UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
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August 9, 2012

Mr. David A. Heacock
President and Chief Nuclear Officer
Dominion Energy Kewaunee, Inc.
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: KEWAUNEE POWER STATION
NRC INTEGRATED INSPECTION REPORT 05000305/2012003

Dear Mr. Heacock:

On June 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Kewaunee Power Station. The enclosed report documents the results of this inspection, which were discussed on July 3, 2012, with Mr. A. Jordan, the site Vice President, 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.

One NRC identified and two self-revealing findings of very low safety significance (Green) were identified during this inspection. These findings were determined to involve violations of NRC requirements. Additionally, the NRC has determined that a traditional enforcement Severity Level IV violation occurred. The NRC is treating these violations as non-cited violations (NCVs), consistent with Section 2.3.2 of the Enforcement Policy.

If you contest these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Kewaunee Power Station.

If you disagree with a cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III; and the NRC Resident Inspector at the Kewaunee Power Station.

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

Sincerely,

/RA/

Kenneth Riemer, Branch Chief
Branch 2
Division of Reactor Projects

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

Enclosure: Inspection Report 05000305/2012003;
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-305
License No:	DPR-43
Report No:	05000305/2012003
Licensee:	Dominion Energy Kewaunee, Inc,
Facility:	Kewaunee Power Station
Location:	Kewaunee, WI
Dates:	April 1, 2012, through June 30, 2012
Inspectors:	R. Krsek, Senior Resident Inspector K. Barclay, Resident Inspector J. Beavers, Emergency Preparedness Specialist J. Jandovitz, Project Engineer N. Shah, Project Engineer T. Bilik, Senior Reactor Inspector L. Jones, Reactor Engineer N. Feliz-Adorno, Reactor Engineer J. Cassidy, Senior Health Physicist D. Szwarc, Reactor Inspector
Approved by:	Kenneth Riemer, Branch Chief Branch 2 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

Inspection Report (IR) 05000305/2012003, 04/01/2012 – 06/30/2012, Kewaunee Power Station (KPS); Plant Modifications, Outage Activities, Identification and Resolution of Problems, and Follow-Up of Events and Notices of Enforcement Discretion.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding and one Severity Level (SL) IV violation were identified by the inspectors and two Green findings were self-revealed. The three findings and the SL IV violation 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-Revealed Findings

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed for the failure to accomplish Temporary Modification (TMOD) 2012-11 in accordance with Work Order (WO) KW100894696 and the associated weld data sheet and map. Specifically, licensee personnel failed to utilize the WO instructions, weld data sheet and weld map when welding a temporary NRC-approved clamp on American Society of Mechanical Engineers (ASME) Code Class 2 residual heat removal (RHR) piping. The failure to use the required documentation to perform the work resulted in the worker creating a second through wall leak on the ASME Code, Class 2 RHR piping upstream of valve RHR-600. The licensee entered the issue into its corrective action program (CAP) as condition report (CR) 472915 and permanently corrected both through wall leaks on the RHR system piping following the approval of a second proposed alternative, without incident on May 5, 2012. At the end of the inspection period, the licensee continued to perform an apparent cause evaluation (ACE) to determine the causes for the organizational failures that occurred.

  The finding was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated December 24, 2009, because the finding was associated with the Mitigating Systems Cornerstone attribute of human error (pre-event) and adversely affected the cornerstone objective to ensure the reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors determined that the finding could be evaluated in accordance with IMC 0609, Appendix G, "Shutdown Operations SDP," dated February 28, 2005. The inspectors used Checklist 1, "PWR Hot Shutdown Operation: Time to Core Boiling <2 Hours," contained in Attachment 1 and determined that the finding affected core heat removal guidelines I.B(1), "Procedures," and I.C(2), "Equipment." The inspectors screened the finding as very low safety significance (Green) because it did not degrade the licensee's ability to establish an alternate core cooling path if decay heat removal could not be re-established and, therefore, did not require a phase 2 or phase 3 analysis. This finding

has a cross-cutting aspect in the area of human performance, resources, because the licensee did not ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety was supported. Specifically, the inspectors identified that the pre-job brief conducted by supervision and management for this work did not include a review of the WO, weld sheet, or weld map and did not convey accurate information regarding the significance of the activity, the type of weld to be performed and the system conditions where the weld was performed (H.4(c)). (Section 1R18)

- Green. The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix R, Section III.G.3, for the licensee's failure to provide adequate fire suppression coverage for fire zone AX-32. Specifically, the licensee failed to provide required fire suppression coverage for safe shutdown functions of source range monitoring, isolation of a steam generator (SG) blowdown line, and pressurizer level instrumentation in the cable spreading area. The licensee entered the issue into the CAP, designated manual backup from hose stations, and implemented an hourly fire watch for the radiation protection office (RP) in fire zone AX-32.

  The inspectors determined that the finding was more than minor because the failure to provide suppression for redundant trains of safe shutdown equipment increased the likelihood that alternative shutdown methods would have to be used in the event of a fire. The finding was of very low safety significance based on a Phase 3 significance determination analysis. The finding has a cross-cutting aspect in the area of problem identification, corrective action program, because the licensee did not take appropriate corrective actions to address the inadequate suppression system in fire zone AX-32 (P.1(d)). (Section 4OA2.4)

Cornerstone: Barrier Integrity

- Green. A finding of very low safety significance (Green) and associated NCV of Technical Specification (TS) 5.4.1, "Procedures," was self-revealed because procedure MCM-FH-001, "Repair of the Fuel Transfer System," was inadequate. Specifically, the procedure did not contain torque specifications for tightening the upender frame cable clamps and, on April 23, the cable for the spent fuel pool (SFP) upender slipped through the cable clamps and allowed the upender containing a fuel assembly to descend approximately 12 inches. The licensee confirmed that no damage occurred to the fuel assembly and placed procedure MCM-FH-001 on administrative hold to prevent its use until it could be updated with the appropriate torque specifications. At the end of this inspection period, the licensee was performing an ACE to determine the causes of the event, and develop corrective actions.

  The finding was determined to be more than minor because, if left uncorrected, the finding had the potential to lead to a more significant safety concern. Specifically, the upender containing the fuel assembly could have fallen from the near-full vertical position to the horizontal position. The inspectors evaluated the finding by applying the SFP questions in the Fuel Barrier column of Table 4a, located in IMC 0609, Attachment 4, dated January 10, 2008. The inspectors answered "No" to all three questions and determined that the finding was of very low safety significance (Green). The finding has a cross-cutting aspect in the areas of problem identification and resolution, operating experience (OE), because the licensee failed to communicate to affected internal stakeholders in a timely manner relevant external OE. Specifically, the

licensee failed to discuss available and relevant OE related to the failure to appropriately torque cable clamps on an SFP upender (P.2(a)). (Section 1R20)

Cornerstone: Other

- SL IV. A Severity Level (SL) IV NCV of 10 CFR Part 50.9(a), "Completeness and Accuracy of Information," was identified by the inspectors for the failure of the licensee to provide complete and accurate information in all material respects to the Commission in licensee Request RR-2-3, dated April 29, 2012 (ADAMS Accession No. ML12122A138). As part of a license amendment for a proposed temporary deviation from the requirements of 10 CFR 50.55a and ASME Code, Section XI, the licensee incorrectly stated the allowable leakage from the temporary clamp in transition from Mode 5 to 4 was governed by TS 5.5.2, "Primary Coolant Sources Outside Containment," and proposed an allowable leakage value of 5.5 gallons per hour (gph). After licensee Request No. RR-2-3 was verbally approved by the NRC on April 30, 2012, the inspectors and NRC staff determined that the governing leakage requirement was no leakage in Mode 4 for the clamp as required by TS 3.4.13, "Reactor Coolant System Operational Leakage."

  The performance deficiency was determined to be more than minor in accordance with the NRC Enforcement Policy and Enforcement Manual because the NRC identified the performance deficiency, the NRC relied on the information provided in a licensing decision, and the misinformation was identified after the NRC relied on the information in its licensing decision. Because violations of 10 CFR 50.9 are considered to be violations that potentially impact the regulatory process, they are dispositioned using the traditional enforcement process instead of the ROP SDP. Because the performance deficiency, specifically a failure to submit complete and accurate information, was not an ROP finding per IMC 0612, Appendix B, "Issue Screening," a cross-cutting aspect was not assigned to this violation. The severity of the violation was mitigated because of the facts surrounding the licensee's implementation of Request No. RR-2-3. (Section 4OA3.1)

B. Licensee-Identified Violations

No violations were identified.

REPORT DETAILS

Summary of Plant Status

Kewaunee Power Station (KPS) operated at full power until April 6, 2012, when they shut down the reactor for a planned refueling outage. The licensee completed the refueling outage on May 10 and returned to full power on May 13, 2012, until the end of the inspection period, except for brief downpowers to conduct planned maintenance and surveillance activities.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

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:

- auxiliary feedwater train (AFW) A with emergency diesel generator (EDG) B out-of-service (OOS);
- EDG B after testing;
- safety injection (SI) train A with train B OOS;
- auxiliary building ventilation; and,
- component cooling water (CCW) train A.

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 and system diagrams to determine the appropriate system lineup. 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 to this report.

These activities constituted five partial system walkdown samples as defined in IP 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

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

- fire zone AX-30, relay room and loft;
- fire zone AX-32 cable spreading room;
- fire zones TU-92 and TU-93, diesel generator (DG) 1B and day tank rooms;
- fire zone TU-95B, switchgear bus 1-61 and 1-62 room and AFW area; and,
- fire zone SC-70B, service water (SW) train B.

The inspectors reviewed areas to assess if the licensee had implemented an FP program that adequately controlled combustibles within the plant, effectively maintained fire detection and suppression capability, maintained passive FP features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable FP 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 to this report, 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. Documents reviewed are listed in the Attachment to this report.

These activities constituted five quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R07 Triennial Heat Sink Performance (71111.07T)

.1 Triennial Review of Heat Sink Performance (71111.07T)

a. Inspection Scope

The inspectors reviewed operability determinations, completed surveillances, vendor manual information, associated calculations, performance test results, and inspection results associated with the battery room B cooler and SW system. These components were chosen based on their risk significance in the licensee's probabilistic safety

analysis, their important safety-related (SR) mitigating system support functions, and their operating history.

For the selected cooler, the inspectors reviewed testing, inspection, maintenance, and monitoring of biotic fouling and macrofouling programs relied upon to ensure proper heat transfer. This was accomplished by verifying: (1) the selected test method was consistent with accepted industry practices, or equivalent; (2) the test conditions were consistent with the selected methodology; and (3) the test acceptance criteria were consistent with the design basis values. In addition, the inspectors reviewed the results of heat exchanger performance testing and verified that the test results appropriately considered: (1) differences between testing conditions and design conditions; and (2) test instrument inaccuracies. The inspectors also verified trending of test results to confirm the test frequency was sufficient to detect degradation prior to loss of heat removal capabilities below design basis values. In addition, the inspectors verified that the condition and operation of the heat exchangers were consistent with design assumptions in heat transfer calculations and applicable descriptions in the USAR.

The inspectors verified the structural integrity of the underwater ultimate heat sink (UHS), SR SW system, and their subcomponents such as piping, intake screens, pumps, and valves, by reviewing tests or other equivalent methods used to ensure availability to in-plant cooling water systems. The inspectors reviewed completed surveillances, associated calculations, chemistry monitoring program, sedimentation/fouling monitoring procedures, CRs, and WOs to assess the condition of the UHS and SW system. In addition, the inspectors conducted walkdowns of the SW intake and discharge structures and the SW pump rooms to assess the general condition of the system.

The inspectors also reviewed design changes associated to the UHS and SR SW system and assessed their impact to procedures relied upon to mitigate the loss of either the UHS or the SW system. Also, the inspectors reviewed documentation associated with the monitoring of pump performance for potential strong-pump vs. weak-pump interaction. In addition, the inspectors reviewed CRs related to heat exchanger and heat sink performance issues to assess the licensee's threshold for identifying issues and to evaluate the effectiveness of the corrective actions.

These inspection activities constituted two triennial heat sink inspection samples as defined in IP 71111.07-05.

b. Findings

No findings were identified.

1R08 Inservice Inspection (ISI) Activities (71111.08P)

From April 9 through 19, 2012, the inspectors conducted a review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the reactor coolant system (RCS), SG tubes, emergency feedwater systems, risk-significant piping and components, and containment systems.

The inspections described in Sections 1R08.1, 1R08.2, R08.3, IR08.4, and 1R08.5 below constituted one inservice inspection sample as defined in IP 71111.08-05.

.1 Piping Systems Inservice Inspection

a. Inspection Scope

The inspectors observed the following non-destructive examinations mandated by the ASME Code, Section XI, to evaluate compliance with the ASME Code, Sections XI and V requirements; and if any indications and defects were detected, to determine if these were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement.

- ultrasonic examination (UT) of a Class 2, 3-inch pipe-to-elbow weld, AFW-W120, AFW line;
- UT of a Class 2, 3-inch elbow-to-pipe weld, AFW-W121, AFW line;
- magnetic particle examination (MT) of a Class 2, 3-inch pipe-to-elbow weld, AFW-W120, AFW line;
- MT of a Class 2, 3-inch pipe-to-elbow weld, AFW-W121, AFW line;
- visual testing (VT) -3 of a Class 3 SW pump (APSW-1A1) supports, APSW-1A1-SI; and,
- VT -3 of a Class 3 SW pump (APSW -1A2) supports, APSW-1A2-SI.

During the prior outage non-destructive surface and volumetric examinations, the licensee did not identify any relevant/recordable indications. Therefore, no NRC review was completed for this inspection procedure attribute.

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

- ISIM-891-2/AFW-W201 and W202, AFW 3-inch pipe-to-valve and valve-to-pipe welds code class 2; and,
- RHR system welds 50, 51 and 52, 2-inch sock-o-let, 2-inch insert socket weld to ¾-inch relief valve RHR 701, ASME Code, Class 2.

b. Findings

No findings were identified.

.2 Reactor Pressure Vessel Upper Head (RPVUH) Penetration Inspection Activities

a. Inspection Scope

No exams were required this outage. Therefore, no NRC review was completed for this inspection procedure attribute.

b. Findings

No findings were identified.

.3 Boric Acid Corrosion Control

a. Inspection Scope

On April 6, 2011, the inspectors observed the licensee staff performing VT examinations of the RCS within containment to determine if these examinations focused on locations where boric acid (BA) leaks can cause degradation of safety significant components.

The inspectors reviewed the following licensee evaluations of RCS components with BA deposits to determine if degraded components were documented in the CAP. The inspectors also evaluated corrective actions for any degraded RCS components to determine if they met the component Construction Code, ASME Code, Section XI, and/or NRC-approved alternative.

- boric acid evaluation (BAE) CR419401; RC-402, Sampling System; April 7, 2011;
- BAE CR415609; FE-27136, RHR, HX 1A/1B to Penetrations 10, 48, and RHR-SFP Interconns; March 18, 2011; and,
- BAE CR418730; 6-inch Valve ICS-7A, Containment Spray Pump 1A Discharge Piping to Pen. 29N; March 26, 2011.

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

- CR415358, Dry Discolored Boric Acid Identified at 1A RCP Main Flange Area, February 28, 2011;
- CR415607, Dry Brown Boric Acid at FE-928 Flange, March 3, 2011; and,
- CR416828, Light Dry White Boric Acid Residue on No. 1 RCP Seal Housing Bolts, February 28, 2011.

b. Findings

No findings were identified.

.4 Steam Generator Tube Inspection Activities

a. Inspection Scope

No examination was required pursuant to the TSs and none was conducted during the current refueling outage (RFO). Therefore, no NRC review was completed for this inspection procedure attribute.

b. Findings

No findings were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a review of ISI-related problems entered into the licensee's CAP and conducted interviews with licensee staff to determine if:

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

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

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review of Licensed Operator Requalification (71111.11Q)

a. Inspection Scope

On June 25, 2012, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification training 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 (EP) actions and notifications.

The crew's performance in these areas was compared to pre-established operator action expectations and successful critical task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator requalification program simulator sample as defined in IP 71111.11.

b. Findings

No findings were identified.

.2 Resident Inspector Quarterly Observation of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

On April 8, 2012, the inspectors observed the Control Room observation of reactor coolant system (RCS) draindown from the pressurizer to 6 inches below the reactor vessel flange. This was an activity that required heightened awareness or was related to increased risk. 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 procedures;
- control board and equipment manipulations; and
- oversight and direction from supervisors.

The performance in these areas was compared to pre-established operator action expectations, procedural compliance and task completion requirements. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations (71111.12Q)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving 4160-Volt breaker charging spring motors.

The inspectors verified the licensee's actions to address system performance or condition problems in terms of the following areas, as necessary:

- 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 (SSCs)/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 to this report.

This inspection constituted one quarterly maintenance effectiveness sample as defined in IP 71111.12-05.

b. Findings

No findings 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 SR equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- safe shutdown assessment for work on April 9;
- safe shutdown assessment for work on April 26;
- risk assessments for CCW maintenance on May 24; and,
- risk assessments for EDG testing and SW pump breaker maintenance on June 11.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstone. 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 that 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. Documents reviewed are listed in the Attachment to this report.

These maintenance risk assessments and emergent work control activities constituted four samples as defined in IP 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functional Assessments (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- CR478109, Potential Non-Conformance Source Range Detector Sensitivity;
- OD315, Revision 1, Potential Nonconservative TS Actions For FQ;
- CR468976, Accumulator Leak Rate Test Procedures M&TE Inaccuracy Extent Of Condition; and,
- CR475077, Potential Inconsistency Between Locked Rotor Accident Analysis And EOP ES.

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 TSs 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 reviewed a sampling of corrective action documents to verify that the licensee had identified and corrected any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted four samples as defined in IP 71111.15-05.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following modifications:

- TMOD 2012-11; and,
- TMOD 2012-12.

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the USAR, and the TSs, as applicable, to verify that the modification did not affect the operability or availability of the affected systems. The inspectors, as applicable, observed ongoing and completed work activities to ensure that the modifications were installed as directed and consistent with the design control documents; the modifications operated as expected; post-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. As applicable, the inspectors verified that relevant procedure, design, and licensing documents were properly updated. For commercial grade dedications, the inspectors also reviewed the appropriateness of the critical characteristics selected for the dedication process and verified that the licensee's testing or acceptance method for the critical characteristics was appropriate. Documents reviewed are listed in the Attachment to this report.

This inspection constituted two temporary modification samples as defined in IP 71111.18-05.

b. Findings

Failure to Utilize Work Instructions For An NRC-Approved Piping Code Repair

Introduction: A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed for the failure to accomplish TMOD 2012-11 in accordance with WO KW100894696 and the associated weld data sheet and map. Specifically, licensee personnel failed to utilize the WO instructions, weld data sheet, and weld map when welding a temporary NRC-approved clamp on ASME Code, Class 2 RHR piping. The failure to use the required documentation to perform the work resulted in the worker creating a second through wall leak on the ASME Code, Class 2 RHR piping upstream of valve RHR-600.

Description: On April 25, 2012, with the reactor in Mode 5, the licensee identified dry white BA accumulated around a socket weld upstream of RHR valve RHR-600 and initiated CR472226. Valve RHR-600 was located in the auxiliary building on the common discharge piping for the RHR system to the reactor for decay heat removal when the plant was shut down. On April 27, 2012, while removing the dry BA, a pinhole leak was discovered with a constant spray in the "toe" of the socket weld (the weld starting and stopping point) where the ¾-inch RHR pipe from valve RHR-600 was welded to the sock-o-let for the larger diameter common discharge piping for the RHR system to the reactor. The licensee initiated CR472654, and the Shift Manager declared

both trains of RHR inoperable due to the through wall leak on ASME Code, Class 2 piping and entered the TS Action Condition 3.4.7.C, which required the licensee to restore operability immediately.

Initially, on April 27, 2012, the licensee believed they could implement the ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition, 2000 Addenda, IWA-4133, which allowed the use of a mechanical clamping device to repair pressure boundary piping in accordance with ASME Code, Section XI, Appendix IX. However, the inspectors noted to the licensee that ASME Code, Section XI, Appendix IX, Article IX-1000(c)(2), stated that clamping devices shall not be used on portions of a piping system that forms the containment boundary. The inspectors also noted that the USAR Table 5.2-3, "Reactor Containment Vessel Penetrations," listed valve RHR-600 as the outside containment barrier for Penetration Number 10, and the newly discovered leak was upstream of this containment isolation valve (CIV). The licensee concurred and pursued a proposed alternative to the code through a temporary deviation to the Code, which required prior NRC approval.

The licensee held conference calls with the NRC on April 28 and April 29, regarding the licensee's proposed alternative. On April 29, the licensee submitted Request No. RR-2-3 (ADAMS Accession No. ML12122A138) seeking NRC's approval to install a clamp on the leak, transition to Mode 4 to isolate the leak while allowing one train of RHR to be operable for injection, and then implementing the permanent repair prior to transitioning to Mode 3. At approximately 1:30 a.m. on April 30, 2012, the NRC verbally approved the licensee's implementation of proposed alternative Request No. RR-2-3. Shortly thereafter, the licensee commenced installation of the clamping device described in TMOD 2012-11 via WO KW100894696.

Work progressed successfully with installation of the clamping device and injection of sealant into the clamp to minimize leakage. The last remaining step to complete WO KW100894696 was to perform a fillet weld on the top of the clamp to the pipe. The welders were briefed, and 45 minutes prior to the end of their shift, work commenced on the final WO step to fillet weld the clamp to the ¾-inch pipe. As the welder struck an arc to make the initial weld puddle, he noted that water started spraying from the pipe and notified another worker that conditions had changed and they needed to leave the area. Non-destructive examination personnel immediately confirmed that a second through-wall leak was created when the welder burned through the ¾-inch pipe.

The inspectors conducted interviews with several licensee personnel involved with the work following the incident and reviewed the associated WO for implementation of TMOD 2012-11. As a result of the interviews and review of the associated documentation, the inspectors concluded the following facts had occurred:

- the welder believed he was welding on Schedule 80 pipe at minimal system pressure and adjusted his equipment for this pipe thickness, when in fact the ¾-inch pipe was Schedule 40 (half the wall thickness) and the system was at approximately 350 pounds per square inch gauge (psig);
- the welder stated that had he known the system pressure was high, regardless of pipe schedule, he would not have attempted a weld;
- the welder and those interviewed that were at the pre-job brief did not review the WO, weld sheet and weld map; and those documents were not covered in detail at the pre-job brief;

- the weld area was not cleaned prior to the start of the weld within 2 inches of the weld area as the WO stated, and this was not corrected by either the welder or the Quality Control representative;
- according to the licensee's procedures on welding, this particular weld and the weld sheet were required to be designated as a critical weld and were not; therefore, additional required information was not indicated on the weld sheet;
- the welder and those at the pre-job brief thought this was a "seal weld" vice a "fillet weld," which the WO, weld data sheet and weld map required; and,
- inspectors also questioned why this activity wasn't treated as an infrequent, complex or critical evolution brief, vice a normal pre-job brief.

Therefore, based on the inspectors' interviews of personnel and documentation review, the inspectors concluded that the licensee personnel performing the work, including supervisors, failed to conduct an adequate pre-job brief and did not conduct the work in accordance with the approved WO instructions, weld sheet and weld map. Interviews conducted by the licensee as part of the event investigation corroborated the inspectors' assessment.

Analysis: The inspectors determined that the failure to utilize the WOs and associated documentation to execute the work was contrary to 10 CFR Part 50, Appendix B, Criterion V, and was a performance deficiency warranting a significance evaluation.

The finding was determined to be more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," dated December 24, 2009, because the finding was associated with the Mitigating Systems Cornerstone attribute of human error (pre-event) and adversely affected the cornerstone objective to ensure the reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the failure to utilize the approved WO resulted in the creation of a second through wall leak in ASME Code, Class 2 common RHR discharge piping upstream of valve RHR-600 that was unisolable in the current mode of operation.

The inspectors determined that the finding could be evaluated in accordance with IMC 0609, Appendix G, "Shutdown Operations SDP," dated February 28, 2005. The inspectors used Checklist 1, "PWR Hot Shutdown Operation: Time to Core Boiling <2 Hours," contained in Attachment 1 and determined that the finding affected core heat removal guidelines I.B(1), "Procedures," and I.C(2), "Equipment." The inspectors screened the finding as very low safety significance (Green) because it did not degrade the licensee's ability to establish an alternate core cooling path if decay heat removal could not be re-established and, therefore, did not require a phase 2 or phase 3 analysis.

This finding has a cross-cutting aspect in the area of human performance, resources, because the licensee did not ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety was supported. Specifically, the inspectors identified that the pre-job brief conducted by supervision and management for this work did not include a review of the WO, weld sheet, or weld map and did not convey accurate information regarding the significance of the activity, the type of weld to be performed and the system conditions where the weld was performed (H.4(c)).

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, 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 the above, on April 30, 2012, the licensee failed to accomplish TMOD 2012-11 on ASME Code, Class 2 RHR piping upstream of valve RHR-600, an SR component, in accordance with WO KW100894696 and the associated weld data sheet and map. Specifically, licensee personnel failed to utilize the weld data sheet, weld map, and WO instructions when welding a temporary clamp on ASME Code, Class 2 RHR piping, which resulted in the creation of a second through wall leak on the ASME Code, Class 2 RHR piping upstream of valve RHR-600. Because this violation was of very low safety significance and it was entered into the licensee's CAP as CR472915, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000305/2012003-01; Failure to Utilize Work Order for Temporary Weld Repair on ASME Code, Class 2 Piping).

On May 5, 2012, the licensee permanently corrected both through wall leaks on the RHR system piping without incident following the NRC approval of a second proposed alternative in Request No. RR-2-4, dated May 3, 2012 (ADAMS Accession No. ML12125A279) and supplemented on May 4, 2012 (ADAMS Accession No. ML12129A279). At the end of the inspection period, the licensee continued to perform an ACE to determine the causes for the organizational failures that occurred.

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following post-maintenance testing (PMT) activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- fan coil unit (FCU) A PMT following coil replacement, CR468367, FCU AFW Pump A on April 10;
- SW pump breaker testing after breaker lockout relay maintenance on June 11;
- MPM-CRN-006, Auxiliary Building Crane Main and Auxiliary Host Lower Block;
- SI pump run after inspect/clean/megger of motor;
- OP-KW-STP-FW-001, Fast Bus Transfer Feedwater Pump Circuit Special Test Procedure on April 12;
- SOP-AFW-05B-30, Turbine-Driven Auxiliary Feedwater Pump Curve Development and Cavitation Venturi Calibration on May 7; and,
- Troubleshooting of SI Pump Suction Void on June 27.

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 documents such as TSs, USAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications, to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with PMTs to determine whether the licensee had identified problems and entered them in the CAP, and that the problems were corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

This inspection constituted seven post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

.1 Refueling Outage Activities

a. Inspection Scope

The inspectors reviewed the Outage Safety Plan (OSP) and contingency plans for the RFO, conducted April 6, 2012, through May 13, 2012, 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 RFO, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below:

- licensee configuration management, including maintenance of defense-in-depth commensurate with the OSP for key safety functions and compliance with the applicable TS 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;
- installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error;
- controls over the status and configuration of electrical systems to ensure that TS and OSP requirements were met, and controls over switchyard activities;
- monitoring of decay heat removal processes, systems, and components;
- controls to ensure that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system;
- reactor water inventory controls including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss;
- controls over activities that could affect reactivity;
- maintenance of secondary containment as required by TSs;
- licensee fatigue management, as required by 10 CFR 26, Subpart I;

- refueling activities, including fuel handling and sipping to detect fuel assembly leakage;
- startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing; and,
- licensee identification and resolution of problems related to RFO activities.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted one RFO sample as defined in IP 71111.20-05.

b. Findings

Loose Cable Clamp Caused Loaded Spent Fuel Upender to Unintentionally Lower

Introduction: A finding of very low safety significance (Green) and associated NCV of TS 5.4.1, "Procedures," was self-revealed because procedure MCM-FH-001, "Repair of the Fuel Transfer System," was inadequate. Specifically, the procedure did not contain torque specifications for tightening the upender frame cable clamps and, on April 23, the cable for the spent fuel pool upender slipped through the cable clamps and allowed the upender containing a fuel assembly to descend approximately 12 inches.

Description: On April 23, while refueling the reactor, the licensee loaded a fuel assembly into the SFP upender. While lowering the upender from the vertical position to the horizontal position, the licensee received an underload alarm light for the SFP upender. The licensee appropriately stopped work, and identified that the cable had slipped through two cable clamps and was no longer attached to the upender frame. The licensee transferred the fuel assembly to the reactor side, where it was inspected satisfactorily and placed in the appropriate location in the core. Further investigation by the licensee determined that procedure MCM-FH-001 did not contain the 45-foot-pound torque specification for the upender cable clamps; and when the licensee replaced the cables in February 2012, utilizing procedure MCM-FH-001, they did not tighten the cable clamps to the appropriate torque recommended by the vendor. The licensee repaired the cable and reloaded the core without further incident.

The licensee identified that a procedure change had been submitted for procedure MCM-FH-002, "Fuel Handling Equipment Maintenance" to include the 45-foot-pound torque checks as part of the upender inspection; however, the procedure change was considered an enhancement and was still waiting to be implemented when the upender failure occurred in April. The licensee determined that even if procedure MCM-FH-002 had been updated prior to the January inspection that it would not have prevented the incident because the inspection in procedure MCM-FH-002 was not required to be re-performed after the cable replacement using procedure MCM-FH-001 in February.

The licensee placed procedure MCM-FH-001 on administrative hold to prevent its use until it could be updated with the appropriate torque specifications. The licensee was performing an ACE at the conclusion of this inspection period.

Analysis: The inspectors determined that not having the appropriate torque specifications in procedure MCM-FH-001 was a performance deficiency warranting a significance evaluation. The finding was determined to be more than minor in

accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” dated December 24, 2009, because, if left uncorrected, the finding had the potential to lead to a more significant safety concern. Specifically, the upender containing the fuel assembly could have fallen from the near-full vertical position to the horizontal position during the approximate 220 previous upender cycles. The inspectors concluded this finding was associated with the Barrier Integrity Cornerstone. The inspectors evaluated the finding by applying the SFP questions in the Fuel Barrier column of Table 4a, located in IMC 0609, Attachment 4, dated January 10, 2008. The inspectors answered "No" to all three questions and determined that the finding was of very low safety significance (Green).

The finding has a cross-cutting aspect in the areas of problem identification and resolution, operating experience (OE), because the licensee failed to communicate to affected internal stakeholders in a timely manner relevant external OE. Specifically, the licensee failed to discuss available and relevant OE related to the failure to appropriately torque cable clamps on a SFP upender (P.2(a)).

Enforcement: The TS Section 5.4.1, “Procedures,” requires, in part, that written procedures shall be implemented covering the applicable procedures recommended in Regulatory Guide (RG) 1.33, Revision 2, Appendix A, dated February 1978. The RG 1.33, Appendix A, Paragraph 9.c, states, in part, that procedures for the repair or replacement of equipment should be prepared prior to beginning work. The licensee established procedure MCM-FH-001, “Repair of the Fuel Transfer System,” as an implementing procedure for repair the SFP upender.

Contrary to the above, from February 7, 2008 through April 23, 2012, procedure MCM-FH-001 was inadequate. Specifically, Step 5.3.1.f did not contain torque specifications for tightening the upender frame cable clamps. Because this violation was of very low safety significance and it was entered into the licensee’s CAP as CR471928, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000305/2012003-02; Loose Cable Clamp Caused Loaded Spent Fuel Upender to Unintentionally Lower).

The licensee placed procedure MCM-FH-001 on administrative hold to prevent its use until it could be updated with the appropriate torque specifications, and confirmed that no damage occurred to the fuel assembly. The licensee consulted with the fuel vendor who performed analysis to demonstrate the fuel assembly was acceptable for use. At the end of this inspection period, the licensee was performing an ACE to determine the causes of the event, and developing corrective actions.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

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

- OSP-SI-001, EDG automatic test on April 7 (Routine);
- OSP-SI-007, SI flow test on April 10 ((inservice testing (IST));
- OP-KW-OSP-RHR-002A, RHR pump A full test at refueling shutdown on April 10 (IST);
- OSP-DGE-004B, EDG B elevated load and load rejection test on April 27 (Routine);
- OP-KW-OSP-AFW-002, TDAFW pump full flow on May 7 (Routine);
- MA-KW-ISP-RC-017B-1, pressurizer level calibration on May 18 (Routine);
- OP-KW-OSP-SI-006B, train B SI pump and valve test on May 23 (IST);
- NF-KW-RET-002, low power physics test on May 23 (Routine); and,
- SP-55-155A, engineered safeguards train A logic channel test on May 30 (Routine).

The inspectors considered the following test attributes, if applicable, while they observed in-plant activities and reviewed procedures and associated records:

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, demonstrated operational readiness, and 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 was 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, testing was performed in accordance with the applicable version of ASME code, Section XI, 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 SR 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 to this report.

This inspection constituted six routine surveillance testing samples and three inservice testing samples as defined in IP 71111.22, Sections -02 and -05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observations

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on May 17, 2012, and a hostile action base drill on June 19, 2012, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the Emergency Operations Facility on May 17, 2012, and in the simulator and Site Relocation Facility on June 19, 2012, to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the CAP. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment to this report.

These emergency preparedness drill inspections constituted two drill samples as defined in IP 71114.06-05.

b. Findings

No findings were identified.

2. RADIATION SAFETY

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

This inspection constituted a partial sample as defined in IP 71124.01-05.

.1 Radiological Hazard Assessment (02.02)

a. Inspection Scope

The inspectors reviewed the radiological surveys from selected plant areas and evaluated whether the thoroughness and frequency of the surveys where appropriate for the given radiological hazard.

The inspectors conducted walkdowns of the facility, including radioactive waste processing, storage, and handling areas to evaluate material conditions and performed independent radiation measurements to verify conditions.

The inspectors selected the following radiologically risk-significant work activities that involved exposure to radiation.

- transfer canal diving activities;
- upper internal lift;
- reactor head lift and set; and,
- reactor cavity decontamination.

For these work activities, the inspectors assessed whether the pre-work surveys performed were appropriate to identify and quantify the radiological hazard and to establish adequate protective measures. The inspectors evaluated the radiological survey program to determine if hazards were properly identified, including the following:

- identification of hot particles;
- the presence of alpha emitters;
- the potential for airborne radioactive materials, including the potential presence of transuranics and/or other hard-to-detect radioactive materials;
- the hazards associated with work activities that could suddenly and severely increase radiological conditions and that the licensee has established a means to inform workers of changes that could significantly impact their occupational dose; and,
- severe radiation field dose gradients that can result in non-uniform exposures of the body.

The inspectors observed work in potential airborne areas and evaluated whether the air samples were representative of the breathing air zone. The inspectors evaluated whether continuous air monitors were located in areas with low background to minimize false alarms and were representative of actual work areas. The inspectors evaluated the licensee's program for monitoring levels of loose surface contamination in areas of the plant with the potential for the contamination to become airborne.

b. Findings

No findings were identified.

.2 Instructions to Workers (02.03)

a. Inspection Scope

The inspectors selected various containers holding non-exempt licensed radioactive materials that may cause unplanned or inadvertent exposure of workers, and assessed whether the containers were labeled and controlled in accordance with 10 CFR 20.1904, "Labeling Containers," or met the requirements of 10 CFR 20.1905(g), "Exemptions To Labeling Requirements."

The inspectors reviewed the following radiation work permits (RWPs) used to access high radiation areas and evaluated the specified work control instructions or control barriers.

- RWP 12-0306; Diving Evolutions in SFP Transfer Canal and All Support Activities;
- RWP 12-0255; Refueling Activities; and,
- RWP 12-0207; Decon, Laundry and Shielding.

For these RWPs, the inspectors assessed whether allowable stay times or permissible dose (including from the intake of radioactive material) for radiologically significant work under each radiation work permit were clearly identified. The inspectors evaluated whether electronic personal dosimeter alarm set-points were in conformance with survey indications and plant policy.

For work activities that could suddenly and severely increase radiological conditions, the inspectors assessed the licensee's means to inform workers of changes that could significantly impact their occupational dose.

b. Findings

No findings were identified.

.3 Contamination and Radioactive Material Control (02.04)

a. Inspection Scope

The inspectors observed locations where the licensee monitors potentially contaminated material leaving the radiological control area and inspected the methods used for control, survey, and release from these areas. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use and evaluated whether the work was performed in accordance with plant procedures and whether the procedures were sufficient to control the spread of contamination and prevent unintended release of radioactive materials from the site. The inspectors assessed whether the radiation monitoring instrumentation had appropriate sensitivity for the type(s) of radiation present.

b. Findings

No findings were identified.

.4 Radiological Hazards Control and Work Coverage (02.05)

a. Inspection Scope

The inspectors evaluated ambient radiological conditions (e.g., radiation levels or potential radiation levels) during tours of the facility. The inspectors assessed whether the conditions were consistent with applicable posted surveys, radiation work permits, and worker briefings.

The inspectors evaluated the adequacy of radiological controls, such as required surveys, RP job coverage (including audio and visual surveillance for remote job coverage), and contamination controls. The inspectors evaluated the licensee's use of electronic personal dosimeters in high noise areas as high radiation area monitoring devices.

The inspectors assessed whether radiation monitoring devices were placed on the individual's body consistent with licensee procedures. The inspectors assessed whether the dosimeter was placed in the location of highest expected dose or that the licensee properly employed an NRC-approved method of determining effective dose equivalent.

The inspectors reviewed the application of dosimetry to effectively monitor exposure to personnel in high-radiation work areas with significant dose rate gradients.

The inspectors reviewed the following RWPs for work within airborne radioactivity areas with the potential for individual worker internal exposures.

- RWP 12-0255; Refueling Activities; and,
- RWP 12-0207; Decon, Laundry, and Shielding.

For these RWPs, the inspectors evaluated airborne radioactive controls and monitoring, including potential for significant airborne levels (e.g., grinding, grit blasting, system breaches, entry into tanks, cubicles, and reactor cavities). The inspectors assessed barrier (e.g., tent or glove box) integrity and temporary high-efficiency particulate air (HEPA) ventilation system operation.

b. Findings

No findings were identified.

.5 Radiation Worker Performance (02.07)

a. Inspection Scope

The inspectors observed radiation worker performance with respect to stated RP work requirements. The inspectors assessed whether workers were aware of the radiological conditions in their workplace and the RWP controls/limits in place, and whether their performance reflected the level of radiological hazards present.

b. Findings

No findings were identified.

.6 Radiation Protection Technician Proficiency (02.08)

a. Inspection Scope

The inspectors observed the performance of the RP technicians with respect to all RP work requirements. The inspectors evaluated whether technicians were aware of the radiological conditions in their workplace and the RWP controls/limits, and whether their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

b. Findings

No findings were identified.

2RS2 Occupational As-Low-As-Is-Reasonably-Achievable (ALARA) Planning and Controls (71124.02)

This inspection constituted a partial sample as defined in IP 71124.02-05.

.1 Radiological Work Planning (02.02)

a. Inspection Scope

The inspectors selected the following work activities of the highest exposure significance.

- diving evolutions in SFP Xfer canal and all support activities;
- refueling activities; and,
- decon, laundry, and shielding.

The inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements. The inspectors determined whether the licensee reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances.

The inspectors assessed whether the licensee's planning identified appropriate dose mitigation features; considered alternate mitigation features; and defined reasonable dose goals. The inspectors evaluated whether the licensee's ALARA assessment had taken into account decreased worker efficiency from use of respiratory protective devices and/or heat stress mitigation equipment (e.g., ice vests). The inspectors determined whether the licensee's work planning considered the use of remote technologies (e.g., teledosimetry, remote visual monitoring, and robotics) as a means to reduce dose and the use of dose reduction insights from industry operating experience and plant-specific lessons learned. The inspectors assessed the integration of ALARA requirements into work procedure and radiation work permit documents.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

This inspection constituted a partial sample as defined in IP 71124.03-05.

.1 Engineering Controls (02.02)

a. Inspection Scope

The inspectors reviewed airborne monitoring protocols by selecting installed systems used to monitor and warn of changing airborne concentrations in the plant and evaluated whether the alarms and setpoints were sufficient to prompt licensee/worker action to ensure that doses are maintained within the limits of 10 CFR Part 20 and the as-low-as-is-reasonably-achievable concept.

The inspectors assessed whether the licensee had established trigger points (e.g., the Electric Power Research Institute's (EPRI's) "Alpha Monitoring Guidelines for Operating Nuclear Power Stations") for evaluating levels of airborne beta-emitting (e.g., plutonium-241) and alpha-emitting radionuclides.

b. Findings

No findings were identified.

.2 Use of Respiratory Protection Devices (02.03)

a. Inspection Scope

For those situations where it is impractical to employ engineering controls to minimize airborne radioactivity, the inspectors assessed whether the licensee provided respiratory protective devices such that occupational doses are ALARA. The inspectors selected work activities where respiratory protection devices were used to limit the intake of radioactive materials, and assessed whether the licensee performed an evaluation concluding that further engineering controls were not practical and that the use of respirators is ALARA. The inspectors also evaluated whether the licensee had established means (such as routine bioassay) to determine if the level of protection (protection factor) provided by the respiratory protection devices during use was at least as good as that assumed in the licensee's work controls and dose assessment.

The inspectors selected several individuals assigned to wear a respiratory protection device and observed them donning, doffing, and functionally checking the device as appropriate. Through interviews with these individuals, the inspectors evaluated whether they knew how to safely use the device and how to properly respond to any device malfunction or unusual occurrence (loss of power, loss of air, etc.).

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index - Emergency AC Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Emergency Alternating Current (AC) Power System performance indicator (PI) for the period from the second quarter 2011 through the first quarter 2012. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative

logs, MSPI derivation reports, CRs, and event reports from the second quarter 2011 through the first quarter 2012 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's CAP to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI emergency AC power system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index - High Pressure Injection System

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - High Pressure Injection System PI for the period from the second quarter 2011 through the first quarter 2012. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative logs, CRs, MSPI derivation reports, and event reports from the second quarter 2011 through the first quarter 2012 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's CAP to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI high pressure injection system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Heat Removal System PI for the period from the second quarter 2011 through the first quarter 2012. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative logs, CRs, MSPI derivation reports, and event reports from the second quarter 2011 through the first quarter 2012 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's CAP to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI heat removal system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI –RHR System PI for the period from the second quarter 2011 through the first quarter 2012. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative logs, CRs, MSPI derivation reports, and event reports from the second quarter 2011 through the first quarter 2012 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's CAP to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI residual heat removal system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.5 Mitigating Systems Performance Index - Cooling Water System

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Cooling Water System PI for the period from the second quarter 2011 through the first quarter 2012. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative logs, CRs, MSPI derivation reports, and event reports from the second quarter 2011 through the first quarter 2012 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's CAP to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI cooling water system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Physical Protection

.1 Routine Review of Items Entered into the Corrective Action Program

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of December 2011 through May 2012, although some examples expanded beyond those dates where the scope of the trend warranted.

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

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

b. Findings

No findings were identified.

.4 Selected Issue Follow-up Inspection: Corrective Actions to Address NCV 05000305/2006016-05, Acceptability of Cable Spreading Area Suppression System

a. Inspection Scope

During a routine FP walkdown in the cable spreading area (fire area AX-32), the inspectors questioned the adequacy of the fire suppression system. The inspectors determined that the NRC had previously issued NCV 05000305/2006016-05 for an inadequate fire suppression system in the area. As a result, the inspectors reviewed the licensee's corrective actions addressing the NCV. Documents reviewed are listed in the Attachment to this report.

This review constituted one in-depth problem identification and resolution sample as defined in IP 71152-05.

b. Findings

Failure to Provide Adequate Suppression in Cable Spreading Area

Introduction: The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix R, Section III.G.3, for the licensee's failure to provide adequate fire suppression coverage for fire zone AX-32. Specifically, the licensee failed to provide required fire suppression coverage for safe shutdown

functions of source range monitoring, isolation of a SG blowdown line, and pressurizer level instrumentation in the cable spreading area.

Description: Fire zone AX-32 included the cable spreading area and the RP office and associated facilities. The cable spreading area is located at the 616-foot elevation of the auxiliary building directly above the RP office. The floor of the cable spreading area consists of 20-gauge metal decking. The inspectors determined that a potential fire in the RP office could present a fire hazard to safe shutdown cables located in the cable spreading area.

Fire zone AX-32 contained both trains of safe shutdown cables and the requirements of 10 CFR Part 50, Appendix R, Section III.G.3, were applicable to the area. As a result the area was required to have fire detection and a fixed fire suppression system installed. The cable spreading area had a wet-pipe suppression system designed to protect a number of cable trays in the cable spreading area. However, the inspectors identified three safe shutdown functions with redundant cable trains located in fire zone AX-32 that lacked fire suppression. Adequate suppression was not provided for cables associated with source range flux monitoring, isolation of the SG B blowdown line, and pressurizer level indication. The inspectors were concerned that a fire in the cable spreading area or in the RP office could damage safe shutdown cables in the cable spreading area. The RP office area contained fire detection but no suppression system in the main portion of the office area.

The NRC had previously documented an NCV associated with the inadequacy of the suppression system in 2006 (IR 05000305/2006016, ADAMS Accession Number ML070260124). In response to the NCV, the licensee revised the Fire Prevention Tour procedure (FPP-08-12) Section 5.3.t, to maintain the cable spreading area free of transient combustibles unless an evaluation was performed by Fire Protection Engineering. In addition, Section 5.3.u of the procedure specified that the RP office area shall maintain combustible materials ALARA. The licensee replaced numerous open bookshelves in the RP office with enclosed bookshelves. In addition, the licensee issued CA072147, "Initiate Modification to Provide Additional Suppression Coverage for the HP Area," on April 9, 2008, to install a fire suppression system in the RP office. However, the licensee determined in June 2009, as documented in CA072147, that the installation of additional fire suppression in the RP office was an enhancement and should be tracked on the Plant Health Improvement List. The licensee's CAP documented on June 25, 2009, that all assignments were complete for CA072147. As a result of the classification of the modification as an enhancement the modification had not been approved by the site as of June 30, 2012.

The licensee also requested a vendor to perform a fire modeling evaluation of the suppression system in the cable spreading area (EPM Report No. P1919-023-002, "Review of Cable Spreading Room Suppression," Revision 0). The fire modeling evaluation considered various fire sizes in the RP office and their impact on cables in the cable spreading area. The evaluation showed that a 2.5 megawatt (MW) fire would not damage cables, but that a 7 MW fire could. The fire sizes were chosen based on a review of fire test studies and the combustibles present in the RP office. The damage to the cables would occur due to excessive heat flux as a result of failure of the 20-gauge metal decking. The vendor determined that a 7 MW fire could result in the cables being subjected to heat flux values upwards of 21.5 kilowatts per meter squared (kW/m^2). The damage threshold for thermoset cables (cables of concern were thermoset cables) is

11 kW/m^2 as documented in NUREG/CR-6850, "Fire PRA Methodology for Nuclear Power Facilities."

The vendor provided several recommendations for the licensee to consider in addressing the potential fire hazards:

- installation of an automatic sprinkler system in compliance with National Fire Protection Association (NFPA) standard for the installation of sprinkler systems (NFPA 13).
- modification of the fire suppression in the cable spreading area or administrative controls for minimizing transient combustibles in the cable spreading area, and
- reduction of combustibles in the RP office area.

The licensee's completed corrective actions did not include the installation of a fire suppression system in the RP office or a modification of the suppression system in the cable spreading area. The inspectors reviewed the vendor's fire modeling evaluation and did not identify any concerns.

Subsequently, the licensee performed evaluation FPEE-049, "Adequacy of Partial Area Suppression/Detection," Revision 5, in accordance with Generic Letter 86-10, "Implementation of Fire Protection Requirements." The licensee determined that the, "evaluation of the in-situ combustibles in the radiation protection office on El. 606-foot found that, realistically, the expected heat release rate for a fire in the area would be bounded by the 2.5 MW fire scenarios analyzed in the Fire Dynamics Simulator (FDS) models." As previously discussed, the fire modeling evaluation determined that cable damage would not occur with a 2.5 MW fire in the RP office. The licensee further concluded that, "administrative controls have been established to provide assurance that the level of combustibles in AX-32 will be maintained at acceptable levels."

The inspectors performed walkdowns of fire zone AX-32 during this inspection period and expressed concerns with the amount of in-situ combustibles located in the RP office. The inspectors pointed out to the licensee that at least one workstation in the RP office appeared to contain a higher amount of combustible materials than a workstation in a referenced study. The National Institute of Standards and Technology (NIST) published a study, "NIST Special Publication SP-1021," documenting a two-sided workstation that developed a 3.3 MW fire. This study was referenced in the vendor's fire modeling evaluation and the fire size exceeded the licensee's bounding fire size of 2.5 MW. The inspectors discussed their concerns with the licensee's use of a 2.5 MW bounding fire size in evaluation FPEE-049. The licensee issued CR478600, "NRC NCV Proposed for Inadequate Fixed Fire Suppression for Fire Zone AX-32," dated June 12, 2012, and determined that the "in-situ combustible loading for the area could produce approximately a 3.5 MW fire." The licensee's immediate corrective actions were to designate manual backup from hose stations and implement an hourly fire watch in the RP office.

The inspectors determined that the licensee did not properly consider the impact of transient combustibles in the RP office on the cable spreading area above. As a result, after the initial licensee efforts to reduce the in-situ combustibles in the RP office the amount of combustible materials increased until the time of the inspectors' observations during this inspection period.

Analysis: The inspectors determined that failure to provide adequate fire suppression coverage for fire zone AX-32 was contrary to 10 CFR Part 50, Appendix R, Section III.G.3, and was a performance deficiency. Specifically, the licensee failed to provide fixed fire suppression for redundant cables or equipment located within fire zone AX-32 for source range neutron flux monitoring, isolation of the SG B blowdown line, and pressurizer level indication.

The finding was determined to be more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Protection Against External Factors (Fire) and affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the failure to provide suppression for redundant trains of safe shutdown equipment increased the likelihood that alternative shutdown methods would have to be used in the event of a fire.

In accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 3b, the inspectors determined the finding degraded the FP defense-in-depth strategies. Therefore, screening under IMC 0609, Appendix F, "Fire Protection Significance Determination Process," was required. The inspectors determined that the finding impacted the Fixed FP Systems category.

Based on review of IMC 0609, Appendix F, Attachment 2, "Degradation Rating Guidance Specific to Various Fire Protection Program Elements," the inspectors determined the degradation rating to be high because the existing wet-pipe water spray system did not protect both trains of safe-shutdown equipment. The duration factor was 1.0, based on the duration of the degradation being greater than 30 days per Table 1.4.1, "Duration Factors."

An overall fire frequency of 1.7E-3 per year was assigned based on information from IMC 0609, Appendix F, Attachment 4, "Fire Ignition Source Mapping Information: Fire Frequency, Counting Instructions, Applicable Fire Severity Characteristics, and Applicable Manual Fire Suppression Curves," based on the high amount of transient combustibles in the RP office.

The Region III Senior Reactor Analyst (SRA) noted that none of the affected components were explicitly modeled in the Kewaunee Standardized Plant Analysis Risk (SPAR) model. Qualitatively, fire detection and manual fire suppression were available in the vicinity of the affected cable trays. In the event of a fire, it is expected that the detectors will alarm and the fire brigade will respond to extinguish the fire in its incipient stages.

To address the risk quantitatively, the SRA performed a bounding Phase 3 internal events SDP evaluation of the finding using Systems Analysis Programs for Hands-On Integrated Reliability Evaluations (SAPHIRE) Version 8.0.7.18 and the Kewaunee SPAR model (Version 8.20). The SRA performed a "Transient" initiating event analysis with failure of main steam isolation valve MS-1B to close as a surrogate for the failure of the SG B blowdown line. The result was an estimated conditional core damage probability (CCDP) of 9.35E-8. When the fire frequency was included, the total risk result was significantly less than 1E-6. The dominant SPAR Model sequence involves an anticipated transient without scram (ATWS) sequence. As such, the SRA concluded that the finding be best characterized as having a very low risk significance (Green).

This finding has 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 the inadequate suppression system in fire zone AX-32. Specifically, the licensee determined in June 2009, that the installation of additional fire suppression in the RP office was an enhancement; and since that time, had not scheduled a modification. In addition, the licensee did not ensure that the amount of in-situ combustibles in the RP office was kept as low as possible. (P.1(d))

Enforcement: Title 10 CFR 50.48(b)(2) requires, in part, that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of Appendix R to this part, including specifically the requirements of Sections III.G, III.J, and III.O. Appendix R, Section III.G.3 requires, in part, that alternative of dedicated shutdown capability and its associated circuits, independent of cables, systems, or components in the area, room, or zone under consideration should be provided where the protection of systems whose function is required for hot shutdown does not satisfy the requirement of paragraph G.2 of this section. In addition, fire detection and a fixed fire suppression system shall be installed in the area, room, or zone under consideration.

Contrary to the above, from June 30, 2008 until June 30, 2012, the licensee failed to provide adequate fire suppression coverage for fire zone AX-32. Specifically, the licensee failed to provide fixed fire suppression for redundant cables or equipment located within fire zone AX-32 for source range neutron flux monitoring, isolation of the SG B blowdown line, and pressurizer level indication.

Because this violation was of very low safety significance and it was entered into the licensee's CAP as CR478600, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000305/2012003-03; Failure to Provide Adequate Suppression in Cable Spreading Area).

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

.1 EN47871, Both Trains of RHR Declared Inoperable on April 27, 2012

a. Inspection Scope

The inspectors reviewed the plant's response to the discovery of a through wall pipe leak on the common discharge line for RHR on April 27, 2012. Documents reviewed in this inspection are listed in the Attachment to this report.

This event follow-up review constituted one sample as defined in IP 71153-05.

b. Findings

Incorrect Leakage Requirement Submitted For A Proposed Temporary Pipe Clamp

Introduction: A SL IV NCV of 10 CFR Part 50.9(a), "Completeness and Accuracy of Information," was identified by the inspectors for the failure of the licensee to provide complete and accurate information in all material respects to the Commission in licensee Request RR-2-3, dated April 29, 2012 (ADAMS Accession No. ML12122A138). As part of a license amendment for a proposed temporary deviation from the requirements of 10 CFR 50.55a and ASME Code, Section XI, the licensee incorrectly stated the allowable leakage from the temporary clamp in transition from Mode 5 to 4 was

governed by TS 5.5.2, “Primary Coolant Sources Outside Containment,” and proposed an allowable leakage value of 5.5 gph. After licensee Request No. RR-2-3 was verbally approved by the NRC on April 30, 2012, the inspectors and NRC staff determined that the governing leakage requirement was no leakage in Mode 4 for the clamp as required by TS 3.4.13, “Reactor Coolant System Operational Leakage.”

Description: On April 25, 2012, with the reactor in Mode 5, the licensee identified dry white BA accumulated around a socket weld upstream of RHR valve RHR-600, and initiated CR472226. Valve RHR-600 was located in the auxiliary building on the common discharge piping for the RHR system to the reactor for decay heat removal when the plant was shut down. On April 27, 2012, while removing the dry BA, a pinhole leak was discovered with a constant spray in the “toe” of the socket weld (the weld starting and stopping point) where the ¾ inch RHR pipe from valve RHR-600 was welded to the sock-o-let for the larger diameter common discharge piping for the RHR system to the reactor. The licensee initiated CR472654 and the Shift Manager declared both trains of RHR inoperable due to the through wall leak on ASME Code, Class 2 piping and entered the TS Action Condition 3.4.7.C, which required the licensee to restore operability immediately.

Initially on April 27, 2012, the licensee believed they could implement the ASME Boiler and Pressure Vessel Code, Section XI, 1998 Edition, 2000 Addenda, IWA-4133, which allowed the use of a mechanical clamping device to repair pressure boundary piping in accordance with ASME Code, Section XI, Appendix IX. However, the inspectors noted to the licensee that ASME Code, Section XI, Appendix IX, Article IX-1000(c)(2) stated that clamping devices shall not be used on portions of a piping system that forms the containment boundary. The inspectors also noted that the USAR Table 5.2-3, “Reactor Containment Vessel Penetrations,” listed valve RHR-600 as the outside containment barrier for Penetration Number 10, and the newly discovered leak was upstream of this CIV. The licensee concurred and pursued a proposed alternative to the code through a temporary deviation to the Code, which required prior NRC approval.

The licensee held conference calls with the NRC on April 28 and April 29 regarding the licensee’s proposed alternative. On an April 28 teleconference with the licensee, the NRC staff requested that the licensee address in their submittal the applicable leakage requirements for the temporary clamp in Modes 5 and 4, in accordance with their license and TS. On April 29, the licensee submitted Request No. RR-2-3 (ADAMS Accession No. ML12122A138) seeking NRC’s approval to install a clamp on the leak, transition to Mode 4 to isolate the leak while allowing one train of RHR to be operable for injection, and then implementing the permanent repair prior to transitioning to Mode 3. The licensee’s submittal stated that the allowable leakage for transition from Modes 5 to 4 was governed by the System Integrity Program, required by TS 5.5.2, “Primary Coolant Sources Outside Containment,” and proposed a commitment to ensure leakage was below 5.5 gph. Following the approval by the NRC staff at approximately 1:30 a.m. on April 30, 2012, the licensee commenced installing the approved temporary clamp and encountered implementation difficulties (See Section 1R18.1), which required the licensee to stop work on the clamp installation.

Further review by the NRC inspectors and NRC TS Branch staff on Monday, April 30, 2012, raised a question regarding the location of the leak on the common RHR discharge piping and the applicable TS for leakage proposed by the licensee. Specifically, while in Mode 4, the leakage from the common RHR discharge piping in the

auxiliary building could be considered RCS operational leakage; and TS Limiting Condition for Operation 3.4.13, states, in part, that no pressure boundary leakage was allowed. The TS Section 1.1 defines pressure boundary leakage as leakage (except primary to secondary leakage) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall. In addition, 10 CFR 50.2, "Definitions," defines reactor coolant pressure boundary, in part, as all those pressure-containing components of pressurized water nuclear power reactors such as piping, which are connected to the RCS, up to and including the outermost CIV in system piping which penetrates primary reactor containment. The inspectors and NRC TS Branch staff verified that this definition in 10 CFR 50.2 was in effect prior to the issuance of the Kewaunee Operating License in December 1973, and therefore was applicable to the licensee's implementation of TSs. In addition, the inspectors and NRC TS Branch staff concluded the pinhole weld leak upstream of valve RHR-600 (defined in the USAR Table 5.2-3 ad the outermost CIV for containment penetration No. 10) was a nonisolable fault because isolation of the common discharge piping for RHR decay heat removal would result in a loss of a key safety function, core cooling, and therefore could not be isolated due to operational conditions. While the RHR system was inoperable due to the pinhole leak in the piping, the RHR system was still available to perform its key safety function of core cooling in Mode 5.

The inspectors and NRC staff then discussed with the licensee the applicability of TS 3.4.13 to the allowable leakage from the proposed temporary clamps for transition from Mode 5 to 4.

Analysis: The inspectors determined that the failure to provide complete and accurate information in all material respects in accordance with 10 CFR 50.9 was a performance deficiency warranting a significance evaluation.

The performance deficiency was determined to be more than minor in accordance with the NRC Enforcement Policy and Enforcement Manual because the NRC identified the performance deficiency, the NRC relied on the information provided in a licensing decision, and the misinformation was identified after the NRC relied on the information in its licensing decision. Because violations of 10 CFR 50.9 are considered to be violations that potentially impact the regulatory process, they are dispositioned using the traditional enforcement process instead of the ROP SDP. Because the performance deficiency, a failure to submit complete and accurate information, was not an ROP finding per IMC 0612, Appendix B, "Issue Screening," a cross-cutting aspect was not assigned to this violation.

Enforcement: Title 10 CFR Part 50.9, "Completeness and Accuracy of Information," paragraph (a) requires, in part, that information provided to the Commission by a licensee shall be complete and accurate in all material respects.

Contrary to the above, on April 29, 2012, as part of a license amendment for a proposed temporary deviation from the requirements of 10 CFR 50.55a and ASME Code, Section XI, the licensee incorrectly stated the allowable leakage from the temporary clamp in transition from Mode 5 to 4 was governed by TS 5.5.2, "Primary Coolant Sources Outside Containment," and proposed an allowable leakage value of 5.5 gph. After licensee Request No. RR-2-3 was approved by the NRC, the inspectors and NRC staff determined that the governing leakage requirement was no leakage in Mode 4 for the clamp as required by TS 3.4.13, "Reactor Coolant System Operational Leakage."

+This information was material, in that, the NRC staff would not have approved a leakage value of 5.5 gph for the temporary clamp on April 30, 2012, with this additional information. The severity of the violation was mitigated because of the facts surrounding the licensee's implementation of Request No. RR-2-3. Because this violation was not repetitive or willful, and was entered into the licensee's CAP as CR478732, this violation is being treated as a SL IV NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000305/2012003-04; Incorrect Leakage Requirement Submitted For A Proposed Temporary Pipe Clamp).

Following the licensee's unsuccessful field implementation of Request No. RR-2-3 (see Section 1R18.1 of this Report), and subsequent discussion with NRC inspectors and staff, the licensee withdrew the request on May 3, 2012 (ADAMS Accession No. ML12125A300). On May 5, 2012, the licensee permanently corrected both through wall leaks on the RHR system piping without incident following the NRC approval of a second proposed alternative in Request No. RR-2-4, dated May 3, 2012 (ADAMS Accession No. ML12125A279) and supplemented on May 4, 2012 (ADAMS Accession No. ML12129A279). At the end of the inspection period, the licensee continued to perform a causal evaluation regarding this violation.

.2 EN47873, Both Trains of RHR Declared Inoperable on April 30, 2012

a. Inspection Scope

The inspectors reviewed the plant's and operator response to the discovery of a second through wall pipe leak on the common discharge line for RHR on April 30, 2012. Documents reviewed in this inspection are listed in the Attachment to this report.

This event follow-up review constituted one sample as defined in IP 71153-05.

b. Findings

No findings were identified.

.3 (Closed) Licensee Event Report (LER) 05000305/2012-004-00: Pressure Boundary Leakage from Socket Weld on ¾-Inch Pipe to Sample Valve RHR-600

The LER 05000305/2012-004-00 was reviewed for completeness and accuracy upon issuance on June 21, 2012. The event that occurred, circumstances that surrounded the event, and performance deficiencies that occurred, are discussed in detail in Sections 1R18 and 4OA3.1 of this report, as a result of the inspectors' activities. Therefore, this LER is closed.

This event follow-up review constituted one sample as defined in IP 71153-05.

4OA6 Management Meetings

.1 Exit Meeting Summary

On July 3, 2012, the inspectors presented the inspection results to A. Jordon, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- the results of the inservice inspection with Mr. R. Simmons, Plant Manager, on April 18, 2012;
- the inspection results for the areas of radiological hazard assessment and exposure controls; and occupational as-low-as-reasonably-achievable (ALARA) planning and controls, with Mr. R. Simmons, Plant Manager, on April 27, 2012;
- the heat sink performance Inspection with Mr. S. Yuen, Director of Engineering, and other members of the licensee staff on May 18, 2012.

The inspectors confirmed that none of the potential report input discussed was considered proprietary. Proprietary material received during the inspection was returned to the licensee.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

B. Koehler, Engineering Equipment Reliability Supervisor
D. Vorpahl, Engineering
J. Gadzala, Regulatory Assurance Representative
J. Jannsen, Engineering
P. Bukes, ISI Program Engineer
R. Repshas, Licensing
R. Simmons, Plant Manager
T. Olson, Engineering Programs Manager
J. Stafford, Safety and Licensing Director
T. Olsowy, Corrective Action
K. Morris, Security Manager
J. Palmer, Training Manager
C. Edwards, Maintenance
D. Lawrence, Operations Manager
K. Phillips, Outage and Planning
D. Shannon, Radiation Protection
Mark Aulik, Design Engineering Manager

Nuclear Regulatory Commission

K. Riemer, Branch Chief, Reactor Projects Branch 2
A.M. Stone, Branch Chief, Reactor Safety, Engineering Branch 2
D. Alley, Senior Materials Engineer
K. Barclay, Resident Inspector
J. Collins, Senior Materials Engineer
R. Dennig, Branch Chief
K. Feintuch, Project Manager
I. Frankl, Senior Reactor Systems Engineer
R. Grover, Reactor Systems Engineer
M. Hamm, Reactor Systems Engineer
D. Hills, Branch Chief
M. Holmberg, Branch Chief
J. Jandovitz, Project Engineer
R. Krsek, Senior Resident Inspector
T. Lupold, Branch Chief
W. Lyon, Senior Reactor Engineer, Nuclear
J. Neurauter, Senior Reactor Inspector
J. Patel, Reliability And Risk Analyst
H. Peterson, Branch Chief
C. Schulten, Senior Reactor Engineer
N. Shah, Project Engineer
A. Ulses, Branch Chief
J. Wallace, Materials Engineer
M. Ziolkowski, Reactor Engineer

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000305/2012003-01	NCV	Failure to Utilize Work Order for Temporary Weld Repair on ASME Code, Class 2 Piping (Section 1R18)
05000305/2012003-02	NCV	Loose Cable Clamp Caused Loaded Spent Fuel Upender to Unintentionally Lower (Section 1R20)
05000305/2012003-03	NCV	Failure to Provide Adequate Suppression in Cable Spreading Area (Section 4OA2.4)
05000305/2012003-04	NCV	Incorrect Leakage Requirement Submitted For A Proposed Temporary Pipe Clamp (Section 4OA3.1)

Closed

05000305/2012003-01	NCV	Failure to Utilize Work Order for Temporary Weld Repair on ASME Code, Class 2 Piping (Section 1R18)
05000305/2012003-02	NCV	Loose Cable Clamp Caused Loaded Spent Fuel Upender to Unintentionally Lower (Section 1R20)
05000305/2012003-03	NCV	Failure to Provide Adequate Suppression in Cable Spreading Area (Section 4OA2.4)
05000305/2012003-04	NCV	Incorrect Leakage Requirement Submitted For A Proposed Temporary Pipe Clamp (Section 4OA3.1)
05000305/2012-004-00	LER	Pressure Boundary Leakage from Socket Weld on ¾-Inch Pipe to Sample Valve RHR-600 (Section 4OA3.3)

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

- NERC Standard NUC-001; Nuclear Plant Interface Coordination Agreement Between Dominion Energy Kewaunee, Inc. And American Transmission Company LLC; Effective April 1, 2010

1R04 Equipment Alignment

- CA235332; Det, Doc & Res Both SI Pump Disch Valves Being Open When LTOP Was Required
- CR425879; A AFW Pump Outboard Seal Has A Steady Flow Leak
- CR469567; Oil Leak On Diesel Generator B Lube Oil Cooler
- CR469619; Both SI Pumps Discharge Valves Were Open When LTOP Was Required
- CR471836; CR 1B EDG Ventilation Damper Operation Not Responding As Designed
- CR474412; Control Room Received Alarm Due To Bumping Level Transmitter
- Drawing ISIM-933; Safety Injection Pumps Suction Piping; Revision E
- Drawing ISIM-992-1; Safety Injection Pumps Suction Piping; Revision F
- Drawing OPERM-205; Flow Diagram Feedwater System; Revision BM
- Drawing OPERM-213-13; Operation Flow Diagram Station And Instrument Air System Diesel Generator A And B Ventilation Damper; Revision B
- Drawing OPERM-220; Flow Diagram Fuel Oil Systems, Revision BA
- Drawing OPERXK-100-28; Safety Injection System; Revision BA
- Drawing OPERXK-100-29; Safety Injection System; Revision AN
- E-0; Reactor Trip Or Safety Injection; Revision 45
- N-SI-33-CL; Safety Injection System Prestartup Checklist; Completed May 4, 2012
- OP-KW-AOP-CVC-001; Emergency Boration, System No. CVC-35; Revision 6
- OP-KW-NCL-AFW-001; Auxiliary Feedwater System Prestartup Checklist; Revision 2
- OP-KW-NCL-DGM-001B; Diesel Generator B Prestartup Checklist; Revision 8

1R05 Fire Protection

- CAP021863; Portable Fire Extinguisher In AX-32 Not Rated For Class A Fires
- CR409769; Penetration 620 Between Relay Room And Control Room
- CR447559; Door 049 Found To Be Unsat During A Monthly Special Door Inspection
- FP Impairment No. 07-81; Appendix R Lighting; August 24, 2007
- PFP-21; AX-30, Relay Room And Loft; Revision C
- PFP-24; AX-32 Cable Spreading Area; Revision C
- PFP-4; SC 70A, SC-70B Screen House; Revision C
- PFP-6; TU 92, TU-93, Diesel Generator 1B And Day Tank Rooms; Revision C
- PFP-9; TU 95B, Switchgear Bus 1-61 And 1-62 Room And AFW Area; Revision D

1R07 Annual Heat Sink Performance

- 00-001109; Investigate USAR Basis For Not Allowing Valve CW-500 To Be Closed; April 25, 2000
- 00-001692; The CW Line From The CW Discharge To The Forebay Was Found Fouled By Bio-Matter During Diver Inspection Of The Line During WO 581; May 20, 2000
- 01-042; Service Water (SW) System Model Development; Revision F
- A-203; General Arrangement Turbine And Administration Building Basement Floor; Revision BJ
- A-213; General Arrangement Screenhouse And Circulating Water Discharge; Revision AA
- C10440; Battery Room Heatup Following Station Blackout; April 4, 2012
- C10442; Control Room Temperature Following Station Blackout; Revision 1
- C10443; Relay Room Heatup Following Station Blackout; Revision 0, Add. F
- C10453; Station Blackout Electrical Equipment Heat Rejection; January 4, 2006
- C11466; Analysis Of Cooling Water Intake Temperature; Revision 0
- C11553; Calculation Of Flow Losses In 30 inch Recirculation Pipe From The Discharge Structure To The Screenhouse Forebay; Revision 0
- C11553; Calculation Of Flow Losses In 30 inch Recirculation Pipe From The Discharge Structure To The Screenhouse Forebay; Revision 0, Addendum A
- C11553; Calculation Of Flow Losses In 30 inch Recirculation Pipe From The Discharge Structure To The Screenhouse Forebay; Revision 0
- C11660; AFWP LOC Blockage Evaluation; April 28, 2011
- C11753; Safeguards Fan Coil Unit Heat Loads Due To The TDAFW Pump Turbine Exhaust Piping; April 2, 2007
- CR367522; Troubleshoot For Low Flow Alarms At Battery Room FCU; February 2, 2010
- CR417035; Three Tubes Requires Plugging In The ‘A’ CC HX; April 10, 2011
- CR429884; The As-Found Conditions Of The System 16 WOs Are Code 2 (Degraded); June 6, 2011
- CR475208; NRC Identifies Issue With Fire Protection Analysis (FPPA); May 15, 2012
- CR475633; Control Room Normal Operating Temperature Does Not Match USAR; May 17, 2012
- CR475641; NRC Heat Sink Inspection Identified Item Related To HX As-Found Inspection; May 17, 2012
- DCR 3048; CRAC – (Control Room Chillers); July 18, 2001
- DCR 3168; Install Trash Grate On Re-circulation And Auxiliary Intake Pipe; May 28, 2000
- GENER-0032 (216-1); 7700 Line Motor Control Center; Revision 11
- KW 00-001781-000; The 30” Line From The Circulating Water Discharge To The Forebay Was Found Full Of Debris; May 29, 2000
- KW07-010647; PM16-059: Performance Monitoring/FIN Cleaning-Battery Room FCU 1B; April 6, 2008
- KW100324466; PM16-524: 36 MO Calib Check; September 15, 2011
- KW100351872; PM16-059: Performance Monitoring/FIN Cleaning-Battery Room FCU 1B; October 27, 2011
- KW100653973; PM04-004: 12 MO Calib Check (Forebay Area Wtr Lvl Inst Calib); February 21, 2011
- KW100818900; Auxiliary Feedwater Pump B Low Suction Pressure Trip Test and AFW/SW Valve IST; February 1, 2012
- KW100819902; Auxiliary Feedwater Pump A Low Suction Pressure Trip Test And AFW/SW Valve IST; February 2, 2012
- KW100840232; Turbine Driven AFW Pump Low Suction Pressure Trip Test And AFW/SW Valve IST; November 24, 2009

- LTR-IPES-02-11; Kewaunee Uprate Design Inputs To Support LOCA MandE/Containment Integrity Analysis; KEW-Uprate-02-007
- M-231; Screenhouse Piping; Revision AB
- M-232; Screenhouse Piping; Revision FP
- M-236; Circulating Water Piping; Revision Z
- M-237; Circulating Water Piping; Revision W
- MA-KW-MPM-BLD-004; Circulating Water Inlet Structure Inspection; Revision 3
- MA-KW-MPM-TAV-002E; Air Pre-Filter Inspection Of Turbine Building Ventilation Fan Coil Units; Revision 2
- MA-KW-MPM-TAV-017B; Semi-Annual Preventive Maintenance Of Battery Room Fan Coil Unit 1B; Revision 4
- NAI-1200-001; Gothic Model For CREZ Heat Up Analysis At The Kewaunee Nuclear Power Plant; Revision 1
- No. 7500; General Motors Model 999 System Generating Plant (Site EDG's); Revision A
- OE 017550; NRC IN 2006-017 Recent Operating Experience Of Service Water Systems Due To Exte; April 4, 2007
- OPERM-202-1; Flow Diagram Service Water System; Revision CN
- OPERM-202-2; Flow Diagram Service Water System; Revision CY
- OPERM-202-3; Flow Diagram Service Water System; Revision DH
- OPERM-215; Flow Diagram Circulating Water System; Revision (BS)
- OPERM-588; Flow Diagram Air Cond. Cooling Water Piping; Revision P
- OPERM-606; Flow Diagram Air Cond. Cooling Water Piping; Revision BW
- OP-KW-AOP-SW-001; Abnormal Service Water System Operation; Revision 7
- OP-KW-AOP-TAV-001; Abnormal Turbine Building And Screenhouse Ventilation System Operation; Revision 8
- OP-KW-ARP-47052-D; Battery Room A/B Exhaust Flow Low; Revision 2
- OP-KW-ARP-47054-N; SFGRD Alley Flood Level High; Revision 2
- OP-KW-ARP-47054-P; SW Strainer DIFF PRESS HIGH; Revision 2
- OP-KW-ARP-47344-22; TLA-27 Circ Water Inlet Temperature High; Revision 0
- OP-KW-NCL-AFW-001; Auxiliary Feedwater System Prestartup Checklist; Revision 2
- OP-KW-NCL-SW-001; Service Water System Pre-Start-Up Checklist; Revision 3
- OP-KW-NOP-ACC-001; Control Room Air Conditioning System; (page 9 Of 37); Revision 11
- OP-KW-NOP-CW-001; Circulating Water System ; Revision 8
- OP-KW-NOP-SW-001; Service Water System; Revision 8
- OP-KW-ORT-AFW-002; AFW Service Water Header A Flush; Revision 2
- OP-KW-ORT-AFW-003; AFW Service Water Header B Flush; Revision 3
- OP-KW-ORT-AFW-004; TDAFW Service Water Header Flush; Revision 4
- OP-KW-OSP-AFW-005; Auxiliary Feedwater Pump A Low Suction Pressure Trip Test And AFW/SW Valve IST; Revision 3
- OP-KW-OSP-AFW-006; Auxiliary Feedwater Pump B Low Suction Pressure Trip Test And AFW/SW Valve IST; Revision 3
- OP-KW-OSP-AFW-007; Turbine Driven AFW Pump Low Suction Pressure Trip Test And AFW/SW Valve IST; Revision 3
- S-601; Screenhouse Floor Plan – EL. 596' –0"; Revision P
- S-613; Circulating Water Intake and Discharge Plan; Revision H
- S-622; Discharge Structure Plans, Sections, And Details; Revision G
- S-623; Discharge Structure Plans, Sections, And Details; Revision F
- SAR 1802; Formal Self – Assessment, NRC Triennial Heat Sink Inspection; May 4, 2012
- SSFI-02-06; Battery Room Temperature With lA Fan Coil Unit Operating Off Design And Revised Heat Load; October 18, 2009

1R08 Inservice Inspection Activities

- CR416303; VT Inspection Not Performed On Studs And Nuts On CCHX 1B; March 6, 2011
- CR417365; Unacceptable Radiography Results On ICS-6B Weld 32; March 13, 2011
- CR417593; Coatings Inspection On Containment Dome; March 14, 2011
- CR418443; Information Lost For Welding And Inspections For AFW DCR 3609-2; March 20, 2011
- CR419058; NDE Hold Point For VT-3 Visual Examinations Of AFW-4A Bolting Not Completed; March 23, 2011
- CR423422; Instructions Contained In ER-AA-RRM-100 Are Unclear And/Or Inadequate; April 20, 2011
- CR429515; Safety Injection Pump 1B Flange Studs And Nuts Removal For KR32; June 2, 2011
- CR469979; Concern By The NRC For Inservice Inspection; April 10, 2012
- CR470862; Weld Inspection Not Performed Prior To Welding First Pass; April 15, 2012
- ER-AA-NDE-MT-200; ASME Section XI Magnetic Particle Examination Procedure; Revision 4
- ER-AA-NDE-UT-801; UT Of Ferritic Piping Welds IAW ASME Section XI, Appendix VIII; Revision 3
- ER-AA-NDE-VT-603; VT-3 Visual Examination Report; Revision 3
- MT-12-001; MT Report For ISIM-891-1/AFW-W120/C5.61; April 10, 2012
- MT-12-002; MT Report For ISIM-891-1/AFW-W121/C5.61; April 10, 2012
- P-101; General Piping And Pressure Vessel Welding Procedure; Revision 16
- PQR 101; GTAW For P-1 To P-1; Revision 5
- PQR 102; GTAW For P-1 To P-1; Revision A
- PQR 104; GTAW/SMAW For P-1 To P-1; January 28, 1985
- PQR 105; SMAW For P-1 To P-1; Revision 4
- PQR 135; GTAW/SMAW For P-1 To P-1; August 27, 2002
- PQR 801; GTAW For P-8 To P-8; Revision 2
- PQR 830; GTAW/SMAW For P-8 To P-8; July 20, 2001
- PQR 831; GTAW/SMAW For P-8 To P-8; July 20, 2001
- SP-55-324; Pressure Testing Of Repair Or Replacement Activities For ASME Boiler And Pressure Vessel Code Section XI; Revision 8
- UT-12-006; UT Examination Report For ISIM-891-1/AFW-W120/C5.61; April 10, 2012
- UT-12-007; UT Examination Report For ISIM-891-1/AFW-W121/C5.61; April 10, 2012
- VT-12-041; VT-3 Report For M-1236/APSW-1A2-S2; April 10, 2012
- VT-12-042; VT-3 Report For M-1236/APSW-1A2-S1; April 10, 2012
- WPS/WTS 103; GTAW/SMAW P-1 To P-1 Material; Revision 8
- WPS/WTS 801; GTAW P-8 to P-8 Material; Revision 8

1R11 Licensed Operator Requalification Program

- OP-AA-100; Conduct Of Operations; Revision 18
- OP-KW-AOP-II-001; Abnormal Inadequate Core Cooling Monitoring (ICCM) System; Revision 5
- OP-KW-AOP-RC-002; Abnormal RCS Level, System No. RC-36; Revision 2
- OP-KW-NOP-RCS-005; Draining The Reactor Coolant System, System No. 36; Revision 13
- OP-KW-NOP-RCS-005; Draining The Reactor Coolant System, System No. 36, ICCE; Revision 13
- LRC-12-DY301; Licensed Operator Requalification Simulator Evaluation Guide; Revision C

1R12 Maintenance Effectiveness

- A1G000247; No Failure Of Buss 5 Or 6 Bkrs For 18 Months After Pref Of EPM-EHV-017
- ACE 019063; Charging Motor For Breaker Installed At Location 1-606BKR (Safety Injection Pump 1B) Failed To Stop
- CAP010699; Failure Of 4160 V Breaker Charging Motor To Charge
- CE016820; BKR 1-611 Charging Motor Continued Running After Closing Spring Indicated CHARGE
- CR3511996; 1602BKR Charging Motor Circuit Problem During Breaker Racking Procedure
- CR352048; 1-510 Breaker Charging Motor Failed To Stop
- CR472771; Relay Room CO2 Test Did Not Perform As Expected
- Drawing E-2004; Control Room A/C System; Revision T
- Drawing E-2009; Fire Protection System; Revision P
- Drawing E-2766; Fire Protection System; Revision E
- Maintenance Rule Scoping Questions; 4160 V Electrical Supply And Distribution; June 29, 2012
- Maintenance Rule System Basis; Revision 6; June 29, 2012
- MA-KW-EPM-EHV-017; 4.16 KV Vacuum Breaker Maintenance; Revision 3
- MRE014858; Charging Motor On SI Pump B Breaker Did Not Stop Following Breaker Closure
- SAR001141; Kewaunee Power Station Maintenance Rule (a)(3) Formal Self-Assessment; Completed August 19, 2010
- SSC performance Criteria Sheet; 39 4160 VAC; June 29, 2012
- System Health Report; 33-SI – Safety Injection; Q2-2012
- System Health Report; 4160V Supply And Distribution; !2-2012

1R13 Maintenance Risk Assessments and Emergent Work Control

- CR468925; List Of Screened Lift Areas In NF-AA-PRA-370 Needs To Be Updated
- Drawing S-750; Screenhouse Appendix R Hatch Cover & Elect. Manholes; Revision A
- EPRI; Nuclear Maintenance Application Center (NMAC) Memo November 2009
- FR-C.1; Response To Inadequate Core Cooling; Revision 21
- FR-H.1; Response To Loss Of Secondary Heat Sink; Revision 35
- FR-I.1; Response To High Pressurizer Level; Revision 11
- FR-I.2; Response To Low Pressurizer Level; Revision 9
- FR-I.3; Response To Voids In Reactor Vessel; Revision 15
- FR-S.1; Response To Nuclear Power Generation/ATWS; Revision 31
- FR-S.2; Response To Loss Of Core Shutdown; Revision 10
- FR-Z.1; Response To High Containment Pressure; Revision 21
- GNP-08.12.02; Controls For Use Of Cranes Within The Protected Area; Revision 27
- KPS Active Non-Conforming Conditions; May 25, 2012
- KPS Probabilistic Risk Assessment Notebook; Part V, Volume RA.027, Revision 0
- KW T-00 1221 (05/20-05/26) By Start
- Letters From W. Ruland, Director, Division Of Safety Systems, ONR, NRC; To T. Houghton, Director, Strategic Regulatory Programs, Nuclear Generation Division, NEI; Subject: Industry Initiative On Control Of Heavy Loads; May 16, 2008 And May 27, 2008
- Log Entries Report; Various Dates From May 24 To June 11, 2012
- Major Activities For Work Week 1221; May 20 To May 26, 2012, June 3 To June 9, 2012, And June 10 To June 16, 2012
- NF-AA-PRA-101-3081; Probabilistic Risk Assessment Procedures And Methods: Configuation Risk Assessment Of Load Lifts; Revision 1

- NF-AA-PRA-370; Probablistic Risk Assessment Procedures And Methods: PRA Guidance For MRule (a)(4); Revision 12
- NRC RIS 2008-28; Endorsement Of Nuclear Energy Institute Guidance For Reactor Vessel Head Heavy Load Lifts; December 1, 2008
- NUMARC 93-01; NEI Industry guideline For Monitoring The Effectiveness Of Maintenance At Nuclear Power Plants; Revision 2
- Rigging Lift Plan: B Circulating Pump Motor; March 18, 2012
- Scheduler's Evaluation For Kewaunee On-Line Schedule; May 20 To May 27, 2012, And June 11 To June 18, 2012
- WM-AA-100; Work Management; Revision 17
- WM-AA-20; Risk Assessment Of Maintenance Activities; Revision 1

1R15 Operability Determinations and Functional Assessments

- CR464182; KPS Evaluation And Resolution Of Items Associated With NAF CA218172
- CR468976; Accumulator Leak Rate Test Procedures M&TE Inaccuracies Extent of Condition
- CR478109; Potential Non-Conformance Re: SR [Source Range] Detector Sensitivity
- End Of Month Status; Maintenance Rule (a)(1) Systems With Open Corrective Actions – 3 Systems; January 2012
- IAW OP-AA-102; OD 315, Potential Non-Conservative Tech Spec Actions For EQ; September 28, 2011
- Kewaunee Maintenance Rule Monthly Review Report For January 2012
- OD 315, Potential Non-Conservative Tech Spec Actions For EQ; October 11, 2011
- OP-AA-102; Operability Determination; Revision 8
- SP-48-132; Hot Channel Factor Determination; Completed May 15, 2012
- Westinghouse NSAL-09-5; Subject: Relaxed Axial Offset Control F_Q Technical Specification Actions; August 4, 2009

1R18 Plant Modifications

- ASME Section IX WPQs (Various); Completed March 15, 2012
- CM-AA-400; 50.59/72.48 Applicability Review For WO KW100894787 Rev. 2; May 5, 2012
- CM-AA-NWP-101; Control Of Welding; Revision 1
- CM-AA-NWP-101; Welding Program Weld Data Records; Completed May 2, April 28, And April 29, 2012
- CM-AA-TDC-204; Temporary Modifications; Revision 3
- Dominion Nuclear Operating Experience Handbook; Welding Activities; Revision 3; March 2008
- Drawing WM-962-2-1; RHR-From Anchors Thru RSDL HX 1A/1B To Pens 10, 48 & RHR-SFP Intercons; Revision B
- ERAA-NDE-VT-602; Nondestructive Examination Procedure; Revision 3
- GMP-128; Installation Of Kerotest Valves To Replace Rockwell-Edward Valves; Completed May 4, 2012
- Hot Work Permit No. 12-098; WO KW100894787 And KW100894696; Dated April 28, 2012
- MA-AA-102; FMEE For WO KW100894787; RHR-600; May 5, 2012
- MA-AA-105; Scaffolding; Revision 5
- Nuclear Picklist Report; RHR-600; Completed April 30, 2012
- OP-AA-200; Tagout 34-RHR – NSS-00001-(001); May 5, May 1, And April 29, 2012
- P-101; General Piping And Pressure Vessel Welding Procedure; Completed October 15, 2008
- Pre-Job Brief Checklist For WO KW100894696; April 29, 2012
- Pre-Job Brief Checklist For WO KW100894787; RHR-600; April 30, 2012

- Serial No. 12-324A; Letter To NRC From A.J. Jordan, Site Vice President, Kewaunee Power Station; Subject: Inservice Inspection Program Fourth Ten-Year Interval 10 CFR 50.55a Request No. RR-2-4, Response To Request For Additional Information; May 4, 2012
- TMOD 2012-12; Second RHR-600 Leak Repair; Revision 1
- Welding Technique Sheet; Welding Technique No. 801; Completed November 29, 2006
- WO KW100894696; T-Mod 2012-11 Installation Of Support Enclosure And Leak Sealant Repair
- WO KW100894787 Repair/Replacement Plan; ¾" Valve RHR-600 Sockolet; April 28, 2012
- WO KW100894787; Remove T-Mod 2012-11 And 2012-12, Weld Repair At ¾" Sock-O-Let

1R19 Post-Maintenance Testing

- Drawing E-1041; 4160V Breaker 1-507; Revision Y
- GNP-03.01.04; Procedure Writer's Guide; Revision 20
- GNP-08.02.12; Post-Maintenance Testing/Operations Retest; Revision 14
- IT 09A; Cold Start Of Turbine-Driven Auxiliary Feed Pump And Valve Test (Quarterly) Unit 2; Revision 54
- MA-KW-EPM-RLY-014; Clean And Functional Testing SW Pump 1A2 Lockout Relay 86/1-507BKR; Completed June 13, 2012
- MA-KW-MPM-CRN-006; Auxiliary Building Crane Main And Auxiliary Hoist Lower Block Post-Submersion; Completed April 25, 2012
- OP-KW-ARP-47092-1; Bus 5 Feeder BKR Trip; Revision 0
- OP-KW-OSP-AFW-001; Turbine Driven Auxiliary Feedwater Pump Auto Start Test; Completed May 7, 2012
- OP-KW-STP-FW-001; Fast Bus Transfer Feedwater Pump Circuit Test; Completed April 12, 2012
- SOP-AFW-05B-30; TDAFW Pump Curve Development And Cavitating Venturi Validation; Completed May 7, 2012
- WO KW100275012; PM05B055: Change Governor/Gearbox Oil (Turbine) – TDAFW Pump
- WO KW100704572; PM39-674: Perform Relay Clean And Functional Test
- Simpson 260 Series 8P Volt-Ohm-Milliammeters Instruction Manual
- CR465230; Procedure MA-KW-EPM-RLY-049 Rev. 1 PMT 5.5 Could Not Be Performed As Written
- MT&E No. 92380; Certificate Of Calibration; October 3, 2011
- MT&E No. 92485; Certificate Of Calibration; October 3, 2011

1R20 Outage Activities

- 50.59/72.48 Applicability Review; MA-KW-MRF-FH-003, Rev. 8; April 16, 2012
- ACE013777; Spent Fuel Pool Crane Hoist Stopped With A Load Attached
- CR437652; Aluminum And Unqualified Coatings On Rx Gap Motor Dampers
- CR472611; Received 47014-K RXCP Vibration Abnormal. Pump Vibration Indicates 30 Mils
- CR472776; "B" Reactor Coolant Pump High Vibration
- CR473388; ICCMS Void Fraction Design May Prevent Channel Check At Full Power
- DCR 3745; Upgrade Spent Fuel Pool Crane Hoist & Controls; February 16, 2009
- Dominion Energy Kewaunee Purchase Order 701892252; New Monorail Hoist For KPS Spent Fuel Bridge; October 15, 2008
- Drawing E-1022-M-1101121; 4160V. Breaker 1-102; Revision O
- Drawing E-1023-L-1101121; 4160V. Breaker 1-202; Revision O
- Drawing E-1099-AQ-1101121; Control Switch Development; Revision O
- Drawing E-1624-AB-1101121; Feedwater System; Revision O

- Drawing E-910-AD-1101121; Generator, Reserve Aux Transformer & Tertiary Auxiliary Transformer; Revision O
- ER-KW-BAC-102; BACC Containment Walk Downs, System No. 56; Revision 0
- ETE-KW-2012-0022; Compensatory Rigging For Fuel Assembly On SFP Bridge Crane; April 16 2012
- FSRC; KR-32 Outage Readiness Review – Agenda; April 26, 2012
- GNP-03.24.01; Job Briefs Implementation; Revision 16
- GNP-08.12.02; Controls For Use Of Cranes Within The Protected Area; Revision 27
- GNP-18.12.02; Controls For Use Of Cranes Within The Protected Area; Revision 27
- I-AA-5000; Human Performance (HU); Revision 7
- KPS FME Plan For The Reactor Cavity, Polar Crane, And Surrounding Areas; Completed January 10, 2012
- KPS FME Plan For The Spent Fuel Pool (SFP), SFP Canal, And The New Fuel Storage Vault; Completed January 10, 2012
- KPS Operations Aggregate Impact; March 23, 2012
- KPS USAR; 7.6. In-Core Instrumentation And Inadequate Core Cooling Monitoring System; Revision 23; September 12, 2011
- LOR-TP; R-32 MFW Trip-ICCMS-Tap Changer Review; April 26, 2012
- MA-KW-MPM-CRN-005; Auxiliary Building Crane Main And Auxiliary Hoist Lower Block Pre-Submersion Maintenance, System No. 57; Revision 1
- MA-KW-MPM-CRN-006; Auxiliary Building Crane Main And Auxiliary Hoist Lower Block Post-Submersion Inspection, System No. 57; Revision 2
- MA-KW-MRF-RXH-006; Reactor Pressure Vessel Head Lift, ITS; Revision 3
- ML082140807; Oconee Nuclear Station – NRC Special Inspection Report 05000269/2008008; August 1, 2008
- Modification 3745 – Upgrade Spent Fuel Pool Crane Hoist & Controls; February 3, 2009
- NF-AA-RXE-1004; Generation And Control Of Reactivity Plans; Revision 4
- NF-AA-RXE-1004; Reactivity Plan Evaluation; Revision 4
- NF-KW-RRF-014; Fuel Movement During A Refueling Outage, System 53; Completed April 25, 2012
- NUREG/CP-0152, Vol. 6; RCP Vibration Studies: An Examination Of Lower Motor Bearing Failures And Their Effects On Shaft Integrity
- OCC Log; Various Times; April 27 – April 29, 2012
- OP-AA-100; Conduct Of Operations; Revision 19
- OP-AA-1500; Operational Configuration Control; Revision 8
- OP-AA-200; Equipment Clearance; Revision 14
- OP-AA-2000; Tagging Administration; Revision 0
- OP-KW-AOP-II-001; Abnormal Inadequate Core Cooling Monitoring (ICCM) System; Revision 5
- OP-KW-AOP-RC-002; Abnormal RCS Level, System No. RC-36; Revision 2
- OP-KW-ARP-47034-32; TLA-32 RST Tap Changer Alarm, System No. 59; Revision 3
- OP-KW-ARP-47061-A; Feedwater Pump A Trip, System No. FW-05A; Revision 4
- OP-KW-ARP-47061-D; Feedwater Pump B Trip, System No. FW-05A; Revision 4
- OP-KW-ARP-47065-B; Fast Bus Transfer To FWP Trip Ckt Actuated, System No. 05A; Revision 0
- OP-KW-GCL-002; Defueled To Mode 6 Checklist; Completed April 21, 2012
- OP-KW-GCL-101A; Mode 6 To Mode 5 Checklist; Completed April 25, 2012
- OP-KW-GCL-102A; Containment Operability Checklist; Completed April 29, 2012
- OP-KW-GCL-102C; Mode 5 To Mode 4 Checklist; Completed May 5, 2012
- OP-KW-GCL-103D; Mode 4 To Mode 3 Checklist; Completed May 6, 2012
- OP-KW-GCL-104B; Mode 3 To Mode 2 Checklist; Completed May 9, 2012

- OP-KW-GCL-105B; Mode 2 To Mode 1 Checklist; Completed May 10, 2012
- OP-KW-GOP-201; Shutdown From Mode 5 To Mode 6; Revision 14
- OP-KW-GOP-202; Shutdown From RHR To Mode 5; Revision 15
- OP-KW-GOP-203; Shutdown From Mode 3 To RHR; Revision 21
- OP-KW-GOP-204; Shutdown From Mode 2 To Mode 3 (Reactor Shutdown); Revision 8
- OP-KW-GOP-205; Shutdown From 35% Power To Mode 2; Revision 11
- OP-KW-GOP-206; Shutdown From Full Power To 35% Power; Revision 7
- OP-KW-NOP-FW-001; Feedwater System Normal Operation, System No. 05A; Revision 11
- OP-KW-NOP-II-001; Inadequate Core Cooling Monitoring (ICCM) System, System No. 50; Revision 2
- OP-KW-NOP-RCS-001; Electrical Conditions To Start RXCP; Revision 19
- OP-KW-NOP-RCS-001; Reactor Coolant Pump Operation, System No. 36; Revision 19
- OP-KW-NOP-RCS-005; Draining The Reactor Coolant System, System No. 36; Revision 13
- OP-KW-NOP-RCS-005; Draining The Reactor Coolant System, System No. 36, ICCE; Revision 13
- OP-KW-NOP-SUB-003; RST And TST Load Tap Changer Operation, System No. 59; Revision 5, Draft A
- OU-KW-201; Shutdown Safety Assessment; Revision 11
- QL-53; KPS Q-List Project; System 53 – Fuel Handling; Completed April 14, 2010
- RE-20; Fuel Shuffle Verification; Revision 17
- Reactivity Plan; End Of Cycle 31 Shutdown – April 5, 2012; Revised March 16, 2012
- Report-FIR-20120008-0-0; Memo From R.L. Ridder, Innsbrook 3SW, To J.J. Madden, KPS; Subject: Assessment Of Assembly K67; April 24, 2012
- Request For FSRC; Active Boric Acid Leaks For Start Up; April 26, 2012
- Request For FSRC; Active Boric Acid Leaks For Start Up; April 26, 2012
- Request For FSRC; Current Non-Conforming Conditions For Start Up; April 26, 2012
- Request For FSRC; KR-32 PM Deferrals For Start Up; April 26, 2012
- Request For FSRC; KR-32 Start Up – temporary Modifications In Place; April 26, 2012
- Request For FSRC; KR-32 Start Up – Temporary Modifications In Place; April 26, 2012
- Shutdown Safety Assessment (SSA) Checklist; Completed May 3, 2012 And April 30, 2012
- SP-54-064; Turbine Overspeed Trip Test; Revision 35
- WPS-K1-244; Specification For Inadequate Core Cooling Monitoring System; Revision 5; November 10, 1985

1R22 Surveillance Testing

- CA228969; Evaluate The Concern Raised That OSP-CCI-004 May Not Fully Satisfy SR 3.6.8.1
- Calculation C11911; Minimum And Maximum RHR (Low Head) And SI (High Head) Delivered Flow During Si Injection And Recirculation Phases; Approved May 28, 2010
- Calculation C11911; Minimum And Maximum RHR (Low Head) And SI (High Head) Delivered Flow During SI Injection And Recirculation Phases And RHR And SI Pump Flow Test Acceptance Criteria; Revision 0
- CR463226; Review Limits For MTC Procedure
- Drawing E-2540; RG 1.97, Instrumentation Wiring Diagram, Pressurizer Level L426; Revision L
- Drawing XK-100-547; Pressurizer Level; Revision 1Y
- E-2039; Reactor Coolant System; Revision AG
- ER-AA-IST-101; ASME IST Program – Inservice Testing Of Pumps; Revision 1
- KPS USAR 3.2; Reactor Design; Revision 23.01; December 30, 2011

- MA-KW-ISP-RC-017B-1; Pressurizer Level Instrument channel 426 (Red) Calibration; Completed May 18, 2012
- MA-KW-ISP-RC-017B-1; Pressurizer Level Instrument channel 426 (Red) Calibration; Revision 0
- NF-KW-RET-002; Low Power Physics Test; Revision 8; Completed May 10, 2012
- OP-KW-OSP-AFW-002; Turbine Driven AFW Pump Full Flow Test – IST; Completed May 7, 2012
- OP-KW-OSP-DGE-004B; Diesel Generator B Elevated Load And Load Rejection Test, System No. 42; Completed April 25, 2012
- OP-KW-OSP-RHR-002A; RHR Pump A Full Flow Test At Refueling Shutdown – IST; Completed April 10, 2012
- OP-KW-OSP-SI-001; Diesel Generator Automatic Test, System No. 33; Revision 9; Completed April 8, 2012
- OP-KW-OSP-SI-006B; Train B Safety Injection Pump And Valve Test – IST; Completed March 23, 2012
- OP-KW-OSP-SI-007; Safety Injection Flow Test – IST, System No. 33; Performed April 9, 2012
- SDM 3.1; Reactivity Control Systems; Amendment No. 207; February 2, 2011
- WM-AA-301; Managing Medium Risk Significant Activities; Completed March 29, 2012
- WO KW100732093; PM36-694: 18 Mo Calib Check

1EP6 Drill Evaluation

- CR475634; EOF ERO Position Binder Form Revisions Not Current
- Emergency Operations Facility Evaluation 3A Scenario
- Emergency Preparedness Condition Reports From January 1, 2009 to Present
- EPIPF-AD-07-01; Drill NARS Form; dated May 17, 2012
- EPIPF-AD-07-01; Drill NARS Form; June 19, 2012
- EP-KW-EIP-AD-002; Emergency Class Determination; Revision 0
- EP-KW-EIP-AD-007; Emergency Notifications; Revision 0
- EP-KW-EIP-AD-019; Determining Protective Action Recommendations; Revision 1

2RS1 Radiological Hazard Assessment and Exposure Controls

- KR-32 Reactor Cavity Decontamination Work Plan; Revision 0
- OP-AA-106; Infrequently Conducted Or Complex Evolutions; Revision 6
- PI-AA-5000; Human Performance (HU); Revision 6
- RP-AA-202; Radiological Posting; Revision 5
- RP-AA-240; Discrete Radioactive Particle Control; Revision 0
- RP-AA-261; Control Of Radiological Diving Activities; Revision 1
- RP-KW-003-011; Use Of Special Dosimetry; Revision 6
- WO KW100897244; SFP Upending Winch Cable Retrieval And Re-Attachment To Basket; April 23, 2012

2RS2 Occupational ALARA Planning and Controls

- Radiation Work Permit And Associated ALARA Files; RWP 12-0207; Decon, Laundry And Shielding; Revision 0
- Radiation Work Permit And Associated ALARA Files; RWP 12-0255; Refueling Activities; Revision 1

- Radiation Work Permit And Associated ALARA Files; RWP 12-0306; Diving Evolutions In SFP Xfer Canal And All Support Activities; Revision 0
- RP-AA-105; External Radiation Exposure Control Program

4OA1 Performance Indicator Verification

- CA223924; Extent Of Condition Review For Trains 1 And 2 Of The SER Points For The MSPI
- CA235305; Error Discovered In Submitted RHR Reliability 1st Quarter 2012 MSPI Data
- Control Room / Out-Of-Service Logs, April 2011, August 2011, December 2011, and January 2012
- CR429924; Venting From RHR-501A On 5-5-2011 Not Logged And No Partial Procedure Found
- CR436451; June MSPI And WANO Unavailability Data For AFW Require Revision
- CR454656; Revise MSPI Unavailable Time For September 2011
- CR458739; Discrepancy Identified Between Trains 1 And 2 Of SER Points
- CR475092; Error Discovered In Submitted RHR Reliability 1st Quarter 2012 MSPI Data
- Kewaunee Mitigating System Performance Index Basis Document; Revision 11
- Kewaunee Mitigating System Performance Index Basis Document; Revision 10
- Kewaunee Mitigating System Performance Index Basis Document; Revision 9
- List of Maintenance Rule Evaluations for MSPI systems, 2008-2012
- Maintenance Rule Data Sets, Auxiliary Feedwater; April, 2011 – March, 2012
- Maintenance Rule Data Sets, Component Cooling Water; April, 2011 – March, 2012
- Maintenance Rule Data Sets, Diesel Generators; April, 2011 – March, 2012
- Maintenance Rule Data Sets, Residual Heat Removal; April, 2011 – March, 2012
- Maintenance Rule Data Sets, Safety Injection; April, 2011 – March, 2012
- Maintenance Rule Data Sets, Service Water; April, 2011 – March, 2012
- MSPI Derivation Reports, Auxiliary Feedwater; April, 2011 – March, 2012
- MSPI Derivation Reports, Component Cooling Water; April, 2011 – March, 2012
- MSPI Derivation Reports, Diesel Generator; April, 2011 – March, 2012
- MSPI Derivation Reports, Residual Heat Removal; April, 2011 – March, 2012
- MSPI Derivation Reports, Safety Injection; April, 2011 – March, 2012
- MSPI Derivation Reports, Service Water; April, 2011 – March, 2012

4OA2 Identification and Resolution of Problems

- ACE 018964; ESF Relay Failure Discovered During Testing; Event Date November 22, 2011
- ACE 3354; Failure To Provide Suppression For Safe Shutdown Equipment; Revision 1
- CA032247; CSR Fire Suppression System Coverage – NRC Potential NCV Of Appendix R, III.G.3
- CA032570; NRC NCV 2006-016-05: Failure To Provide Suppression For Safe Shutdown Equipment
- CA072147; Initiate Modification To Provide Additional Suppression Coverage For HP Area
- CA075268; NFPA 805 Transition Project
- CA076346; CAP044187 Place Keeper
- CA077261; Designate Cable Spreading Area Of AX-32 As A Combustible Free Zone
- CAP040096; CSR Fire Suppression System Coverage – NRC Potential NCV Of Appendix R, III.G.3
- CR099296; CAP040096 Place-Keeper
- CR101460; Designate Cable Spreading Area Of AX-32 As A Combustible Free Zone
- EPM Report No. P1919-023-002; Review of Cable Spreading Room Suppression; Revision 0
- Exelon PowerLabs DOM-78257, Revision 1; Failure Analysis Of A Relay; January 11, 2012

- FPEE-049; Adequacy Of Partial Area Suppression/Detection; Revision 5
- FPP-08-12; Fire Prevention Tour; Revision 10
- FPP-08-8; FP – Control Of Transient Combustible Materials; Revision 10
- NIST Special Publication SO-1021, "Cook County Administration Building Fire, 69 West Washington, Chicago, Illinois, October 17, 2003: Heat Release Rate Experiments and FDS Simulations," July 2004
- OD467 Attachment A, Rev 3 – CR458531 Failure Analysis Report For ESF Relay PC483A/XB; January 11, 2012
- PI-AA-200; CR Significance Determination; Revision 17
- Request For FSRC; OD000467 Failure Analysis Report For ESF Relay PC483A/XB; January 11, 2012

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

- 12-319B; Letter From A.J. Jordan, Dominion Energy Kewaunee, Inc., To NRC; Subject: Inservice Inspection Program Fourth Ten-Year Interval Supplement To 10 CFR 50.55a Request No. RR-2-3; May 1, 2012
- 12-324; Letter From A.J. Jordan, Dominion Energy Kewaunee, Inc., To NRC; Subject: Inservice Inspection Program Fourth Ten-Year Interval, 10 CFR 50.55a Request No. RR-2-4; May 3, 2012
- 12-324A; Letter From A.J. Jordan, Dominion Energy Kewaunee, Inc., To NRC; Subject: Inservice Inspection Program Fourth Ten-Year Interval 10 CFR 50.55a, Request No. RR-2-4, Response To Request For Additional Information; May 4, 2012
- 3.4.13; RCS Operational LEAKAGE; Amendment 207
- ASME Case N-523-1; Mechanical Clamping Devices For Class 2 And 3 Piping; August 24, 1995
- ASME Mandatory Appendix IX; Mechanical Clamping Devices For Class 2 And 3 Piping Pressure Boundary; 2007
- CR473650; Revision Required To MOP-RHR-010
- Drawing OPERXK-100-18; Residual Heat Removal System; Revision BH
- Email From J. Gadzala To R. Repshas; Subject: Attendees At Conference Call Re: RR-2-4; May 5, 2012
- Email From J. Gadzala To R. Repshas; Subject: NRC Approves 10 CFR 50.55a Request RR-2-4; May 5, 2012
- Email From J. Stafford To R. Repshas; Subject: Re: RAI – 2150 5/4/12; May 5, 2012
- Evaluation Of Pipe Clamp Assembly Components; Revisions 0 And 1
- Form GNP-03.16.01-1; NRC Issues Discussion; Topic: 10 CFR 50.55a Request RR-2-4; May 4, 2012
- KPS USAR 5.2-52; Reactor Containment Vessel Penetrations; Revision 23.02 – Updated Online March 29, 2012
- KPS USAR 5.2-52; Reactor Containment Vessel Penetrations; Revision 23.01 – Updated Online December 30, 2011
- ML093220952; Letter to C. Pardee, Exelon Generation Company, From C. Pederson, NRC; Subject: Response To Disputed Non-Cited Violation Byron Station, Unit 2, Inspection Report 05000455/2009003; November 18, 2009
- OP-KW-AOP-RHR-001; Abnormal Residual Heat Removal System Operation; Revision 5
- OP-KW-AOP-RHR-002; Shutdown Loss Of Coolant Accident; Revision 6
- OP-KW-MOP-RHR-010; Isolating And Draining RHR To Repair RHR-600; Revision 3; Completed May 8, 2012
- OP-KW-MOP-RHR-010; Isolating And Draining RHR To Repair RHR-600; Revision 4; Completed May 8, 2012

- RHR 600; KPS Responses To NRC Questions 1 Through 9; May 3, 2009
- Station Logs; May 5-6, 2012
- Temporary Modification No. 2012-12; Second RHR-600 Leak Repair; Revisions 0, 1, And 4
- WO KW100894787; Remove T-Mod 2012-11 And 2012-12, Weld Repair At ¾" Sock-O-Let

NRC-Identified Condition Reports

- CR469194; NRC Questions Use Of EPRI Methodology For Quantifying Risk Of Load Lifts
- CR469249; NRC Non-Cited Violation For Inadequate Controls In Procedure OSP-CCI-004
- CR469252; NRC NCV Of TS 5.4.1, PMT Procedure, Debriefed At Exit
- CR469374; Reactivity Plan Question From The NRC
- CR469397; Respond To Fukushima Orders And 10 CFR 40.54(f) Information Request Letter
- CR469452; NRC Identified Items From Containment Inspection
- CR469453; NRC Containment Inspection Identified Item
- CR469454; NRC Containment Inspection Identified Item
- CR469455; NRC Identified Item In Containment
- CR469456; NRC Identified Items In Containment
- CR469459; NRC Identified Items In Containment
- CR469465; NRC Identified Item In Containment
- CR469979; Observation By The Nuclear Regulatory Commission For Inservice Inspection
- CR470815; NRC Was Not Notified Of SFP Bridge Crane Problem
- CR471042; Uncovered Worker Issue
- CR471076; Securing Of Tool Lanyards During Work Over The SFP
- CR471279; Light White Dry Boric Acid Deposit At Packing On SI-24035-3
- CR471281; Light White Dry Boric Acid Deposit At Packing On SI-104A
- CR471284; Moderate Dry Boric Acid Deposit At Packing On SI-24036-1
- CR471286; Moderate Dry Boric Acid Deposit At Packing On LD-32B
- CR471289; Light White Dry Boric Acid Deposit At Swagelok Test Connection At RC-311B
- CR471899; CET Display On New ICCMS
- CR472017; NRC Questions Potential Orange Path On Core Cooling
- CR472154; Review Of Seal Encapsulation Survey Issued By PWROG Materials Subcommittee
- CR472176; Door 264 Blocked Open With No Fire Watch Established
- CR472291; NRC Identified: Core Time To Boil Inconsistency
- CR472293; NRC Identified: Quality Classification Change Questioned On SFP System
- CR472312; Granola Wrapper In RCA
- CR472318; NRC Question Related To Lift Of CW Pump B Motor
- CR473016; Lack Of Timeliness In OD For RHR-600 Pipe Weld Indication
- CR473030; Outage Lessons Learned – Enhancements To NOP-RCS-005
- CR473620; NRC Debrief For RHR-600 Welding Issues
- CR473650; Revision Required To MOP-RHR-010
- CR473997; PRA Model Peer Reviews Needed For Upgrades In The KPS PRA Model
- CR474152; Equipment In Tontainment Unattended While Above 200 Degrees
- CR474156; NRC Identified Loose Items Near B-Sump
- CR474159; RI Identifies Insulation Strap Not Connected
- CR474168; NRC Identified Interlock Doors 134 And 187 Open At The Same Time
- CR474287; Rubber Gasket Between CETNA And Shroud Loose At Two Locations
- CR474458; NRC Notes Weakness In TS 3.0.4.b Evaluation
- CR474471; Suspect Latch On Door 3
- CR474790; WRM Repeater Power Adapter Found Disconnected
- CR475208; NRC Identifies Issue With Fire Protection Program Analysis (FPPA)

- CR475342; Fire Drill Conducted On 5/15/12 Critique Items
- CR475348; Flammable Storage Locker In Need Of Replacement
- CR475459; NRC Heat Sink Inspection – Control Room A/C Chiller HX Had Tubes Plugged
- CR475485; SW Pump B2 Needs Packing Adjustment
- CR475633; Control Room Normal Operating Temperature Does Not Match USAR
- CR475641; NRC Heat Sink Inspection Identified Item Related To HX As Found Inspection
- CR475705; NRC Triennial Heat Sink Inspection – 30" Recirculation Line
- CR475747; Contingencies For Removing Turb Bldg Bsmnt FCUs From Service Are Incomplete
- CR476157; NRC Observation On MA-KW-ISP-RC-017B-1 Work Order KW100732093
- CR476239; Review Applicability Of PI RHR Pump Shaft Failure To KPS
- CR476338; NRC Question About Transient And Combustible Material In The Relay Room
- CR476514; BRA-104 Ckt 9 Indicating Light Is Fluctuating In Intensity
- CR476516; BRA-104 Ckt 14 Indicating Light Is Fluctuating In Intensity
- CR476590; Emergency Light RA-02 DC Voltmeter Indicates 0
- CR477008; Non-Conservative Method Used To Determine Intermediate Wind Speed
- CR477085; 4 Of The 10 Screws To Pull Box Cover, (Above RR-130 Front Door), Not Installed
- CR477087; Fire Cart In Cardox Room Not Secured
- CR477370 Unable To Exit Gate 79 In Auxiliary Building – Seal Water Heat Exchanger Room
- CR477418; Debris In/Around Cardox Room Floor Drain
- CR477679; Siemens Technical Advisory PB2-12-0018-ST-EN-01 Turbine Trip Block
- CR478275; Door 136 Needs Assistance To Fully Close
- CR478600; NRC NCV Proposed For Inadequate Fixed Fire Suppression For Fire Zone AX-32
- CR478603; NRC Questioned The Effect Of Having The TSC Computer Room Doors Open On Halon
- CR478726; NRC Question On Past Operability Review Of Fan Coil Unit Non-Functionality
- CR478732; Proposed NRC Non-Cited Violation For Providing Incomplete And Inadequate Info
- CR478948; Question From Surry's Security NRC Baseline Insp. (SGI Storage Combinations)
- CR478989; Interpretation Of "Lift And Tape" Instruction In Procedure Challenged By NRC
- CR478994; After Lifting And Landing Leads, No PMT Exists To Verify Circuit Functionality
- CR479176; NRC Concerns With PRA Assessment Of TAV-82 Modeled Closed Issue
- CR479580; NRC Resident Raises A Concern On The Timeliness Of Review And Update To OD 239
- CR479649; North Control House Battery Load Test Not Performed When Scheduled
- CR479686; Combustible Materials Stored In RPO
- CR479687; Outage Barrier Impairments Found Still Hanging On Door 126 (NRC Identified)

LIST OF ACRONYMS USED

AC	Alternating Current
ACE	Apparent Cause Evaluation
ADAMS	Agencywide Document Access Management System
AFW	Auxiliary Feedwater
ALARA	As-Low-As-Is-Reasonably-Achievable
ASME	American Society of Mechanical Engineers
ATWS	Anticipated Transient Without Scram
BA	Boric Acid
BAE	Boric Acid Evaluation
CAP	Corrective Action Program
CCDP	Conditional Core Damage Probability
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CIV	Containment Isolation Valve
CR	Condition Report
DG	Diesel Generator
DRP	Division of Reactor Projects
DW	Drywell
EDG	Emergency Diesel Generator
EN	Event Notification
EP	Emergency Plan
EPRI	Electric Power Research Institute
FCU	Fan Coil Unit
FDS	Fire Dynamics Simulator
FP	Fire Protection
FW	Feedwater
HEPA	High-Efficiency Particulate Air
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
ISI	Inservice Inspection
IST	Inservice Testing
KPS	Kewaunee Power Station
kW	Kilowatt
MSPI	Mitigating Systems Performance Index
MT	Magnetic Particle Testing
MW	Megawatt
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
NRC	U.S. Nuclear Regulatory Commission
OE	Operating Experience
OOS	Out-of-Service
OSP	Outage Safety Plan
PARS	Publicly Available Records System
PI	Performance Indicator
PMT	Post-Maintenance Testing
PSIG	Pounds Per Square Inch Guage

RCS	Reactor Coolant System
RFO	Refueling Outage
RG	Regulatory Guide
RHR	Residual Heat Removal
RP	Radiation Protection
RPVUH	Reactor Pressure Vessel Upper Head
RWP	Radiation Work Permit
SAPHIRE	Systems Analysis Programs for Hands-on Integrated Reliability Evaluations
SDP	Significance Determination Process
SDP	Significance Determination Process
SFP	Spent Fuel Pool
SG	Steam Generator
SI	Safety Injection
SL	Severity Level
SPAR	Standardized Plant Analysis Risk
SR	Safety-Related
SRA	Senior Reactor Analyst
SSC	Systems, Structures, and Components
SW	Service Water
TMOD	Temporary Modification
TS	Technical Specification
UHS	Ultimate Heat Sink
USAR	Updated Safety Analysis Report
UT	Ultrasonic Examination
VT	Visual Testing
WO	Work Order

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Sincerely,

/RA/

Kenneth Riemer, Branch Chief
Branch 2
Division of Reactor Projects

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Letter to D. Heacock from K. Riemer dated August 9, 2012

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