



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
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July 28, 2011

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 INTEGRATED INSPECTION REPORT
05000305/2011003**

Dear Mr. Heacock:

On June 30, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at your Kewaunee Power Station. The enclosed report documents the results of this inspection, which were discussed on June 30, 2011, with Mr. Stephen Scace and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

Based on the results of this inspection, one NRC-identified Severity Level IV violation, three NRC-identified findings, and one self-revealed finding of very low safety significance were identified. The Severity Level IV violation and one finding involved violations of NRC requirements, and because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs), in accordance with Section 2.3.2 of the NRC Enforcement Policy. Additionally, two licensee-identified violations are listed in Section 4OA7 of this report.

If you contest the subject or severity of 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 a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Kewaunee Power Station. In addition, if you disagree with the 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.

D. Heacock

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

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000305/2011003
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000305/2011003

Licensee: Dominion Energy Kewaunee, Inc.

Facility: Kewaunee Power Station

Location: Kewaunee, WI

Dates: April 1, 2011, through June 30, 2011

Inspectors: R. Krsek, Senior Resident Inspector
K. Barclay, Resident Inspector
R. Winter, Reactor Inspector
K. Carrington, Reactor Engineer
J. Cassidy, Senior Health Physicist

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

Enclosure

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SUMMARY OF FINDINGS

IR 05000305/2011003, 4/01/2011 – 6/30/2011; Kewaunee Power Station; Maintenance Effectiveness, Operability Evaluations, and Identification and Resolution of Problems.

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. The inspectors identified one Severity Level (SL) IV violation, three Green findings, and one Green finding was self-revealed. The SL IV violation and one finding 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 was self-revealed for the failure to perform adequate preventive maintenance on latching relay VR1/B46, a relay required for closure of the Technical Support Center (TSC) diesel generator's (DG's) output breaker and automatic restoration of bus 1-46, which powers the TSC DG's cooling system. Specifically, on March 20, 2011, during a partial loss of offsite power event, the TSC DG started but failed to load onto bus 1-46. After approximately 43 minutes of operation, the DG automatically shut down from an over-temperature condition, as designed. The licensee initiated condition report 417289 and performed apparent cause evaluation 018573. The licensee's short-term corrective actions included troubleshooting the initial failure, repairing relay VR1/B46, and restoring the TSC DG to functional status. The licensee's long-term corrective actions were in-progress at the completion of this inspection period.

The finding was determined to be more than minor because the finding was associated with the Mitigating Systems Cornerstone attribute of equipment performance and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure of the output breaker to close and energize bus 1-46 caused the TSC DG to overheat and automatically shut down during a partial loss of offsite power. The inspectors concluded the finding could be evaluated in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a, for the Mitigating Systems Cornerstone. The inspectors answered "Yes" to questions 2 and 4 of the Mitigating Systems Cornerstone column and determined that the finding required a Phase 2 analysis. The Region III senior reactor analyst completed a Phase 2 analysis and determined the risk significance of the issue to be very low (Green). The finding has a cross-cutting aspect in the area of human performance, resources, because a licensee effort to review various plant components for possible inclusion in a preventive maintenance optimization project had assigned a low priority to this relay (H.2(a)). (Section 1R12.1)

- Green. A finding of very low safety significance was identified by the inspectors for the failure to adequately assess operability of the service water system in operability determination 413, "EDG A Jacket Water Expansion Tank Overflow," in accordance with site Procedure OP-AA-102-1001, "Development of Technical Basis to Support Operability Determinations." At the end of the inspection period, the licensee was completing an apparent cause evaluation to determine the cause and develop corrective actions.

The finding was determined to be more than minor because the finding, if left uncorrected, had the potential to become a more significant safety concern. Specifically, the failure to perform operability evaluations on degraded safety-related systems could lead to situations where systems needed to mitigate design basis accidents were not capable of performing their required safety functions. The inspectors determined the finding could be evaluated using IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a, for the Mitigating Systems Cornerstone. The inspectors answered "No" to the Mitigating Systems questions and screened the finding as having very low safety significance (Green). The finding has a cross-cutting aspect in the area of human performance, work practices, because the licensee failed to communicate decisions and the bases for decisions to personnel who had a need to know the information in order to perform work safely. Specifically, the licensee failed to effectively communicate the expectation to assess operability of the service water system in the pre-job brief and peer review (H.1(c)). (Section 1R15.1)

- Green. A finding of very low safety significance was identified by the inspectors for the licensee's failure to perform reviews and update the Severe Accident Management Guidelines (SAMGs) in accordance with the licensee's nuclear administrative directives (NADs). Specifically, Procedure NAD-14.06 required that the engineering group review industry correspondence related to SAMGs and implement appropriate changes, and that the emergency preparedness group conduct biennial reviews of the SAMGs. The inspectors identified that neither group had performed the reviews. As a result, the SAMGs were not adequately updated. The licensee entered this issue into their corrective action program as condition reports (CRs) 424681, 424855, 424865, 424866, 425092, 426999, and 427092, and was still evaluating the cause for this condition at the end of this inspection period. The licensee scheduled the revision of the SAMGs for completion by December 2011.

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 failure to review and update the SAMGs would have hampered the licensee's response in the unlikely event of a severe accident, because the SAMGs were not current. The inspectors, in consultation with the Region III senior reactor analyst, determined that the finding could be evaluated using the Significance Determination Process in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a, for the Mitigating Systems Cornerstone. The inspectors answered "No" to the Mitigating Systems questions and screened the finding as having very low safety significance (Green). The finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because the licensee failed to take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity.

Specifically, the licensee identified in an apparent cause evaluation initiated in April 2010 that the emergency preparedness organization had not performed the required reviews and updates of emergency preparedness procedures, and the SAMGs were identified in the licensee's extent-of-condition. However, the inspectors identified that the corrective actions issued for this extent-of-condition did not address the SAMGs and, therefore, no corrective actions were taken (P.1(d)). (Section 40A2.3)

Cornerstone: Barrier Integrity

- Green. A finding of very low safety significance and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by inspectors for the failure to have and follow adequate procedures for the evaluation and installation of components in shield building ventilation (SBV) train A. Specifically, the licensee failed to have adequate procedures to direct the completion of a subcomponent classification evaluation (SCE) and prevent nonsafety-related parts from being installed in safety-related applications; have torque specifications for the standoffs (spacers for circuit cards) in the work instructions; and properly accomplish the SCE procedure when evaluating the standoffs. The licensee's initial short-term corrective actions removed the installed standoffs from both trains. The licensee also performed an extent-of-condition looking at previously completed item equivalency evaluations to determine if an SCE was needed or missing for newly installed components.

The finding was determined to be more than minor because the finding was associated with the Barrier Integrity Cornerstone attribute of procedure quality, and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the licensee failed to have and follow adequate procedures which led to the failure of SBV train A. The inspectors determined that this was a type B containment finding since it was related to a degraded condition that had potential important implications for the integrity of the containment, without affecting the likelihood of core damage. The inspector evaluated the finding using the SDP in accordance with IMC 0609, Appendix H, "Containment Integrity SDP," Table 4.1, and determined that the finding did not relate to a containment structure, system, and component, nor containment status that had an impact on large early release frequency. Because of this, the issue screened as Green, using the flowchart in Figure 4.1. The finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because the licensee failed to thoroughly evaluate problems such that the resolutions address causes and extent-of-conditions, as necessary. This includes properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality. This also includes, for significant problems, conducting effectiveness reviews of corrective actions to ensure that the problems are resolved. Specifically, the licensee failed to properly evaluate and identify the cause of the SBV train A failure and produce a resolution that addressed the cause (P.1(c)). (Section 1R15.2(1))

Cornerstone: Other Findings

- SL IV. A Severity Level IV non-cited violation of 10 CFR 50.73(a)(2)(i)(B) and 50.73(a)(2)(v)(C) was identified by the inspectors for the failure of the licensee to report an event or condition that was prohibited by Technical Specifications, and an event or condition that could have prevented the fulfillment of a safety function that is

relied upon to control the release of radioactive material. Specifically, the licensee failed to report that shield building ventilation train A was inoperable from December 3, 2010, through January 26, 2011. Technical Specification 3.6.c.1 allows a single train outage time of seven days. Additionally, shield building ventilation train B was inoperable on multiple occasions during the same time period, requiring the licensee to also report an event or condition that could have prevented the fulfillment of a safety function, which is relied upon to control the release of radioactive material. At the end of the inspection period, the licensee was completing an apparent cause evaluation to determine the cause and develop corrective actions.

Because violations of 10 CFR 50.73 are considered to be violations that potentially impact the regulatory process, they are dispositioned using the traditional enforcement process instead of the Reactor Oversight Process Significance Determination Process. A cross-cutting aspect was not assigned to this violation. Per the NRC Enforcement Policy, Section 6.0, "Violation Examples," a failure to submit a required licensee event report is categorized as a Severity Level IV violation. (Section 1R15.2(2))

B. Licensee-Identified Violations

Violations of very low safety significance that were identified by the licensee have been reviewed by inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Kewaunee Power Station (KPS) operated at full power, for the entire inspection period, except for brief downpowers to conduct planned maintenance and surveillance activities,

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.1 Readiness of Offsite and Alternate AC Power Systems

a. Inspection Scope

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

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

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

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

Documents reviewed are listed in the Attachment to this report. The inspectors also reviewed corrective action program (CAP) items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into the CAP in accordance with station corrective action (CA) procedures.

This inspection constituted one readiness of offsite and alternate AC power systems sample as defined in Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings were identified.

.2 External Flooding

a. Inspection Scope

The inspectors evaluated the design, material condition, and procedures for coping with the design basis maximum probable flood. The evaluation included a review to check for deviations from the descriptions in the Updated Safety Analysis Report (USAR) for features intended to mitigate the potential for flooding from external factors. As part of this evaluation, the inspectors checked for obstructions that could prevent draining and determined that barriers required to mitigate the flood were in place and operable. The inspectors also reviewed the abnormal operating procedure for mitigating the design basis flood to ensure it could be implemented as written. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed partial system walkdowns of the following risk-significant systems:

- turbine-driven auxiliary feedwater (TDAFW) following the quarterly test; and
- bus 1-43 following troubleshooting on breaker 14305 for pressurizer heater D.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety (RS) Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, the USAR, Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports (CRs), and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors

also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers, and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted two 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 areas:

- AX-33, condensate and makeup water tank room;
- AX-37, control rod drive equipment room;
- AX-39, bottled gas storage; and
- TU-96, oil storage room B.

The inspectors reviewed areas to assess if the licensee had implemented an FP program that: adequately controlled combustibles and ignition sources 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 the overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional risk insights, or the potential to impact equipment which could initiate or mitigate a plant transient. The inspectors verified that: fire hoses and extinguishers were in the designated locations and available for immediate use; fire detectors and sprinklers were unobstructed; 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 four quarterly fire protection inspection samples as defined in IP 71111.05-05.

b. Findings

No findings were identified.

1R06 Flooding (71111.06)

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed selected risk important plant design features and licensee procedures intended to protect the plant and SR equipment from internal flooding events. The inspectors reviewed flood analyses and design documents, including the USAR, engineering calculations, and abnormal operating procedures. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or circulating water systems. The inspectors also reviewed the licensee's corrective action documents with respect to past flood-related items identified in the CAP to verify the adequacy of the CAs. The inspectors performed a walkdown of the following plant areas to assess the adequacy of watertight doors and verify that drains and sumps were clear of debris and operable. Documents reviewed are listed in the Attachment to this report.

- turbine building basement; and
- auxiliary building basement.

These inspections constituted two internal flooding samples as defined in IP 71111.06-05.

b. Findings

A concern related to a potential internal flood scenario in the auxiliary building from a ruptured fire protection system in the TSC was identified by inspectors during the completion of NRC Temporary Instruction (TI) 2515/183, "Follow-Up to the Fukushima Daiichi Nuclear Station Fuel Damage Event." The issue is being tracked by unresolved item (URI) 05000305/2011003-07 and is discussed in Section 4OA5.4.

1R11 Licensed Operator Regualification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On June 6, 2011, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator training activities to verify that training was being conducted in accordance with licensee procedures, and adequately addressed plant modifications. The inspectors evaluated the following areas during training:

- adequacy of revised operating procedures;
- prioritization, interpretation, and verification of new annunciator alarms;
- correct use and implementation of revised abnormal and emergency operating procedures;

- control board equipment manipulations; and
- oversight and direction from supervisors.

Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations (71111.12Q)

The inspectors evaluated degraded performance issues associated with the TSC diesel generator (DG) output breaker failing to close during an actual event and the subsequent over-temperature trip of the TSC DG.

The inspectors reviewed the event and independently verified the licensee's actions to address system performance or condition problems in terms of the following:

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

Technical Support Center Diesel Generator Output Breaker Fails to Close

Introduction: A finding of very low safety significance was self-revealed for the failure to perform adequate preventive maintenance (PM) on latching relay VR1/B46, a relay required for closure of the TSC DG's output breaker and automatic restoration of bus 1-46, which powers the TSC DG's cooling system. Specifically, on March 20, 2011, during a partial loss of offsite power (LOOP) event, the TSC DG started but failed to load

onto bus 1-46. After approximately 43 minutes of operation, the DG automatically shut down from an over-temperature condition, as designed.

Description: On March 10, 2011, Dominion technicians performed relay testing on newly installed breaker RST-199 in the switchyard control house. During the testing, the technicians inappropriately selected an in-service breaker which provided power to bus 6 (a safety-related 4160-volt bus) through the main auxiliary transformer (MAT). When the relay for the in-service breaker was tested, the breaker opened, as designed, causing a partial LOOP. In response, emergency diesel generator (EDG) B automatically started as designed and restored power to bus 6. The TSC DG also automatically started as designed, but the output breaker did not close and restore power to bus 1-46 as expected. With the bus not energized, the cooling system for the TSC DG was not functioning and the TSC DG eventually shut down automatically on an over-temperature condition, as designed. At the time of the event, the reactor was defueled with all fuel offloaded into the spent fuel pool (SFP). The SFP cooling requirement, at the time of the event, was one train of cooling, which was maintained throughout the event.

The licensee's troubleshooting and investigation determined that relay VR1/B46 did not remain latched and was the cause of the output breaker failing to close. The licensee also found that the relay was obsolete, no longer manufactured, and had been installed for almost 30 years with no history of maintenance other than a visual inspection. The licensee was able to make adjustments to the relay, verified and tested its proper operation, and reinstalled it. The licensee's Apparent Cause Evaluation (ACE) determined that the PM established for the latching relay (a visual check) was inadequate for maintaining and verifying the ability of the relay to remain latched during automatic bus 1-46 voltage restoration. The last time the relay was verified to function properly was October 30, 2006, during an automatic restoration of bus 1-46.

The licensee's planned CAs for the ACE were to establish a PM task to periodically test and clean relay VR1/B46, and to revise the TSC DG test procedures to visually check and verify that the latching mechanism was properly engaged after the output breaker was opened at the completion of testing. Additionally, the licensee opened a separate CA item to find a replacement relay that is not obsolete and schedule a relay replacement.

Analysis: The inspectors determined that the failure to perform an adequate PM on latching relay VR1/B46 was contrary to the licensee's PM program, 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 equipment performance and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure of the output breaker to close and energize bus 1-46 caused the TSC DG to overheat and stop running during a partial LOOP, which left bus 1-46 de-energized for the event.

The inspectors determined the finding, although identified when the reactor was shutdown, existed for longer time periods when the reactor was operating and, thus, could be evaluated in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings,"

Table 4a, for the Mitigating Systems Cornerstone, dated January 10, 2008. The inspectors answered "Yes" to questions 2 and 4 of the Mitigating Systems Cornerstone column and determined that the finding required a Phase 2 analysis.

The inspectors reviewed the Kewaunee Risk-Informed Inspection Notebook (Notebook) and the pre-solved Phase 2 spreadsheets. The Notebook included a statement in Table 2 that the TSC DG can be manually aligned in a station blackout (SBO) scenario in about an hour, but the significance of failure of the TSC DG is not evaluated. Alignment of the TSC DG takes longer than 13 minutes and thus is not effective in influencing the reactor coolant pump seal loss-of-coolant accident. As with the Notebook, the spreadsheets do not evaluate the significance of the TSC DG.

The Region III senior reactor analyst (SRA) contacted the KPS probabilistic risk analysis staff to discuss the risk significance of this failure. The PRA staff stated that the TSC DG is modeled as being manually loaded onto its bus and the actual failure that occurred on March 10 would not have prevented plant operators from manually loading the DG onto its bus. The inspectors and SRA verified this to be the case and determined that manually loading the DG is addressed in the site emergency operating procedure for loss of all AC power. Considering this, the SRA determined the risk significance of the issue to be very low (Green).

The finding has a cross-cutting aspect in the area of human performance, resources, because a licensee project to optimize its preventive maintenance activities assigned a low priority to this relay (H.2(a)).

Enforcement: No violation of regulatory requirements occurred but the inspectors did identify a finding (FIN 05000305/2011003-01; Technical Support Center Diesel Generator Output Breaker Fails to Close).

The licensee initiated CR417289 and performed ACE018573. The licensee's short-term CAs included troubleshooting the initial failure, repairing relay VR1/B46, and restoring the TSC DG to functional status. The licensee's long-term CAs were in-progress at the completion of this inspection period.

.2 Routine Quarterly Evaluations (71111.12Q)

The inspectors evaluated degraded performance issues for the rod control and rod position indication system.

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

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and

- verifying appropriate performance criteria for 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 to verify that the appropriate risk assessments were performed prior to removing equipment for work during the following weeks:

- May 9;
- May 16;
- May 23;
- May 30; and
- June 13.

These activities were selected based on their potential risk significance relative to the RS Cornerstones. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.65(a)(4) and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed TS requirements and walked down portions of redundant safety systems, when applicable, to verify that 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 five samples as defined in IP 71111.13-05.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed CR421752, "Jacket Water Dripping From Reservoir Overflow Line on EDG A," based on the risk significance of the EDG. The inspectors evaluated the technical adequacy of the evaluation 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 evaluation 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 CA documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted one sample as defined in IP 71111.15-05.

b. Findings

Inadequate Operability Determination of a Heat Exchanger Leak on Emergency Diesel Generator A

Introduction: A finding of very low safety significance was identified by the inspectors for the failure to adequately assess operability of the service water (SW) system in operability determination (OD) 413, "EDG 'A' Jacket Water Expansion Tank Overflow," in accordance with site Procedure OP-AA-102-1001, "Development of Technical Basis to Support Operability Determinations."

Description: On April 11, 2011, the licensee identified water dripping from the jacket water reservoir overflow line of EDG A. The reservoir site glass indicated the tank was completely full. The licensee determined, based on chemistry sampling and the absence of oil in the jacket water, that an SW leak had developed in the jacket water heat exchanger. The licensee performed OD-413, which was completed and approved on April 15. On April 21, the inspectors reviewed OD-413 and found it assessed the effects of the degraded condition on the EDG, but did not assess how the degraded condition affected the SW system, the high pressure side of the leak, as well as an American Society of Mechanical Engineers (ASME) Code Class III pressure boundary. The inspectors shared their concern with the licensee, who initially believed that the leak was not an AMSE Code Class III pressure boundary leak and consequently not operational leakage. The inspectors reviewed the licensee's basis document for code class boundaries and found that it specifically referred to the tube side of the EDG cooling water heat exchanger as "Class 3." The resident inspectors consulted with regional inspectors and Office of Nuclear Reactor Regulation staff who concluded that the leak was pressure boundary leakage and needed to be evaluated. The licensee revised OD 413 to include an assessment of how the ASME Code Class III pressure

boundary leakage affected SW system operability, and concluded that the system remained operable and that EDG A was operable but degraded. The licensee preliminarily determined that the licensee staff who performed the OD did not understand the need to address SW from an operability standpoint, and did not capture the direction to include it, which was discussed in a peer review that occurred prior to performing the OD. This licensee entered the issue into the CAP as CR423665 and performed an ACE, which was not complete at the conclusion of this inspection period.

Analysis: The inspectors determined that the failure to assess operability of the SW system in OD 413 was contrary to Procedure OP-AA-102-1001, 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, if left uncorrected, had the potential to become a more significant safety concern. Specifically, the failure to perform operability evaluations on degraded SR systems could lead to situations where systems needed to mitigate design basis accidents were not capable of performing their required safety functions. The inspectors determined the finding could be evaluated using IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 Initial Screening and Characterization of Findings," Table 4a for the Mitigating Systems Cornerstone, dated January 10, 2008. The inspectors answered "No" to the Mitigating Systems questions and screened the finding as having very low significance (Green).

The finding has a cross-cutting aspect in the area of human performance, work practices, because the licensee failed to communicate decisions and the bases for decisions to personnel who had a need to know the information in order to perform work safely. Specifically, the licensee failed to effectively communicate the expectation to assess operability of the SW system in the pre-job brief and peer review (H.1(c)).

Enforcement: No violation of regulatory requirements occurred but the inspectors did identify a finding (FIN 05000305/2011003-02, Inadequate Operability Determination of a Heat Exchanger Leak on Emergency Diesel Generator A).

This licensee entered this issue into the CAP as CR423665 and performed an ACE, which was not complete at the conclusion of this inspection period.

.2 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the operability determination of CR411681, "Shield Building Ventilation [SBV] Standoffs for Servo Board Broken," because of the potential for a common mode failure that could affect both trains. The inspectors evaluated the technical adequacy of the evaluation 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

evaluation. Additionally, the inspectors reviewed a sampling of CA documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted one sample as defined in IP 71111.15-05.

b. Findings

(1) Failed Standoffs Result in an Inoperable Train of Shield Building Ventilation

Introduction: A finding of very low safety significance and associated non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified by the inspectors for the failure to have and follow adequate procedures for the evaluation and installation of components in SBV train A. Specifically, the licensee failed to: have adequate procedures to direct the completion of a subcomponent classification evaluation (SCE) and prevent nonsafety-related (NS) parts from being installed in SR applications; have torque specifications for the standoffs (spacers for circuit cards) in the work instructions; and properly accomplish the SCE procedure when evaluating the standoffs.

Description: On January 26, 2011, plant personnel were inspecting train A of the SBV control cabinets and discovered a circuit card had broken free from three of the four standoffs. The licensee declared SBV train A inoperable and visually confirmed that the same condition did not exist on train B. The standoffs had previously been installed in both trains as a defense-in-depth action to provide additional clearance behind the installed circuit cards to prevent screws on the back of the cards from contacting insulating paper. Based on available information, the licensee determined train B remained operable because separate personnel had installed standoffs on the two different trains and those on train A were installed with either inadequate installation techniques or excessive torque whereas those on train B were not. On January 27, during the initial investigation, the licensee determined that plant personnel had previously failed to perform an SCE to determine if the standoffs in the SBV system would have an SR quality classification or an NS quality classification. The standoffs that failed were NS and purchased from a vendor that did not have a 10 CFR Appendix B quality assurance program. Upon discovery, the licensee performed an SCE on the standoffs, which concluded that NS standoffs could be used in this application. The licensee conservatively decided to remove the standoffs from both trains and return to the original configuration. Train A was repaired and declared operable on January 27 and the standoffs on train B were removed on February 3. The licensee performed an ACE, which concluded that the standoffs failed because the quality and design of the standoff material was insufficient, which resulted in improper adhesion between the metal stud and the neoprene body that constitute the standoff.

During their review of this issue, the inspectors identified the following concerns:

- the licensee installed a NS part in an SR host component without performing the correct evaluation to determine if it was appropriate;
- the licensee failed to have torque specifications in the work instruction that installed the standoffs;
- the licensee improperly applied the SCE procedure and came to the incorrect determination about the required quality of the standoffs; and
- the licensee's ACE came to the incorrect conclusion about the cause of the failure.

The inspectors found that the licensee had performed an item equivalency evaluation for any design and configuration concerns with regards to adding the standoffs. However, under these specific circumstances, nothing directed the licensee to perform Procedure MS-AA-SCE-301, "Subcomponent Evaluation," which determined if the standoffs performed an SR or NS function, and the quality of part that could be purchased for installation.

The inspectors found that no torque requirements were specified in the work instructions that installed the standoffs on December 2, 2010. The licensee's investigation following the failure found that the standoffs fail at low torque values, which could easily be exceeded with a standard screwdriver.

The inspectors' in-depth review of the SCE, completed on January 27, 2011, found that it did not document the licensee's response to questions in steps 3.2.16, 3.2.17 and 3.2.18 of Procedure MS-AA-SCE-301. Step 3.2.16 stated, "If host component would not be able to perform all safety functions if the item were nonfunctional, then consider the item safety-related." The inspectors determined that the standoffs functioned to structurally support the circuit card. If the manufacturing process and quality controls of the NS vendor were inadequate, then the standoffs may fatigue and fail over time from gravity, operational vibrations, or a seismic event, thus preventing the SBV system from performing its safety function. Step 3.2.17 stated, "Determine if the item is required to ensure qualification of the component." Step 3.2.18 stated, "If item is required to ensure qualification, then use the safety classification of the host component." The inspectors determined that the standoffs were the only structural support or anchors for the SR circuit card and were needed to ensure the seismic qualification of the card.

The licensee agreed with the inspectors' observations that the standoffs should have been SR and procured as SR or commercially-dedicated; the work instructions for the circuit card installation were inadequate; and that the conclusions of the ACE were incorrect. At the end of this inspection period, the licensee was re-performing the ACE and sent the failed standoffs to a laboratory for failure analysis.

Analysis: The inspectors determined that the failure to have and follow adequate procedures 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 Barrier Integrity Cornerstone attribute of procedure quality, and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, because

of the procedure problems, one train of the ventilation system for the shield building, surrounding containment, failed.

The inspectors determined that this was a type B containment finding since it was related to a degraded condition that had potential important implications for the integrity of the containment, without affecting the likelihood of core damage. The inspector evaluated the finding using the SDP in accordance with IMC 0609, Appendix H, "Containment Integrity SDP," Table 4.1, dated May 6, 2004, and determined that the finding did not relate to a containment SSC, nor containment status that had an impact on large early release frequency. Because of this, the issue screened as Green, using the flowchart in Figure 4.1.

The finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because the licensee failed to thoroughly evaluate problems such that the resolutions would address causes and extent-of-conditions, as necessary. This includes properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality. This also includes, for significant problems, conducting effectiveness reviews of corrective actions to ensure that the problems are resolved. Specifically, the licensee failed to properly evaluate and identify the cause of the SBV train A failure and produce a resolution that addressed the cause (P.1(c)).

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

Contrary to this, from October 23, 2009, through January 27, 2011, the licensee failed to prescribe documented instructions, procedures, or drawings of a type appropriate to the circumstances, and failed to accomplish activities affecting quality in accordance with instructions, procedures, or drawings. Specifically, the licensee failed to have adequate procedures to direct the completion of an SCE and prevent NS parts from being installed in SR applications; have torque specifications in the work instructions that installed the standoffs; and properly accomplish SCE Procedure MS-AA-SCE-301 when evaluating the standoffs. Because this violation was of very low safety significance and was entered into the licensee's CAP, as CR429386 and CR432053, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000305/2011003-03; Failed Standoffs Result in an Inoperable Train of Shield Building Ventilation).

The licensee's initial short-term CAs removed the installed standoffs from both trains. The licensee performed an extent-of-condition looking at previously completed item equivalency evaluations (IEEs) to determine if an SCE was needed or missing for newly installed components. The licensee at the conclusion of the inspection period was re-performing the ACE.

(2) Failure to Submit Licensee Event Report per 10 CFR 50.73

Introduction: A Severity Level (SL) IV NCV of 10 CFR 50.73(a)(2)(i)(B) and 50.73(a)(2)(v)(C) was identified by the inspectors for the failure of the licensee to report an event or condition that was prohibited by TSs, and an event or condition that could have prevented the fulfillment of a safety function that is relied upon to control the

release of radioactive material. Specifically, the licensee failed to report that SBV train A was inoperable from December 3, 2010, through January 26, 2011. Technical Specification 3.6.c.1 allows a single train outage time of seven days. Additionally, SBV train B was inoperable on multiple occasions during the same time period, requiring the licensee to also report an event or condition that could have prevented the fulfillment of a safety function, which is relied upon to control the release of radioactive material.

Description: As part of its review of SBV train A circuit card standoff issues discussed earlier, the licensee performed an ACE, which received its first management review on February 25, 2011, and concluded that the standoffs failed because the quality and design of the standoff material was insufficient, which resulted in improper adhesion between the metal stud and the neoprene. The ACE also discussed the possibility that excessive torque may have been applied to the standoffs during installation. During their review of this issue, the inspectors identified a concern that the licensee should have reviewed past operability and reported the extended inoperability of SBV train A to the NRC. The inspectors also identified that SBV train B was inoperable on multiple occasions during the same time period in which SBV train A was inoperable. The licensee reviewed the inspectors' concerns and concluded that the failure of the SBV train A should have been reported, in accordance with 10 CFR 50.73(a)(2)(i)(B) and 50.73(a)(2)(v)(C).

At the end of this inspection period, the licensee was re-performing the ACE, after the inspectors identified concerns with its conclusions. Additional details related to the failure of the standoffs are discussed in Section 1R15.2(1).

Analysis: The inspectors determined that the failure to report the condition in accordance with 10 CFR 50.73 was a performance deficiency. Because violations of 10 CFR 50.73 are considered to be violations that potentially impact the regulatory process, they are dispositioned using the traditional enforcement process instead of the Reactor Oversight Process (ROP) SDP. A cross-cutting aspect was not assigned to this violation. Per the NRC Enforcement Policy, Section 6.0, "Violation Examples," a failure to submit a required licensee event report (LER) is categorized as an SL IV violation.

Enforcement: Title 10 CFR 50.73(a)(2)(i)(B) requires, in part, that licensees report any event or condition that is prohibited by TSs. Title 10 CFR 50.73(a)(2)(v)(C) requires, in part, that licensees report any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material. Contrary to these requirements, on March 28, 2011, the licensee failed to report that SBV train A was inoperable from December 3, 2010, through January 26, 2011, a condition prohibited by TS 3.6.c.1, and failed to report the associated event or condition which could have prevented the fulfillment of a safety function that is relied upon to control the release of radioactive material. Because this violation was not repetitive or willful, and was entered into the licensee's CAP, as CR429469, this violation is being treated as an SL IV NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000305/2011003-04; Failure to Submit LER per 10 CFR 50.73).

.3 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- CR428470, runout on EDG B generator collector ring is out of tolerance;
- ODM000135, increased leakage into safety injection (SI) accumulator B;
- both residual heat removal (RHR) pit covers removed while critical;
- CR416884, EDG A governor hunting; and
- CR427292, feedwater regulating valve FW-7A controlling erratically.

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 CA documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

A licensee-identified violation was identified by the inspectors during the review of CR416884 and is documented in Section 4OA7 of this report.

These operability inspections constituted five 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 modification(s):

- DCR KW-10-01011, Replace Core Exit Thermocouple (CET) and Associated Connectors and Cables.

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screenings against the design basis, the USAR, and the TSs, as applicable, to verify that the modifications 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. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

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:

- EDG A following 18-month maintenance;
- replacement of auxiliary feedwater (AFW) pump A control switch;
- EDG B following 18-month maintenance; and
- SW pump 1B1.

These activities were selected based upon the SSCs' ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion); and test documentation was properly evaluated. The inspectors evaluated the activities against TSs, the 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 CA documents associated with PMTs to determine whether the licensee was identifying problems and entering them into the CAP, and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

These inspections constituted four post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

a. Inspection Scope

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

- OP-KW-NOP-SI-001: filling, pressurizing, and venting SI accumulator B (routine testing);
- spare battery charger (routine testing);
- TDAFW pump quarterly test (inservice testing (IST)); and
- motor-driven AFW pump B quarterly test (IST).

The inspectors observed in-plant activities and reviewed procedures and associated records to determine the following:

- 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 activities, testing was performed in accordance with the applicable version of Section XI, ASME code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for 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 two routine surveillance testing samples and two 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 Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on May 10 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 to determine whether the event classification and notifications were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weaknesses with those identified by the licensee to evaluate the critique and to verify whether the licensee staff properly identified weaknesses and entered them into the CAP. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one emergency preparedness drill sample as defined in IP 71114.06-05.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Occupational and Public Radiation Safety

2RS5 Radiation Monitoring Instrumentation (71124.05)

This inspection constituted one complete sample as defined in IP 71124.05-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the plant USAR to identify radiation instruments associated with monitoring area radiological conditions including airborne radioactivity, process streams,

effluents, materials/articles, and workers. Additionally, the inspectors reviewed the instrumentation and the associated TS requirements for post-accident monitoring instrumentation including instruments used for remote emergency assessment.

The inspectors reviewed a listing of in-service survey instrumentation including air samplers and small article monitors, along with instruments used to detect and analyze workers' external contamination. Additionally, the inspectors reviewed personnel contamination monitors and portal monitors including whole-body counters to detect workers' internal contamination. The inspectors reviewed this list to assess whether an adequate number and type of instruments were available to support operations.

The inspectors reviewed licensee and third-party evaluation reports of the radiation monitoring program since the last inspection. These reports were reviewed for insights into the licensee's program and to aid in selecting areas for review ("smart sampling").

The inspectors reviewed procedures that governed instrument source checks and calibrations, focusing on instruments used for monitoring transient high radiological conditions, including instruments used for underwater surveys. The inspectors reviewed the calibration and source check procedures for adequacy and as an aid to smart sampling.

The inspectors reviewed the area radiation monitor alarm setpoint values and setpoint bases as provided in the TSs and the USAR.

The inspectors reviewed effluent monitor alarm setpoint bases and the calculational methods provided in the Offsite Dose Calculation Manual (ODCM).

b. Findings

No findings were identified.

.2 Walkdowns and Observations (02.02)

a. Inspection Scope

The inspectors walked down effluent radiation monitoring systems, including at least one liquid and one airborne system. Focus was placed on flow measurement devices and all accessible point-of-discharge liquid and gaseous effluent monitors of the selected systems. The inspectors assessed whether the effluent/process monitor configurations aligned with ODCM descriptions and observed monitors for degradation and out-of-service tags.

The inspectors selected portable survey instruments in use or available for issuance and assessed calibration and source check stickers to ensure the instruments were in calibration, as well as instrument material condition and operability.

The inspectors observed licensee staff performance as the staff demonstrated source checks for various types of portable survey instruments. The inspectors assessed whether high-range instruments were source checked on all appropriate scales.

The inspectors walked down area radiation monitors and continuous air monitors to determine whether the monitors were appropriately positioned relative to the radiation

sources or areas they were intended to monitor. Selectively, the inspectors compared monitor response (via local or remote control room indications) with actual area conditions for consistency.

The inspectors selected personnel contamination monitors, portal monitors, and small article monitors and evaluated whether the periodic source checks were performed in accordance with the manufacturer's recommendations and licensee procedures.

b. Findings

No findings were identified.

.3 Calibration and Testing Program (02.03)

Process and Effluent Monitors

a. Inspection Scope

The inspectors selected effluent monitor instruments (such as gaseous and liquid) and evaluated whether channel calibration and functional tests were performed consistent with radiological effluent TS/ODCM. The inspectors assessed whether: the licensee calibrated its monitors with National Institute of Standards and Technology traceable sources; the primary calibrations adequately represented the plant nuclide mix; when secondary calibration sources were used, the sources were verified by the primary calibration; and the licensee's channel calibrations encompassed the instrument's alarm set-points.

The inspectors assessed whether the effluent monitor alarm setpoints are established as provided in the ODCM and station procedures.

For changes to effluent monitor setpoints, the inspectors evaluated the basis for changes to ensure that an adequate justification exists.

b. Findings

No findings were identified.

.4 Laboratory Instrumentation

a. Inspection Scope

The inspectors assessed laboratory analytical instruments used for radiological analyses to determine whether daily performance checks and calibration data indicated that the frequency of the calibrations was adequate and there were no indications of degraded instrument performance.

The inspectors assessed whether appropriate CAs were implemented in response to indications of degraded instrument performance.

b. Findings

No findings were identified.

.5 Whole Body Counter

a. Inspection Scope

The inspectors reviewed the methods and sources used to perform whole body count functional checks before daily use of the instrument and assessed whether check sources were appropriate and aligned with the plant's isotopic mix.

The inspectors reviewed whole body count calibration records since the last inspection and evaluated whether calibration sources were representative of the plant source term and that appropriate calibration phantoms were used. The inspectors looked for anomalous results or other indications of instrument performance problems.

b. Findings

No findings were identified.

.6 Post-Accident Monitoring Instrumentation

a. Inspection Scope

Inspectors selected containment high-range monitors and reviewed the calibration documentation since the last inspection.

The inspectors assessed whether an electronic calibration was completed for all range decades above 10 rem/hour and whether at least one decade at or below 10 rem/hour was calibrated using an appropriate radiation source.

The inspectors assessed whether the calibration acceptance criteria was reasonable, accounting for the large measuring range and the intended purpose of the instruments.

The inspectors selected two effluent/process monitors that were relied on by the licensee in its emergency operating procedures as a basis for triggering emergency action levels and subsequent emergency classifications, or to make protective action recommendations during an accident. The inspectors evaluated the calibration and availability of these instruments.

The inspectors reviewed the licensee's capability to collect high-range, post-accident iodine effluent samples.

As available, the inspectors observed electronic and radiation calibration of these instruments to verify conformity with the licensee's calibration and test protocols.

b. Findings

No findings were identified.

.7 Portal Monitors, Personnel Contamination Monitors, and Small Article Monitors

a. Inspection Scope

For each type of these instruments used on site, the inspectors assessed whether the alarm setpoint values were reasonable under the circumstances to ensure that licensed material was not released from the site.

The inspectors reviewed the calibration documentation for each instrument selected and discussed the calibration methods with the licensee to determine consistency with the manufacturer's recommendations.

b. Findings

No findings were identified.

.8 Portable Survey Instruments, Area Radiation Monitors, Electronic Dosimetry, and Air Samplers/Continuous Air Monitors

a. Inspection Scope

The inspectors reviewed calibration documentation for at least one of each type of instrument. For portable survey instruments and area radiation monitors (ARMs), the inspectors reviewed detector measurement geometry and calibration methods and had the licensee demonstrate use of its instrument calibrator as applicable.

The inspectors conducted comparison of instrument readings versus an NRC survey instrument if problems were suspected.

As available, the inspectors selected portable survey instruments that did not meet acceptance criteria during calibration or source checks to assess whether the licensee had taken appropriate corrective action for instruments found significantly out of calibration (greater than 50 percent). The inspectors evaluated whether the licensee had evaluated the possible consequences of instrument use since the last successful calibration or source check.

b. Findings

No findings were identified.

.9 Instrument Calibrator

a. Inspection Scope

The inspectors reviewed the current output values for the licensee's portable survey and area radiation monitor instrument calibrator units. The inspectors assessed whether the licensee periodically measured calibrator output over the range of the instruments used through measurements by ion chamber/electrometer.

The inspectors assessed whether the measuring devices were calibrated by a facility using National Institute of Standards and Technology traceable sources and whether corrective factors for these measuring devices were properly applied by the licensee in its output verification.

b. Findings

No findings were identified.

.10 Calibration and Check Sources

a. Inspection Scope

The inspectors reviewed the licensee's 10 CFR Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," source term to assess whether calibration sources used were representative of the types and energies of radiation encountered in the plant.

b. Findings

No findings were identified.

.11 Problem Identification and Resolution (02.04)

a. Inspection Scope

The inspectors evaluated whether problems associated with radiation monitoring instrumentation were identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee corrective action program. The inspectors assessed the appropriateness of the CAs for a selected sample of problems documented by the licensee that involved radiation monitoring instrumentation.

b. Findings

No findings were identified.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

This inspection constituted one complete sample as defined in IP 71124.06-05.

Inspection Planning and Program Reviews (02.01)

Event Report and Effluent Report Reviews

a. Inspection Scope

The inspectors reviewed the radiological effluent release reports issued since the last inspection to determine if the reports were submitted as required by the ODCM/TS. The inspectors reviewed anomalous results, unexpected trends, or abnormal releases identified by the licensee for further inspection to determine if they were evaluated, were entered into the CAP, and were adequately resolved.

The inspectors identified radioactive effluent monitor operability issues reported by the licensee as provided in effluent release reports, to review these issues during the onsite inspection, as warranted, given their relative significance and determined whether the issues were entered into the CAP and adequately resolved.

b. Findings

No findings were identified.

Offsite Dose Calculation Manual and Updated Safety Analysis Report Review

a. Inspection Scope

The inspectors reviewed USAR descriptions of the radioactive effluent monitoring systems, treatment systems, and effluent flow paths so they can be evaluated during inspection walkdowns.

The inspectors reviewed changes to the ODCM made by the licensee since the last inspection against the guidance in NUREG-1301, NUREG-0133, and Regulatory Guides 1.109, 1.21, and 4.1. When differences were identified, the inspectors reviewed the technical bases or evaluations of the change during the onsite inspection to determine whether they were technically justified and maintained effluent releases as-low-as-is-reasonably-achievable (ALARA).

The inspectors reviewed licensee documentation to determine if the licensee had identified any non-radioactive systems that have become contaminated as disclosed either through an event report or the ODCM since the last inspection. This review provided an intelligent sample list for the onsite inspection of any 10 CFR 50.59 evaluations and allowed a determination if any newly contaminated systems had an unmonitored effluent discharge path to the environment, whether any required ODCM revisions were made to incorporate these new pathways, and whether the associated effluents were reported in accordance with Regulatory Guide 1.21.

b. Findings

No findings were identified.

Groundwater Protection Initiative Program

a. Inspection Scope

The inspectors reviewed reported groundwater monitoring results and changes to the licensee's written program for identifying and controlling contaminated spills/leaks to groundwater.

b. Findings

No findings were identified.

Procedures, Special Reports, and Other Documents

a. Inspection Scope

The inspectors reviewed LERs, event reports and/or special reports related to the effluent program issued since the previous inspection to identify any additional focus areas for the inspection based on the scope/breadth of problems described in these reports.

The inspectors reviewed effluent program implementing procedures, particularly those associated with effluent sampling, effluent monitor setpoint determinations, and dose calculations.

The inspectors reviewed copies of licensee and third party (independent) evaluation reports of the effluent monitoring program since the last inspection to gather insights into the licensee's program and aid in selecting areas for inspection review (smart sampling).

b. Findings

No findings were identified.

Walkdowns and Observations (02.02)

a. Inspection Scope

The inspectors walked down selected components of the gaseous and liquid discharge systems to assess whether the equipment configuration and flow paths aligned with the documents reviewed in 02.01 above and to assess equipment material condition. Special attention was made to identify potential unmonitored release points (such as temporary structures butted against turbine, auxiliary or containment buildings), building alterations which could impact airborne, or liquid, effluent controls, and ventilation system leakage that communicated directly with the environment.

For equipment or areas associated with the systems selected for review that were not readily accessible due to radiological conditions, the inspectors reviewed the licensee's material condition surveillance records, as applicable.

The inspectors walked down filtered ventilation systems to evaluate conditions, such as degraded high-efficiency particulate air/charcoal banks, improper alignment, or system installation issues that would impact the performance, or the effluent monitoring capability, of the effluent system.

As available, the inspectors observed selected portions of the routine processing and discharge of radioactive gaseous effluent (including sample collection and analysis) to evaluate whether appropriate treatment equipment was used and the processing activities aligned with discharge permits.

The inspectors determined if the licensee had made significant changes to the effluent release points, e.g., changes subject to a 10 CFR 50.59 review or required NRC approval of alternate discharge points.

As available, the inspectors observed selected portions of the routine processing and discharge liquid waste (including sample collection and analysis) to assess whether appropriate effluent treatment equipment was being used and that radioactive liquid waste was processed and discharged in accordance with procedure requirements and aligned with discharge permits.

b. Findings

No findings were identified.

Sampling and Analyses (02.03)

a. Inspection Scope

The inspectors selected effluent sampling activities, consistent with smart sampling, and assessed whether adequate controls were implemented to ensure representative samples were obtained (e.g., provisions for sample line flushing, vessel recirculation, composite samplers, etc.).

The inspectors selected effluent discharges made with inoperable (declared out-of-service) effluent radiation monitors to determine that controls were in place to ensure compensatory sampling was performed consistent with the radiological effluent TS/ODCM and that those controls were adequate to prevent the release of unmonitored liquid and gaseous effluents.

The inspectors assessed whether the facility routinely relied on the use of compensatory sampling in lieu of adequate system maintenance, based on the frequency of compensatory sampling since the last inspection.

The inspectors reviewed the results of the inter-laboratory comparison program to evaluate the quality of the radioactive effluent sample analyses and assessed whether the inter-laboratory comparison program included difficult-to-detect isotopes as appropriate.

b. Findings

No findings were identified.

Instrumentation and Equipment (02.04)

Effluent Flow Measuring Instruments

a. Inspection Scope

The inspectors reviewed the methodology the licensee used to determine the effluent stack and vent flow rates to assess whether the flow rates were consistent with radiological effluent TS/ODCM or USAR values, and differences between assumed and actual stack and vent flow rates did not affect the results of the projected public doses.

b. Findings

No findings were identified.

Air Cleaning Systems

a. Inspection Scope

The inspectors assessed whether surveillance test results since the previous inspection for TS required ventilation effluent discharge systems (high-efficiency particulate air and charcoal filtration), such as the Containment/Auxiliary Building Ventilation System, met TS acceptance criteria.

b. Findings

No findings were identified.

Dose Calculations (02.05)

a. Inspection Scope

The inspectors reviewed all significant changes in reported dose values compared to the previous radiological effluent release report (e.g., a factor of 5, or increases that approached Appendix I criteria) to evaluate the factors which may have resulted in the change.

The inspectors reviewed radioactive liquid and gaseous waste discharge permits to evaluate whether the projected doses to members of the public were accurate and based on representative samples of the discharge path.

The inspectors evaluated the methods used to determine the isotopes that are included in the source term to ensure all applicable radionuclides were included, within detectability standards. The review included the current Part 61 analyses to ensure difficult-to-detect radionuclides were included in the source term.

The inspectors reviewed changes in the licensee's offsite dose calculations since the last inspection to assess whether the changes were consistent with the ODCM and Regulatory Guide 1.109. The inspectors reviewed meteorological dispersion and deposition factors used in the ODCM and effluent dose calculations to ensure appropriate factors were used for public dose calculations.

The inspectors reviewed the latest Land Use Census to evaluate whether the changes (e.g., significant increases or decreases to population in the plant environs, changes in critical exposure pathways, the location of nearest member of the public, or critical receptor, etc.) were factored into the dose calculations.

For the releases reviewed above, the inspectors evaluated whether the calculated doses (monthly, quarterly, and annual dose) were within the 10 CFR Part 50, Appendix I and TS dose criteria.

The inspectors reviewed, as available, records of any abnormal gaseous or liquid tank discharges (e.g., discharges resulting from misaligned valves, valve leak-by, etc.) to ensure the abnormal discharge was monitored by the discharge point effluent monitor. Discharges made with inoperable effluent radiation monitors, or unmonitored leakages were reviewed to ensure that an evaluation was made of the discharge to satisfy 10 CFR 20.1501, so as to account for the source term and projected doses to the public.

b. Findings

No findings were identified.

Groundwater Protection Initiative Implementation (02.06)

a. Inspection Scope

The inspectors reviewed monitoring results of the Groundwater Protection Initiative to assess whether the licensee implemented the program as intended, and to identify any anomalous results. For anomalous results or missed samples, the inspectors assessed whether the licensee identified and addressed deficiencies through its corrective action program.

The inspectors reviewed identified leakage or spill events and entries made into 10 CFR 50.75(g) records. The inspectors reviewed evaluations of leaks or spills, and reviewed any remediation actions taken for effectiveness. The inspectors reviewed onsite contamination events involving groundwater and assessed whether the source of the leak or spill was identified and mitigated.

For unmonitored spills, leaks, or unexpected liquid or gaseous discharges, the inspectors assessed whether an evaluation was performed to determine the type and amount of radioactive material that was discharged by:

Assessing whether sufficient radiological surveys were performed to evaluate the extent of the contamination and the radiological source term and assessing whether a survey/evaluation was performed to include consideration of hard-to-detect radionuclides.

Determining whether the licensee completed offsite notifications, as provided in its Groundwater Protection Initiative implementing procedures.

The inspectors reviewed the evaluation of discharges from onsite surface water bodies that contained or potentially contained radioactivity, and the potential for groundwater leakage from these onsite surface water bodies. The inspectors assessed whether the licensee properly accounted for discharges from these surface water bodies as part of the effluent release reports.

The inspectors assessed whether onsite groundwater sample results and a description of any significant onsite leaks/spills into groundwater for each calendar year was documented in the Annual Radiological Environmental Operating Report for the radiological environmental monitoring program or the Annual Radiological Effluent Release Report for the radiological effluent TS.

For significant, new effluent discharge points (such as significant or continuing leakage to groundwater that continues to impact the environment if not remediated), the inspectors evaluated whether the ODCM was updated to include the new release point.

b. Findings

No findings were identified.

Problem Identification and Resolution (02.07)

a. Inspection Scope

The inspectors assessed whether problems associated with the effluent monitoring and control program were identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee CAP. In addition, they evaluated the appropriateness of the CAs for a selected sample of problems documented by the licensee involving radiation monitoring and exposure controls.

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 (MSPI) - Emergency Alternating Current (AC) Power Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index (MSPI) - Emergency AC Power Systems performance indicator (PI) for the first quarter 2010 through the first quarter 2011. To determine the accuracy of the PI data, definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used. The inspectors reviewed the licensee's operator narrative logs, MSPI derivation reports, CRs, event reports, and NRC integrated inspection reports (IRs) to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's CR database to determine if any problems were 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 systems sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index - High Pressure Injection Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - High Pressure Injection Systems PI for the first quarter 2010 through the first quarter 2011. To determine the accuracy of the PI data, definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment PI Guideline," Revision 6, were used. The inspectors reviewed the licensee's operator narrative logs, CRs, MSPI derivation reports, event reports, and NRC integrated IRs to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's CR database to determine if any problems were 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 high pressure injection systems sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Heat Removal Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Heat Removal Systems PI for the second quarter 2010 through the first quarter 2011. To determine the accuracy of the PI data reported, 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, issue reports, event reports, MSPI derivation reports, and NRC inspection reports to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems were 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 systems sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Mitigating Systems Performance Index - Residual Heat Removal Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI – Residual Heat Removal (RHR) Systems PI for the first quarter 2010 through the first quarter 2011. To determine the accuracy of the PI data, definitions and guidance contained in the NEI Document 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 6, were used. The inspectors reviewed the licensee’s operator narrative logs, CRs, MSPI derivation reports, event reports, and NRC integrated IRs to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s CR database to determine if any problems were 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 residual heat removal systems sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.5 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Cooling Water Systems PI for the second quarter 2010 through the first quarter 2011. To determine the accuracy of the PI data, definitions and guidance contained in the NEI Document 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 6, were used. The inspectors reviewed the licensee’s operator narrative logs, issue reports, MSPI derivation reports, event reports, and NRC IRs to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s issue report database to determine if any problems were 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 systems sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.6 Radiological Effluent Technical Specification/Offsite Dose Calculation Manual
Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for the radiological effluent TS/ODCM radiological effluent occurrences PI for the fourth quarter 2010 through the second quarter 2011. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, to determine the accuracy of the PI data reported. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates between the fourth quarter 2010 through the second quarter 2011 to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Radiological Effluent Technical Specification/Offsite Dose Calculation Manual radiological effluent occurrences 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 CAs, and that adverse trends were identified and addressed. Attributes reviewed included: the complete and accurate identification of the problem; that timeliness was commensurate with the safety significance; that evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent-of-condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of CAs 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 listed 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

To assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily 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 Selected Issue Follow-Up Inspection: Apparent Cause Evaluation (ACE) 018119, Revision And Review Process for Emergency Plan Implementing Procedures (EPIPs) Has Not Been Effective

a. Inspection Scope

The inspectors reviewed the CAs from ACE018119, "Revision And Review Process for Emergency Plan Implementing Procedures (EPIPs) Has Not Been Effective." Specifically, the inspectors reviewed the CAs for the apparent cause and the extent-of-condition associated with the issues identified in the condition report.

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

b. Findings

Failure to Review and Update Severe Accident Management Guidelines in Accordance with an Established Program

Introduction: A finding of very low safety significance was identified by the inspectors for the licensee's failure to review and update the Severe Accident Management Guidelines (SAMGs) in accordance with the licensee's nuclear administrative directives (NADs). Specifically, Procedure NAD-14.06 required that the engineering group review industry correspondence related to SAMGs and implement changes, and that the emergency preparedness group conduct biennial reviews of the SAMGs. The inspectors identified

that neither group performed the respective reviews, and as a result, the SAMGs were not adequately updated.

Description: In correspondence to the NRC, dated January 30, 1995, the licensee committed to implement the formal industry position on SAMGs in Section 5 of NEI document 91-04, "Severe Accident Issue Closure Guidelines," Revision 1. Procedure NAD-14.06, "Severe Accident Management Program Maintenance and Control," translated the licensee's commitments into a procedure for implementation by engineering and emergency preparedness personnel. Section 5.1 of the procedure required, in part, that the engineering group perform the following: review new correspondence from industry and regulatory agencies to determine the potential impact on SAMGs and basis documents; facilitate and conduct engineering analyses to identify changes to the SAMGs and bases documents that were appropriate for implementation at KPS; forward the results to the emergency preparedness organization; and implement revisions to the SAMGs based on the analyses performed. Section 5.2 required, in part, that the emergency preparedness group perform the following: initiate changes to the emergency plan and procedures to implement the SAMG program; and conduct biennial reviews of the SAMGs and computational aids in support of the emergency plan.

The inspectors determined through interviews with emergency preparedness and engineering personnel that neither section 5.1 nor 5.2 of NAD-14.06 were currently implemented by site personnel. In addition, the inspectors determined that the last partial biennial review of the SAMGs occurred in 2005. The inspectors subsequently performed a review of the SAMGs and identified the following additional issues:

- 60 percent of the SAMGs were last revised in October 2000;
- SAG-3, "Inject Into The RCS," Revision C, October 3, 2000, Attachment A, did not include guidelines for the long-term concerns of inadequate injection flow and conservation of refueling water storage tank water inventory as outlined in Revision 0 of the Westinghouse Owners Group (WOG) SAMGs;
- SAG-6, "Control Containment Conditions," Revision C, October 3, 2000, Attachment A, did not include guidelines for the long-term concern of iodine retention and stress corrosion cracking of stainless steel piping as outlined in Revision 0 of the WOG SAMGs;
- the SAMGs prescribed the use of hydrogen recombiners no longer maintained onsite by the licensee; however, the SAMGs did not prescribe actions to ensure the offsite hydrogen recombiners were ordered to ensure timely onsite arrival when needed;
- the licensee did not currently implement background documents for all the SAMGs in the procedures program;
- the licensee's SAMGs lacked details on component descriptions and did not identify equipment locations for ease of implementation;
- the licensee had not evaluated or incorporated Revision 1 to the WOG SAMGs dated October 2001 into the KPS SAMGs. The inspectors determined the changes were appropriate for implementation at KPS (Revision 1 affected 17 of the 25 guidelines); and
- the licensee had not incorporated applicable 10 CFR 50.54(hh) strategies into the SAMG procedures in accordance with a different licensee commitment. The inspectors identified that both CR038990 and CR039498, written in November 2006, had CAs to integrate the applicable 10 CFR 50.54(hh)

strategies into the SAMG procedures; yet those CAs were closed without completion of these actions.

Therefore, based on these issues, the inspectors concluded that the licensee was not implementing Procedure NAD-14.06 to ensure that the original NRC commitments were met. The inspectors also reviewed ACE018119, "Revision And Review Process For EIPs Has Not Been Effective," which was initiated in April 2010, to evaluate why the emergency preparedness group procedure reviews were not effective. The inspectors noted that the extent of cause evaluation identified that the vulnerability for ineffective reviews also existed in the SAMGs. However, the CA created to correct the SAMGs, CA168865, only incorporated the EIPs and inadvertently excluded the SAMGs. Therefore, no CAs were taken for the SAMGs as a result of the ACE extent-of-condition.

Analysis: The inspectors determined that the licensee's failure to review and update the SAMGs and background documents was contrary to the licensee's Procedure NAD-14.06 requirements and commitments made to the NRC; therefore, this 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 failure to update and review the SAMGs would have hampered the licensee's response in the unlikely event of a severe accident, because the SAMGs were not current and up-to-date. The inspectors, in consultation with the Region III senior reactor analyst, determined that the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a, for the Mitigating Systems Cornerstone, dated January 10, 2008. The inspectors answered "No" to the Mitigating Systems questions and screened the finding as having very low safety significance (Green).

The finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because the licensee failed to take appropriate CAs to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity (P.1(d)). Specifically, the licensee identified in an ACE initiated in April 2010 that the emergency preparedness organization had not performed the required reviews and updates of emergency preparedness procedures, and the SAMGs were identified in the licensee's extent-of-condition. However, the inspectors identified that the CAs issued for this extent-of-condition did not address the SAMGs and, therefore, no CAs were taken.

Enforcement: No violation of regulatory requirements occurred but the inspectors did identify a finding (FIN 05000305/2011003-05, Failure to Review and Update Severe Accident Management Guidelines in Accordance with an Established Program).

The licensee entered this issue into its CAP as CRs 424681, 424855, 424865, 424866, 425092, 426999, and 427092, and was still evaluating the cause for this condition at the end of this inspection period. The licensee has planned CAs to remediate the issues identified by the inspectors to correct the SAMGs. At the end of this inspection period, the licensee scheduled revision of the SAMGs for completion by December 2011.

.4 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the period of December 2010 through May 2011, 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, system health reports, quality assurance audit/surveillance reports, and self-assessment reports. The inspectors compared their results with the results contained in the licensee's CAP trending reports. CAs associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

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

.1 Retraction of Event Notification EN46562, "Non-Functional Steam Exclusion Door"

On January 21, 2011, during normal plant walkdowns, the inspectors identified that the lower cane bolt for door 3, a steam exclusion door, was not engaged. With the cane bolt not engaged, door 3 was non-functional. In accordance with Technical Requirements Manual (TRM) 3.0.9, all equipment supported by the steam exclusion barrier was declared inoperable. The door was properly secured within 6 minutes and the licensee initiated an ACE to determine the cause. The licensee's investigation determined that the most likely cause was an inadvertent disengagement by a licensee employee or contractor traversing through door 3. A subsequent engineering evaluation by the licensee determined that the lower cane bolt was not required for door 3 to fulfill its function as a steam exclusion barrier; therefore, the door remained functional. The licensee subsequently retracted Event Notification (EN) EN46562 on March 22, 2011.

The inspectors reviewed the licensee's evaluation and concurred with the licensee's technical justification and event retraction. The inspectors determined that the performance deficiency was minor and no findings were identified.

Therefore, this EN is closed. This event follow-up review constituted one sample as defined in IP 71153-05.

.2 (Closed) LER 5000305/2011-001-00: Auxiliary Building Special Ventilation Inoperability Results in Prohibited Technical Specification Condition

On December 13, 2010, with the plant at 100 percent power, charcoal laboratory radioiodine test results were found to be below the acceptance criteria of 97.5 percent for auxiliary building special ventilation (ABSV) train A charcoal adsorber efficiency. This caused train A to be inoperable in excess of the TS 3.6, "Containment System Integrity," allowed outage time of 7 days.

Specifically, at the time filter bank A was removed for analysis on December 1, 2010, there was no indication that the ABSV train A was inoperable. The sample analysis failure identified on December 13, 2010, constituted discovery that the ABSV train A exceeded the TS surveillance requirement for a charcoal adsorber efficiency of greater than 97.5 percent. With the charcoal adsorber filter replacement completed on December 16, 2010, there was a 15-day period where the ABSV train A did not satisfy the surveillance requirement, even though the filters were replaced within the time allowed by TSs (from the time of discovery). Consequently, the allowed outage was exceeded because the elapsed time, from removal of the sample to the time the vendor analysis was obtained, plus the time required for corrective actions to be completed to address the condition, exceeded the 7-day TS allowance for one train being inoperable by 8 days. The event was reported in accordance with 10 CFR 50.73(a)(2)(i)(B) for any operation or condition which was prohibited by TSs.

The accident analysis for KPS assumes a charcoal adsorber efficiency of 95 percent; however, the acceptance criteria of 97.5 percent is used to ensure a safety factor of two is utilized. The actual charcoal adsorber test results for ABSV train A were at a 96.59 percent efficiency, therefore train A still maintained its safety function since the measured value for efficiency was greater than the accident analysis assumption of 95 percent efficiency. The inspectors reviewed the licensee's evaluation of the TS violation and subsequent actions taken. The inspectors concluded the licensee's resolution of this issue was adequate and that the performance deficiency was not greater than minor. Documents reviewed are listed in the Attachment to this report.

Therefore, this LER is closed. This event follow-up review constituted one sample as defined in IP 71153-05.

.3 (Closed) LER 5000305/2011-002-00: Loss of Station Backfeed Results in Loss of One Train of Offsite Power During Refueling Outage

On March 11, 2011, with the plant shut down and the reactor defueled, power was lost to safeguards 4160-Volt bus 6. EDG B started and re-energized bus 6. At the time of the event, bus 6 was energized from the main auxiliary transformer on backfeed. The event was caused by the opening of an incorrect breaker by technicians working in a substation (switchyard) relay building.

All equipment operated as expected for the voltage restoration to bus 6 via EDG B. Safeguards bus 5 remained energized from offsite power during the event. SFP cooling train A remained in operation during the event and train B was restarted following restoration of power to bus 6. The event also caused a loss of non-safeguards 4160-Volt bus 4. In response to the loss of power to bus 4, the TSC/SBO DG started but failed to load on 480-Volt bus 1-46, resulting in continued loss of power to the TSC.

The licensee reported the event in accordance with 10 CFR 50.73(a)(2)(iv)(A) for any event or condition that resulted in the automatic actuation of emergency electrical power systems (EDG B).

The performance deficiency associated with the initiating error by the substation technicians was previously documented in NRC IR 05000305/2011002, Section 4OA3.1. The performance deficiency associated with the failure of the TSC/SBO DG failure to automatically load on bus 1-46 is documented in Section 1R12.1. The inspectors reviewed the licensee's evaluation of the event and subsequent actions taken, and concluded no additional performance deficiencies existed. Documents reviewed are listed in the Attachment to this report.

Therefore, this LER is closed. This event follow-up review constituted one sample as defined in IP 71153-05.

.4 (Closed) LER 5000305/2011-003-00: Valve SI-11A, Safety Injection to Loop A Cold Leg, Breaker Found On with Plant in Mode 3

On March 24, 2011, with the plant shut down and in Mode 3, a shift technical advisor performed a protected equipment walkdown and identified that the electrical breaker for motor operated valve SI-11A, safety injection to loop A cold leg, was in the "On" position with the valve open. The required breaker position for Mode 3 was "Off" and locked, as required by TS Surveillance Requirement 3.5.2.1. The valve was in the required open position and was thereby providing the required SI flow path; however, the breaker was not off and locked.

The licensee identified that the requirements of TS Limiting Condition of Operation (LCO) 3.0.4, for entering a mode of applicability when an LCO is not met, were not completed prior to entering Mode 3. The licensee determined that the breaker was in the incorrect position from 2:58 a.m. to 11:30 a.m. on March 24, 2011, for a total of 8 hours and 32 minutes. The licensee reported the event in accordance with 10 CFR 50.73(a)(2)(i)(B) for any operation or condition which was prohibited by TSs.

The licensee's causal evaluation determined the event was caused by inadequate guidance in the procedure associated with safety injection to loop A cold leg check valve leakage measurement, which was performed just prior to the transition from Mode 4 to Mode 3. This licensee-identified performance deficiency is discussed in Section 4OA7.1 of this report.

Therefore, this LER is closed. This event follow-up review constituted one sample as defined in IP 71153-05.

4OA5 Other Activities

.1 (Closed) NRC Temporary Instruction 2515/183: "Follow-Up to the Fukushima Daiichi Nuclear Station Fuel Damage Event"

The inspectors assessed the activities and actions taken by the licensee to assess its readiness to respond to an event similar to the Fukushima Daiichi nuclear plant fuel damage event. This included the following: (1) an assessment of the licensee's capability to mitigate conditions that may result from beyond design basis events, with a particular emphasis on strategies related to the SFP, as required by NRC Security Order

Section B.5.b, issued February 25, 2002, as committed to in SAMGs, and as required by 10 CFR 50.54(hh); (2) an assessment of the licensee's capability to mitigate SBO conditions, as required by 10 CFR 50.63 and station design bases; (3) an assessment of the licensee's capability to mitigate internal and external flooding events, as required by station design bases; and (4) an assessment of the thoroughness of the walkdowns and inspections of important equipment needed to mitigate fire and flood events, which were performed by the licensee to identify any potential loss of function of this equipment during seismic events possible for the site.

IR 05000305/2011009 (ML111320380) documented detailed results of this inspection activity. Following issuance of the report, the inspectors conducted detailed follow-up on selected issues. The observations documented in IR 05000305/2011009 that were determined to be performance deficiencies were assessed as being minor by the inspectors, unless otherwise documented in Sections 4OA2.3, 4OA5.3, or 4OA5.4 of this report.

.2 (Closed) NRC Temporary Instruction 2515/184: "Availability and Readiness Inspection of Severe Accident Management Guidelines (SAMGs)"

On May 27, 2011, the inspectors completed a review of the licensee's SAMGs, implemented as a voluntary industry initiative in the 1990's, to determine: (1) whether the SAMGs were available and updated; (2) whether the licensee had procedures and processes in place to control and update its SAMGs; (3) the nature and extent of the licensee's training of personnel on the use of SAMGs; and (4) licensee personnel's familiarity with SAMG implementation.

The results of this review were provided to the NRC task force chartered by the Executive Director for Operations to conduct a near-term evaluation of the need for agency actions following the Fukushima Daiichi fuel damage event in Japan. Plant-specific results for the KPS were provided as an Enclosure to a Memorandum to the Chief, Reactor Inspection Branch, Division of Inspection and Regional Support, dated June 1, 2011, (ML111520396).

Following issuance of the memorandum, the inspectors conducted detailed follow-up on selected issues. The observations documented in the enclosure for KPS that were determined to be performance deficiencies were assessed as being minor by the inspectors, unless otherwise documented in Section 4OA2.3 of this report.

.3 (Open) URI 05000305/2011003-06: "Kewaunee Condensate Storage Tank Minimum Volume Analysis"

Improved TS Surveillance Requirement 3.7.6.1, requires, in part, that the usable volume in the condensate storage tanks (CSTs) is greater than or equal to 41,500 gallons. The inspectors reviewed calculation CN-SEE-02-47, "Kewaunee Condensate Storage Tank Minimum Volume Analysis for 7.4 Percent Power Uprate Program," Revision 0, dated October 9, 2002, and determined that the calculation established a minimum CST volume based on restoring and maintaining no-load level in the steam generators, which equated to the steam generator narrow range level of 0 percent. The inspectors noted that Procedure ECA 0.0, "Loss Of All AC Power," implemented by plant operators during an SBO, required operators to feed the steam generators at greater than 210 gallons per minute, and to maintain a minimum steam generator level of 5 percent narrow range

level. Therefore, the inspectors questioned why the operating procedures for an SBO, which established maintenance of a minimum 5 percent steam generator narrow range level, did not comport with the calculation, which was based on maintaining a no-load level in the steam generators of 0 percent, a smaller volume level. In addition, the inspectors noted that the 41,500-gallon minimum volume also did not consider the following additional items: CST volumes wasted to the condenser during the first 10 minutes of a SBO; and CST volumes wasted to a drain trench from the TDADF pump lube oil cooler. The licensee initiated CR425837 to capture the inspectors' observations.

The inspectors are opening this URI since more information is required to determine if there is a performance deficiency.

.4 (Open) URI 05000305/2011003-07: "Potential Internal Flood Scenario Due to Postulated Loss of the Technical Support Center"

During independent walkdowns, the inspectors identified that the basement of the TSC was connected to the basement of the auxiliary building through two air lock doors. The inspectors identified that no credited flooding barriers existed to preclude flood waters from a ruptured fire protection system in the TSC from entering the auxiliary building. The licensee determined that both doors were special ventilation doors, and one door had seals that would limit leakage into the auxiliary building because it was also a steam exclusion boundary. The doors also closed into their frames during a TSC flooding event and were not expected to fail. The licensee initiated CR424708 to further evaluate this observation.

The inspectors are opening this URI since more information is required to determine if there is a performance deficiency.

.5 (Closed) Temporary Instruction 2515/179, "Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System Pursuant to Title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207)"

The inspectors confirmed that the licensee has reported the initial inventories of sealed sources pursuant to 10 CFR 20.2207 and verified that the National Source Tracking System database correctly reflects the Categories 1 and 2 sealed sources in custody of the licensee. Inspectors interviewed personnel and performed the following:

- reviewed the licensee's source inventory;
- verified the presence of any Categories 1 or 2 sources;
- reviewed procedures for and evaluated the effectiveness of storage and handling of sources;
- reviewed documents involving transactions of sources; and
- reviewed adequacy of licensee maintenance, posting, and labeling of nationally tracked sources.

No findings were identified.

.6 (Closed) URI 05000305/2011002-05: "Technical Support Center Diesel Fails To Load"

On March 10, 2011, the licensee inadvertently opened a switchyard breaker that was providing power to various non-safeguards busses, as well as bus 6, a 4160-Volt

safeguards bus. The TSC DG automatically started as expected. However, the output breaker failed to close and power bus 1-46, as designed. The self-revealed performance deficiency associated with this URI is documented in Section 1R12.1 of this report. Therefore, this URI is considered closed.

.7 (Closed) URI 05000305/2009004-01: "Technical Specification Action Requirements During a Leak in a Containment Fan Coil Unit Service Water Line"

The inspectors identified that the licensee entered TS action requirement 3.0.c, standard shutdown sequence, for a leak inside containment on a containment fan cooler unit SW line on September 13, 2009. The inspectors reviewed a similar leak that occurred on August 15, 2008, and found that the licensee did not enter the same TS action requirement for that leak. The inspectors reviewed the licensee's final analysis and evaluation of the two events provided in June 2011, and determined that no performance deficiency existed; therefore, this URI is considered closed.

4OA6 Management Meetings

.1 Exit Meeting Summary

On June 30, 2011, the inspectors presented the inspection results to Mr. S. Scace 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 radiation monitoring instrumentation and Temporary Instruction 2515/179 inspection with the Safety and Assessment Director, Mr. M. Wilson, on April 15, 2011; and
- the results of the radioactive gaseous and liquid effluent treatment and verification of the public radiation safety PI with the Site Vice-President, Mr. S. Scace, on June 10, 2011.

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.

4OA7 Licensee-Identified Violations

The following violations of very low significance (Green) or SL IV were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

.1 Inadequate Procedure Instructions Led to Incorrect Breaker Position for Valve SI-11A

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

Contrary to this, on March 24, 2011, licensee personnel performed Procedure SP-33-297A, "Safety Injection To Loop A Cold Leg Check Valve Leakage," which left the breaker for valve SI-11A, SI valve to loop A cold leg, in the incorrect position. The valve was required by TS Surveillance Requirement 3.5.2.1 to be open with the breaker in the off position and locked. Procedure SP-33-297A correctly established an open position for the valve, thereby providing the required SI system flow path, but failed to place the breaker in the off and locked position.

The Shift Technical Advisor identified the incorrect breaker position during protected equipment rounds in the plant and also identified that the requirements of TS LCO 3.0.4, for entering a mode of applicability when an LCO is not met were not completed prior to entering Mode 3. The licensee later determined the breaker was in the incorrect position from 2:58 a.m. to 11:30 a.m. on March 24, 2011, for a total of 8 hours and 32 minutes, which was also reported to the NRC in accordance with 10 CFR 50.73(a)(2)(i)(B) for any operation or condition which was prohibited by TSs (Section 4OA3.4 of this report).

The inspectors answered "No" to the Mitigating Systems Cornerstone questions and screened the finding as having very low safety significance (Green) in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," Table 4a, dated January 10, 2008.

The licensee documented this violation in CR419235. The licensee performed an ACE which determined Procedure SP-33-297A did not provide direction on the required breaker manipulations and implemented CAs that included revision of the procedure, and an extent-of-condition evaluation to correct other deficient procedures.

.2 Incorrect Diesel Generator A Governor Setting

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

Contrary to this, in 1990, the licensee replaced the governor on the EDG A without any specific setting in the WOs or Procedure CMP-10-05, Revision A, for the compensation needle valve in the governor. On March 9, 2011, during the first hot fast start test performed on EDG A since the 1990 governor replacement, the governor began hunting and caused perturbations in the EDG speed, frequency, and voltage. Operators immediately shut down the EDG and commenced troubleshooting with a vendor representative that identified the compensation needle valve in the governor was not set. Bench testing accurately reproduced oscillation of a magnitude and frequency similar to those observed during the test. The hot fast start testing was previously not required by KPS TSs and the test was being performed for the first time since implementation of improved TSs. All the acceptance criteria for the speed of response and stability of EDG A were met under the required conditions.

The inspectors answered "No" to the Mitigating Systems Cornerstone questions and screened the finding as having very low safety significance (Green) in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," Table 4a, dated January 10, 2008.

The licensee documented this violation in CR416884. The licensee performed an ACE which determined Procedure CMP-10-05, Revision A, did not provide direction on the

required compensation needle valve on the governor and implemented CAs that included revision of the current maintenance procedure, and an extent- of condition evaluation for EDG B. EDG B was determined to not have been subject to the inadequate guidance in Procedure CMP-10-05 and also met the acceptance criteria of the first hot fast start test performed in March 2011, and did not exhibit the same governor hunting as was experienced on EDG A.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

S. Scace, Site Vice-President
M. Wilson, Director, Safety and Licensing
R. Simmons, Plant Manager
S. Yuen, Director, Engineering
D. Asbel, Engineering Programs Manager
D. Lawrence, Operations Manager
J. Gadzala, Licensing Engineer
M. Aulik, Engineering Design Manager
T. Breene, Licensing Manager
J. Hale, Radiation Protection and Chemistry Manager
M. Hovis, Radiation Protection Supervisor
A. Maly, Health Physicist

Nuclear Regulatory Commission

M. Kunowski, Chief, Division of Reactor Projects, Branch 5
D. Passehl, Senior Reactor Analyst
N. Valos, Senior Reactor Analyst

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000305/2011003-01	FIN	Technical Support Center Diesel Generator Output Breaker Fails to Close (Section 1R12.1)
05000305/2011003-02	FIN	Inadequate Operability Determination of a Heat Exchanger Leak on Emergency Diesel Generator A (Section 1R15.1)
05000305/2011003-03	NCV	Failed Standoffs Result in an Inoperable Train of Shield Building Ventilation (Section 1R15.2(1))
05000305/2011003-04	NCV	Failure to Submit LER per 10 CFR 50.73 (Section 1R15.2(2))
05000305/2011003-05	FIN	Failure to Review and Update Severe Accident Management Guidelines in Accordance with an Established Program (Section 4OA2.3)
05000305/2011003-06	URI	Kewaunee Condensate Storage Tank Minimum Volume Analysis (Section 4OA5.3)
05000305/2011003-07	URI	Potential Internal Flood Scenario Due to Postulated Loss of the Technical Support Center (Section 4OA5.4)

Closed

05000305/2011003-01	FIN	Technical Support Center Diesel Generator Output Breaker Fails to Close (Section 1R12.1)
05000305/2011003-02	FIN	Inadequate Operability Determination of a Heat Exchanger Leak on Emergency Diesel Generator A (Section 1R15.1)

05000305/2011003-03	NCV	Failed Standoffs Result in an Inoperable Train of Shield Building Ventilation (Section 1R15.2(1))
05000305/2011003-04	NCV	Failure to Submit LER per 10 CFR 50.73 (Section 1R15.2(2))
05000305/2011003-05	FIN	Failure to Review and Update Severe Accident Management Guidelines in Accordance with an Established Program (Section 4OA2.3)
5000305/2011-001-00	LER	Auxiliary Building Special Ventilation Inoperability Results in Prohibited Technical Specification Condition (Section 4OA3.2)
5000305/2011-002-00	LER	Loss of Station Backfeed Results in Loss of One Train of Offsite Power During Refueling Outage (Section 4OA3.3)
5000305/2011-003-00	LER	Valve SI-11A, Safety Injection to Loop A Cold Leg, Breaker Found On with Plant in Mode 3 (Section 4OA3.4)
TI 2515/183		Follow-up to the Fukushima Daiichi Nuclear Station Fuel Damage Event (Section 4OA5.1)
TI 2515/184		Availability and Readiness Inspection of Severe Accident Management Guidelines (SAMGs) (Section 4OA5.2)
TI 2515/179		Verification of Licensee Responses to NRC Requirement for Inventories of Materials Tracked in the National Source Tracking System Pursuant to Title 10, Code of Federal Regulations, Part 20.2207 (10 CFR 20.2207) (Section 4OA5.5)
05000305/2011002-05	URI	Technical Support Center Diesel Fails To Load (Section 4OA5.6)
05000305/2009004-01	URI	Technical Specification Action Requirements During a Leak in a Containment Fan Coil Unit Service Water Line (Section 4OA5.7)

Discussed

None

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

- CR027067; Minor Oil Leak At EDG Oil Cooler Connection
- CR113742; Temperature Indicator 12265 Is Reading High
- CR113767; TI – 55115 Was Found Out Of Spec
- CR348081; Possible Insufficient Seal On Seiche Door #182
- CR348085; Door 164 Cannot Open Far Enough For Door Inspection Resulting In UNSAT Condition'
- CR348087; Possible Inadequate Door Seal On Seiche Door 165 (Inactive)
- CR364486; Upper Angle Guide Is Not Located In The Upper Position For 1-610BKR
- CR420528; RST And TST Secondary Voltage Causing Operational Problems
- CR423130; NRC Questions On RAS000105 Assumptions Following Walkdown
- CR424517; NRC-Inspector Identified: ARP 47033 P Possible Improvement
- CR427327; Hard Drive Failed In PPC-A Causing The Server To Lockup
- CR427800; EDG A DC Ammeter 55207 Reads 0 With EDG Running
- CR430269; Secondary Alarm Station Door Is Binding
- CR430511; Evaluate Operational Decision Making For Safeguards Bus Voltage
- CR430800; Oil Buildup On Casing Near Overspeed Trip Mechanism For EDG "A"
- EOP ES-0.1; Reactor Trip Response; Revision 31
- NERC Standard NUC-001; Nuclear Plant Interface Coordination Agreement Between Dominion Energy Kewaunee, Inc. And American Transmission Company LLC; Effective April 1, 2010
- OP-KW-AOP-GEN-002; Rapid Power Reduction; Revision 10
- OP-KW-NOP-SUB-003; RST And TST Load Tap Changer Operation, System 59; Revision 0
- RAS 105; Possible Insufficient Seal On Door 182, 164, And 165; March 21, 2011

1R04 Equipment Alignment

- CR433023; Breaker 14305 Would Not Close From The Control Room
- High Risk Contingency Plan Actions Dated June 30, 2011, For Breaker 14305 Troubleshooting
- OP-KW-MOP-ELV-043; Bus 43 And Associated MCCs AC Supply And Distribution System
- OP-KW-NCL-AFW-001; Auxiliary Feedwater System Prestartup Checklist
- SP-05B-284; Turbine Driven AFW Pump Full Flow Test – IST; Revision 39
- Troubleshooting Plan For Breaker 14305, CR432783
- WO KW100570163; Investigate and Repair Heated Load Connections On Breaker MCC43B-D2

1R05 Fire Protection

- Fire Zone Summary For AX-33 and AX39, Condensate And Makeup Water Tank Room and Adjacent Areas; Revision 8
- Fire Zone Summary for AX-37, Control Rod Drive, Reactor Trip Cabinet, Instrument Lab and Emergency Air Lock Areas; Revision 8

- Fire Zone Summary For TU-96 Oil Storage Room "B"; Revision 8
- PFP-11; TU-22, 96, Turbine Building Basement; Revision G
- PFP-19; AX-33 and AX-39, Condensate And Makeup Water Tank Room And Adjacent Areas; Revision D
- PFP-25; AX-37, Control Rod Drive, Reactor Trip Cabinet, Instrument Lab and Emergency Air Lock Areas; Revision E

1R06 Flooding

- CR424708; Identification Of Previously Unanalyzed Flooding Source
- CR424896; Trench Barrier Not Inspected
- Drawing A-528-1; Flood Boundary; Revision F
- Drawing A-528-2; Flood Boundary Revision C
- Drawing S-508; Administration Building Foundation Plan & Floor Drains; Revision R
- ICP-04-22; Turbine Building Level Switches To Circulating Water Pump Trip Functional Test; March 11, 2011
- MA-KW-MPM-MDS-001; Inspection Of Flood Protection Floor Drain Check Valves; March 6, 2011
- OP-KW-AOP-GEN-004; Response To Natural Events; Revision 10
- OP-KW-AOP-MDS-001; Abnormal Operation Of Miscellaneous Drains And Sumps, System MDS-30; Revision 4
- OP-KW-ARP-47032-Q; RHR Pump Pit A/B Level High, System MDS-30; Revision 1
- OP-KW-ARP-47032-R; RHR Pump pit Sump Level High, System MDS-30; Revision 0
- OP-KW-ARP-47033-P; Miscellaneous Sump Level High, System MDS-30; Revision 0
- OP-KW-ARP-47033-R; Aux Bldg Flood Level High, System MDS-30; Revision 3
- OP-KW-ARP-47051-N; CW Pumps Flood Level Trip, System CW-04; Revision 1
- OP-KW-ARP-47051-Q; Turbine Building Service Water Isolation, System SW-02; Revision 1
- OP-KW-ARP-47052-N; Turbine Bldg Flood Level Alert, System CW-04; Revision 0
- OP-KW-ARP-47053-N; Cond Trench Water Level High, System CW-04; Revision 0
- OP-KW-ARP-47054-N; SFGRD Alley Flood Level High, System MDS-30; Revision 1
- Report No. SW-02-19(App.C); Dynamic Seismic Analysis; March 30, 1990
- WO KW100276096; PM30-547: Inspect Valve Internals; June 11, 2010
- WO KW100280620; PM30-548: Inspect Valve Internals; June 11, 2010
- WO KW100474718; PM89A055: Inspect Flood Barriers; November 17, 2009
- WO KW100576053; PM08-805: Inspection Of Doors On Elevation 569 And 586; August 10, 2010
- WO KW100593929; PM30-543: Inspect Valve Internals; October 22, 2010
- WO KW100593989; PM30-542: Inspect Valve Internals; October 22, 2010
- WO KW100596190; PM30-552: Inspect Valve Internals; March 11, 2011
- WO KW100596331; PM30-544: Inspect Valve Internals; October 22, 2010
- WO KW100598634; PM04-582: Turbine Bldg CW Pump Functional Test; March 15, 2011
- WO KW100599448; PM30-553: Inspect Valve Internals; October 22, 2010
- WO KW100768370; PM89A067: Inspect/Functional Check (Monthly) SPV Doors; March 9, 2011

1R11 Licensed Operator Requalification Program

- LRC-11-DY201; 11-02 Cycle Dynamic; Revision A

1R12 Maintenance Effectiveness

- AC Source – Operating; B 3.8.1-21; Amendment No. 207
- ACE018573; CR417289: Inspect TSC D/G Output Breaker
- CR342455; Experienced A Temporary Loss Of All Plant Process Computer Functions
- CR379304; Received TLA-1 During For Rod K07 During Power Escalation
- CR411774; Maximo Did Not Create ENGPR Restraints For NS Parts On 3 SR Work Orders
- CR417078; Loss Of Station Backfeed
- CR417099; TSC Diesel Generator Tripped On High Water Temperature
- ECA-0.0; Loss Of All AC Power; Revision 44
- Emergency Diesel Generator; Maintenance Rule Scoping Questions; Attachment A; Revision 3
- Emergency Diesel Generator; Maintenance Rule System Basis; Revision 14; July 11, 2011
- Emergency Diesel Generator; SSC Performance Criteria Sheet; Attachment B; Revision 7
- ER-AA-BKR-1001; Circuit Breaker Program; Revision 0
- ER-AA-PRS-1010; Preventive Maintenance Task Basis And Maintenance Strategy; Revision 1
- Log Entries Report; March 11 To March 14, 2011
- Maintenance Rule Performance Criteria; Rod Control And Rod Position Indication System; Attachment B, Revision 3
- Maintenance Rule Scoping Questions; Rod Control And Rod Position Indication System; Attachment A, Revision 2
- Maintenance Rule System Basis; Rod Control And Rod Position Indication System; Revision 7
- MRE 010898; Experienced A Temporary Loss Of All Plant Process Computer Functions
- MRE 012060; Received TLA-1 During For Rod K07 During Power Escalation
- MRE013358; CR417289: Inspect TSC D/G Output Breaker
- OP-KW-ARP-47086-H; Bus 46 Voltage Low; Revision 0
- OP-KW-ARP-47086-I; TSC Diesel Gen Abnormal; Revision 1
- OP-KW-NOP-DGM-001C; TSC Diesel Generator Operation; Revision 4
- Rod Control And Rod Position Indication System Balancing; October 2009 – March 2011
- System 40; 480 Volt Electrical Supply And Distribution; Maintenance Rule System Basis; Revision 7; July 11, 2011
- System 40; 480 Volt Electrical Supply And Distribution; Maintenance Rule Scoping Questions; Attachment A; Revision 1
- System 40; 480 Volt Electrical Supply And Distribution; SSC Performance Criteria Sheet; Attachment B; Revision 4
- Technical Support Center Diesel Maintenance Rule Data Sheets; December 2009 Through June 2011

1R13 Maintenance Risk

- Planning and Scheduling, Work Week Risk and Work Schedule Documentation for the Weeks of May 9, May 16, May 23, May 30 and June 13, 2011;

1R15 Operability Evaluations

- ACE018531; Failed Standoffs Used To Mount SBV Servo Boards
- ACE018531; SBV Standoffs For Servo Boards Broken
- ACE018578; CR416884: Diesel Generator 'A' Hunting During Hot Fast Start Test
- CR411681; Shield Building Vent Standoffs For Servo Boards Found Broken, Board Hanging
- CR411774; Maximo Did Not Create ENGPR Restraints For NS Parts On 3 SR Work Orders
- CR421752; Jacket Water Dripping From Reservoir Overflow Line On Diesel Generator A

- CR423665; NRC Identified Issue With OD-413 (EDG "A" Jacket Water Expansion Tank Overflow)
- CR423969; Operational Through-Wall Leakage Flowchart Does Not Address HX Tube Leakage
- CR427292; FW-7A Controlling Erratically
- CR428470; Runout On Outboard Generator Collector Ring Is Out Of Acceptance Range
- CR429224; Heat Exchanger Tube Leakage Requirements
- CR429386; NRC Questions Use Of Non-Safety-related Part In Shield Building Ventilation System
- CR429469; NRC Resident Question On Reportability Of 1/2011 SBV Servo Board Issue
- CR432053; Questions Concerning The Conclusions In ACE018531, Failed Standoffs In SBV System
- Design Review Of Post-Accident Plant Shielding And Equipment Radiation Qualification; Project: 23-7127-053; February 13, 1981
- Drawing ISIM-202-1; ISI Flow Diagram Service Water System; Revision Y
- EOP ES-1.3; Transfer To Containment Sump Recirculation; Revision 35
- IEE No. 10000008907; Version 00
- Kewaunee Power Station Fourth 10-Year Interval Inservice Inspection Program, Revision 4, Appendix I, Basis Document for ISI Code Class Boundaries, Page I-31
- Log Entries Report; January 25 To February 4, 2011
- MA-KW-GMP-BLD-003; RHR Pump Pit Cover Removal And Installation With Flood Barrier Installed; Revision 0
- MRE013146; Shield Building Vent Standoffs For Servo Boards Found Broken
- MRE013340; Stopped DG A And Placed To Pullout Per Step 5.9.17 Of OSP-DGE-004A
- MS-AA-IEE-301; Item Equivalency Evaluation; Revision 2
- MS-AA-SCE-301; Subcomponent Classification Evaluation; Revision 1
- NRC-03-057; Letter From Kewaunee Nuclear Power Plant To NRC, Re: License Amendment Request 195, Application For Stretch Power Uprate For Kewaunee Nuclear Power Plant; May 22, 2003
- ODM-201; Operational Decision Making Checklist; May 25, 2011
- OP-AA-101 – Attachment 2; Operational Decision Making Checklist For CR362131; December 22, 2009
- OP-AA-102; Operability Determination; Revision 6
- OP-AA-102-1001; Development Of Technical Basis To Support Operability Determinations; Revision 4
- OP-KW-OSP-DGE-001A; Diesel Generator A Monthly Availability Test; Revision 10
- Prompt Operability Determination Documentation For CR421752, Revision 0; April 15, 2011
- Prompt Operability Determination Documentation For CR421752, Revision 1; April 23, 2011
- Q-List Package: QL-24; System 24 – Shield Building Ventilation (SBV); May 12, 2010
- SCE 10000015810; SBV Servo Boards NS Parts; Revision 00
- Station Log; May 24, 2011 Time: 08:37 – 17:56
- WO KW100471263; Inspect Circuit Board For Damage
- WO KW100755550; Contingency. Remove Standoffs On Servo Board 35108/35109
- WO KW100755927; Remove The Circuit Board Standoffs From Train B Shield Building Vent

1R18 Plant Modifications

- 50.59/72.48 Screen, Replace The Connectors On The CETs And CET Cables Between Reactor Head And Junction Boxes
- DCR KW-10-01011, Replace Core Exit Thermocouple (CET) And Associated Connectors And Cables

- Regulatory Guide 1.187; Guidance For Implementation Of 10 CFR 50.59, Changes, Tests, And Experiments; November 2000

1R19 Post-Maintenance Testing

- CR414237; CRPAR PMT Lessons Learned
- CR418700; 1A EDG Frequency Decrease During PMT For Governor Replacement
- High Risk Contingency Plan Actions dated June 3, 2011, For Replacement Motor Driven Auxiliary Feedwater A
- MA-KW-ESP-DGE-003B; Diesel Generator B Semi-Annual Fast Start Test; System 42; Revision 16
- MA-KW-ESP-DGE-004B; Inspection Of Diesel Generator B (Component Retest); System 42; Revision 7
- OP-KW-OSP-AFW-005; Auxiliary Feedwater Pump A Low Suction Pressure Trip Test And SW Valve IST; System 05B; Revision 1
- Pre-Job Briefing No. 1159; Maintenance-Mechanical; May 9, 2011
- SP-02-292B; SW Train B Pumps Reference Value And Testing; Revision 11
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- WO KW100801677; Replace 'A' AFW Pump C/S With New From Stock

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- SP-05B-283A; Motor Driven AFW Pump A Full Flow Test – IST; Performed June 17, 2011
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- SP-05B-284; Turbine Driven AFW Pump Full Flow Test – IST; Performed June 17, 2011
- WO KW100688476; Spare Charger B.5.b; Energize And Load B.5.b Battery Charger

1EP6 Drill Evaluation

- Drill Scenario Package dated May 10, 2011, CR426783; Steam Flow 464A

2RS1 Radiological Hazard Assessment and Exposure Controls

- 2009 Annual Effluent Release Report; Kewaunee Power Station; April 26, 2010
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- ACE18489; Charcoal Filter Efficiency Test Failures; April 1, 2011
- Audit 08-06; Radiological Protection And Process Control Program; September 4, 2008
- Audit 09-08; Radiation Protection/Process Control Program/Chemistry; July 29, 2009
- Audit 09-15; Offsite Dose Calculation Manual/Radiological Environmental Monitoring Program/Environmental Protection Program 7 Surry Refueling Activities; January 28, 2010
- Audit 10-07; Radiological Protection And Process Control Program; September 23, 2010
- Calculation C11988; Estimation Of Carbon-14 At Kewaunee Power Station Gaseous Effluents; Revision 0
- Calculation No. C10690; ODCM Setpoint Calculations; Revision A
- Calculation No. C11620; Evaluation Of Radiological Effluent Monitor Response Action Levels; Revision 0

- Calculation No. C11805; EAL Calculation For Abnormal Radiological Releases; Revision 0; Addendum A
- CR103668; 2007 Annual Effluent Release Report Contains An Inaccurate Statement
- CR117760; NRC Question Of Self Eval Review For RG 1.97 Vulnerabilities In Rad Monitoring
- CR117759; NRC Question of the PM Program for Rad Monitoring System
- CR430015; 2010 Annual Effluent Release Report Contains An Inaccurate Statement
- CR430267; Ineffective Review Of Radiological Crosscheck Results
- CR430361; SP-33-113 Data Sheets Misfiled
- CR430443; Minor Discrepancy Between CY-AA-LQC-400-1000 And Actual Vendor Practice
- CY-AA-LQC-400-1000; Confirmatory Measurements Using Blind Samples; Revision 2
- CY-KW-000-003; Attachment B; Chemistry Interlab Quality Control Sample Data Sheet; March 26, 2010
- CY-KW-000-003; Attachment B; Chemistry Interlab Quality Control Sample Data Sheet; March 19, 2010
- CY-KW-000-003; Attachment B; Chemistry Interlab Quality Control Sample Data Sheet; September 23, 2010
- CY-KW-000-003; Attachment B; Chemistry Interlab Quality Control Sample Data Sheet; December 1, 2010
- CY-KW-000-003; Attachment B; Chemistry Interlab Quality Control Sample Data Sheet; April 20, 2011
- CY-KW-000-003; Interlab Quality Control; Revision 3
- CY-KW-042-001; Makeup Water Sample Specifications; Revision 11
- CY-KW-049-013; Sludge Sampling; Revision 2
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- HP-07.018; Instrument Calibration Procedure – Ion Chambers; Revision 9
- HP-07.040; Instrument Calibration Procedure – JL Shepherd Model 89-400 Calibrator Source Characterization Verification; Revision 5
- HP-07.072; Instrument Calibration Procedure – PCM-1C Contamination Monitor; Revision 10
- KPS Radiac Calibration Worksheet; AM-2 (3096-3); Serial No. 9817-132; November 3, 2010
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- NAD-01.12; Radiological Gaseous Waste Discharge; Revision 8
- Offsite Dose Calculation Manual (ODCM); Revision 12
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- RP-KW-007-099; Eberline Personnel Monitor Model PM-77, Calibration And Operation; Revision 1
- SP-29-069; Liquid Continuous Radioactive Releases – Steam Generator, Turbine Building Sump; Revision 34
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- SP-32-114; Liquid Batch Radioactive Release Surveillances; Revision 23
- SP-32-115; Doses From Liquid Effluents; Revision 14
- SP-32-299; Incineration Of Contaminated Oil Using Heating Boiler; Revision 11
- SP-32A-136; Radiological Liquid Discharges (Batch Mode); Revision 38
- SP-32A-266; Effluent Dose Limit Verifications; Revision 11
- SP-32B-116; Gaseous Radioactive Effluents – Reports For Batch Releases; Revision 34
- SP-32B-268; Site Boundary Dose From Gaseous Effluents; Revision 13
- SP-45-290; Radioactive Gaseous Effluent Monitoring Instrumentation, Compensatory Actions For Channels Out Of Service; Revision 8
- SP-63-280; Annual Environmental Reports; Revision 13
- System Health Report; Radiation Monitoring; July 7, 2010 – September 30, 2010
- System Health Report; Radiation Monitoring; October 1, 2010 – December 31, 2010

40A1 Performance Indicator (PI) Verification

- Control Room / Out-Of-Service Logs, March 2010, May 2010, September 2010, November 2010, and February 2011
- CR398939; Revise MSPI Basis Document To Reflect Change To EDG Maintenance
- CR407784; Standardized Log Entries For MSPI/WANO/Maintenance Rule
- CR429924; Venting From RHR-501A On 5-5-2011 Not Logged And No Partial Procedure Found
- Kewaunee Mitigating System Performance Index Basis Document; Revision G
- Kewaunee Mitigating System Performance Index Basis Document; Revision H
- Kewaunee Mitigating System Performance Index Basis Document; Revision 9
- List of Maintenance Rule Evaluations for MSPI systems, 2008-2011
- Maintenance Rule Data Sets, Auxiliary Feedwater; April, 2010 – March, 2011
- Maintenance Rule Data Sets, Component Cooling Water; April, 2010 – March, 2011
- Maintenance Rule Data Sets, Diesel Generators; January, 2010 – March, 2011
- Maintenance Rule Data Sets, Residual Heat Removal; January, 2010 – March, 2011
- Maintenance Rule Data Sets, Safety Injection; January, 2010 – March, 2011
- Maintenance Rule Data Sets, Service Water; April, 2010 – March, 2011
- MRE012615; While Restoring Air On WO KW100674232 SW-4A Opened
- MSPI Derivation Reports, Auxiliary Feedwater; April, 2010 – March, 2011
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- MSPI Derivation Reports, Safety Injection; January, 2010 – March, 2011
- MSPI Derivation Reports, Service Water; April, 2010 – March, 2011
- SP-32A-266; Effluent Dose Limit Verifications; Data Sheet A; February 9, 2011
- SP-32A-266; Effluent Dose Limit Verifications; Data Sheet A; May 19, 2011

40A2 Identification and Resolution of Problems

- ACE018119; Revision and Review Process For EIPs Has Not Been Effective
- NAD-14.06; Severe Accident Management Program Maintenance And Control

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

- ACE18615; Door 3 Lower Bolt Was Found Not Engaged
- EN45562; Non-Functional Steam Door
- Engineering Technical Evaluation; ETE-KW-2011-0013; Transmittal Of Information To Support Analysis Of HELB Door 3 With Disengaged Lower Cane Bolt; March 15, 2011
- Engineering Technical Evaluation; ETE-KW-2011-0016; HELB Capability Of Door 3 With Lower Cane Bolt Disengaged; March 22, 2011
- KPS-70224866-S01; Door 3 Structural Analysis; March 17, 2011
- LER 5000305/2011-001-00; Auxiliary Building Special Ventilation Inoperability Results in Prohibited Technical Specification Condition
- LER 5000305/2011-002-00; Loss of Station Backfeed Results in Loss of One Train of Offsite Power During Refueling Outage
- LER 5000305/2011-003-00; Valve SI-11A, Safety Injection to Loop A Cold Leg, Breaker Found On with Plant in Mode 3

4OA5 Other Activities

- CA-01; RCS Injection To Recover Core; Revision B; July 3, 2003
- CA-02; Injection Rate For Long Term Decay Heat Removal; Revision B; July 3, 2003
- CA-03; Hydrogen Flammability In Containment; Revision 3; April 21, 2009
- CA-04; Volumetric Release Rate From Vent; Revision A; October 3, 2000
- CA-05; Containment Water Level And Volume; Revision 4; April 23, 2009
- CA-06; RWST Gravity Drain; Revision A; October 3, 2000
- CA-07; Hydrogen Impact When Depressurizing Containment; Revision A; October 3, 2000
- CR106141; Service Water Leak Identified On Containment Fan Coil Unit B
- CR348133; Increased Containment Sump A In Leakage
- CR422219; Verifying Serial Numbers In Model 1000 Multi-Source Gamma Calibrator
- CR422311; Serial Number Of National Source Tracking System Source Not Correct
- DFC; Diagnostic Flow Chart; Revision D; August 29, 2006
- ETE-KW-2011-027; Containment Fan Coil Unit Service Water Leaks And Barrier Operability; Prepared June 23, 2011
- NRC Form 748; 50-305; Eberline Model 1000; April 4, 2011
- SACRG-01; Severe Accident Control Room Guideline – Initial Response; Revision 8; March 17, 2011
- SACRG-02; Severe Accident Control Room Guideline – After TSC Is Functional; Revision 4; March 17, 2011
- SAEG-01; TSC Long Term Monitoring; Revision C; October 3, 2000
- SAG-01; Feed The Steam Generator; Revision 11; March 17, 2011
- SAG-02; Depressurize The RCS; Revision C; October 3, 2000
- SAG-03; Inject Into The RCS; Revision C; October 3, 2000
- SAG-04; Inject Into Containment; Revision C; October 3, 2000
- SAG-05; Reduce Fission Product Releases; Revision 4; April 19, 2011
- SAG-06; Control Containment Conditions; Revision C; October 3, 2000
- SAG-07; Reduce Containment Hydrogen; Revision C; October 3, 2000
- SCG-01; Mitigate Fission Product Releases; Revision C; October 3, 2000
- SCG-02; Depressurize Containment; Revision C; October 3, 2000
- SCG-03; Control Hydrogen Flammability; Revision B; October 3, 2000
- SCG-04; Control Containment Vacuum; Revision B; October 3, 2000
- SCST; Severe Challenge Status Tree; Revision D; August 29, 2006
- UG-01; SAMG Users Guide; Revision B; October 3, 2000

4OA7 Licensee-Identified Violations

- ACE18578; Diesel Generator A Hunting During Hot Fast Start
- LER 5000305/2011-003-00; Valve SI-11A, Safety Injection to Loop A Cold Leg, Breaker Found On with Plant in Mode 3

NRC-Identified Condition Reports

- CR420698; BUS 1 And 2 FME Concern
- CR420700; Blue Painters Tape On Spent Fuel Pool System Piping
- CR421810; Control Of 10 Hour Limitation On AFW Pump Operation Under Min Flow Conditions
- CR422025; Control Room Notified Door 1 Found Ajar
- CR422215; Cross-Cutting Aspects Identified At NRC Quarterly Exit Meeting
- CR422219; Verifying Serial Numbers Contained In Model 1000 Multi-Source Gamma Calibrator
- CR422311; Serial Number Of National Source Tracking System Source Not Correct
- CR422471; NRC Concern With Ability To Meet Emergency Plan Iodine Sampling Requirements
- CR423104; Perform Needs Assessment For B.5.b For Selected Maintenance Training Programs
- CR423130; NRC Questions On RAS000105 Assumptions Following Walkdown
- CR423525; NRC Identified: Door 1 (EDG B Room To Screenhouse Tunnel) Lower Cane Bolt Issue
- CR423665; NRC Identified Issue With OD-413 (EDG "A" Jacket Water Expansion Tank Overflow)
- CR423711; RFT – SAMG Training For Non-Licensed Operators
- CR423733; Evaluate Addition Of SAMG Training To NAO Training Program
- CR423884; Incorrect Procedure Referenced In OP-KW-ARP-47054-N
- CR423964; NRC Identified: Door 5 Lower Cane Bolt Found Not In The Down (Latched) Position
- CR424226; Failure Of KPS Process To Identify Door Cane Bolt Issues
- CR424445; NRC Identified TAV62-B Is Leaking Rainwater Into EDG B Room
- CR424488; SBO/TSC Diesel – Ability To Withstand Effects Of Likely Weather Related Events
- CR424508; NRC Identified Improvements To Procedure AOP-AFW-001
- CR424517; NRC Inspector Identified: ARP 47033 P Possible Improvement
- CR424681; Ownership Of SACRG-1 And SACRG-2
- CR424708; Identification Of Previously Unanalyzed Flooding Source
- CR424852; NRC Prompted – SW Isolation Valves Not On SACRG-1 Attachment A
- CR424855; NRC Prompt – SAMG Procedures Lack Detail
- CR424858; NRC Prompt – B.5.b Procedures Lack Detail
- CR424864; NRC Prompt – SACRG-2 Additional Component Evaluation
- CR424865; NRC Prompt – SAMG Procedure Step To Order Hydrogen Recombiner
- CR424866; NRC Prompt – SAMG Procedures Lack B.5.b Strategies
- CR424870; NRC Prompt – ERO Training Lacks Training On B.5.b Procedures
- CR424896; Trench Barrier Not Inspected
- CR425092; NRC Identified – No Clear Direction To Obtain Hydrogen Recombiners
- CR425383; NRC Questions Absence Of SAMG Training In Maintenance Training Program-RFT
- CR425608; NRC Prompt – Deficiencies In Memorandums Of Understanding
- CR425837; Respond To NRC Inspector Questions Related To SBO And CST Inventory

- CR425881; HD-370B Has A Stem Packing Leak
- CR425961; Procedure PRP-02 Revision May Have Introduced Error Trap
- CR425962; Enhancement Recommended To Agreement With Point Beach Nuclear Plant
- CR426999; NRC Prompted – SAMGs Documents Not Updated To Current WOG Revision 1
- CR427092; NAD-14./06 Severe Accident Management Program Review Requirements Not Performed
- CR427381; Aux Bldg Crane Annual Inspection Steps In 2010 Incorrectly Marked N/A
- CR427517; NRC Prompted – Evaluate Increasing Scope Of SAMG Training In The TSC ERO
- CR427519; NRC Prompted – No SAMG Drills/Tabletops Performed In The Past Several Years
- CR427575; BRC-103 Breaker 27 Red Indicating Light Bulb Is Burnt Out
- CR427577; NRC Identified: Electrical Ground cart Placed Against Door 401 Flood Barrier
- CR427578; NRC Identified: Spare Electrical Conduit Found Behind Service Water Piping In AB
- CR427900; NRC Prompted – Evaluate Increasing The Amount Of SAMG Training To The ED
- CR427968; ODM 135 Trigger Reached
- CR428242; Residual Boric Acid Deposit Identified At Drain For 1A SI Pump Inboard Seal
- CR428275; NRC Bulletin 2011-01, Mitigating Strategies, 30 And 60 Day Response Required
- CR428327; MCC-62H Work In Progress Sign Is In Disrepair
- CR428489; Controls For Storage Of Combustibles Not Followed
- CR429386; NRC Questions Use Of Non-Safety-related Part In Shield Building Ventilation System
- CR429469; NRC Resident Question On Reportability Of 1/2011 SBV Servo Board Issue
- CR429498; NRC Questions The Operability Statement Concerning The SBV
- CR430015; 2010 Annual Radiological Effluent Release Report Contains Inaccurate Statement
- CR430267; Ineffective Review Of Radiological Crosscheck Results
- CR430931; Additional TSC Flood Source
- CR431619; Copper Tubing Found On Control Room A/C Train A Ductwork
- CR431621; Door 441 Found Ajar
- CR432053; Questions Concerning The Conclusions In ACE 018531 Failed Standoffs In SBV System
- CR432099; Evaluate Staging A Hand Held Tachometer At TDAFW Pump
- CR432567; NRC Resident Inspector Maintenance Rule Question
- CR432756; NRC Identifies That ACE Did Not Document Operations Response To TSC D/G Breaker

LIST OF ACRONYMS USED

ABSV	Auxiliary Building Special Ventilation
AC	Alternating Current
ACE	Apparent Cause Evaluation
ADAMS	Agencywide Document Access Management System
AFW	Auxiliary Feedwater
ALARA	As-Low-As-Is-Reasonably-Achievable
ARM	Area Radiation Monitor
ASME	American Society of Mechanical Engineers
CA	Corrective Action
CAP	Corrective Action Program
CET	Core Exit Thermocouple
CR	Condition Report
CST	Condensate Storage Tank
DG	Diesel Generator
DRP	Division of Reactor Projects
EDG	Emergency Diesel Generator
EN	Event Notification
EPIP	Emergency Plan Implementing Procedure
FIN	Finding
FP	Fire Protection
IEE	Item Equivalency Evaluation
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
IST	Inservice Testing
KPS	Kewaunee Power Station
LCO	Limiting Condition of Operation
LER	Licensee Event Report
LLC	Limited Liability Corporation
LOOP	Loss of Offsite Power
MAT	Main Auxiliary Transformer
MSPI	Mitigating Systems Performance Index
NAD	Nuclear Administrative Directive
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
NS	Nonsafety-Related
OD	Operability Determination
ODCM	Offsite Dose Calculation Manual
PARS	Publicly Available Records System
PI	Performance Indicator
PM	Preventive Maintenance
PMT	Post-Maintenance Testing
RCS	Reactor Coolant System
RFO	Refueling Outage
RHR	Residual Heat Removal
ROP	Reactor Oversight Process
RS	Reactor Safety
SAMG	Severe Accident Management Guideline

SBO	Station Blackout
SBV	Shield Building Ventilation
SCE	Subcomponent Classification Evaluation
SDP	Significance Determination Process
SFP	Spent Fuel Pool
SG	Steam Generator
SI	Safety Injection
SL	Severity Level
SR	Safety-Related
SRA	Senior Reactor Analyst
SSC	Structure, System, And Component
SW	Service Water
TDAFW	Turbine-Driven Auxiliary Feedwater
TI	Temporary Instruction
TRM	Technical Requirements Manual
TS	Technical Specification
TSC	Technical Support Center
TSO	Transmission System Operator
URI	Unresolved Item
USAR	Updated Safety Analysis Report
WO	Work Order
WOG	Westinghouse Owners Group

D. Heacock

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Sincerely,

/RA/

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

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