CA022013 required no additional actions. On December 13, 2007, the WO was canceled with no action taken. On January 11, 2008, LOCA-3A was retested to validate stroke times based on the November 27, 2007, results and the valve failed the timing test in both the open and close directions. The licensee entered a 24-hour action statement per plant TSs due to an inoperable containment isolation valve.

The inspectors determined that, on November 28, 2007, CA022013 identified a probable existing condition of a control air leak which called into question the operability of LOCA-3A. Dominion Corrective Action Procedure, PI-KW-200, required that a Condition Report be written upon identification that such a condition may exist on safety-related equipment. Specifically, PI-KW-200, Attachment 1, lists 50 conditions that require a condition report. Among the conditions listed are: number 20) "Degradation, damage, failure, malfunctioned, or loss of plant equipment."; number 26) "And an event, condition, or situation, which on its own, is a condition potentially adverse to quality or meets the criteria for submitting a Condition Report, even if the item will be addressed by a separate process"; and number 31) "structures, systems, or components that enter an alert condition (or based on their performance trend shall enter an alert condition prior to the next schedule surveillance) in accordance with the inservice inspection or Predictive Analysis programs." Therefore, the inspectors concluded that the licensee failed to implement multiple provisions of PI-KW-200 which resulted in a failure to write a condition report and subsequent failure to perform an operability evaluation on a containment isolation valve with what was considered at the time to be a probable control air leak.

Analysis: The inspectors determined that the licensee's failure to implement the provisions of its corrective action procedure was a performance deficiency warranting further review. The inspectors concluded that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated September 20, 2007, because the finding was associated with the SSC and barrier performance attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective to provide reasonable assurance that the physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the licensee failed to implement the provisions of Corrective Action Procedure, PI-KW-200, which resulted in a failure to ensure operability of containment isolation valve LOCA-3A.

The inspectors evaluated the finding using Attachment 0609.04, of IMC 0609, "Significance Determination Process," dated January 10, 2008, and answered "no" to all of the questions for the Containment Barriers Cornerstone; therefore, the finding was determined to be of very low safety significance (Green).

The inspectors also determined that the primary cause for this finding was related to the cross-cutting area of human performance, work practices, because personnel have been trained in need for procedural use and adherence but did not follow applicable procedures. Specifically, procedures which required the initiation of a condition report when a potentially discrepant condition on a containment isolation valve was identified, which called into question valve operability, were not followed (H.4(b)).

Enforcement: Title 10 CFR, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states in part that, activities affecting quality, shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to this, the inspectors identified that the licensee failed to implement the provisions of Procedure PI-KW-200, "Corrective Action," which resulted in a failure to ensure operability of containment isolation valve LOCA-3A. The licensee entered this issue into its corrective action program as condition reports CR025595, CR091329, CR028647, CR028605 and Apparent Cause Evaluations 916, 918, and 919. Corrective actions by the licensee included additional operator crew briefs and procedure reviews and updates as appropriate. Because this violation was of very low safety significance (Green) and was entered into the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy (NCV 5000305/2008002-02).

1R20 Outage Activities (71111.20)

.1 Refueling Outage Activities

a. Inspection Scope

The inspectors reviewed the Outage Safety Plan and contingency plans for the Kewaunee Power Station refueling outage, starting on March 29, 2008, to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the refueling outage, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below. Documents reviewed during the inspection are listed in the Attachment.

- licensee configuration management, including maintenance of defense-in-depth commensurate with the shutdown risk assessment for key safety functions and compliance with the applicable TSs when taking equipment out-of-service;
- implementation of clearance activities and confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing;
- controls over the status and configuration of electrical systems to ensure that TSs and shutdown risk assessments were met, and controls over switchyard activities;
- monitoring of decay heat removal processes, systems, and components;
- controls over activities that could affect reactivity; and
- licensee identification and resolution of problems related to refueling outage activities.

This inspection overlapped the inspection period and was in progress at the end of the period. A partial refueling outage sample as defined in Inspection Procedure 71111.20-05 was documented.

b. Findings

No findings of significance were identified.

## 1R22 Surveillance Testing (71111.22)

### .1 Routine 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:

- emergency diesel generator “A” monthly availability test;
- engineering safeguards train “A” logic test;
- engineering safeguards train “B” logic test;
- emergency diesel generator “B” monthly availability test;
- train “B” component cooling water pump and valve test; and
- auxiliary building special ventilation zone train “B” monthly test.

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; the calibration frequency was in accordance with TS, the USAR, 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, 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 the safety functions; and all problems identified during the testing were appropriately documented and dispositioned in the CAP. Documents reviewed are listed in the Attachment.

This inspection constitutes six routine surveillance testing samples as defined in Inspection Procedure 71111.22.

#### b. Findings

No findings of significance were identified.

## .2 Inservice Testing Surveillance

### 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:

- post loss-of-coolant-accident valves timing test (IST) from local panel – train “B.”

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 USAR, 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 IST activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers Code, and reference values were consistent with the system design basis; where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable; where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure; where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished; prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test; equipment was returned to a position or status required to support the performance of its safety functions; and all problems identified during the testing were appropriately documented and dispositioned in the CAP. Documents reviewed are listed in the Attachment.

This inspection constitutes one inservice inspection sample as defined in Inspection Procedure 71111.22.

### b. Findings

No findings of significance were identified.

## .3 Reactor Coolant System Leak Detection Inspection Surveillance

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:

- radiation instrument R-21 used as backup when reactor coolant system leakage detection radiation instruments R-11 or R-12 are out-of-service.

The inspectors observed in-plant activities and reviewed procedures and associated records to determine whether: preconditioning occurred; effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing; acceptance criteria were clearly stated, demonstrated operational readiness, and were consistent with the system design basis; plant equipment calibration was correct, accurate, and properly documented; as left setpoints were within required ranges; and the calibration frequency were in accordance with TSs, the USAR, 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, 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 CAP. Documents reviewed are listed in the Attachment.

This inspection constitutes one reactor coolant system leak detection inspection sample as defined in Inspection Procedure 71111.22.

b. Findings

No findings of significance were identified.

.4 Containment Isolation Valve Testing

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:

- post loss-of-coolant accident valves – timing test train “A.”

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 USAR, 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, 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 CAP. Documents reviewed are listed in the Attachment.

This inspection constitutes one containment isolation valve inspection sample as defined in Inspection Procedure 71111.22.

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness**

1EP6 Drill Evaluation (71114.06)

.1 Training Observation

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on February 11, 2008, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the CAP. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the Attachment.

This inspection constitutes one sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Occupational Radiation Safety**

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 identified problems had been entered into the CAP for resolution.

This inspection represents one sample as defined in Inspection Procedure 71121.01-5.

b. Findings

No findings of significance were identified.

.2 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

The adequacy of the licensee's internal dose assessment process for internal exposures > 50 millirem committed effective dose equivalent was assessed.

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

The inspectors also reviewed the licensee's physical and programmatic controls for highly activated and/or contaminated materials (non-fuel) stored within spent fuel or other storage pools.

This inspection represents one sample as defined in Inspection Procedure 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 (LERs), and Special Reports related to the access control program to determine if identified problems were entered into the CAP for resolution.

This inspection represents one sample as defined by Inspection Procedure 71121.01-5.

The inspectors reviewed corrective action reports related to access controls and high radiation area (HRA) radiological incidents (non-PIs identified by the licensee in HRAs <1R/hr). Staff members were interviewed and corrective action documents were reviewed to determine whether 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.

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

The inspectors evaluated the licensee's process for problem identification, characterization, prioritization, and assessed whether problems were entered into the CAP and resolved. For repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution, the inspectors verified that the licensee's self-assessment activities were capable of identifying and addressing these deficiencies.

This inspection represents one sample as defined in Inspection Procedure 71121.01-5.

#### b. Findings

No findings of significance were identified.

### .4 High Risk-Significant, High Dose Rate High Radiation Area (HRA) and Very High Radiation Area (VHRA) Controls

#### a. Inspection Scope

The inspectors held discussions with the Radiation Protection (RP) Manager concerning high dose rate/HRA and VHRA controls and procedures, including procedural changes that had occurred since the last inspection, in order to assess whether any procedure modifications did not substantially reduce the effectiveness and level of worker protection.

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

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

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

The inspectors conducted plant walkdowns to assess the posting and locking of entrances to high dose rate HRAs, and VHRAs.

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

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 planned and taken corrective actions were discussed with the RP Manager

This inspection represents one sample as defined in Inspection Procedure 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 RP 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 represents one sample as defined in Inspection Procedure 71121.01-5.

b. Findings

No findings of significance were identified.

#### 4. OTHER ACTIVITIES

##### Cornerstone: Mitigating Systems

#### 4OA2 Identification and Resolution of Problems (71152)

##### .1 Selected Issue Follow-up Inspection: Maintenance of the USAR

###### a. Inspection Scope

The inspectors reviewed a sample of the licensee's actions with respect to updating the USAR in accordance with 10 CFR 50.71(e). The inspectors specifically reviewed the licensee's actions which had been completed at the time of this inspection associated with the following corrective action documents:

- CAP038857; USAR Revision for DCR 3605;
- CAP039449; USAR Noted Updated to Reflect Method of Evaluation in Generic Letter (GL) 96-06 Response; and
- CR015880; USAR May Not Have Been Updated as Required for License Amendment 184.

The above constitutes completion of one in-depth problem identification and resolution sample.

###### b. Findings

Introduction: The inspectors identified one unresolved item (URI) with respect to the licensee's updating of the USAR. Specifically, the inspectors identified that the USAR had not been updated to reflect programmatic controls implemented to maintain the containment sump safety function.

Description: Although specific deficiencies identified in CAP038857 for the planned USAR update for the containment sump modification were addressed in the licensee's April 19, 2007, USAR update, the licensee had not included discussion of the programmatic controls implemented to ensure material inside containment was controlled. Such programmatic controls were implemented as part of the containment sump modification (DCR 3605) and supported the analyses for the modification. The inspectors noted that the containment sump modification was performed in response to NRC GL 2004-02, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized Water Reactors (PWRs)." The GL requested licensees to perform an evaluation of the emergency core cooling system (ECCS) and containment spray system recirculation functions and required licensees to provide a written response. The inspectors noted that the programmatic controls discussed in the licensee responses could be considered part of an analysis of a new safety issue performed at NRC request as discussed in 10 CFR 50.71(e). The programmatic controls implemented included control of coatings, insulation, and other materials inside containment. In addition, the licensee had committed to perform periodic sampling of latent debris within containment to verify that analysis assumptions were being maintained. As these programmatic controls contributed towards maintaining the

containment sump recirculation safety function, the inspectors considered these controls germane to the containment sump analyses. This issue will be tracked as a URI pending additional NRC review of the issue. The licensee entered this issue into their corrective action program as CR093615, "GSI-191 NRC Inspection Potential Concern Re: USAR Update." (URI 05000305/2008002-03)

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

.1 (Closed) LER 05000305/2005-003-00, RHR Pumps Declared Inoperable Due to Flooding Vulnerability

On May 5, 2006 while in intermediate shutdown, the licensee declared both trains of the RHR system inoperable due to an internal flooding vulnerability caused by the possibility of non-seismically qualified pipe breaks during a seismic event. The licensee indicated that the RHR pumps were not protected from non-seismically qualified pipe breaks in the auxiliary building. The specific design criteria in the Kewaunee USAR states that "Class I items are protected against damage from rupture of a pipe or tank resulting in serious flooding or excessive steam release to the extent that the Class I function is impaired." The two RHR trains are not separated in a manner that would prevent simultaneous damage to both trains from a failure of a non-seismically qualified pipe. Since the plant is licensed as a hot shutdown plant, and is therefore not required to achieve cold shutdown (which would require use of the RHR system) immediately following a seismic event, the licensee originally interpreted that the USAR design criteria did not apply to the RHR system.

The inspectors did not agree with this licensee interpretation and as a result Region III submitted Task Interface Agreement (TIA) 2005-10, which requested assistance from the Office of Nuclear Reactor Regulation to resolve this issue. The TIA response concluded that "the design basis of the RHR system must include a provision that the trains be separated in a manner that prevents simultaneous damage to both trains from a failure of a non-seismic pipe." Upon receipt of the results of this TIA by licensee station management, both RHR pumps were declared inoperable. Permanent flood barriers were immediately installed by the licensee to protect both RHR pumps in such a manner as to remove the internal flooding vulnerability.

Based on the complexity of this issue, the inspectors determined that the licensee would not have reasonably identified this deviation from the USAR design criteria earlier. The inspectors also determined that this licensee conduct was not linked to present performance and that upon notification via the response to the TIA that such a deviation existed, licensee corrective action was appropriate and timely. The inspectors therefore concluded that no performance deficiency existed on this issue. This LER is closed.

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

#### 4OA5 Other Activities

##### Pressurized Water Reactor Containment Sump Blockage (Temporary Instruction (TI) 2515/166)

#### .1 Closed NRC TI 2515/166, "Pressurized Water Reactor Containment Sump Blockage"

##### a. Inspection Scope

The inspectors reviewed the licensee's implementation of commitments documented in their September 1, 2005 (ADAMS Accession Number ML052500378) and February 29, 2008, (ADAMS Accession Number ML080650314) responses to Generic Letter (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.
- Commitment: Perform modifications to containment sump.
  - Commitment: Perform walkdowns of containment and evaluate debris source term.
  - Commitment: Perform evaluation of strainer performance.
  - Commitment: Perform evaluation of chemical effects.
  - Commitment: Perform evaluation of downstream effects.
  - Commitment: Determine minimum available net positive suction head margin for the RHR pumps at switchover to sump recirculation.
  - Commitment: Establish programmatic controls to ensure that potential sources of debris introduced into containment are assessed for adverse affects.
  - Commitment: Reduce post-accident debris source term.
- (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).

(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.

- The strainer performance analysis was in the process of being updated to integrate results of the June 2007 flume tests. By letter dated November 15, 2007, (ADAMS Accession Number ML073190553), the licensee had requested an extension for updating this analysis. As discussed in a letter dated February 29, 2008, the licensee had scheduled this analysis to be updated by April 30, 2008.
- The licensee's downstream effects calculations were in the process of being updated to reflect changes to industry evaluation guidance (Westinghouse Pressurized Water Reactors Owner's Group WCAP-16406-P, "Evaluation of Long Term cooling Considering Particulate, Fibrous and Chemical Debris in Recirculation Fluid," Revision 1). By letter dated November 15, 2007, the licensee requested an extension for updating these analyses. As discussed in a letter dated February 29, 2008, the licensee had scheduled these analyses to be updated by May 31, 2008.
- The post-LOCA containment flood level analysis was being updated to reflect the guidance outlined in NRC letters dated August 15, 2007, (ADAMS Accession Number ML071060091) and November 21, 2007, (ADAMS Accession Numbers ML073110269 and ML0730278) to the Nuclear Energy Institute. The licensee had performed a preliminary analysis to support operability. As discussed in a letter dated February 29, 2008, the licensee had scheduled to update the analysis by May 31, 2008. The February 29, letter also provided a discussion of the preliminary analysis used to support operability. The inspectors considered the preliminary analysis sufficient to support operability and no further inspection is required.

## .2 Quarterly Resident Inspector Observations of Security Personnel and Activities

### a. Inspection Scope

During the inspection period, the inspectors conducted the following 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.

- Multiple tours of operations within the Central Security Alarm Stations;
- Tours of selected security officer response posts;
- Direct observation of personnel entry screening operations within the plant's Main Access Facility;
- Barrier/gate control activities; and
- Security force vehicle inspections.



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 April 9, 2008, the inspector presented the inspection results to Mr. S. Scace, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meetings

Interim exits were conducted for:

- Occupational radiation safety program for Access to Radiologically Significant Areas with Mr. Steve Scace on February 15, 2008.
- Identification and Resolution of Problems Selected Issue Follow-Up inspection and Pressurized Water Reactor Containment Sump Blockage (Temporary Instruction 2515/166) inspection with Mr. S. Scace on March 28, 2008.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee:

S. Scace, Site Vice President  
M. Crist, Plant Manager  
R. Adams, Health Physicist  
L. Armstrong, Site Engineering Director  
M. Bernsdorf, Chemistry  
T. Breene, Nuclear Licensing Manager  
W. Henry, Maintenance Manager  
B. Lembeck, Radiation Protection Supervisor  
C. Olsen, Health Physics Supervisor  
J. Ruttar, Operations Manager  
D. Shannon, Health Physics Operations Supervisor  
R. Steinhardt, Site Maintenance Rule Coordinator  
C. Tiernan, Corporate Maintenance Rule Coordinator  
S. Wood, Emergency Preparedness Manager

#### Nuclear Regulatory Commission

M. Kunowski, Chief, Division of Reactor Projects, Branch 5

### **LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

#### Opened

05000305/2008002-01	NCV	Scaffolding in Close Proximity to Multiple Safety-Related Systems Affects Operability (Section 1R04)
05000305/2008002-02	NCV	Failure to Follow the Provisions of Corrective Action Procedure PI-KW-200 Following Surveillance Testing of containment Isolation Valve LOCA-31 (Section 1R19)
05000305/2008002-03	URI	Containment Sump Programmatic Controls Not In USAR (Section 4OA2)

#### Closed

05000305/2005003-00	LER	Residual Heat Removal Pumps Declared Inoperable Due to Flooding Vulnerability (Section 4OA3)
05000305/2008002-01	NCV	Scaffolding in Close Proximity to Multiple Safety-Related Systems Affects Operability (Section 1R04)
05000305/2008002-02	NCV	Failure to Follow the Provisions of Corrective Action Procedure PI-KW-200 Following Surveillance Testing of containment Isolation Valve LOCA-31 (Section 1R19)

## 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 inspector 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

#### Issued Reports:

- Kewaunee USAR; Section 2.6; Hydrology; Drawing E-350; Plan – Plant Site Underground Conduit and Cable Routes; Revision AS
- Kewaunee USAR; Section 2.6; Hydrology; Drawing E-351; Underground Conduit – Trans. Area; Revision H
- Kewaunee USAR; Section 2.6; Hydrology; Drawing E-352; Sections and Details Underground Conduit – Trans. Area; Revision F
- Kewaunee USAR; Section 2.6; Hydrology; Drawing 237127A-E3137; Plan and Sections - Underground Conduit Run from Screenhouse to Diesel Room; Revision D

#### Procedures:

- GNP-12.06.01; Hot and Cold Weather Operations; Revision 6
- OP-KW-AOP-GEN-004; Response to Natural Events; Revision 0
- 50.59 Applicability Review of OP-KW-AOP-GEN-004; Response to Natural Events; Revision 0
- PMP-08-19; FP - Inspection of Plant and Fire Doors; Revision 17

#### Work Orders:

- CR 091233; While Performing PMP-08-19 on Door 75 Inspection Revealed Torn and Ragged Rubber Weather Stripping on North Side Near Bottom Half of Door Frame
- CR 091234; While Performing PMP-08-19 on Door 76 Inspection Revealed Torn and Ragged Rubber Weather Stripping on Top Frame of Door
- CR 091235; While Performing PMP-08-19 on Door 437 Inspection Revealed Weather Stripping Between the Double Doors Coming Loose – Metal Strip that Holds Weather Stripping On is Missing Screws and is Loose

### 1R04 Equipment Alignment

#### Issue Reports:

- Current Service Water WO Tracking Search
- Drawing M-202-1; Flow Diagram Service Water System; Revision CL
- Drawing M-202-2; Flow Diagram Service Water system; Revision CS
- Drawing M-205; Flow Diagram Feedwater System; Revision BA
- Drawing XK-100-28; Flow Diagram Safety Injection System; Revision AM
- Drawing XK-100-29; Flow Diagram Safety Injection System; Revision AB
- Service Water System Health Rating Sheet
- Service Water System Health Report from 4<sup>th</sup> Quarter 2007

#### Procedures:

- GMP-127; Requirements and Guidelines for Scaffold Construction and Inspection; Revisions 17 and 18

- N-EHV-39; 4160V AC Supply and Distribution System Operation; Revision 24
- N-FW-05B-CL; Auxiliary Feedwater System Prestartup Checklist; Revision 40
- N-SI-33-CL; Safety Injection System Prestartup Checklist; Revision AK
- N-SW-02-CL; Service Water System Prestartup Checklist; Revision 52
- SP-42-322B; BUS 1-6 Auto Inhibit Relay Test Electrical Maintenance; Revision 10

#### Work Orders:

- CR 018036; Inadvertently Lifted Relief Valve SA 2050 A-1-R
- CR 027377; NRC Question Related to Turbine-Driven Auxiliary Feedwater Steam Lines in Turbine Building
- CR 038722; Safety-Related Area Scaffold not Conforming to GNP-127 for Hot Shutdown Mode
- CR 092303; Scaffolds Erected within 2 Inches of Safety-Related Equipment without Engineering Evaluation/Approval
- CR 092776; Scaffolding Built within 2 Inches of Auxiliary Feedwater Trains A and B Local Flow Indicating Piping
- CR 092791; Scaffolding Built in Contact with Air Lines to Actuators for RC-413 and RC-423
- CR 092794; Scaffolding Built Near Turbine-Driven Auxiliary Feedwater Steam Supply Piping in Turbine Basement not Seismic
- CR 092809; Scaffolding in Auxiliary Feedwater Pump B Area Needs Further Evaluation
- CR 092901; Scaffolds Erected within 2 Inches of Safety-Related Equipment Without Engineering Evaluation/Approval
- CR 092977; Scaffold MO1-08-095 not Constructed in Accordance with GMP-127

#### 1R05 Fire Protection

#### Issued Reports:

- Active Fire Protection System Impairment Form 08-014; RTB-14 is Operable However the Light is Obstructed Due to Scaffolding to Support DCR 3663
- Active Fire Protection System Impairment Form 08-012; The Fire Sprinkler System on the 586' Elevation of the TSC has Partial Blockage of Sprinkler Heads due to the Installation of Scaffolding
- Active Fire Protection System Impairment Form 08-008; Fire Suppression Sprinkler System (heads) on the 586' Elevation of the Turbine Building West of the 1A and 1B Condensers are being Blocked by Scaffold Decking and Asbestos Removal Tenting
- Active Fire Protection System Impairment Form 08-006; Appendix R Emergency Light RTB-11 Located Above Door #5 on the North Wall of the Cardox Tank Room is being Partially Obstructed by Scaffolding
- Active Fire Protection System Impairment Form 08-007; Fire Suppression Sprinkler System (heads) on the 606' Elevation of the Turbine building Near Column Lines E and Feedwater Heaters 14A and 14B are being Blocked by Scaffold Decking and Asbestos Removal Tenting
- Active Fire Protection System Impairment Form; 08-003; Fire Suppression Sprinkler Heads System in the 1B Auxiliary Feedwater Pump Room are Partially (minimally) Blocked by Scaffold Decking
- Active Fire Protection System Impairment Form 07-081; Appendix R Lighting is Non-Functional in Zones AX-23A, AX-24, TU-92 and TU-95C
- Active Fire Protection System Impairment Form 07-091; Smoke Detector 1101-1, Located in the Screen House Tunnel, is in Trouble Alarm
- Active Fire Protection System Impairment Form 07-095; Appendix R Light RAO2 Determined to be Out-of-Service Due to Low Water Level and "Fast Charge" Indication

- Active Fire Protection System Impairment Form 07-096; Non-Appendix R Light NRAMF1 Found to be Out-of-Service During Performance of PMP-41-06B
- Active Fire Protection System Impairment Form 07-100; Scaffold is Blocking Appendix R Light EC-RAM-24
- Active Fire Protection System Impairment Form 07-104; Appendix R Emergency Light RTB-11 Found to be Performing Incorrectly During PMP-41-06B
- Active Fire Protection System Impairment Form 07-118; Appendix R Emergency Light RAM-10 Located Above Door #77 Near the Steam Generator Blow Down Tank is Being Obstructed by Scaffolding and Asbestos Removal Tenting
- Active Fire Protection System Impairment Form 07-119; Appendix R Emergency Light RAM-7, Located on the North Wall of the CST-RMST Room, is Non-functional
- Active Fire Protection System Impairment Form 06-141; Cable Spreading Room Sprinkler System - Lack of Suppression Coverage on Certain Appendix R Cable Trays

Work Orders:

- CA 018152; 50.59 May Be Needed for Scaffold Construction in North Penetration Room
- CR 020848; 50.59 May Be Needed for Scaffold Construction in North Penetration Room
- 50.59 Applicability Review for CR 020848; 50.59 May Be Needed for Scaffold Construction in North Penetration Room

1R11 Licensed Operator Regualification Program

Issued Reports:

- LRC-08-DY101; Cycle 08-01 Dynamic Evaluation; Revision B

1R12 Maintenance Effectiveness

Issued Reports:

- Kewaunee Power Station NRC CAP Request Data; February 11, 2008
- Kewaunee Power Station NRC CR Request Data; February 11, 2008
- Kewaunee Power Station USAR; Table 5.2-3; Reactor Containment Vessel Penetrations; Revision 20
- Kewaunee Power Station WO Overview Report; March 12, 2008
- Kewaunee Power Station WO Overview Report – System 21; February 11, 2008
- Maintenance Rule Scoping Questions; System 21 Spent Fuel Pool Cooling System; February 11, 2008
- Maintenance Rule System Basis; Spent Fuel Pool Cooling System; Revision 2
- Maintenance Rule System Basis; Containment Isolation; Revision 4
- Containment Isolation Report Data – September, 2006 through February, 2008
- Spent Fuel Pool Cooling Report Data – July, 2006 through December, 2007

Work Orders:

- CA 068798; Document the Spent Fuel Pool Heatup Rate
- CR 091596; NRC Resident Questions with Respect to Spent Fuel Pump Pool Maintenance Plan
- MRE 001065; Spent Fuel Pump A Tripped Off
- MRE 001127; LOCA-3A Failed the SP-55-167-4B Post LOCA Valves Timing Test and Needs to be Repaired
- MRE 002949; Perform a Maintenance Rule Evaluation on WR 06-3684; PEN 15 HLS RC-422 Failed LLRT

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

#### Issued Reports:

- Emergent Work Risk Evaluation Data; January 15, 2008
- Emergent Work Risk Evaluation Data; January 16, 2008
- Emergent Work Risk Evaluation Data; January 20, 2008
- Emergent Work Risk Evaluation Data; January 21, 2008
- Emergent Work Risk Evaluation Data; January 22, 2008
- Emergent Work Risk Evaluation Data; February 25, 2008
- Emergent Work Risk Evaluation Data; February 26, 2008
- Kewaunee Power Station Maintenance Rule 10 CFR 50.65(a)(4) Risk Projection for Week Starting January 14, 2008
- Kewaunee Power Station Maintenance Rule 10 CFR 50.65(a)(4) Risk Projection for Week Starting February 25, 2008

#### Work Orders:

- CA069790; Operations to Generate and perform an Operability Stand Down
- CR 090753; NRC Residents have Concerns with Assessing Risk of Scaffolding and Heavy Loads
- CR 091924; Diesel Generator A Load Spiked above Limit During Loading per OP-KW-OSPDGE-003A
- CR 092231; NRC Raises Concerns about Operability Basis of CR 091924

### 1R15 Operability Evaluations

#### Issued Reports:

- Calculation/Evaluation C11157; Auxiliary Building Basement Post Accident Area Heat Gain; Revision Original
- Kewaunee Nuclear Power Plant Auxiliary Building Fan Level Floor EQ Equipment Data; Revision 0
- Kewaunee Nuclear Power Plant CAP List Data; CAPs Generated on Zone SV Boundary Issues Since March 1, 2007
- Kewaunee Nuclear Power Plant Emergency Diesel Generator 1B Largest Excursion Data; February 8, 2007
- Kewaunee Nuclear Power Plant Emergency Diesel Generator 1B Largest Excursion Data; February 10, 2007
- Kewaunee Nuclear Power Plant Emergency Diesel Generator 1B Largest Excursion Data; March 6, 2008
- Kewaunee Nuclear Power Plant Engineering Log; Thursday, September 13, 2007
- Kewaunee Nuclear Power Plant Diesel Generator 1A KW Single Point Trend Analog Data; February 28, 2008
- Kewaunee Nuclear Power Plant Design Change Request 3260; Remove Auxiliary Feedwater Pump Suction Strainers; November 28, 2001
- Kewaunee Nuclear Power Plant Licensee Event Report AO 75-20; During Unit Startup Operations Reduced Auxiliary Feedwater Flow was Noted with Pumps 1A and 1B in Operation; November 15, 1975
- Kewaunee Nuclear Power Plant; Major Changes with Revision 14 of GNP-08.21.01 Data
- Kewaunee Nuclear Power Plant Root Cause Evaluation RCE 01-003; Auxiliary Feedwater Pump Suction Strainer Configuration Not as Expected; January 23, 2001
- Kewaunee Nuclear Power Plant Safety Evaluation; Original Plant Licensing Documentation; AFW-CST Interface; July 24, 1972

- Kewaunee Nuclear Power Plant Standing Order 07-24; Requirement to Maintain Three Auxiliary Building Basement Fan Coil Units Functional; Revision 1
- Wisconsin Public Service Corporation Correspondence; Abnormal Occurrence Report AO 75-20; November 14, 1975
- Drawing M-704; Zone SV Exhaust System;

#### Procedures:

- E-0; Reactor Trip or Safety Injection; Revision 34
- 50.59 Applicability Review of E-0; Reactor Trip or Safety Injection; Revision 34
- FPP-08-09; Barrier Control; Revision 12
- GMP-208; The Opening and Sealing of Penetration Seals; Revision K
- GMP-243; Inspection and Testing of Overload Relay Heaters Electrical Maintenance
- OP-KW-ORT-DGM-001A; Emergency Diesel Generator 1A Operation Log; Revision 2
- OP-KW-OSP-DGE-003A; Operations Surveillance Procedure; Revision 1
- PMP-08-19; FP-Inspection of Fire Doors; Revision 14
- PMP-08-33; FP-Penetration Fire Barrier Inspection; Revision L
- PMP-14-02; ASV-Damper Maintenance; Revision 14
- PMP-17-02; ACA-QA-1 and QA-2 Fan Coil Units, Inspection and Cleaning; Revision 25
- SP-14-026A; Auxiliary Building Special Ventilation Train "A" Operability Test; Revision I
- SP-14-026B; Auxiliary Building Special Ventilation Train "B" Operability Test; Revision I
- SP-14-026C; Auxiliary Building Special Ventilation Train "A" (ASV) Monthly Test; Revision C
- SP-14-026D; Auxiliary Building Special Ventilation Train "B" (ASV) Monthly Test; Revision B
- SP-14-117A; Auxiliary Building Special Vent System Test Train A; Revision A
- SP-14-117B; Auxiliary Building Special Vent System Test Train B; Revision A
- SP-14-156; SV Access Door Interlock Operability Test; Revision J
- SP-24-107B; SBV Train B Operability Test; Revision M
- SP-24-107D; SBV Train B Monthly Test; Revision A

#### Work Orders:

- ACE 003431; SBV Train B Inoperable
- CA 010838; Licensing to Validate/Document the Licensing Basis for the Condensate Supply
- CA 015942; Auxiliary Building Basement Fan Coil Unit Operating Procedures are Non-Conservative
- CA 016849; Auxiliary Building Basement Heat Load Calculations are Non-Conservative
- CA 029686; Diesel Generator B Exceeds 2800KW During SP-42-312B
- CA 029687; Diesel Generator B Exceeds 2800KW During SP-42-312B
- CA 031186; Diesel Generator B Exceeds 2800KW During SP-42-312B
- CA 031240; Zone SV USAR Allowed Leakage Area May Be Non-Conservative
- CA 031241; Zone SV USAR Allowed Leakage Area May Be Non-Conservative
- CA 031969; Zone SV USAR Allowed Leakage Area May Be Non-Conservative
- CA 032005; Material Stored Leaning on and next to Ductwork that is Part of Zone SV and SE
- CA 032196; Vendor Inspection of Injector Control Shaft Bearings from Emergency Diesel Generator 1B
- CA 032197; Diesel Generator B Exceeds 2800KW During SP-42-312B
- CA 032237; Evaluate Methods to Control Elevator Doors as Open Barriers
- CA 032238; Revise USAR Regarding Elevator Doors
- CA 032242; SBV Train B Inoperable
- CA 032372; Disposition of Calculations C100235 and C11688
- CA 068628; Benchmark Other Sites Related to Heat Exchange Inspection and Cleaning in Lieu of Inspection

- CA 068629; Engineering Program – Inspection and Material to Capture Documentation within a Procedure
- CA 069790; NRC Raises Concerns About Operability Basis of CR 091924
- CE 020244; NRC Resident Inspector Questioned if Elevator Doors are Zone SV Boundaries
- CAP 041567; Diesel Generator B Exceeds 2800KW During SP-42-312B
- Apparent Cause Evaluation 3374 for CAP 041567; Diesel Generator B Exceeds 2800KW During SP-42-312B
- CAP 043792; NRC Resident Inspector Questioned if Elevator Doors are Zone SV Boundaries
- CAP 043818; Zone SV USAR Allowed Leakage Area May Be Non-Conservative
- CAP 044013; BAST Room Floor Drain Open to Non-SV/Non-Steam Exclusion Area
- CAP 044432; SBV Train B Inoperable
- Apparent Cause Evaluation of CAP 044432; SBV Train B Inoperable
- CAP 044796; Material Stored Leaning on and next to Ductwork that is Part of Zone SV and SE
- CE 020246; Zone SV USAR Allowed Leakage Area May Be Non-Conservative
- CR 012915; Auxiliary Building Mezzanine Fan Coil Unit B Air Flow is Lower than Expected
- CR 013788; NRC Resident Concern on Non-Safety to Safety Interface condensate to Auxiliary Feedwater System
- CR 090907; Documentation of Kewaunee Power Station Justification for Heat Exchange Inspection/Cleaning in Lieu of Testing
- CR 019147; Auxiliary Building Basement Heat Load Calculations are Non-Conservative
- CR 019674; C11147 Auxiliary Building Fan Floor Heat Gain Calculation is Non-Conservative
- CR 019676; Auxiliary building Fan Floor Heat Gain Calculation has Inadequate Technical Basis
- RAS 39, Revision 1 of CR 019676; Auxiliary Building Fan Floor Heat Gain Calculation has Inadequate Technical Basis
- CR 020597; Incorrect Assumption Made in Fan Floor Heat Up Evaluation
- CR 029317; BT-32B Exceeded the Action Limits for Closing and Opening During Retest
- CR 029326; Problems Discovered with Replacement Asco Solenoid Valve
- CR 091907; Emergency Diesel Generator Governor Oil Level Information Transmittal
- CR 091924; Diesel Generator “A” Load Spiked Above Limit During Loading Per OP-KW-OSP-DGE-003A
- CR 092231; NRC Raises Concerns About Operability Basis of CR 091924
- KW 07-001462; Diesel Generator “B” Load Swings During Run on 07
- KW 100307473; Open, Inspect Available Tubes with Boroscope and Backflush 1D Auxiliary Building Basement Fan coil Unit
- MRE003047; Diesel Generator “B” Exceeds 2800KW During SP-42-312B
- MRE 003088; SBV Train B Inoperable
- WO 07-006318-000; SBV Train B Failed to Start During SP-24-107D

## 1R18 Plant Modifications

### Issued Reports:

- Edward Alsteen/NonGasLDC/VANCP OWER Correspondence; Transformer B Bay Deluge Piping Support Removal; October 6, 2007

### Procedures:

- FP-E-MOD-03; Temporary Modifications; Revision 0
- MA-AA-101; Rigging Lift Plan; Revision 1
- VPAP-1403; Temporary Modifications; Revision 11



- Modification 3631-1; Generator Step-Up Transformer Replacement; Revision 0

Work Orders:

- DCR 3631-1; Generator Step-Up (GSU) Transformer Replacement
- 50.59 Applicability Review of DCR 3631-1; Generator Step-Up (GSU) Transformer Replacement
- 07-001436-000; Remove the Pre-cast Concrete Half-Walls in Front of the Main Transformer Bays and the Main Transformer Spare Bay

1R19 Post-Maintenance Testing

Issued Reports:

- Machine 1B Water Pump; Last Measurement Report Data; February 8, 2008
- Nuclear Management Company Correspondence to Nuclear Regulatory Commission; Application for Technical Specification Improvement to Eliminate Requirements for Hydrogen Recombiners and Hydrogen/Oxygen Monitors; January 30, 2004
- Nuclear Regulatory Commission Correspondence to Nuclear Management Company; May 13, 2004; Issuance of Amendment Regarding Relocation of Requirements for Hydrogen Monitor
- Nuclear Regulatory Commission Federal Register, Volume 67, No. 149; RIN 3150-AG76; Combustible Gas Control in Containment; August 2, 2002
- Nuclear Regulatory Commission Federal Register, Volume 68, No. 186; 67 FR 50374; Relax the Hydrogen and Oxygen Monitor Requirements; September 25, 2003

Procedures:

- GMP-131; Operational Use for SKF Microlog Analyzers; Revision G
- GNP-01.09.01; Service Water and Fire Protection System Inspection program and Coordination; Revision C
- GNP-03.30.06; Plant Status and Configuration Control; Revision 8
- GNP-04.04.01; 50.59 Applicability Review and Pre-Screening; Revision K
- MA-KW-ICP-MS-001A; Steam Generator A Power Operated Relief Valve and Control Loop Calibration and SD-3A Trip Valve Rebuild; Revision 1
- MA KW-ICP-SW-071B2; Service Water Pump 1B2 Lube Water Pressure Regulator Maintenance; Revision 0
- 59.59 Applicability Review for MA KW-ICP-SW-071B2; Service Water Pump 1B2 Lube Water Pressure Regulator Maintenance; Revision 0
- 59.59 Applicability Review for MA KW-ICP-SW-071B2; Service Water Pump 1B2 Lube Water Pressure Regulator Maintenance; Revision 1
- OP-AA-102; Operability Determination; Revision 0
- OP-AA-102-1001; Development of Technical Basis to Support Operability; Revision 0
- OP-KW-ORT-SW-002B; Service Water Pump Train B Backup Bearing Lube Water Supply Check; Revision 0
- OP-KW-OSP-DGE-002A; Diesel Generator A Quarterly Availability Test; Revision 1
- PI-AA-300; Cause Evaluation; Revision 1
- PI-KW-200; Corrective Action; Revision 3
- PMP-17-02; ACA-QA-1 & QA-2 Fan Coil Units – Inspection and Cleaning; Revision 25
- SP-55-167-4B; Post LOCA Valves Timing Test (IST) from Local Panel – Train B; Revision B

Work Orders:

- ACE 000768; SD-3A Opened Fully when MS-1A was Closed
- Apparent Cause Evaluation for ACE 000768; SD-3A Opened Fully when MS-1A was Closed

- ACE 013652; Timing Test for LOCA-3A Exceeded Action Values
- CA 022013; LOCA-3A Opening Time Near Action Value
- CA 068628; Documentation of Kewaunee Power Station Justification for Heat Exchange Inspection/Cleaning in Lieu of testing
- CA 068629; Documentation of Kewaunee Power Station Justification for Heat Exchange Inspection/Cleaning in Lieu of testing
- CR 019147; RAS 37 Auxiliary Basement Heat Load Evaluation
- CR 025595; LOCA-3A Opening Time Near Action Value
- CR 028605; LOCA-3A Failed the SP-55-167-4B Post LOCA Valves Timing Test (IST) and Needs to be Repaired
- Apparent Cause Evaluation 918 of CR 028605
- Apparent Cause Evaluation 919 of CR 028605
- CR 028647; Containment Hydrogen Monitor "A" Nonfunctional
- Apparent Cause Evaluation ACE00916 of CR 028647
- CR 090000; LOCA-3A Closed Limit Switch Unable to be Adjusted to GIP-020A Specs
- CR 090002; LOCA-3A Closed Limit Switch Unable to be Adjusted to GIP-020A Specs
- CR 090006; LOCA-3A Remains Inoperable Following Actuator Overhaul - Failed Timing Test
- CR 090616; Out of Specification as Found Reading while Performing MA-KW-ICP-SW-071A2
- CR 090907; Documentation of Kewaunee Power Station Justification for Heat Exchange Inspection/Cleaning in Lieu of Testing
- CR 093059; Conn Code on Spare Foxboro Box Incorrect for Internal Wiring
- CR 093066; Power Cord to PC-468A Making Poor Connection to the Controller
- KW 07-011591; Rebuild or Replace Service Water 1B2 Regulator
- KW-100307473; Open, Inspect Available Tubes with Boroscope and Backflush 1D Auxiliary Building Basement Fan Coil Unit
- KW-100309607; LOCA-3A Opening Time Near Action Value
- KW 100341690; SD-3A Controller Output
- WO 06-11479-000; Plant Equipment Water Pump B Motor is Chirping

#### 1R20 Outage Activities

##### Procedures:

- N-CRD-49 R-27; Control Rod Drive
- N-HB-11 R-25; Heater and Moisture Separator-Drain Bleed Steam System
- N-TB-54 R-80; Turbine and Generator Operation
- OP-KW-GOP-206 R-1; Shutdown from Full Power to 35% Power

#### 1R22 Surveillance Testing

##### Issued Reports:

- Calculation/Evaluation C11157; Auxiliary Building Basement Post Accident Area Heat Gain; Revision Original
- Diesel Generator B Performance Indicator Data; January 10, 2008
- Emergency Diesel Generator 1B Operation Log; January 10, 2008
- Foreign Material Exclusion Evaluation of SP-55-155A
- Kewaunee Nuclear Power Plant Auxiliary Building Fan Level Floor EQ Equipment Data; Revision 0
- Kewaunee Nuclear Power Plant CAP List Data; CAPs Generated on Zone SV Boundary Issues Since March 1, 2007

- Kewaunee Nuclear Power Plant Engineering Log; Thursday, September 13, 2007
- Train B Automatic Load Sequencer Test; January 10, 2008
- Kewaunee Nuclear Power Plant Standing Order 07-24; Requirement to Maintain Three Auxiliary Building Basement Fan Coil Units Functional; Revision 1
- Drawing M-704; Zone SV Exhaust System;

#### Procedures:

- E-0; Reactor Trip or Safety Injection; Revision 34
- 50.59 Applicability Review of E-0; Reactor Trip or Safety Injection; Revision 34
- FPP-08-09; Barrier Control; Revision 12
- GMP-208; The Opening and Sealing of Penetration Seals; Revision K
- GMP-243; Inspection and Testing of Overload Relay Heaters Electrical Maintenance
- OP-KW-OSP-DGE-001A; Diesel Generator A Monthly Availability Test; Revision 2
- OP-KW-OSP-DGE-001B; Diesel Generator B Monthly Availability Test; Revision 2
- PMP-08-19; FP-Inspection of Fire Doors; Revision 14
- PMP-08-33; FP-Penetration Fire Barrier Inspection; Revision L
- PMP-14-02; ASV-Damper Maintenance; Revision 14
- PMP-17-02; ACA-QA-1 and QA-2 Fan Coil Units, Inspection and Cleaning; Revision 25
- SP-14-026A; Auxiliary Building Special Ventilation Train A Operability Test; Revision I
- SP-14-026B; Auxiliary Building Special Ventilation Train B Operability Test; Revision I
- SP-14-026C; Auxiliary Building Special Ventilation Train A (ASV) Monthly Test; Revision C
- SP-14-026D; Auxiliary Building Special Ventilation Train B (ASV) Monthly Test; Revision B
- SP-14-117A; Auxiliary Building Special Vent System Test Train A; Revision A
- SP-14-117B; Auxiliary Building Special Vent System Test Train B; Revision A
- SP-14-156; SV Access Door Interlock Operability Test; Revision J
- SP-24-107B; SBV Train B Operability Test; Revision M
- SP-24-107D; SBV Train B Monthly Test; Revision A
- SP-31-168B; Train B Component Cooling Pump and Valve Test - IST; Revision 15
- SP-45-049.21; RMS Channel R-21 Containment Stack Radiation Monitor Quarterly Functional Test; Revision U
- SP-55-155A; Engineered Safeguards Train A Logic Channel Test; Revision 25
- SP-55-167-4A; Post LOCA Valves Timing Test (IST) from Local Panel – Train A; Revision B
- SP-55-167-4B; Post LOCA Valves Timing Test (IST) from Local Panel – Train B; Revision B

#### Work Orders:

- ACE 003431; SBV Train B Inoperable
- CR 012915; Auxiliary Building Mezzanine Fan Coil Unit B Air Flow is Lower than Expected
- CA 015942; Auxiliary Building Basement Fan Coil Unit Operating Procedures are Non-Conservative
- CA 016849; Auxiliary Building Basement Heat Load Calculations are Non-Conservative
- CA 016879; Auxiliary Building Basement Heat Load Calculations are Non-Conservative
- CA 032005; Material Stored Leaning on and next to Ductwork that is Part of Zone SV and SE
- CA 031240; Zone SV USAR Allowed Leakage Area May Be Non-Conservative
- CA 031241; Zone SV USAR Allowed Leakage Area May Be Non-Conservative
- CA 031969; Zone SV USAR Allowed Leakage Area May Be Non-Conservative
- CA 032237; Evaluate Methods to Control Elevator Doors as Open Barriers
- CA 032238; Revise USAR Regarding Elevator Doors
- CA 032242; SBV Train B Inoperable
- CA 032372; Disposition of Calculations C100235 and C11688

- CA 068628; Benchmark Other Sites Related to Heat Exchange Inspection and Cleaning in Lieu of Inspection
- CA 068629; Engineering Program – Inspection and Material to Capture Documentation within a Procedure
- CE 020244; NRC Resident Inspector Questioned if Elevator Doors are Zone SV Boundaries
- CE 020246; Zone SV USAR Allowed Leakage Area May Be Non-Conservative
- CAP 043792; NRC Resident Inspector Questioned if Elevator Doors are Zone SV Boundaries
- CAP 043818; Zone SV USAR Allowed Leakage Area May Be Non-Conservative
- CAP 044013; BAST Room Floor Drain Open to Non-SV/Non-Steam Exclusion Area
- CAP 044432; SBV Train B Inoperable
- Apparent Cause Evaluation of CAP 044432; SBV Train B Inoperable
- CAP 044796; Material Stored Leaning on and next to Ductwork that is Part of Zone SV and SE
- CR 090907; Documentation of Kewaunee Power Station Justification for Heat Exchange Inspection/Cleaning in Lieu of Testing
- CR 019147; Auxiliary Building Basement Heat Load Calculations are Non-Conservative
- CR 019674; C11147 Auxiliary Building Fan Floor Heat Gain Calculation is Non-Conservative
- CR 019676; Auxiliary Building Fan Floor Heat Gain Calculation has Inadequate Technical Basis
- RAS 39, Revision 1 of CR 019676; Auxiliary Building Fan Floor Heat Gain Calculation has Inadequate Technical Basis
- CR 020597; Incorrect Assumption Made in Fan Floor Heat Up Evaluation
- KW 07-011268; PM55-001 Monthly Test
- KW 100307473; Open, Inspect Available Tubes with Boroscope and Backflush 1D Auxiliary Building Basement Fan Coil Unit
- MRE 003088; SBV Train B Inoperable
- WO 07-006318-000; SBV Train B Failed to Start During SP-24-107D

#### 1EP6 Drill Evaluation

##### Issued Reports:

- LRC-08-DY101; Cycle 08-01 Dynamic Evaluation; Revision B

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

##### Issued Reports:

- Audit 07-06; Radiological Protection, Process Control Program, and Chemistry Programs; July 26, 2007

##### Procedures:

- RE-24; Special Nuclear Materials Control; Revision P
- HP-01.021; Issuance and Control of Locked High Radiation Keys; Revision F
- HP-03.006; In-Vitro Bioassay Measurement; Revision F
- HP-05.022; Controls for Transfer of Radioactive Material; Revision 4
- RP-AA-202; Radiological Posting; Revision 0
- RP-KW-03-008; Evaluation of Inhalation or Ingestions; Revision 0
- RP-KW-03-009; Calculating Internal Dose from Whole Body Counter Results; Revision 0
- RP-KW-001-024; Posting and Shielding Guidance for Fuel Movement at KPS; Revision 0
- RP-KW-005-005; Radiation and Contamination Survey and Airborne Radioactivity Sampling Schedules; Revision 0

Work Orders:

- CAP 042477; Security Force Member Entered RCA with Lunch Box
- CR 016137; Higher than Expected Dose Rate not Reported to On Shift RP Technician
- CR 0196766; Procedure not Followed for Issuance of Respirator
- CR 023925; Security Force member Received Dose of 14 Mrem in Auxiliary Building
- CR 025085; Performing a Source Check on R-23 Disables Alarms
- CR 025939; Document the Dose Delta for the Change Out of the Letdown Bag Filter
- CR 025101; Missed Shielding Walkdown
- CR 091008; Procedure HP-01.021 and RP-KW-001-004 Wording Differed from the Technical Specification 6.13
- CR 091086; Inventory of Locked High Radiation Area Keys not Completed for the Emergency Annulus Keys
- CR 091010; Locked High Radiation Area Key Inventory Enhancements

4OA1 Performance Indicator Verification

Issued Reports:

- Performance Indicator Data Sets, Service Water; January, 2007 – December, 2007
- Performance Indicator Data Sets, Diesel Generators; January, 2007 – December, 2007
- Performance Indicator Data Sets, Component Cooling; January, 2007 – December, 2007
- Performance Indicator Data Sets, Safety Injection; January, 2007 – December, 2007
- Performance Indicator Data Sets, Residual Heat Removal; January, 2007 – December, 2007

4OA2 Problem Identification and Resolution

Procedures:

- NEP-05.02; Revision and Control of the Updated Safety Analysis Report; Revision 7,

Work Orders:

- CAP038857; USAR Revision for DCR 3605; dated October 27, 2006
- CAP039449; USAR Not Updated to Reflect Method of Evaluation in GL 96-06 Response; dated November 16, 2006
- CR015880; USAR May Not Have Been Updated as Required for License Amendment 184; dated July 13, 2007
- CR093615; GSI-191 NRC Inspection Potential Concern Re: USAR Update; dated March 24, 2008 [NRC Identified]

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

Issued Reports:

- Event Notification 44027; Planned maintenance on Mishicot Substation by Wisconsin Public Service Results in Greater than 50% siren Coverage Loss; March 4, 2008
- Control Room Shift turnover Checklist of February 19, 2008

Procedures:

- OP-KW-ARP-47065-0; Condenser Hotwell Level High/Low; Revision 0

Work Orders:

- CA 069037; Operations for CR 091246 to Track Completion of the MU-3B Alternate Plant Configuration

- CR 091245; Documenting Alternate Plant configuration that was Created Due to an Issue with Main Condenser Hotwell Level Indicator L24011
- CR 091246; Alternate Plant Configuration for MU-3B Line Due to Level Instrument Issue

#### 4OA5 Other Activities

##### Calculations:

- 51-9017897; Kewaunee RHR, SI and ICS Pump Evaluation for GSI-191 Downstream Effects [Proprietary]; Revision 1
- 51-9014070; Kewaunee Strainer Performance Test Report; Revision 1
- 51-9020502; Chemical Precipitation Analysis for Kewaunee Power Station Using WCAP-16530-NP; Revision 3
- 51-9054883; Kewaunee Containment Debris Trap Efficiency Test Report; Revision 1
- 2004-08820; GSI-191 Debris Generation; Revision 3
- 2004-08820; GSI-191 Debris Generation Calculation, Debris Inventory; Revision 3 Addendum A
- 2005-1400; GSI-191 Downstream Effects – Flow Clearances; Revision 0
- 2005-13160; Phase II Downstream Evaluation for Resolution of GSI-191; Revision 1
- 2006-01660; Post LOCA Containment Flood Level (DCR 3605); Revision 0
- ALION-REP-DOM-4458-02; Kewaunee High Density Fiberglass Debris Erosion Testing Report [Proprietary]; Revision 0
- FP-E-MOD-04; Design Input Checklist (Part B – Design Considerations, Requirements, and Standards); Revision 2
- OP-KW-GCL-102B; Plant Requirements for Exceeding 200°F; Revision 0
- OP-KW-GOP-102; Startup From Cold Shutdown to RHR; Revision 2
- PCI-5407-S01; Structural Evaluation of Containment Sump Strainers; Revision 2
- PCI-5407-S02; Evaluation of Sump Cover and Piping for the Containment Sump Strainers; Revision 3
- TDI-6008-06; Total Head Loss (ECCS Recirculation Strainer) – Kewaunee Power Station; Revision 7
- TDI-6008-07; Vortex, Air Ingestion & Void Fraction (ECCS Recirculation Strainer) -- Kewaunee Power Station; Revision 3

##### Procedures:

- CM-AA-CRS-10; Containment Recirculation Sump GSI-191 Program; Revision 0
- CM-AA-CRS-100; GSI Program Standards, Requirements, and Guidance for the Containment Recirculation Sump; Revision 0
- CM-AA-CRS-103; Containment Coating Condition Assessment; Revision 0
- ES-3000; Specification for Insulation – General; Revision 7
- ES-3003; Specification for Insulation – Nuclear Steam Supply System; Revision 4
- GMP-262; General Insulation Information; Revision C
- GNP-01.31.01; Plant Cleanliness and Storage; Revision 17
- GNP-08.06.02; Containment Hot Shutdown Walkdown; Revision 4
- GNP-08.22.01; Protective Coating Application for Service Level I Areas Inside the Reactor Containment Vessel; Revision 9
- GNP-12.17.01; Cold Shutdown Containment Inspection; Revision 9
- GNP-12.17.02; Containment Inspection During Operations; Revision 9
- MA-AA-102; Foreign Material Exclusion; Revision 4
- N-CCI-56; Containment Access; Revision 21
- NAD-08.22; Protective Coatings Program; Revision 5

- NEP-04.22; Containment Latent Debris Sampling Evaluation; Revision A
- NEP-04.23; Containment Latent Debris Sample Collection; Revision A

Work Orders:

- CA025943; Inappropriate Corrective Action for CAP032490; dated September 5, 2006
- CA071163; Implement Fleet Procedure Process for Safety and Non-safety Procedures the Same; dated March 27, 2008 [NRC Identified]
- CAP038857; USAR Revision for DCR 3605; dated October 27, 2006
- CR093709; NRC Inspector Questions Procedure Classifications; dated March 25, 2008 [NRC Identified]
- LBL024275; Component Labeling; dated June 15, 2006
- Modification DCR3605; Replacement of the ECCS Sump B Strainer; Revision 3
- KW06-003290; S/G B/D Piping Insulation in Containment Basement; Revision 0
- KW06-003292; RF28 – Shroud Cooling SW Lines, Replace Insulation; Revision 0
- KW06-011598; Steam Generator Blowdown piping insulation in containment; Revision 0

## LIST OF ACRONYMS USED

AFW	Auxiliary Feedwater
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
DRP	Division of Reactor Projects
ECCS	Emergency Core Cooling System
GL	Generic Letter
GSI	Generic Safety Issue
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IST	Inservice Testing
LER	Licensee Event Report
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
PI	Performance Indicator
PM	Post-Maintenance
PWR	Pressurized Water Reactor
RHR	Residual Heat Removal
RP	Radiation Protection
SDP	Significance Determination Process
SSC	Structure, System and Component
SW	Service Water
TDAFW	Turbine-Driven Auxiliary Feedwater
TI	Temporary Instruction
TIA	Task Interface Agreement
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
USAR	Updated Safety Analysis Report
URI	Unresolved Item
VHRA	Very High Radiation Area
WO	Work Order