UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

January 28, 2005

Carolina Power and Light Company
ATTN: Mr. John Moyer
Vice President - Robinson Plant
H. B. Robinson Steam Electric Plant
Unit 2
3851 West Entrance Road
Hartsville, SC 29550

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION REPORT 05000261/2004005 and 07200003/2004002

Dear Mr. Moyer:

On December 31, 2004, the US Nuclear Regulatory Commission (NRC) completed an inspection at your H.B. Robinson reactor facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on January 12, 2005, with Mr. W. Noll and other members of your staff.

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

Based on the results of this inspection, one severity level IV violation was identified. However, because it has been entered into your corrective action program, the NRC is treating this issue as a non-cited violation (NCV) in accordance with Section VI.A.1 of the NRC's Enforcement Policy. In addition, two licensee-identified violations which were determined to be of very low safety significance are listed in Section 40A7 of the enclosed report. If you contest any NCV in the enclosed report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the H.B. Robinson 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/

Paul E. Fredrickson, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket No.: 50-261
License No.: DPR-23

Enclosure: Inspection Report 05000261/2004005 and 07200003/2004002
w/Attachment: Supplemental Information

cc w/encls: (See page 3)

cc w/encl:
William G. Noll
Director, Site Operations
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant
Electronic Mail Distribution

Daniel G. Stoddard
Plant General Manager
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant
Electronic Mail Distribution

Chris L. Burton, Manager
Performance Evaluation and
Regulatory Affairs CPB 9
Electronic Mail Distribution

C. T. Baucom, Supervisor
Licensing/Regulatory Programs
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant
Electronic Mail Distribution

J. F. Lucas, Manager
Support Services - Nuclear
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant
Electronic Mail Distribution

Henry J. Porter, Director
Div. of Radioactive Waste Mgmt.
Dept. of Health and Environmental
Control
Electronic Mail Distribution

R. Mike Gandy
Division of Radioactive Waste Mgmt.
S. C. Department of Health and
Environmental Control
Electronic Mail Distribution

Beverly Hall, Acting Director
Division of Radiation Protection
N. C. Department of Environment,
Health and Natural Resources
Electronic Mail Distribution

Steven R. Carr
Associate General Counsel - Legal Dept.
Progress Energy Service Company, LLC
Electronic Mail Distribution

John H. O'Neill, Jr.
Shaw, Pittman, Potts & Trowbridge
2300 N. Street, NW
Washington, DC 20037-1128

Peggy Force
Assistant Attorney General
State of North Carolina
Electronic Mail Distribution

Chairman of the North Carolina
Utilities Commission
c/o Sam Watson, Staff Attorney
Electronic Mail Distribution

Robert P. Gruber
Executive Director
Public Staff - NCUC
4326 Mail Service Center
Raleigh, NC 27699-4326

Public Service Commission
State of South Carolina
P. O. Box 11649
Columbia, SC 29211

Distribution w/encl: (See page 4)

Distribution w/encl:
C. Patel, NRR
L. Slack, RII EICS
RIDSNRRDIPMLIPB
PUBLIC

OFFICE	DRP:RII	DRP:RII	DRS:RII	DRS:RII	DRS:RII	DRS:RII	DRS:RII
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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No:	50-261
License No:	DPR-23
Report No:	05000261/2004005 and 07200003/2004002
Facility:	H. B. Robinson Steam Electric Plant, Unit 2
Location:	3581 West Entrance Road Hartsville, SC 29550
Dates:	September 12 - December 31, 2004
Inspectors:	R. Hagar, Senior Resident Inspector D. Jones, Resident Inspector R. Chou, Reactor Inspector (Section 4OA5.2) J. Kreh, Emergency Preparedness Inspector (Sections 1EP2-1EP5 & 4OA1) M. Maymi, Reactor Inspector (Section 4OA5.3) L. Mellen, Senior Reactor Inspector (Section 4OA5.3) M. Scott, Senior Reactor Inspector (Section 4OA5.3) R. Taylor, Reactor Inspector (Section 4OA5.3)
Approved by:	P. Fredrickson, Chief Reactor Projects Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000261/2004-005, 07200003/2004002; 09/12/2004-12/31/2004; H.B. Robinson Steam Electric Plant, Unit 2; Emergency Preparedness.

The report covered a three-month period of inspection by resident inspectors and announced inspections by several reactor inspectors. One severity level IV non-cited violation was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Emergency Preparedness

No Color. A severity level IV non-cited violation was identified for failure to meet the Emergency Plan change requirements of 10 CFR 50.54(q). A change involving emergency classification of a seismic event, which decreased the effectiveness of the Emergency Plan, Revision 54, was implemented without prior NRC approval.

The finding was evaluated using the NRC's Enforcement Policy because licensee reductions in the effectiveness of its emergency plan impact the regulatory process. This finding is more than minor because extending the time period required for appropriate emergency classification of a seismic event could adversely affect the performance of both onsite and offsite emergency actions. The finding was determined to be a severity level IV violation because it involved licensee failure to meet an emergency planning requirement not directly related to assessment and notification. (Section 1EP4)

B. Licensee-Identified Violations

Two 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. Those violations and corrective action tracking numbers are listed in Section 40A7 of this report.

REPORT DETAILS

Summary of Plant Status The unit began the inspection period at full rated thermal power. On October 12, the unit was shutdown to enable repair of a leaking valve in the reactor coolant system. The unit was restarted on October 13, and operated at full power for the rest of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

After the licensee completed preparations for seasonal low temperature, the inspectors walked down the auxiliary feedwater and the service water systems to verify that their safety related functions would not be affected by adverse weather. The inspectors reviewed documents listed in the Attachment and observed plant conditions, to verify that cold-weather preparations had been completed in accordance with Procedure AP-008, Cold Weather Preparations.

When an ice storm affected the site on December 26, the inspectors reviewed actions taken by the licensee in accordance with Procedure OP-925, Cold Weather Operation, to ensure that the adverse weather conditions would neither initiate a plant event nor prevent any system, structure, or component (SSC) from performing its design function.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial System Walkdowns

The inspectors performed the following three partial system walkdowns, while the indicated SSCs were out-of-service for maintenance and testing:

System Walked Down	SSC Out of Service	Date Inspected
Component cooling water trains A and B	Component cooling water Pump C	September 13
Service water train B	Service water pump A	September 30
Emergency diesel generator A	Emergency diesel generator B	October 12

To evaluate the operability of the selected trains or systems under these conditions, the inspectors compared observed positions of valves, switches, and electrical power breakers to the procedures and drawings listed in the Attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

For the six areas identified below, the inspectors reviewed the licensee's control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures, to verify that those items were consistent with Updated Final Safety Analysis Report (UFSAR) Section 9.5.1, Fire Protection System, and UFSAR Appendix 9.5.A, Fire Hazards Analysis. The inspectors walked down accessible portions of each area and reviewed results from related surveillance tests, to verify that conditions in these areas were consistent with descriptions of the areas in the UFSAR. Documents reviewed are listed in the Attachment.

The following areas were inspected:

Fire Zone	Description
19	Cable spreading room
26	Main and unit auxiliary and startup transformers
7	Auxiliary building hallway
22	Control room
25A/B	Turbine building east and west ground floor
26	Switchyard transformers

Also, to evaluate the readiness of the licensee's personnel to prevent and fight fires, the inspectors observed fire brigade performance during an unannounced fire drill in the emergency switchgear room on December 8. This drill simulated a severe ground fault where the resulting fault current caused a fire on a safety related motor control center.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

Internal Flooding

Because the motor-driven auxiliary feedwater pump room contains risk-significant SSCs which are susceptible to flooding from postulated pipe breaks, the inspectors walked down that room to verify that the area configuration, features, and equipment functions were consistent with the descriptions and assumptions used in UFSAR Section 3.6.2, Postulated Piping Failures in Fluid Systems Outside of Containment, and in the supporting basis documents listed in the Attachment. The inspectors reviewed the operator actions credited in the analysis, to verify that the desired results could be achieved using the plant procedures listed in the Attachment.

External Flooding

Because the residual heat removal pump room contains risk-significant SSCs which are below flood levels, the inspectors verified that the area configuration, features, and equipment functions were consistent with the description in UFSAR Section 3.4, Water Level (Flood) Design, and in the supporting documents listed in the Attachment. The inspectors reviewed the operator actions credited in the analysis, to verify that the desired results could be achieved using the plant procedures listed in the Attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors observed licensed-operator performance during requalification simulator training for crew 2, to verify that operator performance was consistent with expected operator performance, as described in Simulator Evaluation [Licensed Operator Continuing Training] 07b for training cycle 04-05. This evaluation tested the operators' ability to respond to multiple failures, including load rejection, pressurizer spray valve failing open, condensate pump trip, steamline break outside the containment vessel, and failure of the steam-driven auxiliary feedwater pump. The inspectors focused on clarity and formality of communication, the use of procedures, alarm response, control board manipulations, group dynamics, and supervisory oversight.

The inspectors also observed the post-exercise critique to verify that the licensee identified deficiencies and discrepancies that occurred during the simulator training.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the two degraded SSC/function performance problems or conditions and their corresponding action requests (ARs) listed below, to verify the licensee's appropriate handling of these performance problems or conditions in accordance with 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, and 10 CFR 50.65, Maintenance Rule. Documents reviewed are listed in the Attachment.

- Maintenance Rule functional failure criteria exceeded for 120/208 volt safety related breakers (AR 95376)

- Breaker 52/33B (connects service water pump D to the dedicated shutdown bus) won't stay closed - unanticipated extension of time in a technical specification limiting condition for operation action statement (AR 133073)

During the reviews, the inspectors focused on the following:

- Appropriate work practices,
- Identifying and addressing common cause failures,
- Scoping in accordance with 10 CFR 50,65(b),
- Characterizing reliability issues (performance),
- Charging unavailability (performance),
- Trending key parameters (condition monitoring),
- 10 CFR 50,65(a)(1) or (a)(2) classification and reclassification, and
- Appropriateness of performance criteria for SSCs/functions classified (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs/functions classified (a)(1).

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

For the four time periods listed below, the inspectors reviewed the licensee's risk assessments and the risk-management actions used by the licensee to manage risk. The inspectors verified that the licensee performed adequate risk assessments and implemented appropriate risk-management actions when required by 10CFR50.65(a)(4). For emergent work, the inspectors also verified that any increase in

risk was promptly assessed, and that appropriate risk-management actions were promptly implemented. Those periods included the following:

- the work week from November 5 through November 11, which included a scheduled outage of the B motor-driven auxiliary feedwater pump and scheduled maintenance on the breaker that connects the unit auxiliary transformer to switchyard bus 1.

- the work week from November 15 through November 19, which included a scheduled outage of the A charging pump and emergent switchyard maintenance.

- the work week from December 10 through 16, which included a scheduled outage of the B residual heat removal pump with emergent maintenance in the switchyard and emergent maintenance on the C charging pump.

- the work week from December 24 through December 30, which included a scheduled outage of the A motor-driven auxiliary feedwater pump and emergent maintenance on a secondary plant valve that required placing a feed regulating valve in manual.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions

a. Inspection Scope

During the normal plant shutdown from 100% power to hot shutdown for the emergent repair of reactor coolant system valve RC-525 (a pressurizer spray bypass valve), the inspectors observed plant instruments and operator performance to verify that the operators performed in accordance with the associated procedures and training. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed AR 143554, [Integrated Technical Specifications] [Limiting Condition for Operation] 3.6.3 Condition A Unanticipated Entry for V12-11, which was the only operability evaluation issued by the licensee during this period. The inspectors assessed the accuracy of the evaluation, the use and control of any necessary compensatory measures, and compliance with the Technical Specifications (TS). The inspectors verified that the operability determination was made as specified by

Procedure PLP-102, Operability Determinations. The inspectors compared the justifications provided in the determination to the requirements from applicable documents, to verify that operability was properly justified and the subject component or system remained available, such that no unrecognized increase in risk occurred. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds

a. Inspection Scope

The inspectors reviewed Workaround 04-11, Deepwell Pump B Has a Temporary Power Supply, to verify that this workaround did not affect either the functional capability of the related system in responding to an initiating event, or the operators' ability to implement abnormal or emergency operating procedures. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed the modification described in Engineering Change 51309, Replacement of the Dedicated Shutdown Uninterruptable Power Supply (DS-UPS), to verify that:

- this modification did not degrade the design bases, licensing bases, and performance capabilities of risk significant SSCs,
- implementing this modification did not place the plant in an unsafe condition, and
- the design, implementation, and testing of this modification satisfied the requirements of Procedure EGR-NGGC-005, Engineering Change, and 10CFR50, Appendix B, Criterion III, Design Control. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

For the five post-maintenance tests listed below, the inspectors witnessed the test and/or reviewed the test data, to verify that test results adequately demonstrated restoration of the affected safety functions described in the UFSAR and TS. Documents reviewed are listed in the Attachment.

The following tests were inspected:

Test Procedure	Title	Related Maintenance Activity	Date Inspected
OST-252-2	[Residual Heat Removal] System Valve Test - Train B	Limitorque Grease Inspection of Valve RHR-759B	September 14
OP-604	Diesel Generators A and B	Extensive preventive maintenance on the B emergency diesel generator	September 23
OST-302-1	Service Water pumps A & B Inservice Test, Rev. 42	Replace check valve SW-374	October 1
OST-101-2	[Chemical & Volume Control System] Component Test Charging Pump B	Replace charging pump B motor	October 27
OST-201-2	[Motor-Driven Auxiliary Feedwater] System Component Test - Train B	Calibrate discharge pressure switches, clean and test the pump oil cooler	November 8

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities

a. Inspection Scope

For the October 12-14 outage, the inspectors observed portions of the cooldown process to verify that TS cooldown restrictions were followed. Prior to reactor startup, the inspectors walked down containment to verify that structures, piping, and supports in

containment did not include stains or deposited material that could indicate previously unidentified leakage from components containing reactor coolant, and that debris had not been left which could affect performance of the containment sumps. The inspectors also reviewed the items that had been entered into the licensee's corrective action program (CAP) during the outage, to verify that the licensee had identified problems related to outage activities at an appropriate threshold and had entered them into the CAP. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the six surveillance tests identified below, the inspectors witnessed testing and/or reviewed the test data, to verify that the SSCs involved in these tests satisfied the requirements described in the TS, the UFSAR, and applicable licensee procedures, and that the tests demonstrated that the SSCs were capable of performing their intended safety functions. Documents reviewed are listed in the Attachment.

Test Procedure	Title	Date Inspected
OST-750-2	Control Room Emergency Ventilation System - Train B (Monthly)	September 17
OST-751	Control Room [Heating, Ventilation, & Air Conditioning] R-1 Initiation and [Emergency Response Facilities Information System] Point Test (Quarterly)	September 30
OST-051*	Reactor Coolant System Leakage Evaluation (Every 72 Hours During Steady State Operation and Within 12 Hours After Reaching Steady State Operation)	October 20
OST-101-6**	Comprehensive Flow Test For Charging Pump A	November 15
MST-014	Steam Generator Pressure Protection Channel Testing	November 20
OST-352-1	Containment Spray Component Test - Train A	November 23

*This procedure included reactor coolant system leak detection.
** This procedure included inservice testing.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the temporary modification described in Engineering Change 58485, Block Open Suction Dampers for HVE-6B, to verify that the modification did not affect the safety functions of important safety systems, and to verify that the modification satisfied the requirements of Procedure EGR-NGGC-005, Engineering Change, and 10CFR50, Appendix B, Criterion III, Design Control.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Testing

a. Inspection Scope

The inspectors reviewed the general description of the alert and notification system (ANS) in Section 5.4.4.6 of the Robinson Emergency Plan (REP) and determined the licensee's commitments with respect to the testing and maintenance of the ANS, which comprised 45 sirens in the 10-mile emergency planning zone. The testing program comprised weekly silent tests, quarterly growl tests, and annual full-volume tests. ANS changes during the past two years, procedures for periodic preventive maintenance (including post-maintenance testing), and test records (with an emphasis on identification of any repetitive individual siren failures) were reviewed and discussed with cognizant management and maintenance personnel. Selected corrective actions were evaluated to determine their effectiveness in addressing ANS problems. The review of this program area encompassed the period December 2002 through November 2004. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Augmentation

a. Inspection Scope

The inspectors determined the licensee's commitments and criteria (specified in Section 5.3 of the REP) regarding timeliness and numbers of personnel for staffing

emergency response facilities (ERFs) in the event of an emergency declaration at Alert or higher. The inspectors selectively reviewed the maintenance and testing of the licensee's ERO primary and backup augmentation systems, including records of ERO quarterly pager tests. On December 9, 2004, the inspectors observed a biennial off-hour ERO drill involving actual travel to the plant and activation of ERFs; the drill commenced with the initiation of ERO pager activation at 4:13 a.m. The inspectors also reviewed and discussed changes to the augmentation system and process during the past two years. Follow-up activities for a sample of problems identified through ERO augmentation testing were evaluated to determine whether appropriate corrective actions were implemented. The review of this program area encompassed the period December 2002 through November 2004. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes

a. Inspection Scope

The inspectors reviewed a selected sample of changes made to the REP since the last inspection in this program area (conducted in October 2003) against the requirements of 10 CFR 50.54(q) to determine whether any of the changes decreased Plan effectiveness. The licensee had implemented REP Revisions 55 and 56, including substantive EAL modifications in Revision 56. The inspectors conducted a detailed evaluation of all EAL changes, and reviewed documentation of the licensee's 10 CFR 50.54(q) screening reviews for the referenced revisions. In addition, the inspectors further reviewed issues related to a non-cited violation (NCV) identified during the October 2003 inspection in this program area (NCV 05000261/2003006-01, Failure to maintain adequate onsite staff for REP implementation). Documents reviewed are listed in the Attachment.

b. Findings

Introduction A severity level IV NCV was identified for implementing a change which decreased the effectiveness of the REP, contrary to the requirements of 10 CFR 50.54(q). The change involved emergency classification of a seismic event.

Description During the October 2003 review of the licensee's REP Revision 54, and again during the current inspection, the inspectors held discussions with licensee staff and management regarding the EAL modification associated with the 2003 installation of replacement seismic monitoring instrumentation per Engineering Change 47088. The inspectors noted that the amount of time specified for retrieval and analysis of data following a seismic event increased from 30 minutes to 60 minutes. Prior to REP Revision 54, the wording in the EAL-2 flow chart was:

NOTE: THERE WILL BE APPROXIMATELY 30 MINUTES DELAY BETWEEN SEISMIC ALARM AT 0.01g AND RESULTS FROM THE SEISMIC INSTRUMENTS

The revised EAL-2 wording (Revision 17 to EAL-2, effective 09/16/2003 and incorporated in REP Revision 54) was:

NOTE: RETRIEVAL AND ANALYSIS OF DATA FROM SEISMIC INSTRUMENTS WILL TAKE APPROXIMATELY 60 MINUTES

The methodology under both EAL revisions required that data be retrieved from the seismic monitor and analyzed by a technician before any determination could be made of a classification greater than a Notification of Unusual Event (NOUE) based on seismic data alone. The wording of the EALs indicated that, prior to REP Revision 54, there would be a 30-minute delay before the classification of an Alert or a SAE following a seismic event. The implementation of REP Revision 54 changed the 30-minute period required for seismic data analysis to 60 minutes based on the specifications of the new seismic instrumentation.

10 CFR 50.54(q) allows the licensee to make changes to the REP without Commission approval as long as the change does not decrease the effectiveness of the REP. The inspectors noted that this change could potentially delay the declaration of an Alert or a Site Area Emergency (SAE) resulting from a seismic event by an additional 30 minutes, thus decreasing the REP's effectiveness. The licensee evaluation determined that this change did not decrease the REP's effectiveness. The inspectors determined that when the licensee evaluated the change, the change was not characterized as the relative difference between the proposed configuration and the existing configuration, as required by 10 CFR 50.54(q). Instead, the licensee incorrectly characterized the change as the absolute difference between the proposed configuration and a reference configuration that was described in a site-specific NRC document.

Analysis The inspectors determined that the failure to request NRC approval of the REP change potentially impeded the NRC's regulatory process and was therefore, in accordance with Section 2.2.e of Appendix B to NRC Manual Chapter 0609, evaluated using the guidance in Section IV of NUREG-1600, General Statement of Policy and Procedure for NRC Enforcement Actions (Enforcement Policy), rather than the NRC Significance Determination Process. This finding is greater than minor because extending the time period required for appropriate emergency classification of a seismic event could adversely affect the performance of both onsite and offsite emergency actions. The finding is not suitable for SDP evaluation, but has been reviewed by NRC management. The finding was therefore dispositioned as a Severity Level IV violation according to Supplement VIII (Emergency Preparedness) of the Enforcement Policy because it involved licensee failure to meet an emergency planning requirement (namely, 10 CFR 50.54(q)) not directly related to assessment and notification.

Enforcement 10 CFR 50.54(q) requires, in part, that licensees authorized to possess and operate a nuclear power reactor shall follow and maintain in effect emergency plans which meet the standards in Section 50.47(b) and the requirements in Appendix E of

this part. 10 CFR 50.54(q) also states that "The nuclear power reactor licensee may make changes to these plans without Commission approval only if the changes do not decrease the effectiveness of the plans and the plans, as changed, continue to meet the standards of 10 CFR 50.47(b) and the requirements of Appendix E to this part." Contrary to the above, the licensee implemented changes to emergency classification flow chart EAL-2 in Revision 54 of the REP, which decreased the effectiveness of the emergency plan, without prior NRC approval. This failure to comply with the requirements of 10 CFR 50.54(q) was identified as a severity level IV violation in accordance with Supplement VIII (Emergency Preparedness) of the Enforcement Policy The violation involved licensee failure to meet an emergency planning requirement (namely, 10 CFR 50.54(q)) not directly related to assessment and notification. Because the violation was entered into the licensee's CAP as NCR 148667 (Re-assess the Basis for Rev. 54 of the Emergency Plan), it is being treated as a non-cited severity level IV violation consistent with Section VI.A of the Enforcement Policy. NCV 05000261/2004005-01, Implementation of a Change to EAL-2 which Decreased the Effectiveness of the Emergency Plan, Rev. 54.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

a. Inspection Scope

The inspectors evaluated the efficacy of licensee programs that addressed weaknesses and deficiencies in emergency preparedness. The procedure governing the plant corrective action process was reviewed for applicability to the emergency preparedness program. Since the last inspection of this program area (December 2002), no emergency declarations were made by the licensee. Reports on the most recent QA audit, performed in accordance with 10CFR 50.54(t), and two self-assessments were reviewed. The inspectors evaluated selected drill scenarios and associated critiques to determine whether the licensee had properly identified failures to implement regulatory requirements and planning standards. A sample of weaknesses and deficiencies identified by means of these licensee processes was evaluated to determine whether corrective actions were effective and timely. The review of this program area encompassed the period December 2002 through November 2004. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation

a. Inspection Scope

On October 12, the inspectors observed an emergency preparedness drill to verify licensee self-assessment of classification, notification, and protective action recommendation development in accordance with 10CFR50, Appendix E. The inspectors also attended the post-drill critique, to verify that the licensee properly

identified failures in classification, notification and protective action recommendation development activities.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

.1 Mitigating Systems Cornerstone PI

a. Inspection Scope

The inspectors verified the PI for Safety System Unavailability, High Pressure Safety Injection, in the mitigating systems cornerstone. The inspectors verified the accuracy of the data that had been previously reported to the NRC by comparing the reported data to the actual data, as described below. The inspectors also compared the licensee's basis in reporting each data element to the PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Indicator Guideline, Rev. 2. In addition, the inspectors interviewed licensee personnel associated with collecting, evaluating, and distributing these data.

For the period from the 4th quarter of 2003 through the 3rd quarter of 2004 the inspectors reviewed documents prepared by the licensee in accordance with procedure REG-NGGC-009, NRC Performance Indicators and Monthly Operating Report Data, and subsequently used as the basis for reporting unavailability hours. In addition, the inspectors reviewed licensee event reports (LERs), records of inoperable equipment, and Maintenance Rule records, to verify that the licensee had accurately accounted for unavailability hours that the high pressure safety injection system had experienced during the subject period. The inspectors also reviewed the number of hours this system was required to be available and the licensee's basis for identifying unavailability hours.

b. Findings

No findings of significance were identified.

.2 Emergency Preparedness Cornerstone PIs

a. Inspection Scope

The inspectors sampled licensee submittals relative to the PIs listed below for the period July 1, 2003 through September 30, 2004. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02,

Regulatory Assessment Performance Indicator Guideline, Revision 2, were used to confirm the reporting basis for each data element.

- Emergency Response Organization (ERO) Drill/Exercise Performance
- ERO Drill Participation
- Alert and Notification System Reliability

For the specified review period, the inspectors examined data reported to the NRC and records used by the licensee to identify potential PI occurrences. The inspectors verified the accuracy of the PI for ERO drill and exercise performance through review of a sample of drill records. The inspectors reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. The inspectors verified the accuracy of the PI for alert and notification system reliability through review of a sample of the licensee's records of periodic ANS tests. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Routine Review of ARs

To aid in the identification of repetitive equipment failures or specific human performance issues for followup, the inspectors performed frequent screenings of items entered into the licensee's CAP. The review was accomplished by reviewing daily AR reports.

.2 Annual Sample Review

a. Inspection Scope

The inspectors reviewed AR 129453, Ineffective Implementation of OMM-033, Implementation of [Containment Vessel] Closure, because this AR relates specifically to the Barrier Integrity Cornerstone and was classified by the licensee as a significant condition adverse to quality. The inspectors reviewed this report to verify:

- complete and accurate identification of the problem in a timely manner;
- evaluation and disposition of performance issues;
- evaluation and disposition of operability and reportability issues;
- consideration of extent of condition, generic implications, common cause, and previous occurrences;
- appropriate classification and prioritization of the problem;
- identification of root and contributing causes of the problem;
- identification of corrective actions which were appropriately focused to correct the problem; and

- completion of corrective actions in a timely manner.

The inspectors also verified licensee compliance with the requirements of the licensee's CAP as delineated in corporate procedure CAP-NGGC-0200, Corrective Action Program, and 10 CFR 50, Appendix B. Documents reviewed are listed in the Attachment.

b. Observations and Findings

From the review of this AR, no findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more-significant safety issue. The review focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.1 above, licensee trending efforts, and licensee human performance results. The review nominally considered the six month period of July, 2004, through December, 2004, although some examples expanded beyond those dates when the scope of the trend warranted. The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self assessment reports, and Maintenance Rule assessments. Documents reviewed are listed in the Attachment. The inspectors compared and contrasted their results with the results contained in the licensee's latest monthly trend reports. Corrective actions associated with a sample of the issues identified in the licensee's trend reports were reviewed for adequacy.

The inspectors also evaluated the licensee's trend report against the requirements of the licensee's CAP as specified in CAP-NGGC-0200, Corrective Action Program, and 10 CFR 50, Appendix B, Criterion XVI.

b. Assessment and Observations

No findings of significance were identified. The inspectors observed that the licensee had performed a detailed review using their trending methodology. The licensee routinely reviewed cause codes, involved organizations, key words, and system links to identify potential trends in their CAP data. Neither the licensee nor the inspectors identified any trend that could indicate the existence of a more significant safety issue. However, by comparing the results of the licensee's reviews with those identified by the NRC through the baseline inspection program, the inspectors identified a trend regarding deficient inadequate work orders for troubleshooting equipment problems with unknown causes. These work orders were deficient in that they directed the work crews to use procedure PLP-21, Troubleshooting Guidelines, only "if necessary", and to repair

or adjust the equipment “as deemed necessary”. Furthermore, most such work orders did not include a description of the specific activities that should be conducted to investigate or troubleshoot the problem, or of the precautions and restrictions to be observed during such activities. Work crews were thus required to improvise their own troubleshooting plans, usually not in writing, and to implement those plans without second-party review. Examples of this type of work order include:

- 563855-01, written on June 24 to investigate a problem with an alarm that didn’t actuate when it should have actuated;
- 564001-01, written on July 12 to troubleshoot erratic indications from a steam generator level transmitter;
- 594205-01, written on July 27 to address the observation that a breaker reopened after manual attempts to close it, and
- 625009-01, written on October 14 to address problems in a steam-flow / feed-flow mismatch circuit.

In these work orders, the inspectors found no record that PLP-21 had been used.

The licensee acknowledged this trend, and addressed it in two ways. First, the licensee expanded their investigation of a related issue to address this trend. Second, the Maintenance Manager directed his staff to ensure that Maintenance supervision or management became involved in every troubleshooting effort.

4OA3 Event Follow-up

(Closed) LER 05000261/2004-002-00, Entry into Mode 3 with the Steam-Driven Auxiliary Feedwater Pump Flowpath Inoperable.

On May 23, 2004, during a reactor startup following a refueling outage, the reactor operating mode was changed from mode 4 to mode 3 with the steam-driven auxiliary feedwater pump (SDAFWP) flowpath not correctly aligned for operation as required by TS 3.7.4. Specifically, on April 24, 2004, while the plant was in operating mode 5 and while the SDAFWP was not required, the suction valve (AFW-4) to the SDAFWP had been closed under a caution tag, as an operational convenience. Closure of this valve rendered inoperable the flowpath through the SDAFWP. The caution tag was not removed before the reactor operating mode was changed to mode 3 at 1555 on May 23. Therefore, contrary to the TS 3.7.4 requirement for the SDAFWP flowpath to be operable in modes 1, 2, and 3, that flowpath was not operable when the plant entered mode 3. The licensee discovered this condition and opened AFW-4 at 2139 on May 23. The licensee’s investigation determined that the root cause had been conflicting requirements between and among several plant procedures, and that contributing causes had been insufficient guidance or missing details in several procedures. Corrective actions included revising the inadequate procedures. Documents reviewed are listed in the Attachment.

In accordance with Appendix A of MC 0609, Significance Determination Process, this finding was determined to have very low safety significance because the finding was not

a design or qualification deficiency; the finding did not represent an actual loss of safety function of a system, an actual loss of safety function of a single train for greater than its TS-allowed outage time, or an actual loss of safety function of one or more non-TS trains of equipment designated as risk-significant per 10CFR50.65, for greater than 24 hrs; and the finding did not screen as potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event. This licensee-identified finding involved a violation of TS 3.0.4. The enforcement aspects of the violation are discussed in Section 4OA7. This LER is closed.

4OA5 Other Activities

.1 Institute of Nuclear Power Operations Evaluation

The inspectors reviewed the Institute of Nuclear Power Operations evaluation completed on September 8, 2004.

.2 Independent Spent Fuel Storage Installation (ISFSI)

a. Inspection Scope

The inspectors examined installation of the reinforcing steel, observed the concrete pour, and reviewed documents for the ISFSI cask storage pad.

The inspectors examined reinforcing steel and concrete wood forms mainly in ISFSI pad section number 2 to ensure that they were installed with the cleanliness and tightness requirements and that the licensee had measured the reinforcing steel diameter, spacing, splice length, and the concrete minimum protection coverage in accordance to the requirements of the design drawings and the American Concrete Institute.

The inspectors witnessed placement of concrete in ISFSI pad section number 2. The inspectors observed placement activities to ensure that activities pertaining to concrete delivery time, flow distance, layer thickness and concrete consolidation or vibration conformed to industry standards established by the American Concrete Institute. Concrete batch tickets were examined to ensure that the specified concrete mix was being delivered to the site. The inspectors also witnessed in-process testing and reviewed the results of the plastic concrete for slump, air content, temperature, unit weight, and molding of the concrete cylinders for the compressive strength testing, and reviewed to ensure that concrete samples for the field testing and cylinders for the testing were obtained at the point of placement (end of pump line). The inspectors reviewed to ensure that concrete field testings were performed and the cylinders were molded in accordance with applicable American Society for Testing and Materials (ASTM) requirements. In addition, the inspectors reviewed activities to ensure that concrete field testing was performed by qualified inspectors from an independent testing company, and that concrete placement activities were continuously monitored by the licensee and contractor quality control and quality assurance personnel.

The inspectors also reviewed records documenting inspection of the concrete batch plant and the concrete truck mixers performed by an independent engineering and consulting company. Activities were reviewed to determine if the contractor's inspection of the trucks and batch plant were performed in accordance with the Plant Certification Checklist of the National Ready Mixed Concrete Association (NRMCA); the batch plant scales were calibrated in accordance with NRMCA recommendations; and mixer efficiency tests were performed on the truck mixers in accordance with ASTM C-94. The inspectors reviewed the concrete mix data to ensure that mix proportions for delivered concrete were selected based on trial concrete mix results, and that the trial mix met concrete strength requirements. The inspectors reviewed the documents for the previous pours. The inspectors reviewed the results of unconfined compression tests performed on concrete cylinders molded during the previous concrete pour for section numbers 1 & 3 at the curing age of two and seven days which the strength results showed between 4000 and 5000 psi in the placement approximately 10 days prior to the inspection. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.3 Generic Letter (GL) 89-13 Recommendation Implementation Verification (TI 2515/159)

a. Inspection Scope

Utilizing Temporary Instruction (TI) 2515/159, the inspectors reviewed the licensee's implementation of five recommendations of Generic Letter (GL) 89-13, Service Water System Problems Affecting Safety-Related Equipment. The inspectors verified that the actions implemented in response to NRC GL 89-13 were programmatically controlled and have been maintained effective. NRC GL 89-13 and the licensee responses to the GL were used as the technical guidance for this inspection. The inspection took place October 4 - 8, 2004.

On a sampling basis, the inspectors verified that:

- For open-cycle service water systems (SWS), the licensee had implemented an ongoing program of surveillance and control techniques to significantly reduce the incidence of flow blockage problems as a result of biofouling.

- The licensee had implemented a test program for the heat transfer capability of all safety-related heat exchangers (HX) cooled by the SWS.

- The licensee had implemented a routine inspection and maintenance program for open-cycle SWS piping and components that ensured corrosion, erosion, protective coating failure, silting, and biofouling could not degrade the performance of the safety-related systems supplied by SW.

- The SWS will perform its intended function in accordance with the design basis for the plant.

- Maintenance practices, operating and emergency procedures, and training that involve the SWS were adequate to ensure that safety-related equipment cooled by the SWS would function as intended and that the operators of this equipment would perform effectively.

- Using SWS operating experience that relates to GL 89-13, the licensee procedures would assess applicability, distribute information to appropriate staff and perform technical reviews.

The inspectors reviewed the licensee's operational experience program (OE), CAP, test and inspection data, work order information, trend information, visual inspection records, tubesheet plugging records, modification installation records, operator training guidance, flow diagrams, coat repair records, operational procedures, and discussed plant specific problems with the licensee to determine the implementation of the generic letter recommendations.

b. TI Inspection Findings on Program Effectiveness and Maintenance

1. The inspectors reviewed the program for surveillance and control of flow blockage problems as a result of biofouling.

   For open-cycle SWS, as discussed below, the review of two years of operational history revealed some minor degraded system performance with respect to plugging or flow blockage. Operability determinations, condition reports, LERs, system health reports, and work orders reviewed related mostly to component wear and/or degraded material conditions. Corrective actions taken to address these issues such as replaced piping and/or components, increased preventive maintenance, and review of the extent of condition were examined. In 1993, the licensee performed a self assessment and then the NRC performed an operational performance inspection. The TI inspection reviewed the extensive corrective actions stemming from that period. Just before this TI inspection, an NRC Problem Identification and Resolution inspection (Inspection Report 05000261/2004007) was performed that included the SWS as a sample system to inspect and that effort resulted in no findings.

   The intake structure was visually inspected per the commitments of the licensee's response to the GL 89-13. The words of the commitment letter indicated 5 annual inspections would be performed with an allowance to extend its frequency. On an approximate five year basis, the licensee has divers inspect their intake structure pump bays/pits. These results indicated that silt build-up and conditions in the pits had not changed over the years the licensee had been trending the material found in the pits and in the area in front of the pits.

The lake that the site draws water from is nearly sterile with a pH of about 4.5. At this pH, the system HX metals stay nearly "bright metal" with the acidic nature of the water. The lake is nearly an impoundment. There is little silt, no clams, nor mud to foul the system. To date, there has been no need to dredge or clean either area. The intake's submerged screens and metal parts are not degrading rapidly. The next inspection is scheduled for Spring 2005.

A review of the program for surveillance and control of flow blockage problems as a result of biofouling revealed that the naturally occurring pH of Lake Robinson does not support a significant Asian clam (Corbicula Fluminia) population. As environmental conditions warrant, Hypochlorite is injected into the service water system. The injection procedure calls for injections that follow the ambient heat cycle with the most frequent injections occurring in the height of summer. Systems with low flow or infrequent flow are flushed on a periodic basis and Hypochlorite is injected into laid-up systems. The inspectors witnessed the co-ordinated flushing and lay up of one of the EDG trains. To date, the licensee has experienced minimal biofouling and no significant flow blockage. The licensee samples Lake Robinson yearly to confirm the absence of any substantial population of Asian clams as stipulated in the commitment letter. Through the 2003 sample they have found no substantial population, as the natural chemistry of the lake inhibits their proliferation. The 2004 sample is scheduled to be taken in December 2004.

Maintenance with biocides on redundant and infrequently used cooling loops, including fire protection piping, and/or flushing normally mitigate the potential clogging and mitigate microbiologically induced corrosion (MIC) in those components and down stream components. Microbiological attack of the metals in the system is occurring at a low rate. Material construction, water conditions, and chemistry treatment appear to be keeping the attack in a less aggressive mode. By procedure, the SWS to auxiliary feedwater (AFW) suction is maintained dry by two isolation valves; these valves are flow tested during outages via an intervening drain valve.

Review of the HX periodic inspection program revealed that there are currently no plugged service water/safety-related HX tubes. In this licensee's case, tube plugging would be the result of tube leakage testing. The licensee has experienced some thinning in the copper tubbed HXs. Most of the copper tubed HXs (room coolers and their copper header piping) have had or are planned to have the tube bundles replaced with stainless steel tubes. Due to rapid material loss in the low pH water, the original HXs had been routinely replaced every four years; recently, it had become cost effective to replace them with stainless steel. Stainless steel is not as susceptible to the tube thinning from Lake Robinson's natural chemical environment.

2. The inspectors performed a review of the implemented test program for the heat transfer capability of all safety-related HXs cooled by the SWS.

   In response to the GL, the licensee attempted to test HXs in the SWS. Due to the system configuration, lack of installed SWS instrumentation, and the inaccuracies of

temporary instrumentation, the licensee was unable to obtain good test results. Their GL (January 26, 1990) response indicated that, "If the heat transfer capability of the individual HXs cannot be verified by tests, then a program of frequent inspection and maintenance will be developed." The licensee has developed an open and inspection program as indicated below.

3. The inspectors performed a review of the SWS piping periodic inspection and maintenance program.

   The maintenance program review revealed limited and infrequent degraded system performance due to corrosion, erosion, protective coating failure, silting, and biofouling. Light siltation occurs with no required action other than routine HX cleaning. MIC is occurring in limited localized spots in the system requiring pipe flushing, pipe replacement, and monitoring for reduction in cross-section and microbe induced wall thinning.

   During HX outage, open and inspections, the licensee does clean but does not perform eddy current testing on the HX tubes. The licensee pressure tests the shell side of the HX and then inspects the tubes for leakage. The inspectors sampled the pressure test results.

   Due to fact that the majority of the SWS piping is concrete lined (12 inches and over), the licensee has no comprehensive non-destructive examination program. The licensee had previously crawled/inspected the large bore pipe and done some repairs (see below). The licensee has ultrasonically thickness tested the copper header piping to the room coolers and has modification packages planned for the pipes' replacement.

   In the mid 1990s, the licensee had problems with through-wall leakage on an SWS train supply header. A piping section was replaced. Also, the licensee had a flow impingement issue at two throttle valves to the CCW HXs. These valves and the associated piping were replaced with improved components. Piping to the reactor building cooling units in containment has been replaced with a form of corrosion and erosion resistant steel designated as AL6XN.

   Recently, two other piping problems arose in safety-related piping. As a result, the licensee has developed a piping replacement plan for safety and non-safety related piping. On the secondary piping around the main generator hydrogen coolers, the licensee has had through-wall and joint leakage on the piping. This piping as well and the lines to the EDGs are 10 gage aluminum that is lined/coated with a resin on its interior. The joints are coupled with a rubber and groove hinge flange arrangement. There have been numerous secondary failures. The hydrogen cooler piping is disassembled and reassembled frequently, which has deteriorated its joints and liner. The safety-related EDG piping, which has not been routinely disassembled, has had two pin hole size repairable leaks (replacements). The other recent piping problem has been that small concrete chunks and chips have been found in the HXs. Viewing pictures of the pieces, the inspectors determined, as did

the licensee, that the concrete did not present a HX operational problem. Its presence meant the concrete was probably coming loose at the buried SWS piping joints between the auxiliary building and the intake structure. The bell and spigot joints in the train piping runs had been repaired (concrete removed, weld repaired, and then re-concreting of the joints) a number of years ago. The licensee plans to crawl/inspect the piping at the next outage. The inspectors verified that no surface weepage was present in the area above the piping (this is normally a heavy foot traffic area).

4. The inspectors reviewed the testing program used to verify that the SWS will perform its intended function in accordance with the design basis for the plant.

   A review of the testing program used to verify that the SWS will perform its intended function in accordance with the design basis for the plant revealed that the 1989 and 1999 service water flow tests had consistent results. Individual component tests also were in close agreement. Some slight differences could be reasonably explained by the replacement of the older ultrasonic flow detectors with Delta P flow measuring devices. The inspectors independently verified the analytical model by verifying a portion of the nodal model. The inspectors also independently calculated the Reynolds, Prandlt, and Froude Numbers for the CCW HX, and the Steam Driven Auxiliary Feedwater pump (SDAFWP) lube oil HX. The calculated values were in close agreement with those used in the SWS flow balance calculation.

   A review was performed of the SWS pump ASME Code test program. The pumps are rebuilt periodically by the pump vendor and a new multi-point flow test curve is generated at the time of rebuilding. The licensee reviewed the new curves and inserted these into the code program. Once installed, the pumps are periodically single-point tested at a flow approximate to the accident rate. The inspector reviewed the data finding the testing acceptable.

   A review of three modifications implemented on the SWS revealed that changes had not compromised the system design bases or introduced single active failure vulnerabilities. The engineering service request (ESR) packages reviewed included the installation of a temporary clamp on the SWS common return line from the EDG heat exchangers. The pipe had developed a pin hole leak and the clamp was to stop the leak until the piping could be replaced. The second ESR reviewed installed an alternate SWS discharge from the B CCW heat exchanger. The modification provided a new flowpath for discharge from the B CCW heat exchanger to support the normal SWS discharge pipe replacement ESR. The third ESR reviewed replaced the SW lines on the return side of the CCW heat exchangers due to erosion. The modification replaced carbon steel Belzona lined piping with unlined AL6XN. All design change packages reviewed included 50.59 evaluations and post modification testing. In addition, the ESRs revised drawings, applicable FSAR sections, and procedures as necessary.

   The inspectors performed a review to determine if installed SWS components are tested and that the test acceptance criteria are consistent with the design basis.

The review revealed that as-found data for instruments and alarms were generally within the allowable tolerance range and the instrument setpoints are within reasonable agreement of those predicted by the hydraulic model. The flows or temperatures at many components are checked during surveillance testing (particularly the small pump coolers).

The inspectors' review of SWS performance (such as overall system unavailability or recurring problems) revealed that there were no significant periods of SWS unavailability or significant recurring problems.

A review of the 1999 SWS flow balance data revealed the SWS flow balance verification was done under worst case combinations of pump operation and confirmed the accuracy of the 1989 SWS flow balance which confirmed system flow and established throttle valve positions for the CCW HX outlet valves. These throttle positions are administratively controlled by procedure.

SWS flow test results, simulator runs, and discussions with the system engineers revealed SWS pump run-out conditions are not present with the minimum number of pumps operating with worst case alignment of non-safety related loads.

System flow balance data is consistent with key design assumptions. The results were consistent for flow coefficients, rated pressure drops across components and piping, rated heat removal, HX fouling, and total system flow for operating modes. The licensee maintains a working dynamic model of the SWS and the model closely predicts SWS flows. The licensee maintains the model and uses the results from the model to predict system operability.

A system walkdown found that the SWS configuration was consistent with design drawings and acceptable material condition. The inspectors walked down most major SWS locations (auxiliary building, main and auxiliary control rooms/areas, and SWS intake area) finding the areas well lit with appropriate emergency lighting. The control areas (and possible manual action areas) were not in radiation areas and were accessible.

5. The inspectors reviewed the license's operating and SWS maintenance procedures used to assure the system is operated within design basis.

   The inspectors reviewed the SWS alarm response procedures and operating procedures for normal, abnormal, and emergency system operations to assure the system is operated within design basis. The inspectors verified procedures to be consistent with system piping and instrument diagrams. The procedures and drawings clearly represented the plant configuration. Assessment of SWS flow instrumentation and operating logs relied upon during accident conditions revealed that the flow instrumentation was functional and readable. The operator logs were checked for consistency, correct span readings, and historical availability. Review of corrective maintenance history and condition report search performed on selected SWS instrumentation revealed no major deficiencies.

The inspectors found that local and remote equipment that is required for accident condition flow and flow mitigation capabilities were not degraded. Walkdowns revealed that controls are clearly labeled and accessible. Equipment had been environmentally qualified for the worst anticipated conditions. The SWS is designed for 100 psi and 125E F. The discharge piping from SWS booster pumps up to the containment air recirculating units is designed for a pressure of 150 psi at 125E F. The design temperature of the SWS supply is 125E F; however, a 95E F SWS delivery temperature is usually assumed in calculating the required SWS flow to supported equipment. The assumption of 95E F maximum SWS delivery temperature was used in the original design of the containment fan coolers, and in the original UFSAR Chapter 15 accident analysis. SWS supply temperature greater than or equal to 97E F requires entry into TS 3.7.8. With the SWS temperature greater than 97E F but less than 99E F, the required cooling capacity of the SWS must be verified by evaluating the existing operational condition of the systems and components served by the SWS and verifying that each is capable of performing its safety-related function. In the cases where the SWS provided support to operating systems such as room coolers or motor cooling equipment, each had been qualified to use service water of 99E F (as measured at the outlet of the booster pumps). The most limiting case is the EDG coolers. They were qualified to 97E F with the maximum load with 2% of the tubes plugged and a load of approximately 104%. Currently there are no plugged tubes.

Review of the maintenance history for the SWS for the past two operating cycles looking for recurring problems or trends revealed challenges of erosion in the auxiliary building room coolers with copper coils. Due to the effects of service water on the copper cooling coils the licensee has established an ongoing program of inspection and tube replacement with plans to switch to stainless steel tubing in all of the auxiliary building room coolers. The review of the maintenance history did not reveal challenges of silt, clams, or any other flow blockage concerns. No operational failures were identified.

A review of operator classroom course work, interviews with training personnel and licensed and non-licensed operators and simulator training for the service water system revealed that operator training is complete and accurate. The training includes classroom course work, simulator scenarios and Job Performance Measures (JPMs). In addition, the training contained industry events and recent modification information.

The inspectors' review of the system operating procedure and system piping and instrument diagrams with engineering and operations staff revealed that only two large valves are in the throttled position. These are the outlet valves for the CCW HXs. These valves are throttled to maintain back pressure in the HXs. The valves are clearly marked, with the throttled positions clearly visible. The valves that require manual manipulation are accessible and clearly labeled. The licensee has adequate local and main control room instrumentation to control the SWS.

All the special equipment required for the SWS procedures is available and on station. This includes dedicated ladders to reach any valve that is located above pipes or is outside of normal reach.

Operators were knowledgeable and understand how to locate and operate special equipment. The inspectors interviewed several operators, trainers and managers, and witnessed several simulator scenarios. In all cases the personnel interviewed had a detailed understanding of the SWS in both normal and emergency conditions. The scenarios observed included breaks in each of the main service water headers. The plant procedures provided clear concise instructions that quickly restored the plant to a safe configuration.

Review of maintenance staff training revealed that the material covered basic system layout and an overview of the system operations. The inspectors found SWS training to be consistent with plant design. Training material also included foreign material exclusion cautions where applicable. The inspectors also discussed maintenance activities with the training and craft personnel.

The SWS has several valves that change state (e.g., open to flow to the EDGs) under different conditions or scenarios. The inspectors reviewed a sample of the valve preventive maintenance activities and corrective maintenance over the last three years finding no operability issues.

Review of SWS maintenance procedures indicated these were adequate and sufficient to perform the task indicated. The procedure and maintenance activities were discussed with maintenance personnel about specific activities such as HX open and inspection, and tube plugging.

Review of the vendor manual for components revealed that manuals were up to date, contained reasonable instructions, and had been updated through the modification process when necessary.

6. Using SWS operating experience that relates to GL 89-13, the inspectors reviewed the licensee's program for generic operating experience to determine its effectiveness with respect to SWS.

   The inspectors determined that the operating experience program reviewed GL 89-13 related information, distributed the information to appropriate staff, assessed applicability, performed technical reviews, and had corrective actions in place as necessary. Sources of operating experience information reviewed by the licensee included NRC information notices, INPO notices, and vendor information. The evaluations applicable to the station had corrective actions in place and revised procedures as necessary.

c. Conclusions on the Inspection Findings as Identified by the TI 159 Review

1. The effectiveness of GL 89-13 in communicating information.

   The effectiveness of GL 89-13 in communicating information was judged to be adequate, in that the licensee implemented a program to assess the facility's vulnerability to the service water issues described in the document.

2. Licensee actions that are being implemented for the five recommended actions of GL 89-13.

   As stated in their responses to the GL, the inspectors determined that the licensee implemented the GL programs.

   Due to initial HX testing problems, the thermal performance testing was never satisfactorily completed. In concert with their response to the GL, the licensee instituted an open and inspection program. The cleanliness and pH of their impoundment lake allowed this program to work satisfactorily in lieu of testing.

3. Effective programmatic maintenance of the actions in response to GL 89-13.

   The licensee has maintained and extended their original program. To date, the licensee has identified the maintenance problems largely before they became at-power issues. Modifications and repairs have largely been timely.

d. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

On January 12, 2005, the resident inspectors discussed the integrated inspection results with Mr. W. Noll and other members of his staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

On January 19, 2005, in a re-exit of the inspection described in section 1EP4, the inspectors informed licensee management of the final determination with regard to the violation.

4OA7 Licensee-Identified Violations

The following findings 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 Policy, NUREG-1600, for being dispositioned as NCVs.

.1 Inoperable Auxiliary Feedwater Flowpath

TS 3.0.4 requires, in part, that when a limiting condition for operation is not met, entry shall not be made into a mode in which the limiting condition applies, except under certain circumstances. TS 3.7.4 requires, in part, that three auxiliary feedwater pumps shall be operable when the plant is operating in modes 1, 2, and 3. Contrary to the above and as described in Section 4OA3, on May 23, 2004, entry into mode 3 was made with only two auxiliary feedwater pumps operable.

This finding is more than minor because it affected the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with NRC Manual Chapter 0609, Appendix A, this finding was determined to have very low safety significance because it was not a design or qualification deficiency; it did not represent an actual loss of safety function of a system, an actual loss of safety function of a single train for greater than its TS-allowed outage time, or an actual loss of safety function of one or more non-TS trains of equipment designated as risk-significant per 10CFR50.65, for greater than 24 hrs; and it did not screen as potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event. This NCV is in the licensee's CAP as AR 127784.

.2 Inaccessible Appendix R Pathway

Through their routine review of ARs, the inspectors learned that on October 25, during a routine Operations department walkdown of pathways used for fire-fighting, the licensee discovered that Security Door 24 could not be opened from the outside. This door provides passage between a turbine building mezzanine area and the room that contains the component cooling water (CCW) pumps, the CCW heat exchanges, and some SW piping. The licensee subsequently determined that for a time period that began no earlier than October 22 and ended on October 25, access was not provided through Security Door 24 to permit effective functioning of the fire brigade. Furthermore, during this period, the fire brigade leader did not have ready access to a key for the locked door outside Security Door 24.

Because 10CFR50, Appendix R requires, in part, that access to permit effective functioning of the fire brigade shall be provided to all areas that contain or present an exposure fire hazard to systems, structures, and components important to safety, and that the fire brigade leader shall have ready access to keys for any locked fire doors, the inspectors determined that the circumstances described above constituted a violation of 10CFR50, Appendix R. This violation was more than minor because it affected the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, in that it affected protection of the CCW and SW systems against external factors (a fire). Because this finding related to fire protection defense-in-depth, the inspectors assessed its significance as described in NRC Manual Chapter 0609, Appendix F, Fire Protection Significance Determination Process. In step 1.2 of Appendix F, the finding was assigned a "low" degradation rating because the fire

brigade's performance and reliability will be only minimally impacted by the finding, and could reasonably be expected to display nearly the same level of effectiveness and reliability as it would in the absence of the finding. Therefore, in step 1.3 of Appendix F, because the finding was assigned a low degradation rating, the finding was determined to "Screen to Green". This violation is in the licensee's CAP as AR 141669.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

C. Baucom, Supervisor, Licensing/Regulatory Programs
E. Caba, Project Manager
A. Cheatham, Radiation Protection Superintendent
C. Church, Engineering Manager
B. Clark, Nuclear Assurance Manager
W. Farmer, Engineering Superintendent
R. Howell, Supervisor, Regulatory Support
J. Huegel, Maintenance Manager
R. Ivey , Operations Manager
E. Kapopoulos, Outage Management Manager
J. Lucas, Manager, Support Services - Nuclear
G. Ludlum, Training Manager
J. Moyer, Vice President, Robinson Nuclear Plant
W. Noll, Director of Site Operations
D. Stoddard, Plant General Manager

NRC personnel

P. Fredrickson, Chief, Reactor Projects Branch 4

Attachment

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000261/2004005-01	NCV	Implementation of a Change to EAL-2 which Decreased the Effectiveness of the Emergency Plan, Rev. 54 (Section 1EP4)

Closed

05000261/2004-002-00	LER	Entry into Mode 3 with the Steam-Driven Auxiliary Feedwater Pump Flowpath Inoperable.

Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

AP-008, Cold Weather Preparations, Rev. 11
EDP-009, Freeze Protection Panels, Rev. 26
OP-925, Cold Weather Operation, Rev. 30
AP-015, Portable Heaters/Heating Devices, Rev. 10
OMM-021, Operations During Adverse Weather Conditions, Rev. 26

Drawings

HBR2-6960, Cooling Water To and From Auxiliary Feedwater Pump (Steam Driven), Rev. 2
HBR2-6983, Condensate to Auxiliary Feedwater Pumps, Rev. 4
HBR2-6979, Steam Driven Auxilary Feedwater Pump to Steam Generator, Rev. 2
HBR2-7042, Service Water Pump Piping Intake, Rev. 1
B-190628, Control Wire Diagram North Service Water Header Heat Tracing, Rev. 2, Sheet 1757

Work Orders

545346-01, Freeze Protection Channel Check
492612-01, Freeze Protection Circuits Related To Safety Or Fire Protection
545342-01, Freeze Protection Circuits Related To Safety Or Fire Protection
492767-01, Freeze Protection Channel Check
472402-01, Verify Operability of Freeze Protection Thermostats
474911-01, Verify Operability of Freeze Protection Thermostats
484472-01, Freeze Protection - Plant Equipment
492627-01, Freeze Protection Circuits Related To Safety Or Fire Protection
492755-01, Freeze Protection Channel Check
545348-01, Freeze Protection Channel Check
645841-01, Engineering Reference AP-008 (Cold Weather Preps)

Other

AR 82062, Dedicated Shutdown Light EL-67 Blocked By Temporary Freeze Protection Wall
AR 82702, Common Cause Analysis Needed for Freezing Components

1R04: Equipment Alignment

Partial System Walkdown

Component Cooling Water system:

Procedure SD-013, Component Cooing Water System, Rev. 7
Drawing 5379-376, Component Cooling Water System Flow Diagram, Sheet 1 of 4, Rev. 36
Clearance Order Checklist 78130, CCW Pump C Motor Bearing Lubrication
AR 121560, Evaluate Aggregate Effects of Multiple Equipment on [Technical Services Open Concerns List]

Service Water system:

Drawing G-190199, Service and Cooling Water System Flow Diagram, Sheet 2 of 13, Rev. 63
Drawing G-190199, Service and Cooling Water System Flow Diagram, Sheet 2 of 13, Rev. 63
Drawing G-190199, Service and Cooling Water System Flow Diagram, Sheet 9 of 13, Rev. 52
Drawing G-190199, Service and Cooling Water System Flow Diagram, Sheet 10 of 13, Rev. 43
Clearance Order Checklist 78974, Service Water Pump A - Replace SW-374 and Motor Hi-Pot/Surge Testing

Emergency Diesel Generator A:

Procedure OP-604, Diesel Generators “A” and “B”, Rev. 60
System Description SD-005, Emergency Diesel Generators, Rev. 9

1R05: Fire Protection

Sections in UFSAR Appendix 9.5.1A, Fire Hazards Analysis

3.1.3.2, Fire Zone 7 - Auxiliary Building Hallway (Ground Floor)
3.1.5.5, Fire Zone 19 - Unit 2 Cable Spread Room
3.7.8, Fire Zone 26 - Yard Transformers
3.1.5.7, Fire Zone 22 - Control Room

Procedures

Results from OST-611-3, Low Voltage Fire Detection and Actuation System Zones 6 & 7, Rev. 2
Results from OST-611-11, Low Voltage Fire Detection and Actuation System Zones 19 and 20 (Semi-Annual), Rev. 4
Results from OST-611-13, Low Voltage Fire Detection and Actuation System Zones 24, 25A, 25B, 25C, and 26 Cold Shutdown Exceeding 24 Hours If Not Performed In The Previous Six Months, Rev. 4
OMM-003, Fire Protection Pre-Plans/Unit No. 2, Rev. 41
Results from Low Voltage Fire Detection and Actuation System Zones 22 & 23 (Semi-Annual), Rev. 3
PM-459, Self-Contained DC Emergency Lighting System, Rev. 6

OMM-003, Fire Protection Pre-Plans/Unit No. 2
TPP-219, Fire Protection Training Program, Rev. 12

Other documents

Action Request 133270, Aiming of Emergency Lights
Fire Drill Scenario 45, Emergency Switchgear Room, Rev. 2
Directive 04-015, “Verify” and Local Actions

1R06: Flood Protection Measures

UFSAR Sections

2.4.2, Flood
2.4.10, Flooding Protection Requirements
3.4, Water Level (Flood) Design
3.6A.6, Flooding Analysis
3.6.2, Postulated Piping Failures in Fluid Systems Outside of Containment

Procedures

AOP-014, Component Cooling Water System Malfunction (Attachment 4, Flood Control in the Auxiliary Building)
Results from Procedure OST-013, Weekly Checks and Operations (Weekly), Rev. 86
Procedure OMM-048, Work Coordination and Risk Assessment, Rev. 22
OMM-048, Work Coordination and Risk Assessment, Rev. 22
OMM-021, Operation During Adverse Weather Conditions, Rev. 26
APP-001, Miscellaneous NSSS, Rev. 37
SD-003, Residual Heat Removal System, Rev. 12
OST-451, Liquid Waste Disposal System Integrity Test, Rev. 14

Other Documents

Calculation RNP-F/PSA-009, Assessment of Internally Initiated Flooding Events
Basis Document AOP-014-BD, Component Cooling Water System Malfunction
GID/R87038/006, Generic Issues Document - Pipe Failures, Rev. 4
Drawing G-190403, Reactor Auxiliary Building Residual Heat Pump Pit, Sheet 1 of 1, Rev. 1
Generic Issues Document, GID/R87038/0007 Hazards Analysis, Rev. 1
Design Basis Document, DBD/R87038/SD03 Residual Heat Removal System, Rev. 0
UFSAR, General Arrangement Reactor Building - Sections, Figure 1.2.2-4
Calculation RNP-M/Mech-1724, Scoping for Category 1, 2, and 3 AOVs
Individual Plant Examination Submittal Final Report, Volume 1, August 1992

1R12: Maintenance Effectiveness

Action Requests

95376, Maintenance rule functional failure criteria exceeded for 120/208 Volt Breaker
75468,Breaker 19 was not properly re-closing causing NI-43 malfunction
133073, Breaker 52/33B won't stay closed - unanticipated [limiting condition for operation action statement] extension
139628, [Revise] OP-602, Revision 38, Dedicated Shutdown System
142829, [Nuclear Condition Report 133073] Evaluation

Procedures

EDP-003, MCC Buses, Rev. 33
PLP-033, Post-Maintenance Testing (PMT) Program, Rev. 33
MMM-042, Documentation of Temporary Lead Lifts and Jumpers, Valve Manipulations, and Switch Manipulations or Thermocouple Polarity Test
OP-602, Dedicated Shutdown System, Rev. 38

Other Documents

Calculation Number RNP-E-1.025, 120V AC Instrument Bus Coordination for H. B. Robinson Unit 2
INPO SOER 98-2, Circuit Breaker Reliability
Work Order 138714-01, Replace Breaker 52/MCC-9(2MR)
Work Order 594205-01, Investigate problem with breaker 52/33B not staying closed.

Maintenance Rule Records for the 208-120 VAC Distribution Center (System 5185)

Scoping and Performance Criteria
Event Log 4/20/2001 - 9/8/2004
Expert Panel Meeting Minutes, August 1995 - November, 2003

Maintenance Rule Records for the Dedicated Shutdown System (System 5114)

Scoping and Performance Criteria
Event Log October, 2002 - October, 2004
Expert Panel Meeting Minutes, December, 1995 - November, 2004

1R13: Maintenance Risk Assessments and Emergent Work Evaluation

Procedure OMM-048, Work Coordination and Risk Assessment, Rev. 22
Procedure ADM-NGGC-0006, Online EOOS Models for Risk Assessment, Rev. 3

1R14: Personnel Performance During Nonroutine Plant Evolutions

Procedure GP-006, Normal Plant Shutdown from Power Operation to Hot Shutdown, Rev. 47
Drawing 5379-1971, Reactor Coolant System Flow Diagram, Sheet 1 of 2, Rev. 38
Drawing 5379-1971, Reactor Coolant System Flow Diagram, Sheet 2 of 2, Rev. 49

1R15: Operability Evaluations

AR 143554, ITS LCO 3.6.3 Condition A Unaticipated Entry for V12-11
AR 83736, Unplanned Entry Into LCO 3.6.3 Due to V-12-11 Failure
AR 73192, V12-7, CV Purge Inlet Valve, Failed to Open, Unplanned LCO
Engineering Disposition 59679, Valve V12-11 Failed to Open Upon Demand
UFSAR Section 6.2.4, Containment Isolation System
UFSAR Figure 6.2.4-12, Containment Iolation Valves Penetrations P-40, P-41, P42
Generic Issue Document GID/90-181/00/RCI, Reactor Containment Isolation
Containment Isolation Valve - Pseudo System, Maintenance Rule Event Log, 1/10/02 - 7/6/04
Drawing B-190628, Control Wiring Diagram Containment Pressure Relief Valves V12-10, V12-11 R.G. 1.97 Indication, Sheet 530
Drawing 55765-2, 4 Thru 20 - 150FR Streamseal Valve with Bettis Robotarm Operator, Rev. 0

1R16: Operator Work-Arounds

AR 138944, Work-Around 04-11: Deepwell Pump B Has Temporary Power
Procedure OMM-001-8, Control of Equipment and System Status, Rev. 27
Engineering Change (EC) 59030, Temporary Power to Deepwell Pump B
10CFR50.59 Screen/Evaluation number 04-0786, for EC 59030

1R17: Permanent Plant Modifications

Engineering Change 51309, Replacement of the DS - UPS Inverter
System Description SD-056, Dedicated Shutdown System and TSC/EOF/PAP Diesel Generator System, Revision 4
Design Basis Document, DBD/R87038/SD16, Electrical Power Distribution System, Revision 0
Final Safety Analysis Report Section 9.2.2, Component Cooling System
Operating Procedure OP-602, Dedicated Shutdown System, Rev. 41,
Work Order 537897, EC 51309: Please Provide Manpower and Material to Install
Work Order 51309, Replacement of the DS-UPS Inverter
Maintenance Surveillance Test MST-801, Dedicated Shutdown Diesel, DS Uninterruptable Power Supply and AMSAC UPS Batteries (Weekly), Rev. 17
Maintenance Surveillance Test MST-802, Dedicated Shutdown Diesel, DS Uninterruptable Power Supply and AMSAC Batteries (Weekly), Rev. 8

1R19: Post Maintenance Testing

Procedures

OST-251-2, RHR Pump B and Components Test, Rev. 20
OST-252-2, RHR System Valve Test - Train B, Rev. 13
OST-258-2, RHR Valve Position Indicator Verification - Train B, Rev. 3
OST-302-1, Service Water pumps A & B Inservice Test, Rev. 42
OST-101-2, CVCS Component Test Charging Pump B, Rev. 31

Other Documents

Drawing G-190199, Service and Cooling Water System Flow Diagram, Sheet 2 of 13, Rev. 63
Work Order 416326-01, Limitorque Grease Inspection of Valve RHR-759B-MO
Work Order 528970-04, Install New Motor for B Charging Pump

1R22: Surveillance Testing

Procedures

APP-010, HVAC - Emergency Generators and Miscellaneous Systems, Rev. 47
OST-101-6, Comprehensive Flow Test for Charging Pump A, Rev. 5
OST-750-2, Control Room Emergency Ventilation System - Train B (Monthly), Rev. 12
OST-751, Control Room [Heating Ventilation Air Conditioning] R-1 Initiation and [Emergency Response Facilities Information System] Point Test (Quarterly), Rev. 6
SD-036, [Heating Ventilation Air Conditioning], Rev. 5
MST-014 Steam Generator Pressure Protection Channel Testing, Rev. 33
SD-011 Reactor Protection System, Rev. 6
OST-201-1, [Motor Driven Auxiliary Feedwater] System Component Test - Train A, Rev. 24

Drawings

G-190304, [Heating Ventilation Air Conditioning] - Turbine, Fuel, Auxiliary, Reactor and Turbine Building, Sheet 4 of 4, Rev. 6

1R23: Temporary Plant Modifications

Engineering Change 58485, Block Open HVE-6B Suction Dampers
Action Request 135052, HVE-6A and HVE-6B
Procedure APP-010, HVAC - Emergency Generators and Miscellaneous Systems, Rev. 47
Procedure EGR-NGGC-0005, Engineering Change, Rev. 22
Drawing No. B-190628, Reactor Support Cooling Fan HVE-6A Control Wiring Diagram, Sheet 527, Rev. 11

1EP2-1EP5: Emergency Preparedness

Plans and Procedures

Robinson Emergency Plan, Revs. 53-56
EPPRO-02, Maintenance and Testing, Rev. 21
EPPRO-04, EP Performance Indicators, Rev. 6
EPNOT-01, CR/EOF Emergency Communicator, Rev. 18
AOP-021, Seismic Disturbances, Revs. 15 and 16
REG-NGGC-0010, 10 CFR 50.59 and Selected Regulatory Reviews, Rev. 6
CAP-NGGC-0200, Corrective Action Program, Rev. 13

Records and Data

10 CFR 50.54(q) Emergency Preparedness Program Evaluations for REP Revs. 54 (effective 09/16/2003), 55 (effective 09/08/2004) and 56 (effective 11/23/2004)
Siren system availability test records for December 2002 through November 2004
Records of siren system annual preventive maintenance performed in March 2004
Records of ERO Quarterly Pager Tests conducted on 05/27/2003, 09/10/2003, 10/22/2003, 02/03/2004, 04/13/2004, 08/05/2004, 11/03/2004
Documentation (scenario/time line/event notification forms/critique report) for ERO drills on 06/08/2004, 08/24/2004
Engineering Change 58638R0, Indicating Light for Operating Basis Earthquake (current version as of 12/08/2004)

Audits and Self-Assessments

Audit Report No. R-EP-04-01, Robinson Nuclear Plant Emergency Preparedness Assessment Report, 04/20/2004
Self-Assessment No. 77597, Self-Assessment of the LOCT Cycle 3 Quarterly KPI Drill
Self-Assessment No. 108986, ERO Training Program Effectiveness, 09/10/2004

Action Requests

85693, RNP public notification siren battery failure, 02/25/2003
95795, Emergency notification form completion, 06/10/2003
110440, EAL instructions for seismic event, 11/11/2003
112813, Proposed non-cited violation pursuant to 50.47(b)(2), 12/09/2003
117018, Emergency notification form error, 02/03/2004
117108, Evaluate the need for trending criteria for EP programs, 02/04/2004
130711, Siren computer alarm speaker silenced, 06/29/2004
131395, Trend found in loss of AC power to several emergency sirens, 07/07/2004
139007, Darlington County EOC siren control console out of service, 10/04/2004
140582, Alert declaration not required by drill scenario, 10/19/2004
78699, Siren feedback and onsite operation interrupted, 12/04/2004
148667, Reassess basis for Rev. 54 of Emergency Plan, 01/19/2005

1EP6: Drill Evaluation

Participant's manual for the 2004 Emergency Preparedness Drill, October 12, 2004

4OA1: Performance Indicator Verification

Completed Safety System Unavailability Data Sheets from REG-NGGC-0009

RNP High Pressure Safety Injection System, October, 2003
RNP High Pressure Safety Injection System, November, 2003
RNP High Pressure Safety Injection System, December, 2003
RNP High Pressure Safety Injection System, January, 2004
RNP High Pressure Safety Injection System, February, 2004
RNP High Pressure Safety Injection System, March, 2004
RNP High Pressure Safety Injection System, April, 2004
RNP High Pressure Safety Injection System, May, 2004
RNP High Pressure Safety Injection System, July, 2004
RNP High Pressure Safety Injection System, June, 2004
RNP High Pressure Safety Injection System, July, 2004
RNP High Pressure Safety Injection System, August, 2004
RNP High Pressure Safety Injection System, September, 2004

Other Documents

Siren System Availability Test Records for July 2003 - September 2004
Documentation (scenario/time line/event notification forms/critique report) for ERO drills on 06/08/2004 & 08/24/2004
Documentation of DEP Opportunities from Operations Simulator evaluations on 01/27/2004 & 01/28/2004
Maintenance Rule Event Log for System 2080, Safety Injection System, October,2003 through September, 2004

4OA2: Identification and Resolution of Problems

Action Requests

129453, Ineffective Implementation of OMM-033
125157, OMM-033 Aggregate Time To Recover Penetration
125175, CV Closure Penetration Inspection Requirements
125106, OMM-033 Deficiency
127239, Improper Control for CV Penetration V12-6 during RO22
125483, 4 Hour Delay in CV Equipment Penetration Permit Signature
125799, CV Closure
134588, Emerging Trend from Engineering CAP Rollup
135952, Negative NCR Cause Code Trends May Not Be Identified...
136443, Emerging Trend in Workmanship, Procedure Use, and Compliance
136458, Maintenance CAP Roll-up Identified an Emerging Trend
136644, Operations CAP Rollup Identified an Emerging Trend

137332, Adverse Trend Identified in Support Services CAP Roll-up
142147, Site-wide Adverse Trend - Increase in Skill-based Errors
142148, Emerging Trend in Document Usage
142149, Adverse Trend - Performance Improvement
143477, Emerging Trend: Owner's Review

CAP Rollup & Trend Analysis Reports

Maintenance, August, 2004
Operations, September, 2004
Plant Support Group, July, 2004
Environmental & Chemistry and Radiation Control, September, 2004
Outage & Scheduling, September, 2004
Engineering, May-October, 2004

Other

Procedure OMM-033, Implementation of {Containment Vessel} Closure, Rev. 14
Procedure CAP-NGGC-0200, Corrective Action Program, Rev. 13
Site-Wide Analysis of Condition Reports for Performance Trends, April 1 - June 30, 2004

4OA3: Event Follow-up

LER 2004-002-00, Entry into Mode 3 with the Steam-Driven Auxiliary Feedwater Pump Flowpath Inoperable
Action Request 127784, [Steam-driven auxiliary feedwater] pump rotation while cooling water isolated
AR 128014, [Steam-driven auxiliary feedwater] pump out of service

4OA5.2: Independent Spent Fuel Storage Installation (ISFSI)

Procedures and Specifications

Specification RNP2-C-002, Receiving, Testing, Forming, Placing, Finishing, Curing of Concrete and Placing of Reinforcing Steel, Rev. 0
Project Quality Assurance Procedure QAP 20-1, Personnel Qualification

Other Documents

Engineering Change 54719, 24P-ISFSI Pad and Apron, Rev. 0 & 1
Reinforcing Steel Process Control for Sections 1 & 3, Dated October 18, 2004
Concrete Placement Report for Section 1 & 3, Dated October 18, 2004
Concrete Test Report (Field) for Section 1 & 3, Dated October 19, 2004
Batch Ticket (Invoice) No. 1008 for Sections 1 & 3, Dated October 19, 2004
Concrete Batch Plant Inspection and Proposed 24P-Independent Spent Fuel Storage Installation, Mactec Engineering and Consulting, Inc., Dated October 18, 2004
Concrete Test Reports for Set ID: 200463996 to 200464001 for 2, 3 and 7 days, Dated October 26, 2004

Drawing # SK-54718-C-1000, 24P-ISFSI Site Development Plan, Rev. A
Drawing # SK-54719-C-1000, 24P-ISFSI Horizontal Storage Module Pad Plan and Details, Rev. A
Drawing # SK-54719-C-1002, 24P-ISFSI Reinforcing for Horizontal Storage Module Pad Plan and Details, Rev. B
Concrete Quality Control Inspector Certificate and Qualification

4OA5.3: Generic Letter (GL) 89-13 Recommendation Implementation Verification

Self Assessments/Audits

Response to RNP Service Water Assessment Report, Serial RNP/93-1596, July 9 1993
Self-Assessment Report No. 98-08, Dates 9/22 - 24/98
Self Assessment AR 29642, Dates 9/17 - 20/2001

Action Requests

60302, Frequency of Instrumentation Checks for PI-1619A & PI-1619B, 07/02/02
65357, PI-1619A is Breaking Approximately Every Two Months, 09/05/02
82800, Elevated CCW Temperatures Greater than 105 Degrees, 01/27/03
97548, HVH-8A Cooling Coils, 07/01/03

Procedures

EST-116, Service Water Piping Inspection, Revision 5
RNP-L/LR-0602, Aging Management Program - Open Cycle Cooling Water System Program, Revision 7
MMM-010, Cleanliness and Flushing Requirements, Revision 23
CP-009, Chlorination, Revision 25
CP-001, Chemistry Monitoring Program, Revision 71
EGR-NGGC-0351, Condition Monitoring of Structures, Revision 12
SP-1468, Condensate Storage Tank to Valve AFW-24A Back Flow Test, Revision 0
OST-303-1, Service Water Booster Pump A Test, Revision 0
SD-04, Operations Training -Service Water, Revision 9
MMM-006, Appendix B-9, Calibration Data Sheets, Revision 7
AOP-022- Basis Document, Loss of Service Water, 9/14/94
CM-201, attachment 8.7, Tube Plugging Limits, Rev 35
SP-1438, SDAWF Pump Emergency Cooling System Flow Test, Rev 0
AOP-022, Loss of Service Water, Rev 10
AOP-022, Loss of Service Water, Rev 27
OP-903, Service Water System, Rev 92
SP-1479, Service Water Pipe Replacement for the CCW HX Return Piping Project Coordination for RO-20, Rev. 3
OST-702-4, Secondary Side Service Water System Valve Test, Revision 1

Preventive Maintenance Tasks

CM-632, EDG Heat Exchanger Maintenance, Rev 13
CM-201, Safety Related and Non-Safety Related Heat Exchanger Maintenance, Rev 35, attachment 8.6, EDG "A" HX cleaning and inspection data sheet 8/2/04
00367489-01, Reset impeller clearance on "A" SW pump
00383512-01, Calibrate SW pump "C" discharge Instrument
00385896-01, Calibrate SW booster pump "A" instrumentation
00154941-01, WCCU-1A PMs

Drawings

19031B001, Mario Coil, Rev 0
G-190199, Service and Cooling Water System Flow Diagram, Sh. 1, Rev. 67
G-190199, Service and Cooling Water System Flow Diagram, Sh. 2, Rev. 63
G-190199, Service and Cooling Water System Flow Diagram, Sh. 4, Rev. 50
G-190199, Service and Cooling Water System Flow Diagram, Sh. 7, Rev. 38
G-190199, Service and Cooling Water System Flow Diagram, Sh. 9, Rev. 52

Work Orders

00355900-01, Calibrate Diesel Generator "A" Instruments, 6/24/04
00419827-01, Calibrate Service and Cooling Water Supply Header Instruments, 3/06/04
00586778-01, North Service Water Strainer Pit Alarms Did Not Actuate, 7/6/04
00586778-02, North Service Water Strainer Pit Alarms Did Not Actuate, 7/7/04
00178563-01, Set Stroke Length and Diagnostics of TCV-1903B, 11/5/01
00327075-01, Service Water Inlet Piping to HVH-6A, B Ultrasonic Inspection, 05/13/04
00052886-01, Alternate SW Discharge for "B" CCW HX Pressure Test, 02/12/01
00282975-01, Replacing Cooling coils on HVH-6A
00291496-01, Cleaning and Inspection of "A" CCW HX
00142586-01, Cleaning and InspectHVH-1 Coils
00410468-01, Cleaning and Inspect SDAFW Pump lube oil HX
00419827-01, Calibrate service and cooling water supply header pressure instrumentation
00287164-01, Calibrate service and cooling water supply header pressure instrumentation

Surveillance Task Sheets

OST-906, Section 7.2, SWP Power Swap Tests (three year compilation)
MST-931-1, Testing of Emergency Diesel Generator "A" protective Bypasses, Revision 5 (last three years)
SL-7176, Unit 2 Service Water Performance Test, dated 7/18/89
OST-902, Containment Fan Coolers Component Test, Rev 33
OST-302-2, Service Water Pumps C & D Inservice Test, Rev 35
OST-201-1, MDAFW System Component Test, Train A, Rev 24

Engineering Service Requests

99-00354, CCW HX SW Discharge Piping Replacement, Rev. 2
00-00038, Alternate SW Discharge for “B” CCW HX, Rev. 4
01-00102, SW Line 6-CW-89 Leak Repair, Rev. 0

Other Documents

Calculation RNP-C/STRS-1114, Corrosion Evaluation for Buried Service Water Pipe Lines 30CW 11 & 30CW 12, Revision 1
Three year Compilation of Chemistry data - chlorination, and bacteria
Three year compilation of SWS pump test data
Three year compilation of SW Booster pump test data
EDG 24 hour run Temperature data since 1993 compilation
TMM–004, Preventive Maintenance, Revision 23 (PM frequencies on selective valves V6-16A, V6-33X, and SW-83)
RNP NLS-90-005, Response to NRC Generic Letter 89-13, January 26 1990
Calculation RNP-C/EQ-1391, Service Water South Header FE-11097, 5/9/04
RNP-NED-G-6219, Servicee Water Generic Letter 88-13, Item V - Procedure Reviews, January 18, 1991
Calculation RNP-M/Mech-1548, Service Water Pump Discharge Header Cross-connect Valve V6-12B, 6/17/93
Calculation RNP-M/Mech-1647, Evaluation of SDAFWP LO Cooler Thermal Performance, Rev 2
Calculation RNP-M/Mech-1653, H. B. Robinson Unit 2 Service Water Model Development, Rev 2
82-226-M-02-F, Control Room HVAC System Cooling Load Requirements, Rev 3
RNP-RA/04-0054, Radiological Environmental Operating Report - 2003
RNP-RA/03-0055, Radiological Environmental Operating Report - 2002
Technical Training, ME302R Pneumatic Valve Operators, Rev 12
Technical Training, SD-004 Service Water System, Rev 4
Technical Training, ME208G Basic Pumps, Rev 6
EE-93-109, Operation with CCW at 125EF, Rev.2
Auxiliary Operator Round Logs, Service Water Booster Pump Area, Control Room HVAC, and Intake Area, 09/04 - 10/04
AOP-022-BD, Basis Document, Loss of Service Water, Rev. 26
DBD/R87038/SD04, Service Water System, Rev. 0
SD-4, Service Water, Rev. 9
SD-042, Auxiliary Feedwater System, Rev. 8
NRC Inspection Report No. 50-261/93-12, July 30, 1993
Calculation RNP-M/Mech-1547, V6-12A Service Water Header Isolation Valves , Revision 1
CP&L Letter Q9X-XXX-NR-5189, NRC Generic Letter Item V - SWS & CCW Walkdown, January 24, 1991