October 29, 2004

Mr. Thomas Coutu
Site Vice President
Kewaunee Nuclear Power Plant
Nuclear Management Company, LLC
N490 Hwy 42
Kewaunee, WI 54216-9511

SUBJECT: KEWAUNEE NUCLEAR POWER PLANT
NRC INTEGRATED INSPECTION REPORT 05000305/2004007

Dear Mr. Coutu:

On September 30, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Kewaunee Nuclear Power Plant. The enclosed integrated inspection report documents the inspection findings which were discussed on September 29, 2004, with you 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, there were four NRC-identified and one self-revealed finding of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. However, because these violations were of very low safety significance, non-willful and non-repetitive, and because the violations were entered in your corrective program, the NRC is treating these issues as Non-Cited Violations, in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest the subject or severity of a Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector Office at the Kewaunee facility.

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

Sincerely,

/RA/

Thomas J. Kozak, Team Leader
Technical Support Section
Division of Reactor Projects

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

Enclosure: Inspection Report 05000305/2004007
w/Attachment: Supplemental Information

cc w/encl: J. Cowan, Executive Vice President,
Chief Nuclear Officer
Plant Manager
Manager, Regulatory Affairs
J. Rogoff, Vice President, Counsel & Secretary
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.:	50-305
License No.:	DPR-43
Report No.:	05000305/2004007
Licensee:	Nuclear Management Company, LLC
Facility:	Kewaunee Nuclear Power Plant
Location:	N 490 Highway 42 Kewaunee, WI 54216
Dates:	July 1 through September 30, 2004
Inspectors:	R. Krsek, Senior Resident Inspector P. Higgins, Resident Inspector M. Bielby, Senior Operations Engineer J. Cameron, Project Engineer L. Haeg, Nuclear Safety Professional/Reactor Engineer P. Lougheed, Senior Engineering Inspector B. Palagi, Senior Operations Engineer (Lead Inspector) T. Ploski, Senior Emergency Preparedness Inspector F. Ramirez, Reactor Engineer D. Schrum, Reactor Engineer W. Slawinski, Senior Radiation Specialist H. Walker, Senior Engineering Inspector K. Walton, Operations Engineer R. Winter, Reactor Engineer
Observers:	S. Bakhsh, Nuclear Safety Professional/Radiation Specialist
Approved By:	T. Kozak, Team Leader Technical Support Section Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000305/2004007; 07/01/2004 - 09/30/2004; Kewaunee Nuclear Power Plant; Operability Determinations, Post Maintenance Testing, Event Followup, and Other Activities.

This report covers a 3-month period of baseline resident inspection and announced baseline inspections of licensed operator requalification, maintenance effectiveness, emergency preparedness and the radiation protection program. The inspections were conducted by the resident and Region III inspectors. The inspectors also completed Temporary Instruction 2515/159, "Review of Generic Letter (GL) 89-13: Service Water System Problems Affecting Safety-Related Equipment." The inspections identified four NRC-identified Green findings associated with four non-cited violations and one self-revealed Green finding associated with one non-cited violation. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the Significance Determination Process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector-Identified and Self-Revealed Findings

Cornerstone: Mitigating Systems

- Green. A finding of very low safety significance was identified by the inspectors for a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions." During a review of the licensee's list of safety-related equipment designated as degraded or nonconforming, the inspectors identified that the licensee failed to promptly correct three conditions adverse to quality. These conditions adverse to quality included noncompliance of both Residual Heat Removal pump seal coolers with system design requirements, which was previously identified by NRC inspectors in November 2002, but not promptly corrected by the licensee; and two sections of safety-related piping, one associated with the "B" Emergency Diesel Generator fuel oil supply and the other associated with the Component Cooling Water piping from the "B" Residual Heat Removal pump seal cooler and stuffing box, that were identified by the licensee in September and April 2003, respectively, as exceeding Updated Safety Analysis Report stress criteria but not promptly corrected by the licensee. The primary cause of this finding was related to the cross-cutting area of problem identification and resolution. The licensee failed to prioritize and promptly correct these conditions adverse to quality in accordance with the guidelines in the corrective action program. Once these conditions were identified, the licensee restored the following conditions to operable: the 'A' RHR Pump Seal Cooler; the CCW piping expansion loop from the 'B' RHR pump seal cooler; and the fuel oil supply piping to the 'B' EDG. The licensee planned to restore the 'B' RHR Pump Seal Cooler during the upcoming Fall 2004 Refueling Outage.

This issue was more than minor because it affected the Mitigating System cornerstone attribute of design control for initial design and plant modifications and affected the associated cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance because it was not a design or qualification deficiency that has been confirmed to result in a loss of function per Generic Letter 91-18. This issue was a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Actions.” (Section 1R15.1)

- Green. A finding of very low safety significance was self-revealed during the licensee’s review of high oil particulate in the Turbine Driven Auxiliary Feedwater Pump Turbine, which resulted in a violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." The licensee determined that high oil particulate in the Turbine Driven Auxiliary Feedwater Pump Turbine was caused by damage to the journal bearing. Maintenance procedures did not specify appropriate acceptance criteria for oil sampling, did not specify an appropriate inspection frequency and criteria for the turbine bearings and bearing cavities, and allowed the reuse of bearings in different locations during maintenance of the Turbine, which were not acceptable maintenance practices. The reuse of the upper inboard bearing in a different location contributed to the journal bearing damage. The licensee took immediate remedial corrective actions to replace the bearings, clean the housing and return the pump to service. In addition, the licensee revised its maintenance procedures to include appropriate instructions for turbine and pump maintenance activities.

  This self-revealed finding was more than minor because, if left uncorrected, the issue would have become a more significant safety concern. In addition, it affected the Mitigating Systems attributes of equipment performance reliability and the Mitigating Systems cornerstone objective of ensuring the reliability of systems. The finding was of very low safety significance because it was not a design or qualification deficiency that has been confirmed to result in a loss of function per Generic Letter 91-18. This issue was a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, And Drawings.” (Section 4OA3.1)

- Green. A finding of very low safety significance was identified by the inspectors for a violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, And Drawings.” This finding was associated with the licensee’s failure to implement an appropriate inspection and cleaning procedure containing quantitative or qualitative acceptance criteria for the 1A RHR pump pit Fan Coil Unit to ensure that cleaning was satisfactorily accomplished. Following discovery, the licensee entered the issue into its corrective action program and conducted an immediate operability assessment that determined the involved fan coil units were operable.

  This issue was more than minor because it involved the procedure quality attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that

respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance because it was not a design or qualification deficiency that has been confirmed to result in a loss of function per Generic Letter 91-18. This issue was a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, And Drawings.” (Section 4OA5.1b.1)

- Green. A finding of very low safety significance was identified by the inspectors for a violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." This finding was associated with the licensee’s failure to perform a design verification to demonstrate that the diesel generator lube oil cooler service water outlet valve actuators, installed under Design Change 3357, would not result in a failure of the valve stems under conditions in which the valve ball froze nor had the licensee provided sufficient justification to show that valve ball freezing was not credible. Following discovery, the licensee entered the issue into its corrective action program and performed an operability assessment which provided additional justification to demonstrate that the stem failure was considered not credible.

  This issue was more than minor because it involved the design control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance because it was not a design or qualification deficiency that has been confirmed to result in a loss of function per Generic Letter 91-18. This issue was a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control." (Section 4OA5.1b.2)

Cornerstone: Barrier Integrity

- Green. A finding of very low safety significance was identified by the inspectors for a violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, And Drawings.” The licensee conducted corrective maintenance to fix a deficient condition on the containment personnel hatch seal, a safety-related component, under the ‘toolpouch maintenance’ process rather than with the use of a work request or a work order, contrary to procedural requirements. The primary cause of this finding was related to the cross-cutting area of human performance. Licensee personnel failed to appropriately implement licensee procedures for conducting work on safety-related components. Once this was identified, the licensee performed an extent of condition evaluation on the work control process and identified that, since July 2002, approximately 14 percent of the work performed under ‘toolpouch maintenance’ had been performed on safety-related components without a work order. The licensee also implemented a number of corrective actions to ensure work on safety-related equipment is conducted according to procedural requirements.

This issue was more than minor because it affected the Barrier Integrity Cornerstone attribute of reactor containment integrity, and, if left uncorrected, the finding could become a more significant safety concern. The finding was of very low safety significance because it did not represent an actual open pathway in the physical integrity of the reactor containment and none of the work conducted on safety-related equipment without a work order resulted in an operability concern. This issue was a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, And Drawings." (Section 1R19.1)

B. Licensee-Identified Violation

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

REPORT DETAILS

Summary of Plant Status

The plant operated at or near full power for most of the inspection period except for brief periods when operators reduced power to facilitate routine tests. In addition, operators reduced reactor power to 99 percent from August 3 through August 12, 2004, to address apparent steam flow anomalies.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04Q)

a. Inspection Scope

The inspectors performed partial walkdowns of the following two systems, completing two inspection procedure samples, to verify that the systems were correctly aligned to perform their design function:

- Emergency Diesel Generator (EDG) Train 'B' and the associated Train 'B' 4160-Volt Distribution System, while the opposite EDG Train was out of service; and
- EDG Train 'A' and the associated Train 'A' 4160-Volt Distribution System, while the opposite EDG Train was out of service.

In preparation for the walkdowns, the inspectors reviewed the system lineup checklists, normal operating procedures, abnormal and emergency operating procedures, and system drawings to verify the correct system lineup. During the walkdowns, the inspectors also examined valve positions and electrical power availability to verify that valve and electrical breaker positions were consistent and in accordance with the licensee's procedures and design documentation. The inspectors also observed the material condition of the equipment. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Semiannual Walkdown (71111.04S)

a. Inspection Scope

The inspectors completely walked down the auxiliary feedwater (AFW) system, completing one inspection procedure sample. At the time of the inspection, the AFW system was aligned for emergency standby readiness. The inspection included a review of licensee procedures for normal, abnormal and emergency system operations.

Other documents reviewed included design drawings, piping & instrument drawings, the degraded equipment log, operations night orders, and system lineup checklists.

The inspectors reviewed open and recently closed maintenance work requests for the AFW system to assess whether the identified work had the potential to adversely affect system operability. In addition, the inspectors reviewed in-process engineering design change requests associated with the AFW system and discussed the current status with licensee personnel.

Finally, the inspectors' walkdown of the AFW system included all accessible system piping and valving associated with all three AFW pumps, electrical power supplies, steam supply for the turbine driven AFW pump, local and dedicated control panel switches and controls, and monitoring and alarm systems. The inspectors verified that support systems and devices were functional and properly aligned to perform the respective safety functions. During the walkdown, the inspectors reviewed correct valve and switch positions; appropriate equipment labeling; availability of electrical power; availability of support systems; and verification of outstanding corrective work orders to ensure system or component functions were not adversely impacted.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

The inspectors performed fire protection walkdowns of the following six plant areas, completing six inspection procedure samples:

- Fire Zone TU-22, Turbine Building-Operating Floor and Mezzanine;
- Fire Zone AX-23B, Auxiliary Building;
- Fire Zone AX-24, Fuel Handling Rooms, All Elevations;
- Fire Zone AX-33, Condensate and Makeup Water Tank Rooms;
- Fire Zone TU-90 and TU-91, EDG 1-A and Diesel Generator 1-A Day Tank Room; and
- Fire Zone TU-95, Dedicated Shutdown Panel and Bus 51 and 52 Room.

During the walkdowns, the inspectors focused on the availability, accessibility, and condition of fire fighting equipment; the control of transient combustibles and ignition sources; and the materiel condition of installed fire barriers. The inspectors selected fire areas for inspection based on the overall contribution to internal fire risk, and the potential to impact equipment that could initiate a plant transient. The inspectors verified that fire response equipment was in the designated location and available for immediate use without obstruction; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and that passive features such as fire doors, dampers, and penetration seals were in satisfactory condition. The inspectors verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors performed an internal flooding inspection in the EDG 1-A room, completing one inspection procedure sample. The inspectors evaluated internal flooding hazards in the room and evaluated flood protection features, such as room doors, door gaps, and room drains, to determine if the features were in satisfactory physical condition, unobstructed, and capable of providing an adequate flood barrier. The inspectors also reviewed design basis documents and risk analyses to determine plant vulnerabilities and protective features relating to potential flooding sources for this room. Documents reviewed during this inspection are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

.1 Facility Operating History

a. Inspection Scope

The inspectors reviewed the plant's operating history from January 2003 through June 2004 to assess whether the Licensed Operator Requalification Training (LORT) program had identified and addressed operator performance deficiencies at the plant.

b. Findings

No findings of significance were identified.

.2 Licensee Requalification Examinations

a. Inspection Scope

The inspectors performed a biennial inspection of the licensee's LORT program. The inspectors reviewed the annual requalification operating test and biennial written examination material to evaluate general quality, construction, and difficulty level. The operating examination material reviewed consisted of seven operating tests, each containing two dynamic simulator scenarios and five job performance measures (JPMs). The biennial written examinations reviewed consisted of two senior reactor operator (SRO) and two reactor operator (RO) examinations. The inspectors reviewed the methodology for developing the examinations, including the LORT program 2-year sample plan, probabilistic risk assessment insights, previously identified operator performance deficiencies, and plant modifications. The inspectors also reviewed the licensee's program and assessed the level of examination material duplication during

the current year annual examinations as compared to the previous year's annual examinations.

b. Findings

No findings of significance were identified.

.3 Licensee Administration of Requalification Examinations

a. Inspection Scope

The inspectors observed the administration of the requalification operating test to assess the licensee's effectiveness in conducting the test and to assess the facility evaluators' ability to determine adequate performance using objective, measurable performance standards. The inspectors evaluated the performance of one shift crew in parallel with the facility evaluators during two dynamic simulator scenarios. In addition, the inspectors observed licensee evaluators administer several JPMs to various licensed crew members. The inspectors observed the training staff personnel administer the operating test, including pre-examination briefings, observations of operator performance, and individual and crew evaluations after dynamic scenarios. The inspectors evaluated the ability of the simulator to support the examinations. A specific evaluation of simulator performance was conducted and documented under Section 1R11.8, "Conformance With Simulator Requirements Specified in 10 CFR 55.46," of this report. The inspectors also reviewed the licensee's overall examination security program.

b. Findings

No findings of significance were identified.

.4 Examination Security

a. Inspection Scope

The inspectors observed and reviewed the licensee's overall licensed operator requalification examination security program related to examination physical security (e.g., access restrictions and simulator considerations) and integrity (e.g., predictability and bias). The inspectors also reviewed the facility licensee's examination security procedure, and the implementation of security and integrity measures (e.g., security agreements, sampling criteria, bank use, and test item repetition) throughout the examination process.

b. Findings

No findings of significance were identified.

.5 Licensee Training Feedback System

a. Inspection Scope

The inspectors assessed the methods and effectiveness of the licensee's processes for revising and maintaining its LORT program up to date, including the use of feedback from plant events and industry experience information. The inspectors reviewed the licensee's quality assurance oversight activities, including licensee training department self-assessment reports. The inspectors evaluated the licensee's ability to assess the effectiveness of its LORT program and its ability to implement appropriate corrective actions.

b. Findings

No findings of significance were identified.

.6 Licensee Remedial Training Program

a. Inspection Scope

The inspectors assessed the adequacy and effectiveness of the remedial training conducted since the previous annual requalification examinations and the training planned for the current examination cycle to ensure that they addressed weaknesses in licensed operator or crew performance identified during training and plant operations. The inspectors reviewed remedial training procedures and individual remedial training plans.

b. Findings

No findings of significance were identified.

.7 Conformance With Operator License Conditions

a. Inspection Scope

The inspectors reviewed the facility and individual operator licensees' conformance with the requirements of 10 CFR Part 55. The inspectors reviewed the facility licensee's program for maintaining active operator licenses and to assess compliance with 10 CFR 55.53 (e) and (f). The inspectors reviewed the procedural guidance and the process for tracking on-shift hours for licensed operators and which control room positions were granted credit for maintaining active operator licenses. In addition, the inspectors reviewed the facility licensee's LORT program to assess compliance with the requalification program requirements as described by 10 CFR 55.59 (c).

b. Findings

No findings of significance were identified.

.8 Conformance With Simulator Requirements Specified in 10 CFR 55.46

a. Inspection Scope

The inspectors assessed the adequacy of the licensee's simulation facility (simulator) for use in operator licensing examinations and for satisfying experience requirements as prescribed in 10 CFR 55.46, "Simulation Facilities." The inspectors also reviewed a sample of simulator performance test records (i.e., transient tests, scenario test and discrepancy resolution validation test), simulator discrepancy and modification records, and the process for ensuring continued assurance of simulator fidelity in accordance with 10 CFR 55.46. The inspectors reviewed and evaluated the discrepancy process to ensure that simulator fidelity was maintained. Open simulator discrepancies were reviewed for importance relative to the impact on 10 CFR 55.45 and 55.59 operator actions as well as on nuclear and thermal hydraulic operating characteristics. The inspectors interviewed members of the licensee's simulator staff regarding the configuration control process and completed the NRC Inspection Procedure 71111.11, Appendix C, checklist to evaluate whether the licensee's plant-referenced simulator operated adequately as required by 10 CFR 55.46 (c) and (d).

b. Findings

No findings of significance were identified.

.9 Annual Operating Test Results

a. Inspection Scope

The inspectors reviewed the pass/fail results of individual written tests administered in 2003, and the operating and simulator tests (required to be given per 10 CFR 55.59(a)(2)) administered by the licensee during calender year 2004. Calendar year 2004 was the first year of the current 2-year training program; therefore, no biennial comprehensive written examination was administered. This represents one inspection procedure sample. The overall written examination and operating test results were compared with the significance determination process in accordance with NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process."

b. Findings

No findings of significance were identified.

.10 Resident Inspector Quarterly Observation of Licensed Operator Requalification

a. Inspection Scope

The inspectors observed licensee training personnel evaluate an operating crew during an accident scenario and subsequently observed the operating crew critique their performance. The inspectors observed the crew and verified the following attributes of crew performance: communications, alarm response, emergency operating procedure usage, component operations and emergency plan classifications. The inspectors reviewed the scenario for operational validity and risk significance. The inspectors

discussed scenario observations and crew evaluations with the licensee trainers. In addition, the inspectors reviewed the licensees baseline fidelity study to ensure that differences between the simulator and actual control room board configuration were maintained as close as possible. This constitutes one quarterly inspection procedure sample. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Maintenance Effectiveness Periodic Evaluation (71111.12B)

a. Inspection Scope

To evaluate the effectiveness of the licensee's (a)(1) and (a)(2) activities within the Maintenance Rule (10 CFR 50.65), the inspectors examined a number of Kewaunee (a)(1) Action Plans, Functional Failures Evaluations, Apparent Cause Evaluations (ACEs), Corrective Action Process (CAPs) Evaluations, and maintenance rule program documents. The inspectors examined the periodic evaluation reports completed for the time periods of January 1, 2002 through December 31, 2002, and January 1, 2003 through December 31, 2003. The inspectors reviewed these documents to verify that the threshold for identification of problems was at an appropriate level and the associated corrective actions were appropriate. The inspectors focused the inspection on the following four systems, completing four biennial inspection procedure samples:

- Component Cooling Water;
- Emergency Diesel Generator;
- Residual Heat Removal; and
- Auxiliary Feedwater.

The inspectors verified that the periodic evaluation was completed within the time restraints defined in 10 CFR 50.65 (i.e., once per refueling cycle, not to exceed 2 years). The inspectors also ensured that the licensee reviewed its goals, monitored Structures, Systems, and Components (SSCs) performance, reviewed industry operating experience, and made appropriate adjustments to the maintenance rule program as a result of the above activities.

The inspectors verified that the licensee balanced reliability and unavailability during the previous refueling cycle, including a review of safety significant SSCs.

The inspectors verified that (a)(1) goals were met, that corrective action was appropriate to correct the defective condition, including the use of industry operating experience, and that (a)(1) activities and related goals were adjusted as needed.

The inspector verified that the licensee had established (a)(2) performance criteria, examined any SSCs that failed to meet their performance criteria, and reviewed any SSCs that were subject to repeated maintenance preventable functional failures, including a verification that failed SSCs were considered for (a)(1).

In addition, the inspectors reviewed maintenance rule self-assessments that addressed the maintenance rule program implementation.

b. Findings

No findings of significance were identified.

.2 Additional Evaluations Reviewed (71111.12Q)

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the Maintenance Rule (10 CFR 50.65) for the systems listed below, completing three inspection procedure samples:

- System 02 - Service Water;
- System 25 - Control Room Air Conditioning; and
- System 38 - Direct Current Supply and Distribution.

The inspectors verified that the licensee identified, entered, and scoped component and equipment failures within the maintenance rule requirements. The inspectors also verified that the systems and equipment were properly categorized and classified as "(a)(1)" or "(a)(2)" in accordance with 10 CFR 50.65. The inspectors reviewed a sample of station logs, maintenance work orders, maintenance rule evaluations, unavailability records, and a sample of condition reports to verify that the licensee identified issues related to the maintenance rule at an appropriate threshold and that corrective actions were appropriate. Additionally, the inspectors reviewed the licensee's performance criteria to verify that the criteria adequately monitored equipment performance. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and assessment of plant risk, scheduling, and configuration control during the following planned and emergent work activities, completing four inspection procedure samples:

- Safety Monitor Risk Assessment for July 6 through 9, 2004;
- Safety Monitor Risk Assessment for July 26 through 30, 2004;
- Safety Monitor Risk Assessment for August 9 through 13, 2004; and
- Safety Monitor Risk Assessment for August 23 through 27, 2004.

In particular, the inspectors evaluated the licensee's planning and management of maintenance and verified that shutdown and on-line risk was acceptable and monitored in accordance with the requirements of 10 CFR 50.65(a)(4). Additionally, the inspectors compared the assessed risk configuration against the actual plant conditions and any

in-progress evolutions or external events to verify that the assessment was accurate, complete, and appropriate. The inspectors also reviewed licensee actions to address increased shutdown and on-line risk during these periods to verify that the actions were in accordance with approved administrative procedures. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-Routine Plant Evolutions (71111.14)

.1 Operator Response to Increasing 'A' Reactor Coolant Pump Motor Lower Bearing Temperature Indication

a. Inspection Scope

On July 19, 2004, the inspectors observed the licensee's response to the Reactor Coolant Pump 'A' motor lower radial bearing temperature increase. The inspectors observed operator procedure use and adherence, communications, control of equipment, and response to the alarm. In addition, the inspectors observed the licensee's overall response to the increased temperature indication, including planning for the licensee's troubleshooting process. This observation constituted one inspection procedure sample.

b. Findings

No findings of significance were identified.

.2 Operator Response to Anomalous Increase in Steam Flow from the Steam Generators

a. Inspection Scope

On August 3, 2004, the inspectors observed the operators decrease reactor power to approximately 99 percent, in response to the discovery of a slight increase in steam flow while feedwater flow remained constant. The inspectors also observed the licensee's troubleshooting activities and investigation to determine the cause of the increase in steam flow from August 3 through August 12, 2004, when the cause was discovered and reactor power returned to 100 percent. This observation constituted one inspection sample.

b. Findings

No findings of significance were identified.

.3 Freeze Seal Installation for Residual Heat Removal Pump Seal Cooler Replacement

a. Inspection Scope

On September 2, 2004, the inspectors observed operations department pre-job briefs and contingency planning for the installation of a freeze seal on the 'A' Residual Heat

Removal Pump seal cooler piping. The inspectors also observed portions of the freeze seal application and communications with control room operators during the freeze seal evolution. The installation of the freeze seal for maintenance activities was a first time evolution for the licensee. This observation constituted one inspection procedure sample.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

.1 Review of Degraded and NonConforming Issues

a. Inspection Scope

The inspectors reviewed the licensee's current list of corrective action program issues that were characterized as degraded or nonconforming, in accordance with NRC Generic Letter 91-18, "Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability."

The inspectors reviewed design basis information, the Updated Safety Analysis Report (USAR), Technical Specification (TS) requirements, System Integrity Program, and licensee procedures to verify the technical adequacy of the operability evaluation.

In addition, the inspectors verified that compensatory measures were implemented as required. The inspectors verified that system operability was properly justified in accordance with NRC Generic Letter 91-18, and that the system remained available, such that no unrecognized increase in risk occurred. Finally, the inspectors reviewed work order and corrective action program history associated with the degraded and nonconforming conditions adverse to quality to determine whether or not the issues were corrected in a prompt manner. This activity constituted one inspection procedure sample. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

Introduction: A finding of very low safety significance (Green) was identified by the inspectors for a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions." During a review of the licensee's list of safety-related equipment designated as degraded or nonconforming, the inspectors identified that the licensee failed to promptly correct three conditions adverse to quality.

Description: In September 2004, the inspectors reviewed the individual items on the licensee's list of degraded and nonconforming plant equipment. The items were designated degraded or nonconforming because the conditions adverse to quality did not meet the system design requirements or other criteria specified in the USAR. During this review the inspectors noted that approximately 22 items were on the degraded and nonconforming list, 4 of which were on the list for a year or longer. The inspectors reviewed design drawings and work order documentation associated with these items, and interviewed corrective action program personnel and engineering management. The inspectors noted that the corrective actions required to resolve

3 items were not extensive and could have been achieved during power operations. The inspectors also noted that General Nuclear Procedure GNP-11.08.01, "Action Request Process," established priorities and guidelines which should be met for the normal completion of evaluations for conditions adverse to quality within approximately 30 days and actions taken to correct the conditions within 90 to 120 days, also taking into account the expected level of effort commensurate with the priority of the issue.

The inspectors reviewed Condition Report CAP013592 and operability determination OBD000023, "RHR Pump Seal Cooler Maximum Operating Pressure Less than Required," and noted that the condition report was written on November 6, 2002, for an NRC identified Green Finding (NCV 50-305/02-07-02) documented in NRC Inspection Report 50-305/2002007. The inspectors identified that the RHR pump seal coolers were not designed for the maximum allowable operating pressure of the RHR pump seal cooler. The corrective action history documented that the due date for completion of this corrective action was extended several times in the past 21 months. The inspectors noted that the coolers were initially scheduled to be replaced in the Spring 2003 Refueling Outage; however, licensee management decided prior to the outage to correct the condition online after completion of the outage. Following the refueling outage, additional extensions were requested due to procurement, scheduling and work control delays. The inspectors concluded that this condition adverse to quality was not promptly corrected.

The inspectors also reviewed Condition Reports CAP015776, "CCW Operating Temperature Issue," and CAP018109, "Modify Diesel Generator Pipe Support DGM-H21," which documented two pipe stress issues for the CCW and EDG piping systems which did not conform to USAR stress criteria. The inspectors noted that these pipe stress issues were identified as a result of the licensee implementing commitments from Generic Letter 79-14, "Pipe Crack Study Group - Enclosing NUREG-0531 & Notice," which the licensee identified in the Spring of 2003 had not yet been implemented. The inspectors further noted that Nuclear Engineering Procedure NEP-04.18, "Justification for Continued Operation of Safety Related Piping Systems," stated in part, that modifications will be made which will return the system to within USAR allowances by the next refueling outage or sooner, if operating conditions permit.

While reviewing the corrective action history for CAP015776, initiated in April 2003, the inspectors noted that there were five nonconforming items contained in this condition report and that initially the corrective actions were assigned a priority level which was not consistent with GNP-11.08.01. The inspectors also noted several due date extensions for the installation of a new CCW piping expansion loop from the 'B' RHR pump seal cooler, which was the only nonconforming item in the condition report which required actual plant modifications. The inspectors concluded that this condition adverse to quality was not promptly corrected.

During the inspectors' review of corrective action history of CAP018109, initiated in September 2003, the inspectors noted that the condition report was assigned an incorrect significance level in the licensee's corrective action process. The condition report was assigned a significant level 'D,' which was described in Procedure GNP-11-08-01, as a condition not adverse to quality that can be corrected with minimal, if any, evaluation, through routine work activities or closed to actions taken or trending. The issue identified in CAP018109 was a condition adverse to quality in that a section of fuel oil piping to the 'B' EDG, a safety-related component, exceeded the USAR stress

criteria. The inspectors also noted extensions of the due date over the past 12 months due to scheduling and work delays. The inspectors concluded that this condition adverse to quality was not promptly corrected.

Analysis: The inspectors determined that the failure to promptly correct conditions adverse to quality was a licensee performance deficiency warranting a significance evaluation. This issue was more than minor because it affected the Mitigating System cornerstone attribute of design control for initial design and plant modifications and affected the associated cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the finding using IMC 0609, Appendix A, Phase 1 screening and determined that the finding was of very low safety significance because it was not a design or qualification deficiency that has been confirmed to result in a loss of function per Generic Letter 91-18. The primary cause of this finding was related to the cross-cutting area of problem identification and resolution, because the licensee failed to prioritize and promptly correct these conditions adverse to quality in accordance with the guidelines in the corrective action program.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion XVI," Corrective Action," requires, in part, that measures be established to assure that conditions adverse to quality, such as deficiencies, deviations and equipment, and nonconformances are promptly corrected. Contrary to this, the inspectors identified that conditions adverse to quality related to safety-related piping on the EDG fuel oil piping and CCW system piping to the 'B' RHR seal cooler, and the safety-related seal coolers on both RHR pumps were not promptly corrected. Therefore, the inspectors determined that this finding was a violation of 10 CFR Part 50, Appendix B, Criterion XVI. Because this violation was of very low safety significance (Green) and documented in the licensees corrective action program as Condition Reports CAP013592 and CAP015776, this finding is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy. (NCV 05000305/2004007-01)

At the end of the inspection period the licensee had completed corrective actions to restore the following items to operable status: the 'A' RHR Pump Seal Cooler; the CCW piping expansion loop from the 'B' RHR pump seal cooler; and the fuel oil supply piping to the 'B' EDG. The licensee also rescheduled the corrective action to address the 'B' RHR Pump Seal Cooler to the upcoming Fall 2004 Refueling Outage. In addition, the licensee developed and implemented corrective actions to address the increased number of corrective action program extensions which was also identified by the licensee in a self-assessment. The inspectors noted that the licensee planned to resolve all but 3 of the degraded or nonconforming conditions by January 2005, with plans in place to address the remaining issues and newly discovered issues in a timely manner.

.2 Additional Operability Evaluations Reviewed

a. Inspection Scope

The inspectors reviewed the operability evaluations associated with the following items entered into the licensee's corrective action system, completing three inspection procedure samples:

- CAP015776, Component Cooling Water Operating Temperature Issue;
- OPR000071, Low Service Water Flow to Safety Injection Pump 'B' Lube Oil Cooler; and
- OPR000072, QA-2 Equipment Causes a QA-1, Category 1 Air-Operated Valve to Fail in a Non-Safe Position.

The inspectors reviewed design basis information, the USAR, TS requirements, and licensee procedures to verify the technical adequacy of the operability evaluations. In addition, the inspectors verified that compensatory measures were implemented, as required. The inspectors verified that system operability was properly justified and that the systems remained available, such that no unrecognized increase in risk occurred. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors reviewed previously identified operator workarounds, equipment deficiency logs, and control room deficiencies to verify that the cumulative effects did not create significant adverse consequences regarding the reliability, availability and operation of accident mitigating systems. The inspectors also assessed these cumulative effects on the ability of operators to implement abnormal and emergency response procedures in a correct and timely manner.

The inspectors reviewed the planned actions to address operator workarounds to verify that the priorities to resolve the deficiencies were appropriate when considering the potential impact on plant risk and safety. In addition, the inspectors reviewed emergent risk significant operator workarounds to determine whether the functional capability of a system or human reliability of an initiating event was affected. Finally, the inspectors reviewed condition reports regarding operator workarounds to verify that the corrective actions were prioritized, appropriate, and commensurate with the safety significance of the issue, completing one inspection procedure sample. Documents reviewed during this inspection are listed in the Attachment. This activity constituted one inspection procedure sample for the cumulative effects of operator workarounds.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Failure to Follow Procedures Governing Work On Safety-Related Equipment

a. Inspection Scope

The inspectors reviewed the post-maintenance testing activities associated with the Personnel Airlock Door and Shaft Seal Inspection and Repair. The inspectors verified

that the testing was adequate for the scope of the maintenance work performed. The inspectors reviewed the acceptance criteria of the tests to ensure that the criteria was clear and that testing demonstrated operational readiness consistent with the design and licensing basis documents. The inspectors also reviewed the completed test data to ensure the test acceptance criteria were met for the post maintenance testing.

This activity constituted one inspection procedure sample. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

Introduction: A finding of very low safety significance (Green) was identified by the inspectors for a violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, And Drawings." The licensee conducted corrective maintenance to fix a deficient condition on the containment personnel hatch seal, a safety-related component, under the 'tool pouch maintenance' process rather than with the use of a work request or a work order, contrary to procedural requirements.

Description: Following a routine containment entry on August 23, 2004, the licensee tested the personnel airlock inner and outer door seals in accordance with TS requirements. The inner door seal was successfully tested; however, the outer door seal failed to meet the test acceptance criteria. Work Request 04-2361 was written to repair the outer door seal, and a work order was processed to replace the outer door seals on the containment personnel hatch, a QA-1 safety-related component. Maintenance mechanics subsequently identified that the seals on the outer door were not properly lubricated, and after consultation with a mechanical front line supervisor, concluded the work could be performed under 'tool pouch' maintenance, without a work order, after reviewing Procedures GNP-08.02.14, "Work Request Initiation, Screening, and Processing," and GNP-08.02.13, "Fix It Now (FIN) Team and Minor Maintenance." The mechanic subsequently cleaned, inspected and lubricated the outer door seal with the appropriate grease and the equipment was post maintenance tested and returned to service. The inspectors identified the work was performed without a work order, contrary to the requirements in Plant Procedures GNP-08.02.14 and GNP-08.02.13, which did not allow work to be performed on QA-1 safety-related equipment without a work order.

The licensee subsequently performed an apparent cause evaluation and extent of condition assessment to determine how many work requests on QA-1 components existed had been resolved without converting to a work order under tool pouch maintenance. The assessment identified that, since July 2002, there were 778 completed tool pouch maintenance activities and 106 of these were for work on QA-1 safety-related components, approximately 14 percent. The licensee expanded the scope and reviewed work activities performed as 'minor maintenance' which were required by Procedure GNP-08.02.13 to be converted from a work request to a work order. The review identified that 136 minor maintenance activities were not converted to work orders, as required. Thirteen of these minor maintenance activities were performed on QA-1 components without a work order, which was approximately 10 percent. Subsequently, the plant maintenance engineering supervisor and a Senior Reactor Operator reviewed the 119 activities performed on QA-1 safety-related components and did not identify any operability concerns with the components.

Analysis: The inspectors determined that the failure to implement work control processes for conducting work on safety-related equipment to ensure that activities affecting quality were prescribed and accomplished by documented instructions or procedures of a type appropriate to the circumstances was considered a licensee performance deficiency warranting a significance evaluation. This issue was more than minor because it affected the Barrier Integrity Cornerstone attribute of reactor containment integrity, and, if left uncorrected, the finding could become a more significant safety concern. The inspectors evaluated the finding using IMC 0609, Appendix A, Phase 1 screening and determined that the finding was of very low safety significance because it did not represent an actual open pathway in the physical integrity of the reactor containment and none of the work conducted on safety-related equipment without a work order resulted in an operability concern. The inspectors determined that the primary cause of this finding was related to the cross-cutting area of human performance because licensee personnel failed to appropriately implement licensee procedures for conducting work on safety-related components.

Enforcement: Title 10 CFR Part 50, Appendix B., Criterion V, "Instructions, Procedures, And Drawings," requires, in part, that activities affecting quality be prescribed by documented instructions, or procedures, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, or procedures. Contrary to this, maintenance work on safety-related components, an activity affecting quality, was not prescribed or accomplished with documented instructions, procedures or drawings of a type appropriate to the circumstances. Specifically, since July 2002, the toolpouch maintenance process was inappropriately applied to work on safety-related components, which was contrary to the licensee's work control procedures. The work subsequently conducted under tool pouch maintenance on safety-related components was accomplished without the use of documented instructions, or procedures of a type appropriate to the circumstances. The inspectors determined that this finding was a violation of 10 CFR Part 50 Appendix B, Criterion V. Because this violation was of very low safety significance (Green) and documented in the licensee's corrective action program as Condition Report CAP22403 and Apparent Cause Evaluation ACE002753, this finding is being treated as an NCV, consistent with Section VI of the NRC Enforcement Policy. (NCV 05000305/2004007-02)

The licensee subsequently initiated several corrective actions to address these issues which included:

- The initiation of a temporary change to further clarify Procedures GNP-08.02.13 and GNP-08.02.14 to ensure work is not performed on QA-1 safety-related components without a work order;
- The revision of Procedure GNP-08.02.14 to ensure the quality level of the component is known prior to screening a work request;
- The briefing of individuals involved in the work request screening process on the requirements of the plant procedures; and
- The training of the maintenance organization on the procedure requirements for work requests, work request screening, and the different categories of maintenance including toolpouch and minor maintenance, with specific emphasis on the requirements for safety-related components.

.2 Additional Post Maintenance Testing Activities Reviewed

a. Inspection Scope

The inspectors reviewed the post-maintenance testing activities associated with the following scheduled and emergent work activities, completing six inspection procedure samples:

- AFW Pump Flow Control Valve AFW-2A following a design modification;
- PMP-36-04, Reactor Coolant - Pressurizer Heater Ampere Readings Electrical Maintenance (QA-2);
- PMP-08-30, Fire Protection - Carbon Dioxide System Inspection and Dry Test;
- PMP-23-02 ICS - Containment Spray Motor Operated Valve Electrical Maintenance (QA-1) - Valve ICS-2A;
- PMP-31-05 CC-QA-1 Component and Residual Heat Exch. Motor Operated Valve Maintenance - Valve CC-400A; and
- PCG-46D-05 CP- Ultrasonic Flow Measurement and Ultrasonic Temperature Measurement Signal Processing Unit Hard Drive Maintenance.

The inspectors verified that the testing was adequate for the scope of the maintenance work performed. The inspectors reviewed the acceptance criteria of the tests to ensure that the criteria was clear and that testing demonstrated operational readiness consistent with the design and licensing basis documents. Documents reviewed during this inspection are listed in the Attachment.

The inspectors attended pre-job briefings to verify that the impact of the testing was appropriately characterized. The inspectors also observed the performance of testing to verify the procedure was followed and that all testing prerequisites were satisfied. Following the completion of each test, the inspectors walked down the affected equipment to verify removal of the test equipment and to ensure the equipment could perform the intended safety function following the test. The inspectors also reviewed the completed test data to ensure the test acceptance criteria were met for the post maintenance testing.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed and reviewed the surveillance testing results for the following surveillances, completing two inspection procedure samples:

- SP-42-312A, Diesel Generator “A” Availability Test; and
- SP-33-072, Safety Injection Accumulator Sample.

The inspectors verified that the equipment could perform the intended safety function and that the surveillance tests satisfied the TS requirements and the licensee’s procedures. The inspectors reviewed the surveillance tests to verify the tests were

adequate to demonstrate operational readiness consistent with the design and licensing basis documents, and that the testing acceptance criteria were well documented and appropriate to the circumstances. Documents reviewed during this inspection are listed in the Attachment.

The inspectors observed portions of the tests to verify the following attributes: performance of the tests in accordance with prescribed procedures; completion of test procedure prerequisites; and verification that the test data was complete, appropriately verified, and met the acceptance criteria of the test. Following the completion of the tests, when applicable, the inspectors walked down the affected equipment to verify test equipment removal and to confirm the equipment tested was in an operable condition.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the modification documentation and associated 10 CFR 50.59 evaluations for the following temporary plant modifications, completing two inspection procedure samples:

- TCR-03-33, Installation of Ethernet Board in Plant Process Computer System; and
- TCR-04-08, Gag HD-430B, Condensate Relief Valve for Condensate Heaters 11B and 12B.

The inspectors verified that the temporary modification did not adversely impact any safety-related equipment and that the modification was controlled in accordance with the licensee's administrative procedures. The inspectors also verified that the modification did not affect system operability or availability. In addition, the inspectors reviewed condition reports to verify that temporary modification problems were entered into the corrective action program with the appropriate significance characterization.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System (ANS) Testing (71114.02)

a. Inspection Scope

The inspector reviewed the relevant Emergency Plan Maintenance Procedure (EPMP) and discussed with Emergency Preparedness (EP) staff the operation, maintenance, and periodic testing of the ANS in the Kewaunee County portion of the Kewaunee Nuclear Power Plant (KNPP) Emergency Planning Zone (EPZ) to determine whether ANS equipment was maintained and tested in accordance with commitments and

procedural requirements between January 2003 and May 2004. The inspector also discussed concerns, which were identified by Nuclear Oversight (NOS) staff in 2003 and 2004, regarding assessments of several siren outages within the overlapping portion of the Kewaunee and Point Beach Nuclear Power Plant EPZs that were relevant to determining if an event report to NRC was procedurally warranted per the requirement of 10 CFR 50.72 (b)(3)(xiii). The inspector reviewed records of annual preventive maintenance activities performed in 2003, as well as July 2003 through March 2004 ANS operability test results. A sample of corrective action program documents were reviewed to determine whether the licensee effectively used the program to document and track ANS-related concerns. The inspector also discussed a potential change to the organization responsible for maintaining ANS equipment for KNPP and the Point Beach Plant. These activities represented one inspection procedure sample.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Augmentation Testing (71114.03)

a. Inspection Scope

The inspector reviewed records and discussed with EP staff the revisions of Emergency Plan Implementing Procedures (EPIP) and EPMP that were associated with the primary and alternate methods of initiating an ERO activation to augment the onshift ERO. The inspector reviewed records and discussed recent training on the revised equipment used for initiating an ERO activation. The inspector also discussed the roles of the recently implemented EP Duty Manager position. The inspector discussed provisions for maintaining the ERO's call-out roster with the EP Instructor.

The inspector reviewed critique records and a sample of corrective action program records of unannounced, off-hours ERO augmentation drills, which were conducted between March 2003 and May 2004, to determine the adequacy of the licensee's performance during the drills, the critiques, and associated corrective actions. The inspector also reviewed correspondence to ERO members that re-emphasized management's expectations regarding pager use and emergency response.

The inspector reviewed the EP training records of a random sample of 36 ERO members, who were assigned to key and support positions in the onsite and offsite ERO, to determine whether they were currently trained for their assigned response positions. The inspector also discussed a licensee Action Plan, which was scheduled to be implemented later in 2004, that was intended to improve the quality of EPIPs and ERO training. These activities represented one inspection procedure sample.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspector reviewed the results of NOS audits of the EP program, which were performed between October 2002 and March 2004, to verify that these independent assessments met the requirements of 10 CFR 50.54(t) and to verify that concerns identified during these audits were addressed by EP staff. The inspector also reviewed a sample of critique reports and corrective action program documents associated with the 2003 exercise, as well as various EP drills conducted during 2003, to verify that the licensee fulfilled its drill commitments and to evaluate the licensee's efforts to identify, track, and resolve concerns identified during these activities. The inspector discussed the licensee's "LEAN Team" concept, which was intended to improve support to the EP staff by other functional groups in addressing EP-related corrective action program items more efficiently. The inspector observed a meeting of EP and other plant staff that involved assigning responsibilities for planned corrective actions resulting from the critique of a June 2004 EP drill. The inspector also reviewed and discussed records relevant to the plant's offsite re-assembly area.

The inspector discussed the status of a sample of EP Program-related topics listed in the current schedule of the "KNPP Site Excellence Plan." The inspector also discussed ongoing preparations for a working meeting that was intended to address emergency facilities, equipment, offsite support, and software matters relevant to the Kewaunee and Point Beach Nuclear Plants' EP Programs. These activities represent one inspection sample.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed a licensed operator crew perform an emergency drill on the simulator on August, 31, 2004, completing one emergency planning simulator exercise inspection procedure sample. The inspectors observed activities in the control room simulator, attended the critique, and reviewed the completed drill documentation and critique report. The inspectors evaluated the drill performance and verified that deficiencies were entered into the corrective action program and drill failures were appropriately accounted for in the licensee's drill and exercise performance indicator (PI) tracking. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Public Radiation Safety

2PS3 Radiological Environmental Monitoring Program (REMP) and Radioactive Material Control Program (71122.03)

.1 Inspection Planning - Reviews of Radiological Environmental Monitoring Reports and Data

a. Inspection Scope

The inspectors reviewed the 2002 and 2003 Annual Radiological Environmental Monitoring Reports, selected results of radiological environmental monitoring analyses for the first half 2004, and the most recent licensee assessment results to verify that the REMP was implemented as required by the Offsite Dose Calculation Manual and the Radiological Environmental Monitoring Manual (REMM). The inspectors reviewed the environmental reports for changes to the REMM with respect to environmental monitoring, commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, the sample analysis vendor's inter-laboratory comparison program, and analysis of environmental sample data. The inspectors reviewed the REMM to identify the environmental monitoring stations and evaluated the locations of these stations and the types of samples collected from each to determine if they were consistent with NRC guidance in Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light Water Cooled Nuclear Power Plants," and in Regulatory Guide 4.8, "Environmental TSs for Nuclear Power Plants." The inspectors reviewed the USAR for information regarding the environmental monitoring program and meteorological monitoring instrumentation to determine whether the program was developed consistent with its design basis. The inspectors also reviewed the scope of the licensee's audit program to verify that it met the requirements of 10 CFR 20.1101(c) relative to the REMP and radioactive material control programs. These reviews represented one inspection procedure sample.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection Activities

a. Inspection Scope

The inspectors walked down all five of the environmental air sampling "indicator" stations and approximately 30 percent of the thermoluminescence dosimeter (TLD) monitoring stations. The walkdown was performed to determine whether these environmental stations were located as described in the REMM, to assess equipment material condition and operability, and to verify that environmental station orientation relative to plant effluent release points, vegetation growth control, and equipment configuration allowed for the collection of representative samples.

The inspectors accompanied a REMP technician and observed the collection and change-out of air particulate and charcoal cartridges at each air sampling station, and observed the collection of a precipitation water sample and discussed milk sampling protocols to determine whether appropriate practices were used to ensure sample integrity and to verify that sampling techniques were in accordance with the licensee's procedures.

The primary and backup meteorological towers were walked down by the inspectors to verify they were adequately sited and that instrumentation was installed consistent with Regulatory Guide 1.23, "Meteorological Programs in Support of Nuclear Power Plants." The inspectors discussed with instrument and control staff the recent meteorological equipment upgrades and system modifications, and verified through record review that the currently installed meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the USAR, NRC Safety Guide 23, and licensee procedures. The inspectors compared real-time data collected at the meteorological tower versus the time-averaged data transmitted to the control room to verify data integrity.

The inspectors reviewed each event documented in the Annual Environmental Monitoring Reports which involved a missed sample, inoperable sampler, lost TLD, or anomalous measurement for the cause and corrective actions and conducted a review of the licensee's assessment of any positive sample results (i.e., licensed radioactive material detected above the lower limits of detection.

The inspectors reviewed changes made to any environmental sample stations since the last inspection and/or significant changes made by the licensee to the REMM as dictated by the 2002 or 2003 land use census. The inspectors reviewed technical justifications for changed sampling locations, if applicable. The inspectors verified that the licensee performed the reviews required to ensure that the changes did not affect its ability to monitor the potential impact of radioactive effluent releases on the environment.

The inspectors reviewed calibration and maintenance records for 2003 through mid-2004, for all five of the environmental air samplers. The review focused on air flow meter calibration, and maintenance of air pump motor bearings, vanes and particulate air/charcoal cartridge related components. Additionally, the most recent (annual) calibration records of the flow meters (rotameters) used by the licensee to measure and validate air sample pump flow rates was reviewed to ensure traceability to the National Institute of Standards and Technology. As the licensee does not conduct analyses of REMP samples on-site and utilizes a vendor laboratory to provide analytical services, the inspectors did not review licensee calibration records for environmental sample radiation measurement instrumentation (i.e., count room equipment) or quality control charts.

The inspectors reviewed the results of a 2003 Nuclear Procurement Issues Committee audit of the REMP analytical vendor laboratory and also reviewed the vendor's internal quality control program including the inter-laboratory comparison program, to verify the adequacy of the vendor's program and the corrective actions for any identified deficiencies. The inspectors reviewed the lower limit of detection values achieved by the vendor laboratory for all REMP required sample media to verify that analytical detection capabilities met REMM requirements for each environmentally monitored

pathway. The inspectors reviewed the last quality assurance audit results of the REMP to determine whether the licensee met its TS/ODCM requirements.

These reviews represented six inspection procedure samples.

b. Findings

No findings of significance were identified.

.3 Unrestricted Release of Material from the Radiologically Controlled Area (RCA)

a. Inspection Scope

The inspectors observed those locations where the licensee monitored potentially contaminated materials and individuals leaving the RCA, and evaluated the procedures and practices used for control, survey, and release of materials and workers from these areas. The inspectors questioned several radiation protection staff responsible for the performance of personnel surveying and releasing material for unrestricted use to assess their knowledge of procedures and protocols and to verify that release surveys are performed appropriately.

The inspectors assessed the radiation monitoring instrumentation used to conduct surveys for the unrestricted release of workers and of materials from the RCA to determine if they were appropriate for the radiation types present, were operationally checked with radiation sources consistent with the plant's nuclide mix, and that source activities were sufficient to challenge the monitor alarm setpoints. The inspectors reviewed the licensee's criteria for the survey and release of potentially contaminated material and workers to verify that there was guidance on how to respond to an alarm which indicates the potential presence of licensed radioactive material. The inspectors reviewed the licensee's radiation survey equipment to ensure the radiation detection sensitivities were consistent with the NRC guidance for surface contamination contained in Circular 81-07, "Control of Radioactively Contaminated Material," and Information Notice 85-92, "Survey of Wastes Before Disposal from Nuclear Reactor Facilities," and with Health Physics Positions (position-221) in NUREG/CR-5569 for volumetrically contaminated material.

The inspectors discussed with the radiation protection manager (RPM) the plant's radionuclide (isotopic) mix to determine if the licensee had identified its difficult-to-detect radionuclides (i.e., those that decay via electron capture) and recognized the potential impact of those nuclides on its unrestricted release survey program. The inspector also discussed with the RPM the licensee's plans to reassess the plant's nuclide mix on a regular basis so as to identify potential changes, and to document the results of the assessment including the impact on the unconditional release, air sampling and internal dose assessment programs.

The inspectors reviewed the licensee's procedures and survey records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters (i.e., counting times and background radiation levels). The inspectors verified that the licensee had not established a "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high radiation background area.

These reviews represented two inspection procedure samples.

b. Findings

No findings of significance were identified.

.4 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, Licensee Event Reports, and Special Reports, as applicable, related to the radiological environmental monitoring and radioactive material control programs since the last inspection to determine if identified problems were entered into the corrective action program for resolution. The inspectors also verified that the licensee's self-assessment and/or audit program was capable of identifying repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

The inspectors also reviewed corrective action program documents related to the REMP and the radioactive material control programs generated since the previous inspection, interviewed staff and reviewed documents to determine if the following activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk:

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

These reviews represented one inspection procedure sample.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151)

.1 Reactor Safety Strategic Area - Initiating Event and Mitigating Systems Cornerstone

a. Inspection Scope

The inspectors sampled the licensee's submittals for the PIs listed below, which completed three inspection procedure samples:

- Unplanned Power Changes per 7,000 Critical Hours;
- Emergency AC Power Unavailability; and

- Heat Removal System Unavailability (AFW unavailability).

The inspectors used performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2, to verify the accuracy of the PI data. The inspectors reviewed corrective action documents, monthly operating reports, completed surveillance procedures, control room logs, and licensee event reports to independently verify the data that the licensee had collected and reported from January 2003 through March 2004. The inspectors also independently performed calculations for system unavailability when applicable. Documents reviewed during this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 Reactor Safety Strategic Area - Emergency Preparedness Cornerstone

a. Inspection Scope

The inspector reviewed the licensee's records associated with the three EP PIs listed below. The inspector verified that the licensee accurately reported these indicators, with a self-identified, minor exception that was being corrected, in accordance with relevant procedures and Nuclear Energy Institute guidance endorsed by NRC. Specifically, the inspector reviewed licensee records associated with PI data reported to the NRC for the period July 2003 through March 2004. Reviewed records included: procedural guidance on assessing opportunities for the three PIs; assessments of PI opportunities during pre-designated Control Room Simulator training sessions, the 2003 biennial exercise, and pre-designated drills; revisions of the roster of personnel assigned to key ERO positions; and results of bimonthly ANS operability tests. These activities represented three inspection procedure samples. The following PIs were reviewed:

- ANS;
- ERO Drill Participation; and
- Drill and Exercise Performance.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Licensed Operator Requalification Biennial Sample Review

a. Inspection Scope

The inspectors reviewed the most recent licensee training department self-assessment report. The licensee's self-assessment reviewed the licensed operator training program through September 2003. The self-assessment was reviewed to ensure that any issues identified during the self-assessment were appropriately evaluated, prioritized, and controlled.

b. Findings

There were no findings of significance.

.2 Routine Resident Inspector Review of Identification and Resolution of Problems

a. Inspection Scope

As discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that issues were entered into the licensee's corrective action system at an appropriate threshold, that adequate attention was given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors also reviewed all condition reports written by licensee personnel during the inspection quarter. Minor issues entered into the licensee's corrective action system as a result of inspectors' observations are included in the list of documents in the Attachment, in the section entitled "Condition Reports Initiated for NRC-Identified Issues."

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution Annual Inspection Sample

Turbine Driven Auxiliary Feedwater Pump Turbine Bearing Oil Sample Indicates Cutting Wear and Journal Bearing Found Damaged

Introduction

The inspectors selected Condition Reports CAP021539, "Turbine Driven Auxiliary Feedwater Pump Turbine Oil Samples Contained Contaminants," and CAP21599, "NRC Resident Inspector Concerns on the TDAFW Pump Operability," with corresponding Root Cause Evaluation RCE652, "Turbine Driven Auxiliary Feedwater Pump Turbine Bearing Oil Sample Indicates Cutting Wear and Journal Bearing Found Damaged," for an annual sample review of the licensee's problem identification and resolution program. This constitutes one annual review inspection procedure sample. Documents reviewed during this inspection are listed in the Attachment.

a. Effectiveness of Problem Identification

(1) Inspection Scope

The inspectors reviewed Condition Reports CAP021539 and CAP21599, with Root Cause Evaluation RCE652 to verify that the licensee's identification of the problems were complete, accurate, timely, and that the consideration of the extent of condition review, generic implications, common cause, and previous occurrences was adequate.

(2) Findings

No findings of significance were identified.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors reviewed Condition Reports CAP021539 and CAP21599, with Root Cause Evaluation RCE652. The inspectors considered the licensee's evaluation and disposition of performance issues, evaluation and disposition of operability issues, and application of risk insights for prioritization of issues.

(2) Findings

No findings of significance were identified.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed the corrective actions identified in Condition Reports CAP021539 and CAP21599, with Root Cause Evaluation RCE652 for applicability to the identified deficiencies. The inspectors also reviewed the planned corrective actions to determine if the planned actions were appropriately focused to correct the identified problems and extent of condition issues.

(2) Findings

No findings of significance were identified.

4OA3 Event Followup (71153)

.1 (Closed) Unresolved Item (URI) 50-305/2004004-02: Review of Final Analysis Concerning High Oil Particulate discovered in the Turbine Driven AFW Pump Turbine.

Introduction: A Green finding was self-revealed when the licensee reviewed the circumstances surrounding high oil particulate in the Turbine Driven Auxiliary Feedwater Pump Turbine. The finding involved the licensee's failure to ensure that procedures associated with the maintenance of the Terry Turbine for the Turbine Driven AFW Pump were appropriate to the circumstances and included appropriate quantitative or qualitative acceptance criteria. A Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was associated with this finding.

Description: On June 10, 2004, the licensee took an 18-month oil sample on the inboard and outboard bearings of the turbine for the turbine driven AFW pump for analysis. The initial analysis results, which were completed on June 11, indicated high wear products for both the inboard and outboard turbine bearings. The licensee subsequently declared the turbine-driven AFW pump inoperable and the oil samples were sent to a vendor for further analysis on June 11. In addition, the licensee formed a troubleshooting team to develop a troubleshooting plan and the next course of action. The vendor's analysis determined that high concentrations of steel, severe cutting wear particles, and small rubbing wear particles were present in the oil. On June 12, the

licensee removed the inboard and outboard bearing covers and inspected the turbine bearings. The inboard upper and lower journal bearings exhibited evidence of normal wear and the journal had some very light scoring. The outboard upper and lower journal bearing were found to be partially wiped, especially near the turbine end of the bearing.

Visual inspections identified that the bearing housing surfaces in contact with the oil were had a silver-colored coating, which was later confirmed as an aluminum phenolic coating from the original manufacturing. The inspections revealed that areas of this coating were missing, and that small particles of the coating were in the bottom of the bearing housing. The licensee replaced the journal bearings with new bearings and cleaned the bearing housings to remove any additional loose coating. The licensee then performed an uncoupled overspeed trip test utilizing Procedure PMP 05B-07 and obtained additional oil samples. These oil samples indicated unacceptable chemistry and high wear products. The unacceptable chemistry was attributed to the use of isopropyl alcohol as a cleaning solvent and the high wear was attributed to incomplete cleaning of debris from the cavities. The licensee then performed flushes of the of the inboard and outboard bearing housings until acceptable oil sample results were obtained of all oil parameters before proceeding. The licensee then performed and satisfactorily completed the minimum flow TS Test for the Turbine Driven AFW Pump, SP 05B-333. Additional oil samples taken following the test showed acceptable results. Finally, the quarterly full flow TS Test for the Turbine Driven AFW Pump, SP-5B-284, was later performed, which demonstrated all pump and turbine parameters as normal, including the oil samples taken as part of the test.

In NRC Inspection Report 50-305/2004004, Section 1R15.2, the inspectors documented that 3 weeks following the event the licensee began the Root Cause Evaluation and the inspectors identified to the licensee that Electric Power Research Institute technical manual for Terry Turbine maintenance for AFW applications indicated that the coatings inside the bearing housings were to be inspected for degradation on a routine, 18-month maintenance overhaul and inspection, due to known coating degradation issues in Terry Turbines. The inspectors also noted that the manual provided acceptance criteria for oil sample results and discussed a routine oil sample frequency of 3 months.

The licensee completed the root cause evaluation on September 27, 2004, which the inspectors reviewed and evaluated. The licensee concluded that:

- the root cause of the bearing damage and high oil particulate was the failure to ensure that available industry guidance and operating experience was incorporated into the licensee's maintenance practices and procedures for Terry Turbines;

- the likely cause of bearing wear observed was from the reuse of the bearing in a different location than originally installed on the turbine;

- the current maintenance procedures for the rebuild of the turbine did not prohibit the reuse of bearings in a new location, and the extent of condition revealed that maintenance procedures for the AFW pumps, safety injection pumps and emergency diesel generators also did not contain adequate guidance to ensure bearings were not interchanged;

- preventive maintenance activities for the Terry Turbine did not incorporate the appropriate guidance and frequency for opening, cleaning and inspecting the Terry Turbine bearings and bearing cavities, which would have addressed the issue of the degraded aluminum coating;

- the frequency for oil sampling on the Terry Turbine was not adequate, based on industry experience, and the licensee's oil sampling methods and acceptance required enhancement; and

- had further investigation been performed of an October 2001 Terry Turbine oil sample, which also had anomalous analysis results, this issue would most likely have been identified previously.

The licensee also performed a past operability analysis which involved the turbine vendor, bearing vendor, recognized industry experts on Terry Turbines, and metallurgical failure analysis of the journal bearings. The inspectors, in conjunction with a technical matter expert from the Office of Nuclear Reactor Regulation, verified the licensee's analysis and conclusion that, with the as-found condition of the bearings, the Turbine Driven AFW Pump would have been able to perform the intended safety function for the required mission time.

Analysis: The inspectors determined that the failure to ensure that procedures associated with the corrective and preventive maintenance of the Terry Turbine for the Turbine Driven AFW Pump were appropriate to the circumstances and included appropriate acceptance criteria was a licensee performance deficiency warranting a significance evaluation. This self-revealed finding was more than minor because, if left uncorrected, the issue would have become a more significant safety concern. In addition, it affected the Mitigating Systems attributes of equipment performance reliability and the Mitigating Systems cornerstone objective of ensuring the reliability of systems. The inspectors evaluated the finding using IMC 0609, Appendix A, Phase 1 screening, and determined that, based on the past operability analysis performed by the licensee, the finding was of very low safety significance because it was not a design or qualification deficiency that has been confirmed to result in a loss of function per Generic Letter 91-18. Therefore, the finding was determined to be of very low safety significance (Green).

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented instructions or procedures, of a type appropriate to the circumstances and shall include appropriate acceptance criteria for determining that important activities have been satisfactorily accomplished. Contrary to this requirement, the licensee failed to ensure that procedures associated with the maintenance of the Terry Turbine for the Turbine Driven AFW Pump were appropriate to the circumstances and included appropriate quantitative or qualitative acceptance criteria. Specifically, the licensee's maintenance procedures allowed the reuse of bearings in different locations, which was not an acceptable maintenance practice; preventive maintenance procedures did not specify appropriate acceptance criteria for oil sampling; and licensee preventive maintenance procedures did not specify the appropriate frequency and criteria for inspecting the turbine bearings and bearing cavities. Therefore, the inspectors determined that this finding was a violation of 10 CFR Part 50, Appendix B, Criterion V. Because this violation was of very low safety significance (Green) and was documented

in the licensee's corrective action program as Condition Reports CAP21539 and CAP21599, and Root Cause Evaluation RCE00652, it is being treated as a NCV, consistent with Section VI.A of the NRC Enforcement Policy. (NCV 05000305/2004007-03)

The licensee took immediate remedial corrective actions to replace the bearings, clean the housing and return the pump to service. In addition, the licensee developed the following corrective actions to prevent recurrence and address the extent of condition issues:

- Revised the preventive maintenance activities for oil sampling of the turbine from 18 months to quarterly;
- Revised the oil sampling procedure to change the oil sampling method to ensure a representative oil sample is taken;
- Revised the procedures for inspection and overhaul of the Terry Turbine to incorporate industry guidance and prevent the reuse of bearings in different locations, filter oil added to the turbine, and perform an axial end play measurement before coupling;
- Created a preventive maintenance activity to open, clean and inspect the turbine bearings and bearing cavity each refueling cycle;
- Reviewed Electric Power Research Institute Nuclear Maintenance Application Center topical reports that provided guidance applicable to plant equipment and revised current licensee maintenance practices, where required;
- Implemented a process to ensure that new topical reports are reviewed and incorporated at the plant;
- Developed procedural guidance establishing acceptance criteria for oil sample analysis results; and
- Reviewed and revised procedures for inspection and rebuilding of the safety injection pumps, AFW pumps and emergency diesel generators to contain adequate guidance to ensure that bearings are not interchanged between locations, even if the bearings appear identical.

4OA4 Cross Cutting Aspects of Findings

.1 A finding described in Section 1R15.1 of this report had, as the primary cause, a problem identification and resolution deficiency, in that, the licensee failed to take prompt corrective actions to address conditions adverse to quality affecting safety-related equipment on the licensee's degraded and nonconforming list.

.2 A finding described in Section 1R19.1 of this report had, as the primary cause, a human performance deficiency, in that, licensee personnel failed to appropriately implement procedure requirements for work performed on safety related equipment.

4OA5 Other Activities

.1 Temporary Instruction (TI) 2515/159: Review of Generic Letter (GL) 89-13: Service Water System Problems Affecting Safety-Related Equipment

a. Inspection Scope

On July 29, 2004, as part of a Davis-Besse Lessons-Learned Task Force Recommendation [3.1.2(5)] commitment, the NRC issued a Temporary Instruction (TI) to review the licensee's continued actions in response to Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment."

From August 16 through 20, 2004, three inspectors from the regional office performed an inspection at the Kewaunee Nuclear Power Plant to assess the licensee's continued actions in response to Generic Letter 89-13. The inspectors reviewed licensee documents, as listed in the Attachment, interviewed license personnel, and performed a detailed walkdown of the service water system. The objective of this inspection was to review the licensee's activities in response to NRC generic communications through focus on Generic Letter 89-13.

As part of this inspection, the inspectors completed the scope of the following baseline inspections:

71111.04S, "Equipment Alignment": The inspectors completed one entire system walkdown required by this baseline inspection procedure. Under the activities required to complete Inspection Requirement 03.04 of the TI, a detailed walkdown of the service water system was conducted. The inspectors used the inspection guidance in both 71111.04 and TI 2515/159, Attachment A, to conduct the walkdown. This activity comprised one semi-annual inspection procedure sample.

71111.07B, "Heat Sink Performance": The inspectors completed the biennial portion of this baseline inspection procedure in its entirety. Under the activities required to complete Inspection Requirement 03.02 of the TI, three heat exchangers were reviewed. These heat exchangers were the 1A RHR pump pit fan coil unit (FCU), the 1B component cooling water CCW pump room FCU, and the diesel generator lube oil coolers. These activities comprised three biennial inspection procedure samples.

71111.12, "Maintenance Effectiveness": The inspectors completed two annual maintenance performance issues reviews required by this baseline inspection procedure. Under the activities required to complete Inspection Requirements 03.01 and 03.05 of the TI, the inspectors reviewed a sample of station logs, maintenance work orders, maintenance rule evaluations, unavailability records, and a sample of condition reports to verify that the licensee identified issues related to the maintenance rule at an appropriate threshold and that corrective actions were appropriate. The inspectors verified that the licensee identified, entered, and scoped component and equipment failures within the maintenance rule requirements. Issues that were evaluated specifically for this area were safety injection (SI) pump stuffing box silting and the discovery of zebra mussel shells in the 1A control rod drive motor FCU. These activities comprised two inspection procedure samples.

71111.17, "Permanent Plant Modifications": The inspectors completed a portion of the biennial aspect of this baseline inspection procedure. Under the activities required to complete Inspection Requirement 03.04 of the TI, the inspectors reviewed three permanent plant modifications, in order to ensure that the modifications had not altered the design basis or introduced any single failure vulnerabilities. As part of the review of these modifications, the inspectors also reviewed associated screenings or evaluations

performed pursuant to 10 CFR 50.59 and post-modification testing. These activities comprised three biennial inspection procedure samples.

71111.22, "Surveillance Testing": The inspectors reviewed one surveillance test. Under the activities required to complete Inspection Requirements 03.02 and 03.04 of the TI, the inspectors reviewed a surveillance procedure for the EDG lube oil heat exchangers to verify that the equipment could perform its intended safety function and that the surveillance test satisfied the TS requirements. The inspectors also reviewed the surveillance test to verify the test was adequate to demonstrate operational readiness consistent with the design and licensing basis documents, and that the testing acceptance criteria were well documented and appropriate to the circumstances. The activity comprised one inspection procedure sample.

71152, "Identification and Resolution of Problems": The inspectors completed one semi-annual review of identified problems. Under the activities required to complete Inspection Requirement 03.05 of the TI, the inspectors reviewed maintenance records and corrective action backlog lists to identify trends of equipment problems that might indicate the existence of a more significant safety issue. This activity comprised one semi-annual inspection procedure sample.

b. Findings

1. Inadequate Inspection and Cleaning Procedure

Introduction: The inspectors identified a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," having very low safety significance (Green). This finding was associated with the licensee's failure to implement an appropriate inspection and cleaning procedure containing quantitative or qualitative acceptance criteria for the 1A RHR pump pit FCU to ensure that cleaning was satisfactorily accomplished.

Description: As documented in the licensee's Generic Letter 89-13 Program Document (NID-01.01), the licensee committed to testing the 1B RHR pump pit FCU by monitoring flow and temperatures (service water side of heat exchanger); however, the 1A RHR pump pit FCU was not monitored. This exclusion was submitted to the NRC in the supplemental response to the NRC and was accepted. Instead, the licensee performed an annual air side and service water side flushing of the FCU using Preventative Maintenance Procedure (PMP) 17-02, "QA-1 & QA-2 Fan Coil Units, Inspection and Cleaning." The PMP-17-02 instituted fin side (air side) cleaning and tube side (service water side) flushing of the 1A train FCU. Upon review of PMP-17-02, the inspectors determined that the procedure was not appropriate to the circumstances and did not contain either quantitative or qualitative acceptance criteria to ensure that the flushing was satisfactorily accomplished. Specifically, the inspectors noted that Step 4.2.11 of the procedure required the licensee to "introduce a water hammer" into the system to resuspend the silt accumulation and flush it from the system. The procedure was inappropriate to the circumstances in that it did not contain instructions to ensure that the pressure pulse introduced did not exceed the pressure rating of the heat exchangers. The procedure also did not contain either qualitative or quantitative acceptance criteria to assure that all the air was removed from the system rather than accumulating in the service water system. Following identification of this issue, the licensee wrote a condition report and performed a prompt operability determination.

The inspectors noted that this procedure was also used for other heat exchangers connected to the safety-related portion of the service water system.

Analysis: The inspectors determined that the failure to have a procedure adequate to the circumstances or with qualitative or quantitative acceptance criteria when performing flushing of the 1A RHR pump pit FCU was a performance deficiency warranting a significance evaluation. The inspectors evaluated the finding using NRC IMC 0612, "Power Reactor Inspection Reports," and determined that the finding was more than minor because it involved the procedure quality attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The inspectors evaluated the finding using IMC 0609, "Significance Determination Process," since the finding was associated with the availability and reliability of a train of a mitigating system. As the licensee had determined that the 1A RHR pump pit FCU remained operable, the inspectors determined that this issue screened out of Phase 1 of the SDP. Therefore, this finding was considered to be of very low safety significance (Green).

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," states, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and that the instructions, procedures, or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Contrary to the above, as of August 20, 2004, Procedure PMP 17.02 was inappropriate to the circumstances as it did not contain information to ensure that the pressure pulse introduced in Step 4.2.11 would not damage the 1A RHR pump pit FCU. Furthermore, Procedure PMP 17.02 did not contain either qualitative or quantitative acceptance criteria to ensure that all air was removed from the system following the activity. Therefore, the inspectors determined that this finding was a violation of 10 CFR Part 50, Appendix B, Criterion III. Because this violation was determined to be of very low safety significance, and because the licensee entered the violation into its corrective action program as CAP022293 and CAP022299, this violation is being treated as a NCV consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000306/2004007-04).

2. Inadequate Design Control Process

Introduction: The inspectors identified a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance (Green). This finding was associated with the licensee's failure to verify or check the adequacy of the design when installing a new air actuator on the service water valves on the outlet of the diesel generator lube oil coolers.

Description: Under Design Change (DCR) 3357, the licensee installed new air-operated actuators on the service water outlet valves [SW-301A/B]. These valves are normally closed and open upon a diesel generator start signal. Upon review of the modification package and 10 CFR 50.59 screening, the inspectors noted that the design description stated that the new actuator would have the capability of over-torquing the valve causing a stem failure. The design description further noted that this failure would occur if

something were to restrict the valve's movement somewhere in its range of motion. The design description concluded that, were this failure to occur, it would be considered a single active failure. No further information was provided in the design description.

The attached safety review also discussed the possible failure of the actuator to break the stem. The safety review concluded that the failure would only be possible if foreign material caused the valve to bind. The review stated that, as each train was supplied by a separate service water header, a common mode failure was not considered credible, and that any binding would constitute a single failure, regardless of stem integrity.

The inspectors determined that the licensee had not fully evaluated this failure mode. The inspectors noted that similar actuators were installed on both the service water outlet valves to both diesel generator lube oil coolers. The inspectors also noted that both service water headers were normally fed from a single header and that foreign material had previously been found in both headers and that it was possible for this foreign material to wedge between the valve ball and body, causing the ball to freeze with subsequent overtorquing. The inspectors reviewed several corrective action system inputs in which the licensee identified deposits of shells, mud and silt in the service water system. Although the licensee's foreign materials exclusion program addressed worker-introduced foreign material into the service water system, this design change did not consider the adverse effects from foreign materials introduced by the service water system itself including shells, mud and sediment.

The inspectors also noted that the licensee had not fully explored all methods for the valve ball to become frozen before considering the failure as non-credible. Finally, the inspectors determined that the licensee did not have any design verification, such as calculations, which showed that the actuator would not overtorque the valve during valve closure, resulting in stem breakage. The inspectors noted that numerous instances of valve actuators being improperly sized were documented in NRC correspondence, albeit, generally in regard to motor-operated valves rather than air-operated valves.

The licensee entered this issue into its corrective action system as CAP022312 and performed an operability assessment under OPR000075. This operability assessment focused on the valve's vulnerability to foreign material introduced by the service water system and provided a qualitative assessment to support the conclusion that the valves were operable.

Analysis: The inspectors determined that the failure to have design verification to demonstrate that the new valve actuator would not result in a stem failure was a performance deficiency. The inspectors evaluated the finding using NRC IMC 0612, "Power Reactor Inspection Reports," and determined that the finding was more than minor because it involved the design control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The inspectors evaluated the finding using IMC 0609, Appendix A, Phase 1 screening, and determined that, based on the past operability analysis performed by the licensee, the finding was of very low safety significance because it was not a design or qualification deficiency that has been confirmed to result in a loss of function per

Generic Letter 91-18. Therefore, this finding was considered to be of very low safety significance (Green).

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, that design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program, which includes suitable qualification testing of a prototype unit under the most adverse design conditions. Contrary to the above, as of August 20, 2004, the licensee had not performed any design verification to show that the actuator installed under Design Change 3357 would not result in a failure of the valve stem under conditions where the valve ball froze nor had the licensee provided sufficient justification to show that valve ball freezing was not credible. Therefore, the inspectors determined that this finding was a violation of 10 CFR Part 50, Appendix B, Criterion III. Following discovery, the licensee performed an operability assessment which provided more information why the stem failure was considered not credible. Because this violation was determined to be of very low safety significance, and because the licensee entered the violation into its corrective action program as CAP022312, this violation is being treated as a NCV consistent with Section VI.A of the USNRC Enforcement Policy (NCV 05000306/2004007-05).

3. TI Analysis

In accordance with TI 2515/159 reporting requirements, the inspectors provided the required data to the NRC headquarters staff for further analysis. A summary of the responses to the questions of the TI is provided below.

i. *Determine the effectiveness of Generic Letter 89-13 in communicating information.*

Generic Letter 89-13 was clear in communicating information about service water system problems, both in the initial Letter and the supplement. The licensee took the actions to which it officially committed in its response. Overall, the licensee's process for handling generic communications ended once an evaluation was made or a procedure issued.

Many of the licensee's current programs were driven by recent site or fleet experiences, rather than through continued follow-through on the Generic Letter. Additionally, concerns identified during the baseline heat sink inspection and the safety system performance and design capability inspection provided a continuing awareness of service water issues beyond the initial issuance of the Generic Letter. The licensee's 89-13 program document, prepared in June 2004, contained a requirement to ensure continued compliance with the Generic Letter requirements.

ii. *Describe the licensee actions that are being implemented for the five recommended actions of Generic Letter 89-13*.

The Generic Letter had five recommendations; the licensee made commitments for on-going programs for three of them.

- The first recommendation was to implement and maintain an ongoing program of surveillance and control techniques to significantly reduce the incidence of flow blockage problems as a result of biofouling. The licensee's commitment in regard to this recommendation was to "aggressively pursue installation of a chlorination system".

The licensee's actions in this area were maintaining the commitment. The licensee had implemented a chlorination system; however, there were still occasions where flow blockage problems occurred due to biofouling, most recently in January 2004. Although the licensee had procedural requirements to run the chlorination system for 2 hours daily, they primarily relied upon a once a year continuous chlorination, because of continuing problems with the chlorination system. In addition, in an approved response to a corrective action document, the licensee stated that they did not have any design or licensing basis commitments which required them to have the chlorination system operable.

In regard to the effectiveness of the system to preventing biofouling, the licensee had performed a corrective action evaluation which determined the maximum expected size of a zebra mussel growing in the system between the annual continuous chlorination injections, due to a large mussel shell being found on a heat exchanger tube sheet. Based on this, they considered the annual kill to be effective. However, approximately a month later, the licensee found mussel shells that were above this maximum size in another cooler. Additionally, use of a "bio-box" showed only about 50 percent "kill effectiveness" in one safety related train of service water. At the time of the inspection, the licensee was pursuing an improved chlorination system, as shown by their "Top 10" equipment improvement list.

- The second recommendation was to conduct a test program to verify the heat transfer capability of all safety-related heat exchangers cooled by service water. The licensee committed to install instrumentation and performance monitor, with exception of the 1A RHR pump pit FCU. The licensee informed the NRC, in their supplemental response, that this fan would not be monitored because it was similar to the opposite train FCU.

The licensee was generally meeting its Generic Letter 89-13 commitments for the EDG lube oil coolers, which were a water-to-oil heat exchanger. The only water-to-water heat exchanger was the component cooling water heat exchanger. In 2002, the licensee changed from a performance monitoring program to an inspect and clean program for these heat exchangers. Additionally, following the identification of lake grass in the safety injection pump lube oil coolers in January 2004, the licensee was implementing a new inspection method for the safety injection pump lube oil coolers; the acceptance criteria for monitoring performance of these heat exchangers appeared acceptable.

In 2003, an NRC inspector identified an issue with the accuracy of the instrumentation used in performance testing of the FCUs. As a result, the licensee switched, at least temporarily, to an inspect and clean program for these heat exchangers. The inspectors questioned the appropriateness of the licensee's Generic Letter 89-13 commitment to monitor the 1B train FCU and assume that acceptable performance was indicative of acceptable performance of the 1A train FCU, given that the 1B FCU was cleaned in March 2004, while the 1A FCU was only flushed using an inadequate

procedure. The inadequate procedure issue is more fully discussed in Section 4OA5.1.b.1. The licensee entered this concern into their corrective action program.

Additionally, the inspectors determined that the 1B CCW FCU was installed to meet an 10 CFR Part 50, Appendix R requirement, and that the 1B CCW pump room safety-related cooling was supplied by the auxiliary building mezzanine FCU. As this FCU did not perform a safety-related function, it appeared reasonable that it was not performance monitored under the GL 89-13 commitment.

Overall, the licensee's current program for performing maintenance in lieu of testing for safety-related heat exchangers appeared to be acceptable to identify degraded conditions.

- The third recommendation was to establish a routine inspection and maintenance program to ensure that corrosion, erosion, protective coating failure, silting, and biofouling could not degrade the performance of the safety-related systems supplied by service water. The licensee committed to performing periodic inspections.

The periodic inspections continued to be performed, although the pipe inspections primarily addressed corrosion and silting aspects. In these areas, the licensee has identified piping sections where silt has been deposited and also where sufficient corrosion has occurred such that pipe replacements are necessary. Pipe cleaning and/or pipe replacements have been scheduled and completed such that overall system reliability has been maintained.

The inspectors identified some sections of piping downstream of flow control orifices which were not in the program, although turbulence downstream of orifices has resulted in piping erosion and pin holes at other plants. This was brought to the licensee's attention, but was considered minor because the piping was relatively new, such that erosion was not expected to have occurred. The licensee entered this issue into its corrective action program.

The inspectors determined that there were protective coatings applied to at least one safety-related heat exchanger. No problems were identified in this area.

- The fourth recommendation was to confirm that the service water system would perform its intended function in accordance with the licensing basis for the plant. The licensee made no ongoing commitments for this recommendation.

The licensee has completed periodic self-assessments, which have identified various minor issues. Additionally, in 2000, Region III inspectors performed a safety system design and performance capability inspection with service water as the chosen system. Four Non-Cited Violations were identified during that inspection, all of which were of very low safety significance.

The licensee maintained the design basis of the service water system; however, an issue regarding a modification to the service water system which appeared to introduce a single failure vulnerability was identified and is discussed in Section 4OA5.1.b.2.

Test procedures were adequate to demonstrate acceptable pump performance. The inspectors verified that, under different scenarios, the service water system could remove the safety-related heat loads. The inspectors also reviewed the set points for alarms and actuations to ensure that they were consistent with the design basis and assumptions. Overall, the licensee's analyses of service water system scenarios were sufficient.

- The fifth recommendation was to confirm that maintenance practices, operating and emergency procedures, and training that involves the service water system were adequate to ensure that safety-related equipment cooled by the service water system would function as intended and that operators of this equipment would perform effectively. Similar to recommendation four, the licensee made no ongoing commitments in response to this recommendation.

In reviewing the maintenance work orders, the inspectors noted some instances in which the description of the problem was vague or the description of the action taken did not fully describe the work that as performed to correct the problem. This made it difficult for an independent observer to verify that the problem was corrected. However, overall, maintenance of the service water system was satisfactory. No issues were identified during the walkdown which indicated ongoing maintenance problems.

The inspectors identified an issue in regard to control and update of vendor manuals. The licensee had identified, during a 2002 self-assessment, that vendor manuals were not being properly controlled and updated. The inspectors selected and requested four vendor manuals applicable to the service water system for review from the listing of vendor manuals in the plant library. Two of the four vendor manuals were properly filed in the library and were immediately available for review. Another vendor manual was located in the vendor manual library files under a different vendor name but with the given file number. However, the licensee was not able to locate a controlled copy of the vendor manual for an indicating lamp, although an uncontrolled copy was discovered in an engineer's desk. Additionally, information regarding a selected component (the turbine building Service water header isolation valves) could not be located in the vendor manual which was supposed to contain the information. The inspectors also noted that the licensee had a backlog of over 200 vendor manual changes to incorporate, although not all of these related to service water components.

The licensee controlled the service water system based upon service water system pressure. If an annunciator indicated that Service water pressure was low, then operators manually started another Service water pump to increase the pressure and provide additional water. Throttle control valves were not used in the system and flow balancing of the Service water system was not considered necessary. Service water temperatures and flow were not monitored and recorded in operator logs.

Operating procedures were adequate to ensure control of the service water system, and the operators were appropriately trained. The inspectors identified a minor issue where one piece of equipment, necessary for operators to perform an abnormal procedural action, was not tracked to ensure that it would be available for the operators when required. The licensee entered this issue into its corrective action program.

iii. *Determine the effectiveness of programmatic maintenance of the actions in response to Generic Letter 89-13.*

The licensee has maintained the actions to which its committed in its response to the Generic Letter. The overall program level has remained steady, with neither overall improvement nor reduction of commitments. However, the primary motivator for continued licensee actions appears to have been the continuing problems occurring in the service water system, followed by licensee response to NRC issues identified during baseline or special inspections.

iv. *As applicable, describe noteworthy service water system operational history that supports inspection results.*

The most recent event involving the service water system was the discovery, in January 2004, that the SI lube oil coolers were clogged with lake grass. This event is described in special inspection report 05000305/2004003.

In March 2004, the licensee discovered excessive silting (over 85 percent of the pipe flow area) blocking the 1B SI stuffing box. Resolution of this issue has been delayed to the October 2004 outage due to a concern regarding safety injection unavailability time.

In April 2004, the licensee discovered zebra mussels in the 1A control rod drive motor FCU. The mussels were larger than the maximum size calculated to occur with effective annual chlorination.

v. *Provide an assessment of the effectiveness of licensee's program procedure(s) on related service water system operating experience.*

In regard to service water issues, the licensee appeared to have a healthy program for evaluating operating experience. Several of the operating experience documents showed a strong, questioning attitude towards ensuring that the issue either did not apply to Kewaunee, or that appropriate corrective actions were taken. In addition, the procedure for monitoring pipe erosion/corrosion and silting contained a requirement to perform a semi-annual review of all operating experience on the service water and fire protection systems to ensure that problems at other plants were captured at Kewaunee.

4OA6 Meetings

.1 Exit Meeting

On September 29, 2004, the resident inspectors presented the inspection results to Mr. T. Coutu and other members of licensee management, who acknowledged the findings. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meeting

Interim exit meetings were conducted for:

- Maintenance Effectiveness Periodic Evaluation with K. Davison, on April 24, 2004
- Emergency preparedness program and performance indicators inspection meeting with Mr. K. Hoops on July 2, 2004;

- Licensed Operator Requalification Training Program Inspection 71111.11B with Mr. K. Davison on July 16, 2004;
- Biennial Operator Requalification Program Inspection 71111.11B with Mr. D. Fitzwater on July 30, 2004, via telephone;
- Public radiation safety inspection for radiological environmental monitoring with Mr. K. Davison on August 6, 2004; and Service Water with Mr. T. Coutu on August 20, 2004.
- Temporary Inspection (TI 2515/159) on Generic Letter 89-13: Service Water with Mr. T. Coutu on August 20, 2004.

4OA7 Licensee-Identified Violations

The following violations of very low significance were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Manual, NUREG-1600, for being dispositioned as a Non-Cited Violation.

Cornerstone: **Mitigating Systems**

1. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Drawings and Procedures," requires, in part, that activities affecting quality shall be prescribed by documented instructions or procedures appropriate to the circumstances. In addition, instructions or procedures shall include appropriate acceptance criteria for determining that important activities have been satisfactorily accomplished. On July 8, 2004, while performing TS Surveillance Test SP-33-098A, "Train A Safety Injection Pump and Valve Test - IST," Step 6.4.5, to verify open Valve RHR-299A, Valve RHR-299A failed to open. The licensee identified this failure in Condition Report CAP021806, "RHR-299A Failed to Open During SP-33-098A," and performed an apparent cause evaluation. The licensee identified that while an auxiliary contact in the valve control circuit was closed, the auxiliary contact had a high resistance condition, which prevented the contact from operating properly. The licensee's review of the 36-month preventive maintenance for Motor Operated Valves prescribed in Procedure GMP-239, "Limitorque MOV Motor, Starter and Actuator Maintenance (QA-1)," was last performed on Valve RHR-299A, June 9, 2004, and contained verification that contacts moved freely; however, the licensee identified that a resistance check of the auxiliary contacts was not prescribed n the procedure. The inspectors verified the failure of this valve was of very low significance and no common mode failure existed for the opposite train residual heat removal valve. The licensee revised Procedure GMP-239 to include a resistance check of the auxiliary contacts.

2. Title 10 CFR Part 50.65 (a)(4) requires, in part, that before performing maintenance activities, the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. The licensee identified on July 19, 27, and August 20, 2004, increased plant risk due to non-adherence by licensee work groups to the work schedule on those dates. Although the increased risk was identified in the licensee's unscheduled overlap risk, which was part of the licensee's work week assessment of risk, the licensee's work groups did not coordinate the start and stop times of maintenance activities such that the increase in risk incurred due to overlap was managed. In all three licensee identified instances, the work overlaps resulted in increased risk for 15 to 30 minutes on those days. The licensee initiated Condition

Reports CAP022073 and CAP022375, “Increase Plant Risk Due to Non-Adherence to Work Schedule,” and performed an apparent cause evaluation. The licensee subsequently implemented corrective actions for these issues which appeared to be effective, as evidenced by a lack of similar conditions in September 2004.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Nuclear Management Company, LLC

T. Coutu, Site Vice President
K. Hoops, Site Director
K. Davison, Plant Manager
L. Armstrong, Engineering Director
S. Baker, Radiation Protection Manager
J. Bennett, EP Instructor
A. Bolyen, QA Supervisor
J. Coleman, EP Manager
J. Egdorf, EP Supervisor
D. Fitzwater, Operations Training Supervisor
W. Flint, Chemistry Manager
D. Franson, Service Water System Engineer
L. Gerner, Licensing Supervisor
E. Gilson, Security Manager
W. Goder, Operations Training General Supervisor
G. Harrington, Licensing
W. Hunt, Training Manager
J. Ladewig, Site Maintenance Rule Coordinator
D. Lohman, Operations Manager
K. Peveler, Manager, Engineering Programs
J. Pollock, Design Engineering Manager
B. Presl, NMC Security Consultant
S. Putman, Maintenance Manager
A. Rahn, Service water and FAC Inspection Program Engineer
R. Repshas, Site Services Manager
J. Riste, Licensing Supervisor
D. Scherwinski, Training Instructor
T. Schmidli, Radiation Protection General Supervisor, Field Operations
J. Stoeger, Operations Training Supervisor
D. Scherwinski, Training Instructor
P. Sunderland, EP Coordinator

NRC Personnel

J. Cameron, Project Engineer
J. Lamb, Project Manager
T. McMurtray, Acting Project Manager
S. Reynolds, Acting Director, Division of Reactor Projects

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000305/2004007-01	NCV	Green. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action." Failure to Promptly Correct Conditions Adverse to Quality, Specifically Associated with Degraded and Nonconforming Conditions (Section 1R15.1)
05000305/2004007-02	NCV	Green. 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Failure to Implement Procedures for Work on Safety-Related Equipment (Section 1R19.1)
05000305/2004007-03	NCV	Green. 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Failure to Have Procedures Appropriate to the Circumstances for Preventive Maintenance of the Turbine Driven Auxiliary Feedwater Pump Turbine (Section 4OA3.1)
05000305/2004007-04	NCV	Green. 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Failure to Have Acceptance Criteria for Flushing of the 1A RHR Fan Coil Unit (Section 4OA5.1b.1)
05000305/2004007-05	NCV	Green. 10 CFR 50, Appendix B, Criterion III, "Design Control." Failure to Verify the Acceptability of a Single Failure Vulnerability Introduced During a System Modification (Section 4OA5.1b.2)

Closed

05000305/2004004-02	URI	Review of Final Analysis Concerning High Oil Particulate discovered in the Turbine Driven Auxiliary Feedwater Pump Turbine (Section 1R15.2)
05000305/2004007-01	NCV	Green. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action." Failure to Promptly Correct Conditions Adverse to Quality, Specifically Associated with Degraded and Nonconforming Conditions (Section 1R15.1)
05000305/2004007-02	NCV	Green. 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Failure to Implement Procedures for Work on Safety-Related Equipment (Section 1R19.1)

05000305/2004007-03	NCV	Green. 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Failure to Have Procedures Appropriate to the Circumstances for Preventive Maintenance of the Turbine Driven Auxiliary Feedwater Pump Turbine (Section 4OA3.1)
05000305/2004007-04	NCV	Green. 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." Failure to Have Acceptance Criteria for Flushing of the 1A RHR Fan Coil Unit (Section 4OA5.1b.1)
05000305/2004007-05	NCV	Green. 10 CFR 50, Appendix B, Criterion III, "Design Control." Failure to Verify the Acceptability of a Single Failure Vulnerability Introduced During a System Modification (Section 4OA5.1b.2)

Discussed

None.

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety but rather that selected sections of 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.

1R04 Equipment Alignment

KNPP SP-34-099B; Train 'B' RHR Pump and Valve Test-IST
KNPP System Description; Residual Heat Removal System; dated October 15, 2002.
Flow Diagram Oper. XK-100-1B; Aux. Coolant System
KNPP Operating Procedure No. N-DGM-10-CLB; Diesel Generator B Prestartup Checklist; Revision I; March 16, 2004
OPERM-213-9; Flow Diagram Diesel Generator Startup Air Compressor A & B and Fish Screen Air; Revision D
N-GGM-10-CLA; Diesel Generator A Prestartup Checklist; Revision K
Diagram M-721; Flow Diagram Service Water System; Revision CA
Flow Diagram Diesel Generator Startup Air Compressor A & B; Revision C
Flow Diagram Fuel Oil Systems; Revision AH
CAP 002144; OEA (Operating Experience Assessment) 980042, Shorted Valve Open Indicator Lamp - Browns Ferry; March 1, 2002

1R05 Fire Protection

PMP 08-21; Revision F; FP-Fire Damper Visual Inspection
Drawing No. A-543; Turbine Building Mezzanine
Drawing No. A-542; Turbine Building Basement
Drawing No. A-533; Protected Area Plant Layout
Drawing No. A-545; Turbine Building Operating Floor
KNPP Fire Protection Program Analysis; Fire Zone Summary; Revision 5
FPP 08-09; Revision F; Barrier Control
KNPP Fire Protection Program Analysis; TU-90 Diesel Generator 1-A; Revision 5 dated October 2003
KNPP Fire Protection Program Analysis; TU-95A Dedicated Shutdown Panel Room; Revision 5 dated October 2003
Drawing PFP-23; Revision B; Spent Fuel Pool Waste Handling and Main Steam Relief Valve Areas
Drawing PFP-9; Revision B; 480V Switchgear Bus 1-61 and 1-62 Room and AFW Pump Area
Drawing PFP-8; Revision C; 480V Switchgear Bus 1-51 and 1-52 Room; dated December 2002
Drawing PFP-30; Spent Fuel Pool Monitor Tank Area; Contaminated Storage and Boric Acid Tank Area
Drawing PFP-18; Reference C; Waste handling Area; dated December 2002

Drawing PFP-23; Revision B; Spent Fuel Pool Waste Handling and Main Steam Relief Valve Areas
Drawing PFP-18; Reference C; Waste handling Area; dated December 2002
Drawing PFP-9; Revision B; 480V Switchgear Bus 1-61 and 1-62 Room and AFW Pump Area
Drawing PFP-8; Revision C; 480V Switchgear Bus 1-51 and 1-52 Room; dated December 2002
Drawing PFP-30; Spent Fuel Pool Monitor Tank Area; Contaminated Storage and Boric Acid Tank Area
Fire Plan Procedure; FPP-08-09; Revision F; Barrier Control; dated October 23, 2003
Appendix R; Design Description Fire Protection Program Plan; Revision 4 dated October 2003; Revision 5 dated October 2003
KNPP Fire Protection Program Analysis; TU-90 Diesel Generator 1-A; Revision 5 dated October 2003
KNPP Fire Protection Program Analysis; TU-95A Dedicated Shutdown Panel Room; Revision 5 dated October 2003

1R11 Licensed Operator Requalification

LRC-04-DY501; Cycle 04-05 Simulator Dynamic; Revision A
2002 Baseline Fidelity Simulator Console MC A; March 2002
2002 Baseline Fidelity Simulator Console EC; March 2002
2002 Baseline Fidelity Simulator Console MV B; March 2002
Fidelity Simulator Console MC A; March 2004
Kewaunee Licensed Operator Requalification LOR-TP Training Program Description; Revision D with Updates 1 through 9
Biennial Training Plan (2004 and 2005)
Long Range Training Plan (2004 through 2009)
Procedure SCP 5.6; Revision K; Simulator Work Orders
Procedure SCP 5.2; Revision J; Simulator Feedback Reports
Procedure SCP 5.10; Revision J; Simulator Review Committee
Procedure SCP 5.1; Revision F; Reporting of Simulator Problems
Procedure SCP 2.5 E-2; Revision I; Simulator Testing
Listing of Completed Simulator Work Orders
Listing of Open Simulator Work Orders
Simulator Test ST 218; Revision A; Reference Bank Worth Measurement Cycle 26; test accepted April 8, 2003
Simulator Test ST 22; Revision A; Steady State Operation - Low Power; test accepted May 6, 2004
Simulator Test ST 159; Revision A; Maximum Size Unisolable Main Steamline Rupture Inside Containment; test accepted August 12, 2003
Simulator Test ST 159, Revision A; Maximum Size Unisolable Main Steamline Rupture Inside Containment; test accepted April 4, 2004
Focused Self-Assessment Report KSA-TRN-03-21 KNPP Operations Training - 71111.11 and ANSI 3.5 1098; dated September 16-18, 2003
LRC03 CYCLE 06 Biennial Comprehensive Written Exams Reviewed
LRC-03-EX601 / RO1 LOR 2003 Biennial Written Exam; Text Version 0

LRC-03-EX602 / SRO1 LOR 2003 Biennial Written Exam; Text Version 0
LRC-03-EX604 / RO2 LOR 2003 Biennial Written Exam; Text Version 0
LRC-03-EX605 / SRO2 LOR 2003 Biennial Written Exam; Text Version 0
LOR-TP Licensed Operator Requalification Training Program; Revision B;
Attachment A, Licensed Operator Requalification Training and Qualification
(2004-2005 Training Program Classroom/Laboratory/Simulator Lesson Plan Title and
Simulator/Lab hours for 2004 Cycles 1-6 and 2005 Cycles 1-6)
Statistical Information for 2003 KNPP Biennial LOR Written Examination
Biennial Training Plan (2004-2005)
Training Attendance Report; Form NTP-6401; Revision F (Annual Operating Test:
Crew E, June 30, 2004 and July 8, 2004; Crew A June 16-17, 2004)
Training Attendance Report; Form NTP-6401; Revision E (Biennial Comprehensive
Written Examination for Crews A, B, C, D, and E; October 23, 2003-January 30, 2004)
Remediation Training; Form LOR-TP/2003; Biennial Written Examination (October 31,
2003; November 5, 2003; November 19, 2003; November 25, 2003; November 26,
2003; December 5, 2003; February 16, 2004)
Examination Security Agreement; Form NTP-6413; Revision B (Crew E, July 7-8, 2004;
Crew A, June 16, 2004)
Crew Simulator Evaluation Summary; Form NTP-6420; Revision A (Crew E, July 9,
2004; Crew A, June 16, 2004)
Individual Competency Evaluation; Form NTP-6421; Revision A (Individuals of Crew E,
July 7-9, 2004; Individuals of Crew A, June 16, 2004)
2004 LOR Annual Operating Test Scenario LRC-04-SEE01; Revision A
2004 LOR Annual Operating Test Scenario LRC-04-SEE02; Revision A
2004 LOR Annual Operating Test Scenario LRC-03-SEE03; Revision A
2004 LOR Annual Operating Test Scenario LRC-04-SEE03; Revision A
2004 LOR Annual Operating Test Scenario LRC-03-SEE04; Revision A
2004 LOR Annual Operating Test Scenario LRC-04-SEE04; Revision A
2004 LOR Operational Examination Week 5 (RO) Job Performance Measure (JPM)
Evaluation Summary Sheet (Individuals of Crew E)
2004 LOR Operational Examination Week 1 (RO) JPM Evaluation Summary Sheet
(Individuals of Crew A)
2004 LOR Operational Examination Week 5 (SRO) JPM Evaluation Summary Sheet
(Individuals of Crew E)
2004 LOR Operational Examination Week 1 (SRO) JPM Evaluation Summary Sheet
(Individuals of Crew A)
Simulator JPM RO-E00-JP05B; Operate Auxiliary Spray to Control PRZR (Pressurizer)
Pressure; Revision A
Simulator JPM RO-049-JP12A; Recover From an Urgent Failure; Revision B
Simulator JPM RO-E01-JP01C; Secure Containment Spray Pump; Revision A
Simulator JPM RO-E07-JP01F; Shutdown and Cooldown With a Fire in a Dedicated
Zone (Establish Heat Sink); Revision A
Simulator JPM SO-119-JP21G; Reportability Determination - Emergency Class
Declaration; Revision A
Simulator JPM RO-E01-JP01B; Pressurizer Pressure Control Malfunction; Revision A
Simulator JPM RO-035-JP091; Establish Excess Letdown to Volume Control Tank;
Revision H

Simulator JPM RO-036-JP019A; Start a Reactor Coolant Pump; Revision C
Simulator JPM SO-119-JP21C; Reportability Determination - Alcohol in the Protected Area; Revision A
Plant JPM RO-E06-JP01X; Locally Operate S/G PORV; Revision A
Plant JPM AO-FRS-JP01A; Locally Open Reactor Trip Breakers; Revision A
Plant JPM AO-05B-JP04A; Perform Functional Test MS-103; Revision B
Plant JPM RO-E06-JP01U; Perform Actions Necessary for Control Room Evacuation - Establish Letdown; Revision B
Plant JPM RO-E06-JP01A; Locally Shut the Main Stean Isolation Valve; Revision G
Plant JPM SO-E06-JP01W; Operate the Instrument Air System During a Fire in an Alternate Fire Zone; Revision A
Plant JPM SO-E06-JP019; Align Dedicated Air Header to Containment with a Fire in Alternate Fire Zone; Revision A
Plant JPM AO-010-JP04B; Perform Diesel Generator B Local Manual Operation; Revision A
Plant JPM AO-FRS-JP011; Locally Isolate Dilution Flowpaths; Revision A
KNPP Simulator Security Checklist; Form NTP-6419; Revision C
Written Examination Security Setup Checklist; Form NTP-6425; Revision A
Examination Security Agreement; Form NTP-6413; Revision B
OTH 012029 (CAP 016750) NOTE: OTH=Other; Operations Task to Training Matrix Does Not Support the LOR Program; dated March 20, 2004
CA 015949 (CAP 020921) NOTE: CA=Corrective Action; Missed Training Fails to Meet Operations Expectations
LOR CRC (Curriculum Review Committee) Minutes; dated May 7, 2004
LOR CRC Minutes; dated June 18, 2004
Operations TAC (Training Advisory Committee) for Training Programs; dated March 19, 2004
Operations TAC for Training Programs; dated April 30, 2004
PRC (Performance Review Committee) Meeting Minutes; dated October 22, 2003
PRC Meeting Minutes; dated October 24, 2003

1R12 Maintenance Effectiveness

Maintenance Rule (MR) Periodic Assessment Kewaunee; January 1, 2002 - December 31, 2002; dated May 30, 2003
Maintenance Rule Periodic Assessment Kewaunee; January 1, 2003 - December 31, 2003; dated March 11, 2004
GNP-08.20.04; Maintenance Rule Functional Failure (MRFF) and Maintenance Preventable Functional Failure (MPFF) Evaluations; dated September 25, 2003
GNP-08.07.01; Preventive Maintenance (PM) Optimization Program Instructions; dated November 25, 2003
NAD-08.20; Maintenance Rule Implementation; Revision D
Maintenance Rule Quality Assurance Audit; dated November 2002
SA011442/KSA-ENG-04-06; Maintenance Rule Program Self-Assessment; dated March 12, 2004
Work Orders for Component Cooling Water, Emergency Diesel Generator, Residual Heat Removal, and Auxiliary Feedwater; dated April 2004

CAPs for Component Cooling Water, Emergency Diesel Generator, Residual Heat Removal, and Auxiliary Feedwater; dated April 2004
System Health Reports for Component Cooling Water, Emergency Diesel Generator, Residual Heat Removal, and Auxiliary Feedwater; dated April 2004
ACE001794; Perform Maintenance Rule (a)(1) Evaluation for Air Compressor 1G; dated May 15, 2002
CAP011664; Maintenance Rule Category (a)(1) Evaluation of MR Function 07-03 (Provide Means of Cooling Down a Ruptured Steam Generator); dated May 15, 2002
CAP018312; MR (a)(1) Evaluation of Train A Containment Spray System; dated October 3, 2003
ACE002211; Maintenance Rule System 35, Charging Pump (a)(1) Evaluation; dated March 31, 2003
ACE002377; MR Function 45-01, Radiation Monitors (a)(1) Evaluation; dated August 1, 2003
ACE002400; Individual Rod Position Indicator (IRPI) Maintenance Rule (a)(1) Goals Have Not Been Met; dated August 28, 2003
ACE002141; MR Function Emergency Diesel Generator-02 (a)(1) Evaluation; dated February 4, 2003
ACE002315; Incore Instrumentation MR Function 50-02 (a)(1) Evaluation; dated May 27, 2003
Maintenance Rule Expert Panel Meeting Minutes; dated January 21, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated January 29, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated February 7, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated February 12, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated February 19, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated February 21, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated February 26, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated March 12, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated March 19, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated April 17, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated May 22, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated June 20, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated July 18, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated August 15, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated August 22, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated October 17, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated October 24, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated November 14, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated November 26, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated December 12, 2002
Maintenance Rule Expert Panel Meeting Minutes; dated February 11, 2003
Maintenance Rule Expert Panel Meeting Minutes; dated March 11, 2003
Maintenance Rule Expert Panel Meeting Minutes; dated May 30, 2003
Maintenance Rule Expert Panel Meeting Minutes; dated July 8, 2003
Maintenance Rule Expert Panel Meeting Minutes; dated July 29, 2003
Maintenance Rule Expert Panel Meeting Minutes; dated August 13, 2003
Maintenance Rule Expert Panel Meeting Minutes; dated September 9, 2003

Maintenance Rule Expert Panel Meeting Minutes; dated October 14, 2003
Maintenance Rule Expert Panel Meeting Minutes; dated October 27, 2003
Maintenance Rule Expert Panel Meeting Minutes; dated November 11, 2003
Maintenance Rule Expert Panel Meeting Minutes; dated November 19, 2003
Maintenance Rule Expert Panel Meeting Minutes; dated December 9, 2003
Maintenance Rule Expert Panel Meeting Minutes; dated December 11, 2003
Maintenance Rule Quarterly Report - January 1, 2003 - March 31, 2003; dated May 15, 2003
Maintenance Rule Quarterly Report - April 1, 2003 through June 30, 2003; dated August 26, 2003
Maintenance Rule Quarterly Report - July 1, 2003 - September 30, 2003; dated October 23, 2003
Kewaunee Nuclear Power Plant System Health Report; dated April 20, 2004
CA015501; Maintenance Rule Assessment Recommendations, Emergency Diesel Generator (EDG) Performance History; dated March 9, 2004
CA015502; Maintenance Rule Assessment Recommendations, EDG Documents; dated March 9, 2004
Summary of Probabilistic Risk Assessment (PRA) Changes for Sensitivity; dated June 22, 2004
Emergency Diesel Generator Reliability Program, Start Demand Database; dated January 29, 2004
Emergency Diesel Generator Reliability, Load Runs and Starts; dated January 29, 2004
Backlog Prioritization, Summary Sheet Plan of the Day; dated April 19, 2004
Preventive Maintenance Living Program Performance Indicators, Deferred and Missed PM(s); dated March 2004
PM Living Program Performance Indicators, New Tasks and PM Revisions; dated March 2004
List of Functional Failures, Maintenance Rule Functional Failures, Maintenance Rule Preventible Failure, and Repetitive Maintenance Preventible Functional Failures; dated April 2004
List of Structures, Systems, and Components (SSCs) With Dates Into (a)(1) and Dates Out (a)(1); dated March 2004
List of Performance Criteria Changes May 22, 2002 - November 19, 2003; dated March 2004
Performance Criteria for MR SSCs; dated March 2004
NAD-08.20; Revision D; Maintenance Rule Implementation; dated August 26, 2003
GNP-08.20; Revision D; Maintenance Rule MRFF and MPFF Evaluations; dated September 25, 2003
SSC Performance Criteria Sheet; System No. 02 Service Water; Revision 3; dated June 16, 2003
Maintenance Rule Scoping Questions; System No. 02 Service Water; Revision 2; September 13, 2004
Maintenance Rule System Basis; Revision 7; September 13, 2004
KNPP System Description; System No. 02; Service Water System (SW); Revision 3; March 10, 2004
List - System 02 NFC to Closed Work Orders (9/13/01 to 9/13/04)
CAP 018760; Perform an MRE on Work Orders 02-007187 and 02-007188

CAP 018086; Apparent failure of Service Water 1A2 Strainer Auto Backwash Feature,
CAP 016922; SW Pump A1 Auto Backwash Failure
CAP 018463; Unexpected System Response during Performance of Service Water Surveillance
CAP 021685; A2 SW Pump Strainer DP Indicator Indicated 6 psid on DPI-11022
WO 02-007187; SW Pump Strainer dp was at 8.5 psid and the Strainer was not in Backwash
WO 02-015397; Service Water Pump A1 Rotating Strainer will not Rotate when Strainer is in Backwash.
List - Maintenance Rule Evaluations for System 02 Service Water from February 21, 2002 to August 10, 2004
WO 02-7704; Motor - Control Room A/C 1A Compressor; 6/11/2002
WO 02-9791; Valve-HS2203A Control Room Air Conditioning Unit; 6/21/2002
PMP 25-01; Control Room Air Conditioning Inspection for Electrical Maintenance; Rev. T
Maintenance Rule System Basis Document 25-Control Room A/C; Rev 7
Maintenance Rule Scoping Questions - System 25; 9/13/2004
SSC Performance Criteria Sheet - System 25; 9/13/2004
CAP003867; CRAC Unit A Abnormal Alarm
CAP011973; CRAC Unit B Tripped
CAP015352; HS-2203A is failed in the “Bypass” position
CAP015019; HS-2203A-1/CV31912 Fails Timing
CAP016246; Control Room AC Fan Tripped
CAP017718; CRAC B Expansion Tank Low Pressure
MRE2398; Valve is leaking refrigerant
SOP-ELV-40-2; Isolation and Restoration of 480V MCC-52F
CAP 013820; Battery Charger C Failure: November 27, 2002
CAP 018476; Battery C Charger Shutdown due to High Voltage; October 16, 2003
CAP 019405; Battery Charger BRC 108 had a High Voltage Shutdown Alarm; December 316, 2003
Maintenance Rule Quarterly Assessment; January 1, 2004 - March 31, 2004
Maintenance Rule Quarterly Assessment; April 1, 2004 - June 30, 2004
Maintenance Rule Periodic Assessment; January 1, 2003 - December 31, 2003
Maintenance Rule System Basis for System 38, DC Supply and Distribution; Revision 3
Maintenance Rule Scoping Questions for System 38; Revision 1
SSC Performance Criteria Sheet for System 38; Revision 1
Maintenance Rule (a)(1) Action Plan for System 38, Function 02; May 21, 2004
GNP - 08.20.04; Maintenance Rule MRFF and MPFF Evaluations; Revision D
NAD-08.20; Maintenance Rule Implementation; Revision D

1R13 Maintenance Risk Assessment and Emergent Work Evaluation

GNP 08.21.01; Revision D; Risk Assessment for Plant Configurations; dated August 22, 2002
EPRI Configuration Risk Management Forum - 2003 Research Task; Review of Current Practices for Establishing Configuration Risk Management Thresholds for Nuclear Power Plants

Safety Monitor Risk Assessments; Control Room Logs and Work Schedule for July 6 through 9, 2004
Safety Monitor Risk Assessments; Control Room Logs and Work Schedule for July 26 through 30, 2004
Safety Monitor Risk Assessments; Control Room Logs and Work Schedule for August 9 through 13, 2004
Safety Monitor Risk Assessments; Control Room Logs and Work Schedule for August 23 through 27, 2004
CAP021954; Removal of CC Heat Exchanger B from Service Results in Red Risk

1R14 Personnel Performance During Non-Routine Plant Evolutions

GNP 03-24-01; Revision D; Job Briefs Implementation
RCP-A Motor Lower Bearing Oil Concerns - Oil Leakage Calc from June 29, 2004, to August 19, 2004
WO 03-002824; Replace the RHR Pump Seal Heat Exchanger per DCR 3468
WO 04-008467; Perform Freeze Seal to Support Work Order 03-002824
FTII Pro Rev. IV; Nuclear Plant Freeze Plug Procedures; August 21, 2004
CAP022126; CAPS not Initiated for Adverse Trends in Plant Component Performance
CAP022092; Increase in Indicated Main Steam Flow
CAP022059; TLA-28 Received Numerous Times Due to CF Out of Limit
CAP021906; Reactor Coolant Pump A Motor Lower Bearing Temperature, T0415A, OOS
CAP021897; Reactor Coolant Pump A Motor Lower Radial Bearing Temperature Computer Alarm in Control Room
CAP022550; Replacement Air Cooler for RHR Pump No Longer Available
CAP022594; Results of RHR A Seal Water HX Replacement Critique

1R15 Operability Evaluations

Generic Letter 91-18; Revision 1; Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions.
GNP 11-08-03; Revision C; Operability Determination.
FP-OP-OL-01; Revision 0; Operability Determination.
RCP-A Motor Lower Bearing Oil Concerns - Oil Leakage Calc from June 29, 2004 to August 19, 2004.
CAP015776; Component Cooling Water Operating Temperature Issue.
OPR000071; Low Service Water Flow to Safety Injection Pump B Lube Oil Cooler
OPR000072; QA-2 Equipment Causes QA-1, Category 1 Air Operated Valve to Fail in Non-Safe Position.
OBD000023; RHR Pump Seal Cooler Max Design Pressure Less Than Required.
OBD000049; Reseating Luck Tubes in Fuel Assembly F 63.
OBD000050; Five CCW Pipes/Supports Need Modification Due to Thermal Expansion
OBD000055; Modify Pipe Support DGM – H 21 For EDG.
OBD000060; Volume Control Tank Gas Sample to Vent Header to QA Boundary Isolation.

OBD000064; Non-QA 1 Components In a. QA 1 Electrical Circuit (Valcor Solenoid Valves).
OBD000068; CREZ (Control Room Exclusion Zone) Potential Design and Analysis Weaknesses.
OBD000072; Modify Pipe Support Main Steam MS – H153 to Comply with Applicable Criteria.
OBD000076; RHR – 480A Valve Seat Surface Not Hardened According to UFSAR.
OBD000077; Stationary Drawings Referenced in FSAR Not Conforming with Current Plant
OBD000078; Modify Snubber RTD- H2 to Fully Conform to Design Requirements.
OBD000079; Resolve Issue with ICS – H9 to Fully Conform to Design Requirements.
OBD000081; Reconcile SW – 1306 Control Circuit Design Related to NRC NCV.
OBD000082; Generic Letter 96-06 Water Hammer Analysis Using EPRI Method.
OBD000083; Thermography Identified Hotspot on Substation Disconnect.
OBD000084; Problem with Pipe Supports SW - H431 and SW - H734.
OBD000085; RHR Pump "B" Seal Leakage.
OBD000086; Evaluate Use of Plant Process Computer as Reg Guide 1.97 Category 2 Equipment.
OBD000087; RC–423, Reactor Coolant Hot Leg Sampling Isolation Valve Indicates Mid Position in Control Room.
OBD000088; Weaknesses Identified in EQER 57.1, 58.1 and QL Calculation C 10670.
OBD000089; QA –2 Equipment Causes QA-1, CAT 1 AOV to Fail in Non-Safe Position.
OBD000059; EDG A & B Relays CCR/D1A(B) Not Rated for Arcing Voltage and Current.
OBD000066; SI Pump Lube Oil Coolers Temperature Limit.
CAP021708; Number of CAP Activity Extensions per Month Exceeds Expectations

1R16 Operator Workarounds

NAD-12.07; Operator Workaround; dated September 19, 2002
CAP022522; Review Operator Workaround Program
CAP021034; OSRC Action Item 7, Aggregate Review of Plant Mods, Operator Burdens

1R19 Post-Maintenance Testing

PMP-36-04; RC - Pressurizer Heater Ampere Readings Electrical Maintenance (QA-2); Revision J
PMP-36-06; RC - QA-2 Pressurizer Heater Resistance Tests; Revision F
PMP-40-098; 480V Supply and Distribution (ELV) QA-1/2 MCC and Supply Breakers Maintenance MCC 1-3352; Revision I
GMP-210; Operational Use of Infrared Scanners; Revision F
DCR 3441; Replace AFW-2A(B) Stem Packing and I/P Transducers
CAP 021446; Questioning Attitude and NRC Questions on PMP 08-30
PMP 08-30; FP-CO2 System Inspection and Dry Test (QA-1)
PMP 31-05; Revision J; CC-QA-1 Component and Residual Heat Exch. Motor Operated Valve Maint, dated September 18, 2001
Temporary Change Form for PMP 31-05, dated July 24, 2003

PMP 23-02; Revision L; ICS - Containment Spray Motor Operated Valve Electrical Maintenance (QA-1) dated July 29, 2004
GMP 239; Revision G; Limitorque MOV Starter, Motor, and Actuator Maintenance (QA-1) dated May 25, 2004
KNPP Power Uprate NRC Brief; KNPP Power Uprate Core Team dated August 19, 2004
FP-E-TS-01; Troubleshooting Process; Revision 0
PCG-46D-05; CP-Ultrasonic Flow Measurement and Ultrasonic Temperature Measurement Signal Processing Unit Hard Drive Maintenance; Revision C; dated July 27, 2004
PCG-46D-04; CP-Reboot Ultransonic Flow Measurement and Ultransonic Temperature Measurement Signal Processing Units; Revision E; dated May 20, 2004
ICP-46D-02; CP-Installing the AMAG Signal Conditioning Units; Revision A; dated June 19, 2003
ICP-46D-01; CP-Removing the AMAG Signal Conditioning Units and Off-Site Calibration; Revision A; dated June 19, 2003
PCG-46D-06; CP-Ultrasonic Flow Measurement Received Signal Strength Indicator Scan; Revision C; dated July 27, 2004
NAD-12.07; Operator Workarounds; Revision B; dated September 19, 2002
CAP022092; Increase in Indicated Main Steam Flow; dated August 3, 2004
CAP022014; Control Room Received TLA-28 Power Greater than UFMD Limit Unexpectedly; dated July 29, 2004
CAP022059; TLA-28 Received Numerous Times Due to CF Out of Limit; dated August 1, 2004
CAP016796; Errors in Manual Calculation of Thermal Power; dated June 5, 2003
SP-87-125; Shift Instrument Channel Checks - Operating; dated March 30, 2004
WO 04-008528-000; Plant System/Computer-Misc
CAP014799; Failure of Steam Generator B Steam Flow Computer Points; dated February 18, 2003

1R22 Surveillance Testing

SP-42-312A; Diesel Generator ‘A’ Availability Test; Revision T
SP-33-072; Accumulator Sample; Revision W
GNP 03-24-01; Revision D; Job Briefs Implementation

1R23 Temporary Plant Modifications

TCR 03-33; Installation of Ethernet Board in Plant Process Computer System
TCR 03-33; 50.59 Applicability Review; dated October 10, 2004
TCR 04-08; Gag HD430B, Condensate Relief Valve for Feedwater Heaters 11B and 12B
TCR 04-08; 50.59 Applicability Review; dated June 25, 2004

1EP2 Alert and Notification System (ANS) Testing

EPMP 09.03; Alert and Notification Siren System Testing and Maintenance; Revision L
Records of 2003 Annual Preventive Maintenance for Each Siren in Kewaunee County Portion of the EPZ
CAP014815; Kewaunee County Siren K013 Malfunctioned During a Test on February 19, 2003
CAP015475; Kewaunee County Siren K001 and Manitowoc County Sirens M002 through M009 Out-of-Service Due to an Ice Storm on April 3, 2003
NRC Event Report 39727; Siren Coverage Lost for Over 50 Percent of the Population in the Kewaunee Plant's EPZ Due to an Ice Storm
CAP016726; Several Siren Failures Not Reported in the Overlapping Portion of the Kewaunee and Point Beach Plants' EPZs When Identified by Other Plant's Staff
ACE002323; Siren Failures Not Always Reported When Identified by Other Plant's Staff in 2003
CAP017368; Manitowoc County Siren M008 Failed During a Test; Kewaunee - KNPP EP Staff Notified by Point Beach Staff on July 23, 2003
CAP017663; Communications Failure Identified During an Automatic Poll of Sirens in Kewaunee County on August 14, 2003
NRC Event Report 40061; Shift Manager Declared All Sirens in the Kewaunee County Portion of Kewaunee Plant's EPZ to be Out-of-Service Due to a Communications Equipment Failure
CE013493; All Sirens in Kewaunee County Portion of EPZ Out-of-Service Due to an Antenna Problem
CAP018105; Loss of Power to Kewaunee County Siren K006 on September 18, 2003
CAP018981; Loss of Power to Manitowoc County Siren M008 on November 20, 2003
CAP 020025; Kewaunee County Siren K003 Out-of-Service from February 4 through 12, 2004
ACE002581; Siren K003 Out-of-Service for Eight Days in February 2004 Due to Several Coordination Problems
PCR012566; Revise EPMP 09.03 to Address Siren Failures Not Being Reported When Identified by Other Plant's Staff; dated July 9, 2003
CAP020062; Siren Failures Not Always Reported When Identified by Other Plant's Staff - Repeat Issue
ACE002590; EPMP of KNPP and Point Beach Plant Do Not Consistently Name Sirens Within the Overlapping Portion of Both Plants' EPZs; dated February 23, 2004
PCR015661; Revise EPMP 09.03 to Clarify Which Sirens in Manitowoc County Are Within Kewaunee Plant's EPZ; dated February 23, 2004
CAP020232; Lightning Strikes Caused Power Outages to Kewaunee County Siren K001 and Manitowoc County Siren M002 on March 2, 2004
CAP020750; Point Beach Staff Reported Manitowoc County Siren M008 to be Out-of-Service on April 7, 2004
CAP020821; Power Failure to Kewaunee County Siren K007 Caused by a Racoon on April 14, 2004
CAP021219; Evaluate the Need to Have Federal Emergency Management Agency Staff Assess the Only Mobile Alerting Route in Kewaunee Plant's EPZ

1EP3 Emergency Response Organization (ERO) Augmentation Testing

EPIP-AD-03; KNPP Response to an Unusual Event; Revision AK
EPIP-AD-04; KNPP Response to Alert or Higher; Revision AP
EPIP-AD-07; Initial Emergency Notifications; Revision AW
EPIP-AD-20; KNPP Response to a Security Event; Revision G
EPMP 02.06; Emergency Response Measures; Revision E
EPMP 09.01; Radio Pager Testing; Revision J
Draft EP Drill Guideline; Attachment 20; Call-in Drill Checklist
Records of Off-Hours; Unannounced Augmentation Drills - March 2003 through May 2004
Records of 2004 Training to Personnel Responsible for Initiating ERO Activation
Quarterly ERO Roster; dated June 29, 2004
EP Training Records of a Random Sample of 36 Personnel Assigned to Key or Support ERO Positions
EP Duty Manager Instructions; dated June 17, 2004
EPIP and ERO Training Lesson Plans Re-vitalization Action Plan; undated
Internal Memorandum; Emergency Response Expectations; dated June 2003
Internal Memorandum; ERO Expectations for Pager Response; undated
CAP019836; One Code Omitted from List Provided to Pager Holders

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

Assessment Number 2002-004-2; NOS Fourth Quarter 2002 Assessment Report for Kewaunee
Assessment Number 2003–002-2; NOS Second Quarter 2003 Assessment Report for Kewaunee
NOS Observation Report 2004-001-2-015; Emergency Preparedness 10 CFR 50.54(t) Review on February 16 through 20, 2004; dated March 23, 2004
KNPP Site Excellence Plan Schedule
Internal Memorandums; Critiques of Three Technical Support Center (TSC) Tabletop Drills Conducted in February through April 2003
Internal Memorandums; Critiques of Three Emergency Operations Facility (EOF) Tabletop Drills Conducted in March 2003
Internal Memorandum; Training Drill Critique for the September 12, 2003 Drill; dated September 22, 2003
Internal Memorandum; Critique for the Ingestion Pathway Exercise on September 23 and 24, 2003; dated October 2003
Internal Memorandum; Annual Medical Drill Conducted on November 20, 2003; dated November 25, 2003
Internal Memorandum; Fourth Quarter 2003 EP Drill Conducted on December 9, 2003; dated December 26, 2003
Internal Memorandum; Annual Radiological Monitoring Drill Completed on December 18, 2003; dated February 7, 2004
Internal Memorandum; Annual Evacuation Drill on December 19, 2003; dated February 8, 2004

Draft Listing of Critique Items from EP Drill Conducted on June 21, 2004; undated
Letter of Agreement for an Off-site Relocation Center; dated April 2004
PCR003556; Draft an EPIP on Set-up and Use of the Offsite Relocation Center
Draft EPIP; KNPP Site Relocation Center
CAP018213; Coordination Concerns on Onsite Priorities Identified During September 2003 Exercise
CE013694; Evaluation of Onsite Prioritization Concerns During September 2003 Exercise
CAP018217; Communications with Offsite Agencies Had Inconsistencies During September 2003 Exercise
CE013696; Evaluation of Inconsistent Information Communicated to Offsite Agencies During September 2003 Exercise
LL002058; Prepare Reading Materials on Inconsistent Messages to Offsite Agencies During September 2003 Exercise
CAP018219; Health Physics Network (HPN) Concerns Identified During September 2003 Exercise
CE013697; Evaluation of HPN Concerns Identified During September 2003 Exercise
CA014111; Procedurally Clarify Responsibilities for HPN Communications
CA014112; Revise Two EPIP to Address Establishing and Maintaining HPN Communications
CA014113; Relocate the Onsite HPN Telephone
CA014875; Revise an EPIP to Better Address HPN Communications in the TSC
CAP018221; Delays in Dispatching “Urgent” Inplant Teams During September 2003 Exercise
CE013698; Evaluation of Delays in Dispatching Inplant Teams During September 2003 Exercise
CAP018215; Inconsistent Understanding Among EOF Staff on Extent of Core Degradation and Release Status During September 2003 Exercise
CAP018224; Improve Understanding of Non-Operators of Core Degradation Versus Containment Radiation Level Readings
CE013695; Evaluation of Inconsistent Understandings of Core Damage and Release Status During September 2003 Exercise
Training Request 014853; Relationships Between Core Degradation and Containment Radiation Level Readings
CAP018235; TSC Improvement Items Identified During September 2003 Exercise
CE013715; Evaluation of TSC Improvement Items Identified During September 2003 Exercise
LL002231; Prepare Reading Materials to Clarify Expectations During an Assembly, Accountability, and Evacuation Process
CAP019332; TSC Activation Concern During December 2003 Off-Hours Drill
CE013994; Evaluation of TSC Activation Concern During December 2003 Off-hours Drill
CAP019335; Emergency Notification System (ENS) Message Development Concerns During December 2003 Drill
CAP019341; EOF Enhancements Identified During December 2003 Drill
CE013996; Evaluation of ENS Message Concerns Identified During December 2003 Drill

PCR014311; Revise EPIP-TSC-1 to Address ENS Message Concerns Identified During December 2003 Drill
PCR014876; Revise Two EPIP to Address Offsite Communications if the TSC is Staffed Prior to the EOF During Off-hours
CAP019970; Process of Transferring Emergency Director Responsibilities Needs Improvement
CA015293; Follow-up Communications with State and County Agencies After the January 2004 Unusual Event Declaration
CAP019954; Gai-Tronics Announcements Not Clearly Heard in All Locations During January 2004 Unusual Event
CE014094; Evaluation of Gai-Tronics Audibility Concerns During January 2004 Unusual Event
CAP020073; NOS-identified Repeat Concern on Adequacy and Availability of Vehicles for Offsite Survey Teams
PCR016286; Draft a Procedure to Address Repeat Concern Identified in CAP020073
CAP020085; NOS Identified that Emergency Plan Revisions and Related 10 CFR 50.54(q) Reviews Were Not Listed on the KNPP Retention Schedule
CAP020089; February 2004 NOS Finding on EP Corrective Actions
ACE002589; February 2004 NOS Finding on EP Corrective Actions
CAP020090; NOS Identified Three Computer Equipment Problems in the TSC

1EP6 Drill Evaluation

LRC-04-DY501; Cycle 04-05 Simulator Dynamic; Revision A

2PS3 Radiological Environmental Monitoring and Radioactive Material Control Programs

Updated Safety Analysis Report; Sections 2.7, 2.8, and Chapter 11; Revision 18
Offsite Dose Calculation Manual; Revision 8
Radiological Environmental Monitoring Manual; Revision 8
Annual Radiological Environmental Monitoring Reports for 2002 and 2003; dated April 27, 2003 and April 28, 2004, respectively
Kewaunee Emergency Plan; Section 7.3; Revision 26
Environmental Inc. Midwest Laboratory Sampling Manual for the Operational Environmental Radiological Surveillance Program for the Kewaunee Plant; Revision 0
SP-63-164; Environmental Sample Collection; Revision AD
PMP-63-01; Environmental Monitors Inspection and Maintenance; Revision M
PMP-63-01; Air Sampler Maintenance Data Sheets for Air Sampler Nos AS-1 through AS-7; March 2003 - March 2004
RAS-2 Environmental Air Sampler Flow Calibrations for Air Sampler Nos AS-1 through AS-7; March 2003 - April 2004
F & J Speciality Products, Inc. Calibration Certificates for F & J Model D-812 Air Flow Calibrator (Serial Nos 3320 and 3127); January 15, 2004 and August 14, 2003, respectively
SP-63-019; Meteorological System Monthly Operational Check; Revision G
Form SP-63-019-1; Meteorological System Processor Data Sheets; January 2003 - April 2004

ICP-63-02 through ICP-63-29 Data Sheets; Calibration, Maintenance and Functional Test Records for Primary and Backup Meteorological Tower Equipment; Various Records for 2003
Meteorological Tower Equipment Joint Data Recovery Records for 2002, 2003 and 2004 through August 4, 2004
Nuclear Procurement Issues Committee Joint Audit/Survey of Teledyne Brown Engineering Services (NUPIC Audit/Survey No. 18668); dated May 15, 2003
HP-01.018; Personnel General and Hot Particle Contamination Assessment and Documentation; Revision D
HP-01.004; RCA Entry and Exit; Revision 0
HP-1.14; Land Use Census Program; Revision B
HP-1.14; Attachment 'A' Worksheets (Census Results); September 2, 2003
Assessment No. SA-2640; Environmental Monitoring Program; June 8, 2004
Nuclear Oversight Observation Report No. 2004-003-2-005; Radiation Protection Program Support; undated (draft) Report
Nuclear Oversight Observation Report No. 2004-002-2-020; Environmental Monitoring Program Assessment; dated June 28, 2004
Nuclear Oversight Observation Report No. 2003-001-2-047; Radiological Protection; dated March 31, 2003
CAP Database Listing for Meteorological Tower, Radioactive Material/Contamination Control, REMP, Unconditional Release and Environmental Monitoring; January 2003 - August 4, 2004
CAP 020155; Environmental Air Sampler Calibration Issues; February 25, 2004
Root Cause Evaluation 000589; Root Cause Evaluation of CAP 12969 - Meteorological Tower Equipment Out-of-Service; September 20, 2002
CAP 018626; Radioactive Material Found Outside the RCA; October 26, 2003
CAP 014450; Improper Monitoring of Materials for Radioactive Contamination; January 23, 2003
CAP 018909; Unqualified Individual Attempting to Free Release Materials from the RCA; November 14, 2003
CAP 019343; Radioactive Source Left Unattended and Unsecured; December 20, 2003

4OA1 Performance Indicator (PI) Verification

Performance Indicator Logs - 1st Quarter 2004
Performance Indicator Logs - 2nd Quarter 2004
CAP022182; TDAFW Pump Train April 2004 Unavailability Hours Invalid 8/11/2004
KNPP NRC Quarterly Performance Indicators - 2nd Quarter 2004
Performance Indicator Binder Control Room Logs - 3rd Quarter 2003
Performance Indicator Binder Control Room Logs - 4th Quarter 2003
Performance Indicator Binder Control Room Logs - 1st Quarter 2004
Performance Indicator Binder Control Room Logs - 2nd Quarter 2004
Listing of KNPP Unplanned Load Reductions; January 2002 - December 2003
EPMP 02.08; NRC Performance Indicator Collection and Documentation; Revision A
Records of Bimonthly ANS Operability Test Results in Kewaunee County - July 2003 through March 2004

Records of DEP Opportunities During Drills, the Biennial Exercise, and an Actual Unusual Event - July 2003 through March 2004
Records of Key ERO Members' Drill and Exercise Participation - July 2003 through March 2004
Internal Memorandum; Unusual Event on January 30, 2004; dated March 4, 2004
CAP021715; One Successful DEP Opportunity Not Included in Third Quarter 2003 PI Submittal to NRC

4OA2 Problem Identification and Resolution

CAP021599; NRC Resident Inspector Concerns on the TDAFW Pump Operability
CAP021539;Turbine Driven Auxiliary Feedwater Pump Turbine Oil Samples Contained Contaminants
RCE000652; TDAFW Pump Turbine Bearing Oil Sample Indicates Cutting Wear and Journal Bearing Found Damaged

4OA3 Event Followup

OPR000070; Turbine Driven auxiliary Feedwater Pump Turbine Oil Samples Contained Contaminants
CAP021599; NRC Resident Inspector Concerns on the TDAFW Pump Operability
CAP021539;Turbine Driven Auxiliary Feedwater Pump Turbine Oil Samples Contained Contaminants
RCE000652; TDAFW Pump Turbine Bearing Oil Sample Indicates Cutting Wear and Journal Bearing Found Damaged

4OA5 Other Activities

A-CC-31; Abnormal Component Cooling System Operations; Revision D
A-DGM-10A; Abnormal Diesel Generator A Operation; Revision E
A-FW -05A; Abnormal Feedwater System Operation; Revision O
A-SW-02; Abnormal Service Water System Operation; Revision T
Blank Auxiliary Operators Log; dated June 2, 2004
CA004344; Service Water (SW) Dead Legs Revisited in Support of SW Inspection Program; dated June 24, 2004
CA009691; Significant Quality Assurance (QA) Finding – Vendor Technical Information Program (VETIP) Issues – RCE000590; dated December 13, 2002
CA009692; Significant QA Finding – VETIP Issues Focused Self-Assessment; dated December 13, 2002
CA009693; Significant QA Finding – VETIP Issues – Evaluate Assessment CAPs; dated December 13, 2002
CA009696; Significant QA Finding – VETIP Issues – RCE 590; dated December 13, 2002
CA009700; Significant QA Finding – VETIP Issues – RCE590; dated December 13, 2002
CA015128; Performance Monitoring of Replacement SI Pump Lube Oil Coolers; dated January 30, 2004

CA015178; Record Pressure Readings for SW to SI Lube Oil Coolers; dated February 5, 2004
CA015476; Perform Interim SW Flow Monitoring of SI Pump Lube Oil Coolers; dated March 4, 2004
Calculation C11275; Determination of SW Pump Differential Pressure Acceptance Criteria to Ensure Code and Analytical Limits Are Maintained; Revision Original
Calculation C11343; 2001 SW Flow Test Analysis; Revision Original
Calculation C11344; 2001 SW System Flow Test; Revision Original
Calculation C11608; Development of SI Pump Low Cooler Differential Pressure Test Methodology; Revision 0
CAP004344; SW Dead Legs Revisited in Support of SW Inspection Program; dated June 24, 2004
CAP011738; Operating Experience (OE) Assessment (OEA) 2002-110 (OE 13592) Unit 2 Recirculation Spray Heat Exchanger Low SW Flow; dated May 29, 2002
CAP011757; Unable to Perform Steps As-Written in SP-42-322B Bus 1-6 Auto Inhibit Relay Test; dated May 30, 2002
CAP012260; OEA 2002-171 (OE 13950) Control Room Emergency Ventilation System Was Declared Inoperable; dated July 17, 2002
CAP012066; OEA 2002-158 (OE 13916) Inadequate Qualification/Dedication of Belzona 1311 Material by Flowserve; dated June 27, 2002
CAP012800; Calculational Error; dated September 3, 2002
CAP012970; Significant QA Finding – VETIP Issues; dated September 17, 2002
CAP014718; SW Flow Test Frequency; dated February 12, 2003
CAP016588; Questionable Confidence in Measured Values Used for Generic Letter (GL) 89-13 Heat Exchanger Performance Testing; dated May 22, 2003
CAP016739; GL 89-13 Implementing Procedures; dated May 30, 2003
CAP018001; OEA 2003-231 (OE 16642) Residual Heat Removal (RHR) 1B Heat Exchanger Long Term Scaling; dated September 10, 2003
CAP019392; Acceptability of Not Chlorinating B SW Train for 6 Weeks; dated December 18, 2003
CAP019707; Zebra Mussel Shell of 0.690" Long by 0.298" Wide in Auxiliary Building Mezzanine Fan Coil Unit; dated January 26, 2004
CAP019751; Performance Monitoring of Replacement SI Pump Lube Oil Coolers; dated January 28, 2004
CAP020309; Sediment Suspected in SW Supply to 1B SI Pump Stuffing Box; dated March 4, 2004
CAP020356; Action Followup Item from GL 89-13 Program Assessment Closed with No Action Taken; dated March 7, 2004
CAP020395; Action Request to Create Program Document Closed Without Document Issued; dated March 11, 2004
CAP020402; Request Engineering Evaluation to Determine Effects on SW Without Chlorination; dated March 11, 2004
CAP020848; Zebra Mussel Shells Found in A Control Rod Drive Motor Fan Coil Unit; dated April 15, 2004
CAP022204; Complete SW System Design Basis System Functional Matrix; dated August 12, 2004

CAP022244; Inspection Plan for Containment Fan Coil Units: Timeliness of Corrective Actions; dated August 17, 2004
CAP022246; SW Chlorination System Performance; dated August 17, 2004
CAP022247; Improvements to GMP-137, Heat Exchanger Tube Cleaning and Inspection; dated August 17, 2004
CAP022251; GL 89-13 Program Ownership; dated August 17, 2004
CAP022252; Review GL 89-13 Testing of Diesel Generators (D/Gs); dated August 17, 2004
CAP022257; Administrative Controls for Turbine Building SW Header Isolation Logic; dated August 17, 2004
CAP022268*; SW301B Has Slight Leakage of SW Past Seat; dated August 18, 2004
CAP022286*; Valve SW1122A Appeared Out of Position; dated August 18, 2004
CAP022289*; Prevent Inadvertent Mis-positioning of D/G Starting Air Ball Valves; dated August 18, 2004
CAP022293*; Evaluate Use of Term "Water Hammer" in Component Flushing Procedures; dated August 19, 2004
CAP022297*; Fan Coil Unit Performance Monitoring Procedure Should Address Instrument Uncertainties; dated August 18, 2004
CAP022299*; Include RHR Pump Pit Fan Coil Unit in GL 89-13 Performance Monitoring Procedures; dated August 18, 2004
CAP022302*; Document Needed to Routinely Verify Local Equipment in Place; dated August 18, 2004
CAP022312*; Operability of SW-310A(B) from DCR 3347; dated August 18, 2004
CAP022318*; Wall Thinning in Piping or Components Downstream of Orifices in SW System; dated August 20, 2004
CAP022321*; Inspection of RHR Pump Pit 1A Fan Coil Unit; dated August 20, 2004
CAP022618*; Revise the DCR 3357 Package to Include Basis for Adequacy of Design; dated September 8, 2004
CE014040*; Perform Condition Evaluation per CAP019574 (Updated Due to Inspection); dated January 20, 2004
CHEM 43.007; SW Dead Leg Chemical Treatment; Revision D; dated July 24, 2004
DCR 2844; Modify SW Piping to the Shield Building Ventilation Filter Assembly A; Revision 0
DCR 3357; Replacing Valves and Actuators for SW301A and SW301B; dated November 29, 2001
DCR 3518; Replace SI Pump Lube Oil Coolers; Revision 1
E-CW-04; Loss of Circulating Water; Revision V
EFR009701; Significant QA Finding – VETIP Issues – RCE000590; dated December 13, 2002
E-mail; J. A. Peterson to M. J. Merholz; Information Regarding Commitment Tracking; dated August 4, 2004
ES.HXP.M.001.K; Generic Letter 89-13 Heat Exchanger Thermal Performance Engineer; Revision A; dated May 27, 2004
ESR 91-16; Slime and Silting Control in the SW System; dated May 3, 1993
EVAL 04-01.001; 10 CFR 50.59 Evaluation for DCR 3518: Replace SI Pump Lube Oil Coolers; dated January 26, 2004

FP-PE-SW-01; SW and Fire Protection Inspection Program; Revision 1; Adopted by Kewaunee on March 22, 2004
GL 89-13; SW System Problems Affecting Safety-Related Equipment; dated July 18, 1989
GL 89-13; SW System Problems Affecting Safety-Related Equipment, Supplement 1; dated April 4, 1990
GMP-137; Brush/Tube Scrubber Cleaning Heat Exchanger Tubes and Inspection, including; Revision G, dated May 2, 2002; Revision H, dated July 29, 2004
GNP-01.01.01; Determination of Nuclear Safety Design Classifications, QA Type and EQ Type; Revision B
GNP-01.32.01; Heat Exchanger Performance Monitoring Program Evaluation Procedure; Revision A
GNP-03.09.01; Instructions for Independent/Concurrent Verification; Revision C
GNP-05.02.01; Vendor Technical Information Control; Revision G
GNP-08.02.01; Work Order Processing and Planning/Work Execution and Close-Out; Revision R
GNP-08.02.14; Work Request Initiation, Screening, and Processing; Revision E
Inservice Testing Basis Document; Appendix M; Selected Data Sheets for SW Components; Revision B
Kewaunee Top Ten Equipment List; dated August 17, 2004
KSA-CHM-03-04; GE Betz Self-Assessment Audit; dated March 3, 2004
KSA-CHEM-04-01; Focused Area Self-Assessment: Evaluation of Current Zebra Mussel Control Program; dated March 31, 2004
KSA-ENG-02-04; Focused Self-Assessment of Vendor Manual Control; dated October 24, 2002
Letter; Fluor Engineers, Inc. to Wisconsin Public Service Corporation, Operational Description of Appendix “R” Fan Coil Units; dated October 12, 1982
Letter; Power Generation Technologies to Nuclear Management Company Re: Flow and Differential Pressure Measurement on the SI Pump Lube Oil Coolers; dated February 3, 2004
List; Features Installed to Provide Timely Detection of Flow Degradation in the SW System; dated August 5, 2004
List; SW Alarm Setpoints with Associated Calculations; dated August 16, 2004
LRC-02-LP405; A-SW-02 Abnormal SW System Operation; Revision A
LRC-02-SE201; Simulator Exercise Guides – Component Cooling Water and Service Water Malfunctions and Loss of Coolant Accidents; Revision A
LRC-03-LP301; System Review: Service Water; Revision A
LRC-04-LP401; Abnormal Service Water Procedure Review; Revision A
Minalite Catalog; EZC Rectangular Minalite Indicating Lamp; December 1967
MM-07-OJ202.1; Repair Service Water Pump Task MM.807.202; Revision A
MM-07-OJ213.1; Replace Service Water Pump Task MM.807.213; Revision A
M1417; Isometric – SW 10" Supply Header to SI Pump 1B Lube Oil Heat Exchanger and Stuffing Box; dated June 23, 1989
M1584; Isometric – SW from SI Pump 1A Lube Oil Cooler Changer and Stuffing Box Outlets to 10" SW Return Header; dated March 15, 1992
M1585; Isometric – SW from 16" Header to SI Pump 1A Lube Oil Cooler and Stuffing Box Inlet Connections; undated

M1586; Isometric – SW from SI Pump 1B Lube Oil Cooler Changer and Stuffing Box Outlets to 10" SW Return Header; dated March 15, 1991
N-ESF-55-CLA; ESF Periodic Checklist; Revision T
N-MI-87-CLA; Dedicated Shutdown System Periodic Checklist; dated July 30, 2004
N-SW-02; Service Water System Operating Procedure; Revisions Y and Z
N-SW-02-CL; SW System Pre-Startup Checklist; Revision AS
NAD-01.32; Heat Exchanger Performance Monitoring Program; Revision A
NAD-05.02; Vendor Technical Information Program; Revision E
NAD-05.25; Management of NRC Commitments; Revision C; dated January 14, 2003
NAD-05.30; System Functional Matrix; Revision A
NEP-14.13; Operating Experience Procedure; Revision E; dated January 20, 2004
NID-01.01; Generic Letter 89-13 Program Document; Revision A; dated June 15, 2004
NRC-90-10; Letter; Wisconsin Public Power System to NRC; Response to GL 89-13; dated January 29, 1990
NRC 91-149; Letter; Wisconsin Public Power System to NRC; Implementation of GL 89-13 Recommended Actions; dated October 21, 1991
NuEnergy Report; Review of Heat Exchanger Performance Capabilities in Support of Extent of Condition Evaluation of Kewaunee SI Lube Oil Coolers; May 2004
OBD000031; Sedimentation Found in SW Emergency Make-up Supply to Component Cooling Water; dated December 31, 2002
OBD000075; Sediment Suspected in SW Supply to 1B SI Pump Stuffing Box; dated March 9, 2004
OPERM-202-1; Flow Diagram – SW System, Sheet 1; Revision CB
OPERM-202-2; Flow Diagram – SW System, Sheet 2; Revision CM
OPERM-202-3; Flow Diagram – SW System, Sheet 3; Revision CX
OPERM-394; Flow Diagram – SW System Pre-Treatment System; Revision BR
OPERM-547; Flow Diagram – SW System, Containment Cooling; Revision S
OPERM-588; Flow Diagram – Air Conditioning Cooling Water Piping; Revision K
OPERM-606; Flow Diagram – Air Conditioning Cooling Water Piping; Revision BN
OPR000064; Sediment Suspected in SW Supply to 1B SI Pump Stuffing Box; dated March 9, 2004
OPR000068; Zebra Mussel Shells Found in a Control Rod Drive Motor Fan Coil Unit; dated April 20, 2004
OPR000075*; Operability of SW Outlet Valves from D/G Lube Oil Coolers; dated August 20, 2004
OTH015722; VETIP Issues from Focused Self-Assessment; dated March 29, 2004
PCR010821; Significant QA Finding – VETIP Issues – Procedure Changes to NAD & GNP; dated March 17, 2003
PCR013250; PMP 17-15; dated August 2, 2003, and January 7, 2004
PMP-02-03; SW - Service Water Pump Replacement (QA-1); Revision R
PMP-10-11; D/G Cooling Water Heat Exchanger Performance Monitoring (QA-1); Revision C
PMP-17-02; QA-1 & QA-2 Fan Coil Units, Inspection and Cleaning; Revision U
PMP-17-15; RHR Pump Pit Fan Coil Unit 1B Performance Monitoring (QA-1); Revision B
Printout; Computer Log 18; SW and Component Cooling; dated August 8, 2004
Printout; Computer Log 10; Condenser Performance; dated August 8, 2004
R02-02-LP002; Service Water System; Revision B

R111B, R111C, R111D, R116B, R116C; Tangential Radiographic Examination Report, SW Tubing; dated March 4, 2004
RCE00590; Significant QA Finding – VETIP Issues (addendum); dated December 12, 2002
RCE00590; Significant QA Finding – VETIP Issues; dated September 20, 2002
RT-FW-05B-3; AFW SW Header B Flush; dated September 4, 2003
RT111B, RT111C, RT111D, RT116B, RT116C; Radiographic Images of SW Stuffing Boxes; dated March 4, 2004
Screening 31088; Evaluation Work Sheet for Actuator – D/G 1A Oil Cooler Water Outlet Control Valve (with Attachments); dated February 11, 2002
Screening 31089; Evaluation Work Sheet for Actuator – D/G 1B Oil Cooler Water Outlet Control Valve (with Attachments); dated December 13, 2001
Screening 04-012-01; 10 CFR 50.59 Screening for DCR 3518; dated January 26, 2004
SOP-SW-02-16; SW Flow Test – Train A; Revision B; Completed November 16, 2001
SP-02-138A; Train A SW Pump and Valve Test – IST; Completed July 16, 2003; October 15, 2003; January 14, 2004; April 14, 2004; and July 7, 2004
SP-31-168B; Train B Component Cooling Pump and Valve Test – Inservice Testing, Including Temporary Change Form; Revision C; dated July 27, 2004
SP-87-125; Shift Instrument Channel Checks – Operating; Pages 1, 4, 9 and 15; Revision BL; dated March 30, 2004
Spreadsheet; SW Summary of Results and Predicted Schedule 1990 – 1999; Provided August 18, 2004
SW-02; Annunciator 47051-P: SW Header Pressure Low; dated July 9, 2002
SW-02; Annunciator 47052-P: Turbine Building SW Header Abnormal; dated July 9, 2002
SW-02; Annunciator 47053-P: SW Pump Bearing Seal Water Flow Low; dated March 13, 2003
SW-02; Annunciator 47054-P: SW Strainer Differential Pressure High; dated March 13, 2003
Vendor Manual 100-1363-1; Service Manual for Rockwell - Edward Valves; dated January 3, 1995
Vendor Manual 158-9; Installation and Service Instructions, Butterfly Valves, Henry Pratt Company; dated April 18, 1991
Vendor Manual 19016; Worthington Vertical Double Suction Pump, Instructions for Installation, Operation, Maintenance, and List of Parts; dated June 26, 1991
Work Order (WO) 01-018157-000; Actuator – SW from D/G 1B Heat Exchanger; dated December 10, 2001
WO 01-019918-000; 4-Inch Valve – Control – SW from D/G 1B Heat Exchanger; dated December 5, 2001
WO 02-001204-000; Actuator – D/G 1A Oil Cooling Water Outlet Control Valve; dated January 14, 2002
WO 02-003411-000; Actuator – D/G 1A Oil Cooling Water Outlet Control Valve; dated January 15, 2002
WO 03-005187-000; Pump Casing Drain Line Plugged Resulting in Water Accumulating in Casing; dated April 11, 2003
WO 03-005473-000; Service Water Strainer A1 Backwash Valve May Have Faulty Relay Preventing Closing of Valve; dated May 26, 2003

WO 03-009991-000; Inlet Fitting of Flow Switch Showing Signs of Wear from Frequent Cleaning; dated August 1, 2003
WO 03-015201-000; Service Water Pump 1A2 Seal Water Flow Switch Excessively Fouled (Canceled); dated December 16, 2003
WO 04-000337-000; Fan Coil Unit – RHR Pump Pit 1B; dated March 31, 2004
WO 04-004753-000; Chirping Noise from B1 Service Water Pump Lower Bearing Area (Canceled); dated April 7, 2004
WO 207826; SW Piping to SI Pumps 1A/1B Stuffing Box Coolers; dated May 23, 1995
Work Request 04-002332*; Inspect and Clean SW Side of 1A RHR Pump Pit Fan Coil Unit; dated August 19, 2004
Section 0.0; PRA Results Summary (Heat Exchangers); Revision 0402; dated June 16, 2004
Safety Review for DCR 3357; dated November 29, 2001
SW System Description 02; dated March 10, 2004
Trend Information for D/G 1A and 1B, March 2001 through July 2004; provided August 17, 2004
Zebra Mussel Assessment – System Flow Rates; dated September 7, 1995
2001 Service Water Flow Test Matrix; dated November 16, 2001

Condition Reports Initiated for NRC Identified Issues

CAP021742; Quarantine Turbine Drive AFW Pump Driver Bearings; dated July 1, 2004
CAP022825; NRC Resident Question Regarding Trench Drain Line Check Valves; dated September 23, 2004
CAP022821; Evaluate AFW Pump Suction Manual Valves from CSTs MU-1A/B to be Locked Open; dated September 22, 2004
CAP022820; Questionable Significance Level on a Non-Conformance CAP; dated September 22, 2004
CAP022716; Missing Corrective Work Order (CWO); dated September 15, 2004
CAP022703; NRC Resident Questions Regarding AFW Pump Flow to Area Trench; dated September 14, 2004
CAP022648; Time to Inform Operating Crew of Event Classification not Captured in Critique; dated September 9, 2004
CAP022618; Revise the DCR 3357 Package to Include Basis for Adequacy of Design; dated September 8, 2004
CAP022615; Untimely Corrective Maintenance of Material Storage Area FP Detectors; dated September 8, 2004
CAP022543; Idea - Submit an LAR Similar to ISTS 3.0.5; dated September 2, 2004
CAP022403; Work Performed on a QA1 Component Without Use of a Work Request; dated August 25, 2004
CAP022398; NID-01.01 Erroneously Includes CCW Pump B FCU in GL89-13 Program; dated August 25, 2004
CAP022322; Inadequate Documentation on Work Orders; dated August 20, 2004
CAP022321; Inspection of RHR Pump Pit 1A Fan Coil Unit; dated August 20, 2004
CAP022318; Wall Thinning in Piping/Components Downstream of Orifices in SW System; dated August 20, 2004

CAP022312; DCR 3357 - Operability of SW-301A(B) NRC Question from SW Inspection; dated August 19, 2004
CAP022302; Document Need to Routinely Verify Local Equipment in Place; dated August 19, 2004
CAP022299; Include RHR Pump Pit FCU A in GL89-13 Performance Monitoring Procedures; dated August 19, 2004
CAP022297; FCU Performance Monitoring Procedure Should Address Instrument Uncertainties; dated August 19, 2004
CAP022293; Evaluate Use of Term "Water Hammer" in Component Flushing Procedures; dated August 19, 2004
CAP022289; Prevent Inadvertent Mispositioning of D/G Starting Air Ball Valves; dated August 18, 2004
CAP022286; Valve SW 1122A Appeared Out of Position; dated August 18, 2004
CAP022268; SW-301B has Slight Leakage of SW Past Seat; dated August 17, 2004
CAP022052; Hole Noted in Terminal Box 1385; dated July 30, 2004
CAP021775; Acceptability of Storage Location for Chlorine Totes and Propane Tanks; dated July 6, 2004
CAP021751; Conduct and Communication of Risk Analysis for Maintenance Rule; dated July 2, 2004
CAP021881; Repeat NRC Question on Traveling Water Screen DP; dated July 16, 2004
CAP021974; Incorrect Resolution of CC Hx B Risk Issue; dated July 27, 2004
CAP022089; OBD Activity not Generated for Operable but Non-Conforming Condition; dated August 3, 2004
CAP022146; NRC Question on Feed Flow - Steam Flow Difference Between Steam Generators; dated August 9, 2004
CAP022164; Initial NRC Exam Submittal Unsatisfactory; dated August 10, 2004
CAP022539; An Escorted Visitor Moved Out of Sight of the Escort; dated September 2, 2004
CAP022565; NRC Sr Resident Inspector Comments on Operator Burdens; dated September 4, 2004
CAP022718; Missed Maintenance Rule Evaluation Initiation (MRE); dated September 15, 2004
CAP022758; Minor Error Identified in NRC Performance Indicator Data; dated September 17, 2004
CAP022839; Inaccurate Maintenance Rule Evaluation (MRE); dated September 24, 2004

4OA7 Licensee Identified Violations

CAP021806; RHR-299A Failed to Open During SP-33-098A
GMP-239; Limitorque MOV Starter, Motor, and Actuator Maintenance (QA-1); Revision G

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ANS	Alert and Notification System
AFW	Auxiliary Feedwater
CCW	Component Cooling Water
CRC	Curriculum Review Committee
CFR	Code of Federal Regulations
DCR	Design Change Request
EDG	Emergency Diesel Generator
ENS	Emergency Notification System
EOF	Emergency Operations Facility
EP	Emergency Preparedness
EPIP	Emergency Plan Implementing Procedure
EPMP	Emergency Plan Maintenance Procedure
ERO	Emergency Response Organization
EPZ	Emergency Planning Zone
FCU	Fan Coil Unit
HPN	Health Physics Network
IMC	Inspection Manual Chapter
JPM	Job Performance Measure
KNPP	Kewaunee Nuclear Power Plant
LOR	Licensed Operator Requalification
LOR-TP	Licensed Operator Requalification Training Program
NCV	Non-Cited Violation
NOS	Nuclear Oversight
NRC	Nuclear Regulatory Commission
OE	Operating Experience
OEA	Operating Experience Assessment
PARS	Public Availability Records
PI	Performance Indicator
PRC	Performance Review Committee
REMM	Radiological Environmental Monitoring Manual
REMP	Radiological Environmental Monitoring Program
RCA	Radiologically Controlled Area
RHR	Residual Heat Removal
RO	Reactor Operator
SDP	Significance Determination Process
SI	Safety Injection
SRO	Senior Reactor Operator
SW	Service Water
TAC	Training Advisory Committee
TS	Technical Specification
TSC	Technical Support Center
TLD	Thermoluminescence Dosimeter
USAR	Updated Safety Analysis Report
VETIP	Vendor Technical Information Program
WO	Work Order