



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

April 27, 2011

Carolina Power and Light Company
ATTN: Mr. Robert J. Duncan, II
Vice President - Robinson Plant
H. B. Robinson Steam Electric Plant
Unit 2
3581 West Entrance Road
Hartsville, SC 29550

**SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT - NRC INTEGRATED
INSPECTION REPORT 05000261/2011002**

Dear Mr. Duncan:

On March 31, 2011, the U.S. 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 April 20, 2011, with yourself 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.

This report documents two NRC-identified findings and one self-revealing finding of very low safety significance (Green). Two of these issues were determined to involve violations of NRC requirements. Additionally, three licensee-identified violations, which were determined to be of very low safety significance, are listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with the NRC Enforcement Policy. If you contest any NCV, 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 addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, RII, and the NRC Senior 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/

Randall A. Musser, Chief
Reactor Projects Branch 4
Division of Reactor Projects

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

Enclosure: Inspection Report 05000261/2011002
w/Attachment: Supplemental Information

cc w/encls: See page 3

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CP&L

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Letter to Robert J. Duncan II from Randall A. Musser dated April 27, 2011

SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT - NRC INTEGRATED
INSPECTION REPORT 05000261/2011002

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 50-261

License No.: DPR-23

Report No.: 005000261/2011002

Facility: H. B. Robinson Steam Electric Plant, Unit 2

Location: 3581 West Entrance Road
Hartsville, SC 29550

Dates: January 1, 2011 through March 31, 2011

Inspectors: J. Hickey, Senior Resident Inspector
C. Scott, Resident Inspector
W. Deschaine, Project Engineer
E. Lea, Senior Operations Engineer (Section 1R11)
M. Riches, Operations Engineer (Section 1R11)

Approved by: R. Musser, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000261/2011-002, Carolina Power and Light Company; on 01/01/2011 – 03/31/2011; H.B. Robinson Steam Electric Plant, Unit 2; Licensed Operator Requalification; Operability Evaluations.

The report covered a three month period of inspection by resident inspectors and operations engineers. Two NRC identified violations and one self-revealing finding were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross cutting aspects were determined using IMC 0310, "Components within the Cross Cutting Areas." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green: A self-revealing Green finding associated with operating crew performance on the simulator during facility-administered requalification examination was identified. Two of the six crews evaluated failed to pass their simulator examinations. As immediate corrective action, the failed operating crews were remediated (i.e., the operating crews were re-trained and successfully retested) prior to returning to shift. The licensee has entered this issue into the corrective action program as non-conformance report (NCR) 444843.

The inspectors determined that the crew failures constituted a performance deficiency based on the fact that licensed operators are expected to operate the plant with acceptable standards of knowledge and abilities demonstrated through periodic testing as required by 10 CFR 55.59(a)(2). Two out of six crews of licensed operators failed to demonstrate a satisfactory understanding of the required actions and mitigating strategies required to safely operate the facility under normal, abnormal, and emergency conditions. The finding is more than minor because the performance deficiency potentially affects the Human Performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the finding reflected the potential inability of the crew to take appropriate safety-related action in response to actual abnormal and emergency conditions (loss of cooling to the RCP seals). The perceived risk associated with the number of crews failing the annual operating test is provided in the Simulator Operational Evaluation matrix of NRC Manual Chapter 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process (SDP)." The finding is of very low safety significance (Green) because less than 34 percent of the operating crews failed, the failed operating crews were remediated (i.e., the operating crews were re-trained and successfully retested)

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prior to returning to shift, and because there were no operating crew failures the previous year. The cause of this finding was directly related to the cross-cutting aspect of personnel training and qualifications in the Resources component of the Human Performance area, in that the licensee failed to ensure the adequacy of the training provided to operators to assure nuclear safety. (H.2(b)) (Section 1R11.2)

- Green. The inspectors identified a Severity Level IV (SL-IV) non-cited violation (NCV) for failure to update the Updated Final Safety Analysis Report (UFSAR), as required by 10 CFR 50.71(e), to include the minimum required inventory of lube oil for operation of the emergency diesel generators, following the conversion to improved standard technical specifications (ISTS). The inspectors determined that the failure to include this information contributed to the licensee falling below the minimum lube oil inventory required for the Emergency Diesel Generators to meet their seven day mission time. The licensee took immediate corrective actions to obtain sufficient lube oil and entered the issue into the corrective action program as nuclear condition report (NCR) 452251.

This issue was considered as traditional enforcement because it had the potential for impacting the NRC's ability to perform its regulatory function. This issue is more than minor because not having an updated portion of the UFSAR hinders the licensee's ability to perform adequate 10 CFR 50.59 evaluations and can impact the NRC's ability to perform adequate regulatory reviews for license amendments and inspections. Consequently, it can have a material impact on licensed activities. This issue was determined to meet the criteria for a severity level IV violation in the NRC Enforcement Policy because the information was not used to make an unacceptable change to the facility or procedures. No cross-cutting aspect was assigned because cross-cutting aspects are not assigned to violations being dispositioned through the traditional enforcement process. (Section 1R15b.1)

- Green. The inspectors identified a Severity Level IV (SL-IV) non-cited violation (NCV) of 10 CFR 50.59 for the licensee's failure to perform an adequate safety evaluation documenting why implementing a procedure change for the Emergency Core Cooling System (ECCS) Residual Heat Removal (RHR) injection sub-system did not present a more than minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the updated safety analysis report (UFSAR). The licensee erroneously referenced a vendor analysis which was not part of the licensing basis to support the safety evaluation. The procedure change was used by Operations and resulted in a violation of Technical Specification (TS) 3.5.3 ECCS – Shutdown for the required RHR injection sub-train being inoperable in Mode 4 and the associated action statement was not complied with. After the fact and upon discovery, the licensee established administrative controls to ensure compliance with TS in the future. The issue was entered into the corrective action program as NCR 425136.

The licensee's use of an unapproved vendor evaluation of LOCA response as justification to support a 10 CFR 50.59 safety evaluation was a performance deficiency. The traditional enforcement review of the performance deficiency is more than minor because plant procedures were changed without prior NRC review and approval, which

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impacted the regulatory process. Violations of 10 CFR 50.59 are dispositioned using the Traditional Enforcement process instead of the SDP because they are considered to be violations that could potentially impede or impact the regulatory process. However, if possible, the underlying technical issue is evaluated under the SDP to determine the severity of the violation. In this case, the inspectors determined the finding could be evaluated under the SDP because the ECCS RHR injection subsystem became inoperable because of an inadequate safety evaluation and procedure change resulting in a violation of TS 3.5.3, ECCS-Shutdown.

The finding was evaluated using IMC 0609.04, Significance Determination Process (SDP) Phase 1 screening worksheets. This finding adversely impacted the Mitigating Systems cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences. Because it represented an actual loss of safety function of both trains of RHR, an SDP Phase 2 analysis was required. The inspectors determined that the finding could not be adequately assessed using the Phase 2 process; therefore, a SDP Phase 3 analysis was performed for the deficiency using an at-power (vice a shutdown evaluation) because the performance deficiency would manifest itself immediately after shutting down the unit or immediately preceding returning to power. The NRC's risk model was modified to reflect the total loss of RHR injection capability due to either voiding of the pump suction or the associated water-hammer event. The resulting analysis, including the risk contribution due to external sources, was less than 1E-6/year and the finding is Green. The dominant cutsets were medium and small break loss of coolant accidents that proceed immediately to core damage due to the lack of low pressure injection. In accordance with Section 6.1.d.2 of the NRC Enforcement Policy, this violation is categorized as Severity Level IV because the resulting changes were evaluated by the SDP as having very low safety significance (Green). The inspectors determined the cause of the finding was directly related to verification of underlying assumptions aspect in the decision making component of the Human Performance area because the licensee did not validate whether the vendor analysis was part of the licensee's licensing basis (H.1(b)). (Section 1R15b.3)

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status The unit began the inspection period at rated thermal power, and operated at full power for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment

a. Inspection Scope

Partial System Walkdowns:

The inspectors performed the following three partial system walkdowns, while the indicated structures, systems, and/or components (SSCs) were out-of-service for maintenance and testing:

- “B” Emergency Diesel Generator (EDG) while performing maintenance on the “A” EDG
- “A” train of the Motor Driven Auxiliary Feedwater (AFW) system while the “B” train is out of service for calibration of pump instruments
- “A” train of the Spent Fuel Pool Cooling (SFPC) system while performing maintenance on the “B” train

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.

Complete System Walkdown:

The inspectors conducted a detailed review of the alignment and condition of the Service Water (SW) system to verify that the existing alignment of the system was consistent with the correct alignment. To determine the correct system alignment, the inspectors reviewed the procedures, drawings, and the Updated Final Safety Analysis Report (UFSAR) section listed in the Attachment. The inspectors also walked down the system. During the walkdown, the inspectors reviewed the following:

- Valves were correctly positioned and did not exhibit leakage that would impact the functions of any given valve.
- Electrical power was available as required.
- Major system components were correctly labeled, lubricated, cooled, ventilated, etc.
- Hangers and supports were correctly installed and functional.
- Essential support systems were operational.
- Ancillary equipment or debris did not interfere with system performance.

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- Tagging clearances were appropriate.
- Valves were locked as required by the locked valve program.

The inspectors reviewed the documents listed in the Attachment to verify that the ability of the system to perform its functions could not be affected by outstanding design issues, temporary modifications, operator workarounds, adverse conditions, and other system-related issues tracked by the engineering department.

The inspectors reviewed the following action requests (ARs) associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- 437959, Charging Pump Flow Oscillations in Automatic
- 437347, Breaker Fuse Holder Fatigue and Restraint Evaluation

b. Findings

No findings were identified.

1R05 Fire Protection

a. Inspection Scope

For the five areas identified below, the inspectors reviewed the 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 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:

- Dedicated Shutdown Diesel
- 4.16 kV Switchgear Room
- Auxiliary Feedwater (AFW) Pump Room
- Residual Heat Removal (RHR) heat exchanger (HX) and Waste Holdup Tank Room
- Auxiliary Building 2nd Level (Zone 15)

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- 447550 - Engine Driven Fire Pump Coolant Level is too High
- 440466 – Fire Detection Actuation Panel-G (Radwaste Facility) Fire Alarm Locked In
- 442504 - Leak Upstream of FP-216, Auxiliary Building Hall Water Flow Alarm Isolation Valve during surveillance test OST-629
- 442525 - Motor Driven Fire Pump Grease Fitting by Packing Gland Spraying Water

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- 442596 - Excessive Packing Leakage from FP-216

b. Findings

No findings were identified.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors observed the inspection of the “B” EDG heat exchangers, which include the diesel scavenging air cooler, the lube oil cooler and the jacket cooling water heat exchanger, to verify that inspection results were appropriately categorized against the pre-established acceptance criteria described in Procedure CM-201, Safety Related and Non-Safety Related Heat Exchanger Maintenance. The inspectors also verified that the frequency of inspection was sufficient to detect degradation prior to loss of heat removal capability below design basis values. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification

.1 Quarterly Review

a. Inspection Scope

The inspectors observed licensed-operator performance during Just-In-Time simulator training to verify that operator performance was consistent with expected operator performance, as described in Lesson Number LOC0015R Rev. 1. This training tested the operators’ ability to operate components from the control room, direct auxiliary operator actions, and determine the appropriate emergency action level classifications while responding to a failed Volume Control Tank level transmitter, “A” Boric Acid Pump trip, inadvertent containment spray and safety injection resulting in a reactor coolant pump trip, with complications requiring the use of the dedicated shutdown diesel to restore reactor coolant pump seal cooling. 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 observed the post-exercise critique to verify that the licensee identified deficiencies and discrepancies that occurred during the simulator training. Documents reviewed are listed in the Attachment.

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

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- 412113, Differences Noted During Simulator Training for Removing the “C” Waterbox from Service
- 397095, Instructor Qualification Documentation Inaccurate

b. Findings

No findings were identified.

.2 Biennial Written Examination and Annual Operating Test Results

a. Inspection Scope

The inspectors reviewed the facility operating history and associated documents in preparation for this inspection. During the week of February 13, 2011, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of operating tests associated with the licensee’s operator requalification program. Each of the activities performed by the inspectors was done to assess the effectiveness of the facility licensee in implementing requalification requirements identified in 10 CFR Part 55, “Operators’ Licenses.” Evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG-1021, “Operator Licensing Examination Standards for Power Reactors,” and Inspection Procedure 71111.11, “Licensed Operator Requalification Program.” The inspectors also evaluated the licensee’s simulation facility for adequacy for use in operator licensing examinations using ANSI/ANS-3.5-1998, “American National Standard for Nuclear Power Plant Simulators for Use in Operator Training and Examination.” The inspectors observed a crew during the performance of the operating tests. Documentation reviewed included written examinations, Job Performance Measures (JPMs), simulator scenarios, licensee procedures, on-shift records, simulator modification request records, simulator performance test records, operator feedback records, licensed operator qualification records, remediation plans, watchstanding records, and medical records. The records were inspected using the criteria listed in Inspection Procedure 71111.11. Documents reviewed during the inspection are listed in the Attachment.

Annual Review of Licensee Requalification Examination Results: On March 12, 2011, the licensee completed the comprehensive biennial requalification written examinations and annual requalification operating tests required to be administered to all licensed operators in accordance with 10 CFR 55.59(a)(2). The inspector performed an in-office review of the overall pass/fail results of the written examinations, individual operating tests and the crew simulator operating tests. These results were compared to the thresholds established in Manual Chapter 0609 Appendix I, Operator Requalification Human Performance Significance Determination Process.

b. Findings

Introduction: A self-revealing Green finding was identified as a result of two of six crews failing the simulator portion of the facility-administered annual operating test. Based on

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the licensee's successful remediation and subsequent re-testing of individuals who failed the simulator portion of the annual operating test, no violation of regulatory requirements occurred.

Description: During the facility-administered annual operating test of licensed operators, covering the period from January 24, 2011, to March 11, 2011, the licensee training staff evaluated crew performance during dynamic scenarios. The evaluations were performed using TRN-NGGC-0420, "Conduct of Simulator Training and Evaluation", Rev. 0. Facility results of crew performance show that two of six crews (33.3 percent) did not pass their simulator exam. The licensee training staff determined that two crews failed to meet the criteria for satisfactory performance in response to loss of cooling to the Reactor Coolant Pump (RCP) seals. The licensee initiated NCR 444843 to address the crew failures.

Analysis: The inspectors determined that the crew failures constituted a performance deficiency based on the fact that licensed operators are expected to operate the plant with acceptable standards of knowledge and abilities demonstrated through periodic testing as required by 10 CFR 55.59(a)(2). Two out of six crews of licensed operators failed to demonstrate a satisfactory understanding of the required actions and mitigating strategies required to safely operate the facility under normal, abnormal, and emergency conditions. The finding is greater than minor because the performance deficiency potentially affects the Human Performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the finding reflected the potential inability of the crew to take appropriate safety-related action in response to actual abnormal and emergency conditions (loss of cooling to the RCP seals).

The perceived risk associated with the number of crews failing the annual operating test is provided in the Simulator Operational Evaluation matrix of NRC Manual Chapter 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process (SDP)." The matrix was entered based on the number of crews that took the simulator test (six) and the number of crews with unsatisfactory performance (two). Based on a crew failure rate of 33.3 percent on the simulator portion of the annual operating test (two crew failures out of the six crews of licensed operators administered simulator operational evaluations), the fact that the failed operating crews were remediated (i.e., the operating crews were re-trained and successfully retested) prior to returning to shift, and because there were no operating crew failures the previous year, the finding was characterized by the SDP as having a very low safety significance, or Green. The cause of this finding was directly related to the cross-cutting aspect of personnel training and qualifications in the Resources component of the Human Performance area, in that the licensee failed to ensure the adequacy of the training provided to operators to assure nuclear safety. (H.2(b))

Enforcement: This finding does not involve enforcement action because no regulatory requirement violation was identified. Because this finding does not involve a violation and has very low safety significance, it is identified as FIN

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05000261/2011002-01, Two of Six Operating Crew Failures on the Simulator
Operational Evaluation Portion of the 2011 Annual Requalification Operating Test.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the degraded SSC/function performance problem listed below to verify the 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.

The problem/condition and the corresponding AR was:

- 454566, LC-112, Level Controller Not Controlling LCV-115A, Volume Control Tank Diversion Valve As Expected

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).

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- 435596, Excessive plunger seal leakage on the "A" Charging Pump
- 434613, Erratic toggle action of the Tave/dT temperature alarm function

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

For the five samples listed below, the inspectors reviewed risk assessments and related activities to verify that the licensee performed adequate risk assessments and

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implemented appropriate risk-management actions when required by 10 CFR 50.65(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. Documents reviewed are listed in the Attachment. Those periods included the following:

- January 7, 2011, "B" Feedwater Regulator Valve (FRV) in Manual during Troubleshooting
- January 31 - February 4, 2011, "B" Emergency Diesel Generator (EDG) unavailable during the 24 month maintenance & inspection activities
- February 3, 2011, Both Emergency Diesel Generator (EDG) unavailable – Orange risk incurred for 'A' EDG operability check
- February 7 - 14, 2011, "A" Emergency Diesel Generator (EDG) unavailable during inspection of the overspeed trip linkage
- February 14 - 21, 2011, Steam Driven Auxiliary Feedwater Pump (SD AFW) unavailable during a maintenance outage

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- 446011 - Orange Risk Incurred for EDG Operability Check
- 446886 - LT-969 Refueling Water Storage Tank Level Transmitter Work Not Modeled on Risk Profile
- 446548 - Inconsistencies in Use of Qualitative Risk
- 446311 - Emergency Diesel Generator 'A' Work Not on Risk Profile

b. Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the seven operability determinations associated with the ARs listed below. The inspectors assessed the accuracy of the evaluations, the use and control of any necessary compensatory measures, and compliance with the TS. The inspectors verified that the operability determinations were made as specified by Procedure OPS-NGGC-1305, Operability Determinations. The inspectors compared the justifications provided in the determinations to the requirements from the TS, the UFSAR, associated design-basis documents to verify that operability was properly justified.

- 446001, Incomplete Installation Records, A-EDG-Voltage Regulator
- 398062, Boric Acid Transfer Pump "B" deadheaded for one hour

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- 449560, Refueling Water Storage Tank (RWST) level indicator LI-948 Will Not Indicate Below 14 percent
- 422778, RWST Operability While Using the Purification Loop
- 452251, Diesel Lube Oil Not on Hand When Requested by Maintenance
- 446164, "B" EDG Fuel Rack Trip During Post Maintenance Testing
- 425136, Loss of RHR injection operability in Mode 4

Documents reviewed are listed in the Attachment.

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- 434212, Rod position indication voltage divider required replacement
- 431662, Steam Generator flow transmitter FT-476 spiking

b.1 Findings

Introduction: The inspectors identified a SL-IV NCV of 10 CFR 50.71(e) for the licensee's failure to update the UFSAR, following the conversion to improved standard technical specifications (ISTS), to include the minimum required inventory of lube oil for operation of the EDGs. The failure to include this information contributed to the licensee not maintaining sufficient lube oil inventory, required for the EDG seven day TS mission time.

Description: On March 8, 2011, licensee maintenance personnel requested 55 gallons of MobilGard 450NC lubrication oil for use during preplanned maintenance on the site's EOF/TSC/Security Diesel. The inventory database indicated that there were 486 gallons of the lube oil in stock. However, multiple searches of the storage location for the lubrication oil revealed no such material. The licensee immediately initiated NCR 452251 and procured 220 gallons of lube oil the same day. Upon review of the NCR, the licensee confirmed that the supply of lube oil referenced in the NCR was also used for the site's safety related EDG's. Later that day, the licensee discovered that there were an additional 110 gallons of Texaco 13ZF40 lube oil in stock and verified that it could have been used for operation of the EDG's. The inspectors questioned whether the quantity of lube oil in stock, at the time of discovery, was sufficient to meet the required seven day mission time of the EDGs. The licensee initiated Engineering Change 80384R0 to evaluate the lube oil consumption rate of the EDG and the quantity of lube oil required to meet the seven day mission time.

Upon review of Robinson's ISTS, the inspectors noted that Robinson did not have a surveillance requirement for maintaining an adequate supply of EDG lube oil in stock. A historical review of Robinson's licensing bases revealed that in 1996, during conversion from custom technical specifications (CTS) to ISTS, NRC requested that Robinson include a TS surveillance requirement to maintain lube oil inventory above the minimum quantity required for operability. In their response documented in Justification for Differences to ISTS 18 (JFD38S4), the licensee determined that a TS surveillance was

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not warranted and that “based upon lube oil consumption measurements obtained during a recent 24 hour load test of the diesel, the minimum inventory requirements of the lube oil have been adjusted to require a seven day supply be maintained onsite”. Further, Robinson noted that the effect of omitting the lube oil requirements in approved Amendment 174, involving EDG requirements, was “that the DG would be immediately declared inoperable upon discovery of insufficient lube oil, rather than allowing 48 hours to restore the lube oil to its sufficient level.” Robinson concluded that requirement to declare the EDG inoperable, when insufficient lube oil inventory was detected, was more restrictive than requirements described in NUREG 1431.

However, upon discovery of insufficient lube oil supply on March 8, 2011, the licensee determined that the DG’s were still operable. In Engineering Change (EC) 80384R0, site engineering indicated that, by design, the EDG will consume 1.0 gallon per hour at full load. Engineering calculated that one EDG would consume 168 gallons under full load for 7 days. Given the 110 gallons of lube oil in stock, at the time of discovery, one EDG could only operate for approximately 4.5 days. Conversely, engineering concluded that if the EDGs had been required to operate during an emergency, then the 110 gallons of lube oil available at that time would have provided enough oil for the EDGs to function until the licensee was able to procure additional oil from an offsite source. The inspectors questioned the licensee’s conclusion and later discovered that the inventory records showed that Robinson had been without sufficient lube oil since April 21, 2010. Given the amount of lube oil on site on March 8 and the fact that the licensee was able to obtain sufficient lube oil supply within 24 hours, the inspectors concluded that the EDG’s were operable. The inspectors also noted that the licensee had multiple sources of lube oil suppliers available to them for use in obtaining additional lube oil. The inspectors reviewed the UFSAR description for Emergency Diesel Generators and identified that these additional lube oil requirements were not adequately incorporated into the UFSAR. The minimum required lube oil inventory ensures that the emergency diesel generators are capable of fulfilling their safety function. Therefore this requirement has a material impact on safety for the EDGs. The inspectors determined that the licensee’s failure to include this information contributed to the inadequate controls for maintaining sufficient lube oil inventory for the EDGs and on April 21, 2010, the licensee fell below this minimum requirement. Following the discovery of this issue, the licensee generated procedure changes to alert operators of EDG lube oil estimated design consumption rates and the requirements for maintaining oil inventory. The licensee established a designated area, in their warehouse facility, for the storage of EDG lube oil and has plans to generate a periodic surveillance to verify that sufficient lube oil for the EDG’s is onsite. The licensee has also initiated actions to include the minimum required lube inventory in the next scheduled update of the FSAR.

Analysis: The failure to maintain an adequate EDG lube oil inventory was determined to be a performance deficiency. The minimum lube oil inventory should have been included into the UFSAR. This issue was considered as traditional enforcement because it had the potential for impacting the NRC’s ability to perform its regulatory function. This issue is more than minor because not having an updated portion of the UFSAR hinders the licensee’s ability to perform adequate 10 CFR 50.59 evaluations and can impact the NRC’s ability to perform adequate regulatory reviews for license

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amendments and inspections. This violation was determined to be an SL-IV violation, using the guidance of the NRC Enforcement Policy Section 6.1 Reactor Operations, because the inaccurate (inadequate) information was not used to make an unacceptable change to the facility. No cross-cutting aspect was assigned because cross-cutting aspects are not assigned to violations being dispositioned through the traditional enforcement process.

Enforcement: 10 CFR 50.71(e) requires that licensees shall periodically update the FSAR, originally submitted as part of the application for the operating license, to assure that the information included in the report contains the latest information developed. This submittal shall include the effects of all changes made in the facility or procedures as described in the FSAR. Contrary to the above, following the conversion to ISTS in 1997, the licensee failed to update the UFSAR to assure that the information included in the report contained the latest information developed, in that the minimum required lube oil inventory and required actions, established in licensee submittals, for the Emergency Diesel Generators 7 day mission time, were not included. The failure to update the UFSAR as required by 10 CFR 50.71(e) is characterized as a Severity Level IV violation. This violation is in the licensee's corrective action program as NCR 452251, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy. NCV 05000261/2011002-02, Failure to Update the Updated Final Safety Analysis Report Contributed to Insufficient Emergency Diesel Generator Lube Oil Inventory.

- b.2 Introduction: An Unresolved Item is being opened to provide for additional inspection in response to an NRC identified issue regarding Refueling Water Storage Tank (RWST) operability with the purification loop in operation.

Description: The inspectors noted on March 8, 2011, that the RWST purification loop had been in operation for approximately 14 hours. The piping and components of the purification loop are shown on plant drawings to be beyond the seismic qualification boundary for the RWST. The licensee had previously reviewed this issue using AR 422778 in late 2010 and determined it was acceptable to place the RWST on purification without declaring the RWST inoperable. The inspectors questioned the basis for that conclusion. The licensee removed the RWST from purification and put administrative controls in place to prevent use of the purification loop until the issue is resolved. The licensee is continuing to evaluate the use of the RWST purification loop and the impact on operability of the RWST. Additional review by the NRC is required following the completion of the licensee's evaluation. This review will also determine whether this issue represents a performance deficiency. The issue will be identified as URI 05000261/2011002-4, Refueling Water Storage Tank Operability While On Purification

- b.3 Introduction: The inspectors identified a Severity Level IV (SL-IV) Non-cited violation (NCV) of 10 CFR 50.59 for the licensee's failure to perform an adequate safety evaluation documenting why implementing a procedure change for the Emergency Core Cooling System (ECCS) RHR injection sub-system did not present a more than minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the updated safety

analysis report (UFSAR). The licensee erroneously referenced a vendor analysis which was not part of the licensing basis to support the safety evaluation.

Description: NSAL-93-004, Westinghouse Nuclear Safety Advisory Letter "RHR Operation as part of the ECCS During Plant Startup", notified licensees that RHR coolant would flash to steam during a loss of coolant accident (LOCA), if the bulk RHR temperature was too high when the RHR system was realigned to the injection mode using the RWST as a suction source. The licensee concluded that RHR operation above 250 degrees Fahrenheit would cause the ECCS RHR injection sub-system to be inoperable. Operations was concerned the 250 degree Fahrenheit RHR temperature limit was too restrictive. The licensee referenced, Westinghouse WCAP-12476, Rev. 1, "Evaluation of LOCA During Mode 3 and Mode 4 Operation for Westinghouse NSSS" as the technical justification to support the safety evaluation and allow RHR to remain in operation above 250 degrees Fahrenheit. This analysis was not approved by the NRC and was not part of the licensee's licensing basis. Therefore any changes to the facility using the safety evaluation based on WCAP-12476 required prior NRC review and approval. On June 30, 2010, the licensee approved a 10 CFR 50.59 safety evaluation to allow RHR shutdown cooling to remain in service above 250 degrees Fahrenheit. The licensee used the completed safety evaluation to modify procedures which included GP-002, Cold Shutdown to Hot Subcritical at No Load Tavg, and OP-201, Residual Heat Removal System. Operations used these procedures to operate the RHR system while starting up the plant. On July 12-13, 2010, for approximately 19 hours the ECCS RHR low pressure injection sub-system was inoperable while the RHR system temperature was above 250 degrees Fahrenheit and the required action to immediately restore the required train to operable status was not performed. On October 5, 2010, the licensee became aware of RHR operability concern based on inspector questioning and took actions to prevent RHR from being placed in service above a reactor coolant system temperature of 250 degrees Fahrenheit. The licensee entered the issue in the corrective action program as AR 425136.

Analysis: The inspectors determined that the licensee's use of an unapproved vendor evaluation of LOCA response as justification to support a 10 CFR 50.59 safety evaluation was a performance deficiency. The traditional enforcement review of the performance deficiency is more than minor because plant procedures were changed without prior NRC review and approval, this impacted the regulatory process.

Violations of 10 CFR 50.59 are dispositioned using the Traditional Enforcement process instead of the SDP because they are considered to be violations that could potentially impede or impact the regulatory process. However, if possible, the underlying technical issue is evaluated under the SDP to determine the severity of the violation. In this case, the inspectors determined the finding could be evaluated under the SDP because the ECCS RHR injection subsystem became inoperable because of an inadequate safety evaluation and procedure change resulting in a violation of TS 3.5.3, ECCS-Shutdown. The finding was evaluated using IMC 0609.04, Significance Determination Process (SDP) Phase 1 screening worksheets. This finding adversely impacted the Mitigating Systems cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences. Because it represented an actual

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loss of safety function of both trains of RHR, an SDP Phase 2 analysis was required. The inspectors determined that the finding could not be adequately assessed using the Phase 2 process; therefore, a SDP Phase 3 analysis was performed for the deficiency using an at-power (vice a shutdown evaluation) because the performance deficiency would manifest itself immediately after shutting down the unit or immediately preceding returning to power. The NRC's risk model was modified to reflect the total loss of RHR injection capability due to either voiding of the pump suction or the associated water-hammer event. The resulting analysis, including the risk contribution due to external sources, was less than 1E-6/year and the finding is (Green). The dominant cutsets were medium and small break loss of coolant accidents that proceed immediately to core damage due to the lack of low pressure injection.

In accordance with Section 6.1.d.2 of the NRC Enforcement Policy, this violation is categorized as Severity Level IV because the resulting changes were evaluated by the SDP as having very low safety significance (Green).

The underlying finding was evaluated in accordance with the Reactor Oversight Program. In accordance with Manual Chapter 0612 Appendix B, The inspectors determined the cause of the finding was directly related to verification of underlying assumptions aspect in the decision making component of the Human Performance area because the licensee did not validate whether the vendor analysis was part of the licensee's licensing basis (H.1(b)).

Enforcement: 10 CFR 50.59, "Changes, Tests, and Experiments," Section (d)(1)states, in part, that the licensee shall maintain records of changes in the facility or procedures, and that the records must include a written evaluation that provides the bases for the determination that the change does not require a license amendment pursuant to paragraph 10 CFR 50.59(c)(2). Contrary to this requirement, on June 30, 2010, the licensee failed to provide a safety evaluation that adequately justified why procedures were allowed to be changed without requesting a license amendment. This resulted in the RHR injection subcomponent of the required ECCS function of TS 3.5.3 to become inoperable on July 12-13, 2010, for approximately 19 hours. On October 5, 2010, the licensee became aware of RHR operability concern and put in place measures to ensure the condition would not be repeated.

In accordance with the NRC Enforcement Policy, the violation was classified as a Severity Level IV violation because the underlying technical issue was of very low risk significance. Because this violation was of very low safety significance, was not repetitive or willful, and was entered in the licensee's corrective action program as AR 425136, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy; NCV 05000261/2011002-03, "Inadequate 10 CFR 50.59 Evaluation Results in Emergency Core Cooling System Inoperability."

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1R19 Post Maintenance Testinga. Inspection Scope

For the seven post-maintenance tests (PMT) 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 either witnessed or reviewed:

- WO 1690070; Performed maintenance in accordance with MST-012-3, Maintenance and Testing of Reactor Trip Bypass Breakers on "B" Reactor Trip Bypass Breaker; PMT in accordance with MST-012-2, Maintenance and Testing of "B" Reactor Trip Breaker, Rev. 3
- WO 1836453; Replaced seal in Emergency Diesel Generator "A" Standby Jacket Water Pump in accordance with CM-023; PMT in accordance with OST-401-1, EDG "A" Slow Speed Start, Rev. 46
- WO 1849810; Replace Engine Jacket Water Dresser Coupling Seals on the "B" EDG; PMT in accordance with OST-401-2, EDG B Slow Speed Start, Rev. 43
- WO 1648702; Calibrate Steam Driven Auxiliary Feedwater Pump Flow Indicator and Controller; PMT in accordance with OST-206, Comprehensive Flow Test for the Steam Driven Auxiliary Feedwater Pump, Rev. 56 and OST-202, Steam Driven Auxiliary Feedwater System Component Test, Rev. 78
- WO 1879437; Replace Component Cooling Water (CCW) Pump "B" Bearing; PMT in accordance with OST-908, Component Cooling System Component Test, Rev. 74
- WO 1104370; Semi-Annual Maintenance of the EOF/TSC Diesel; PMT in accordance with OST-406 TSC/EOF/PAP Generator, Rev 27
- WO 1534506; Replacement of GEMCO CS/V6-12A for Service Water System; PMT in accordance with Work Instructions 1534496-02, Continuity Testing

The inspectors reviewed the following AR associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- 426517 - Small Seal Leak on "A" Emergency Diesel Generator Standby Circulating Jacket Water Coolant Pump

b. Findings

No findings were identified.

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1R22 Surveillance Testing

a. Inspection Scope

For the five surveillance tests listed 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.

- OST-910, Dedicated Shutdown Diesel Generator (Monthly), Rev. 46
- OST-918, Dedicated Shutdown Equipment and Instrumentation Check (Monthly), Rev. 15
- OST-402-1, Emergency Diesel Generator "A" Diesel Fuel Oil System Flow Test, Rev. 30
- OST-151-1, Safety Injection System Components Test – Pump "A", Rev. 33

Inservice Testing Surveillance

- OST-251-1, Residual Heat Removal Pump "A" and Components Test, Rev. 25

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- 447369 - Robinson not originally identified in Fairbanks Morse Part 21 for Aluminum bearings on diesel engines
- 446493 - Procedure to be updated to allow Operations to gather all EDG Inservice Inspection Vibration Data
- 446302 – "B" Safety Injection Pump Outboard Bearing Oil Level Low

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors verified the PIs identified below. For each PI, the inspectors verified the accuracy of the PI data that had been previously reported to the NRC by comparing those 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,". In addition, the inspectors interviewed licensee personnel associated with collecting, evaluating, and distributing these data.

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Mitigating Systems Cornerstone

- Mitigating Systems, Residual Heat Removal
- Mitigating Systems, Cooling Water Systems

For the period from the 1st quarter of 2010 through the 4th quarter of 2010 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 subject systems had experienced during the subject period. The inspectors also reviewed the number of hours those systems were required to be available and the licensee's basis for identifying unavailability hours.

Barrier Integrity Cornerstone

- For the Reactor Coolant System Activity PI, the inspectors observed sampling and analysis of reactor coolant system samples, and compared the reported performance indicator data with records developed by the licensee while analyzing previous samples, for the period from the 1st quarter of 2010 through the 4th quarter of 2010.
- For the Reactor Coolant System Leakage PI, the inspectors reviewed records of daily measures of Reactor Coolant System (RCS) identified leakage, for the period from the 1st quarter of 2010 through the 4th quarter of 2010.

The inspectors reviewed the following ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- 415786, Unplanned Scrams Per 7000 Hours Critical Indicator is Within 23 percent of White
- 409177, Safety System Functional Failure Indicator has dropped to 40 percent

b. Findings

No findings 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 follow-up, the inspectors performed frequent screenings of items entered into the CAP. The review was accomplished by reviewing daily AR reports.

.2 Annual Sample Review

a. Inspection Scope

The inspectors selected the following AR for a detailed review. 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 reviewed this AR to verify compliance with the requirements of the CAP as delineated in Procedure CAP-NGGC-0200, Corrective Action Program, and 10 CFR 50, Appendix B. Documents reviewed are listed in the Attachment.

- 451147, "B" EDG Starting Air Compressor line Check Valve Stuck Closed Requiring Use of a Compressed Air Source to maintain Starting Air Pressure

b. Observations and Findings

From the review of AR 451147, no findings were identified. However, the inspectors identified that SP-1575, Connect Compressed Gas Supply to "A" or "B" Emergency Diesel Generator Air Receiver Tank Rev. 0 did not specify the operator actions required in the event the temporary equipment failed and no post-maintenance leak check was performed following restoration to the original configuration. SP-1575, Rev. 0 was modified to include the additional requirements in Rev.1.

4OA3 Event Follow-up

.1 (Closed) LER 2010-002-00, "Plant Trip due to Electrical Fault"

On March 28, 2010, a fire in 4kV Bus #5 caused an automatic reactor trip due to low flow in the "B" loop of the reactor coolant system. A subsequent cooldown of the reactor coolant system resulted in a safety injection. Approximately four hours after the event a second fire event occurred as the result of unintended consequences during the reset of the main generator lockout relay. The second fire resulted in an Alert emergency declaration. An Augmented Inspection was performed in response to the event and fourteen Unresolved Items were identified, the closure documents are listed below.

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Unresolved Item	Closure Document
05000261/2010009-1, Monitoring of Plant Parameters and Alarms	NRC Inspection Report 05000261/2010009 Section 4OA5.01
05000261/2010009-2, RCS Cooldown Rate Exceeds Technical Specification 3.4.3 Limit	NRC Integrated Inspection Report 05000261/2010004 Section 4OA5.5
05000261/2010009-3, Utilization of Operators During Events Requiring Use of Concurrent Procedures	NRC Inspection Report 05000261/2010009 Section 4OA5.02
05000261/2010009-4, Fidelity of Plant-Referenced Simulator	NRC Integrated Inspection Report 05000261/2010004 Section 1R11.2
05000261/2010009-5, Corrective Action for Operating Crew Performance Issues	NRC Integrated Inspection Report 05000261/2010004 Section 1R11.3
05000261/2010009-6, Adequacy of Emergency Operating Procedure Background documents	NRC Integrated Inspection Report 05000261/2010004 Section 4OA3.2
05000261/2010009-7, Loss of Seal Water Results in Failure of the "A" Main Condenser Vacuum Pump	NRC Integrated Inspection Report 05000261/2010004 Section 4OA5.10
05000261/2010009-8, Deficiencies in Non-Safety-Related Cable Installation	NRC Integrated Inspection Report 05000261/2010004 Section 4OA5.11
05000261/2010009-9, Failure to Repair Circuit Breaker 52/24 Resulting in Breaker Being Unable to Operate	NRC Problem Identification and Resolution Inspection Report 05000261/2010006 Section 4OA2 (a)(3)i
05000261/2010009-10, Failure of Charging Pump Suction Valves to Automatically Transfer Due to Errors in Implementing an Instrumentation Component Upgrade	NRC Integrated Inspection Report 05000261/2010004 Section 1R19
05000261/2010009-11, FCV 626, RCP Thermal Barrier Outlet Isolation CCW Valve, Unexpected Closure	NRC Integrated Inspection Report 05000261/2010004 Section 4OA5.14
05000261/2010009-12, NUREG 0737 Response From Licensee to the NRC Describing the Behavior of RCP Seal Cooling Following a Loss of Offsite Power Event	NRC Integrated Inspection Report 05000261/2010004 Section 4OA5.15
05000261/2010009-13, Dedicated Shutdown Diesel Generator Failed to Start Due to Low Starting Air Pressure	NRC Integrated Inspection Report 05000261/2010004 Section 4OA5.16
05000261/2010009-14, Unexpected Loss of Instrument Bus 3 for Two Minutes	NRC Integrated Inspection Report 05000261/2010004 Section 4OA5.17

Prior to plant restart, adequate corrective actions were verified to be completed. The LER was reviewed and no additional findings were identified and no additional violations of NRC requirements occurred. This LER is closed.

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.2 (Closed) LER 2010-003-00, "Potential Loss of Residual Heat Removal System Safety Function in Modes 3 and 4"

On April 29, 2010, the licensee determined that during the fall 2008 refueling outage the Residual Heat Removal (RHR) system temperature was above the value which ensured the system would remain sub-cooled in the event a loss of coolant event required emergency core cooling system (ECCS) makeup from the refueling water storage tank. For a combined period of approximately 15 hours the low pressure injection emergency core cooling function was inoperable. The inspectors reviewed the corrective actions and determined they were adequate. The enforcement aspects of this finding are discussed in Section 40A7. This LER is closed.

.3 (Closed) LER 2010-005-00, "Emergency Diesel Generator Inoperable Due to Inverter Failure"

On June 24, 2010, a failure of the "B" Inverter occurred during surveillance testing. The failure resulted in a loss of RHR temperature control and inoperability of the "B" EDG. The "B" Inverter failure was caused by an age-related failure of a circuit card. The failed card was replaced and tested satisfactorily. The inspectors reviewed the corrective actions and determined they were adequate. The enforcement aspects of this finding are discussed in Section 40A7. This LER is closed.

.4 (Closed) LER 2010-006-00, "Pressurizer Heaters Inoperable Longer Than Allowed Due to Inadequate Procedure"

On August 4, 2010, the licensee determined that if the "A" EDG was inoperable, the required emergency power supply to the pressurizer heaters from the "B" EDG could not have been provided. A control relay powered from the "A" EDG would be de-energized and not allow the pressurizer heaters to be energized from the "B" EDG. The licensee modified the procedure to be able to energize the required heaters from the "B" EDG. The inspectors reviewed the corrective actions and determined they were adequate. The enforcement aspects of this finding are discussed in Section 40A7. This LER is closed.

.5 (Closed) LER 2010-007-01, "Reactor Trip Due to a Degraded Connection on a Circuit Board in the Electro-Hydraulic Control Cabinet"

On September 9, 2010, an automatic reactor trip occurred due to an Over-temperature/Differential-temperature (OTΔT) reactor protection function. The cause of the transient was determined to be a degraded electrical circuit board connection in the main turbine governor valve control system. The degraded connection resulted in the closure of all governor valves resulting in a full load rejection event. The degraded circuit card connection was replaced and tested satisfactorily. Revision 1 updated the planned corrective actions. The inspectors reviewed the corrective actions and determined they were adequate. The LER was reviewed and no findings were identified and no violation of NRC requirements occurred. This LER is closed.

.6 (Closed) LER 2010-008-00, "Emergency Core Cooling System Inoperable in Mode 4 Due to Technical Specification Misinterpretation"

On October 5, 2010, it was determined that during the startup from the most recent refueling outage the RHR ECCS function was inadvertently rendered inoperable. The cause of the inoperability was that system temperature was above the value which ensured the system would remain sub-cooled in the event a loss of coolant event required ECCS makeup from the RWST. The plant was in this condition for approximately 19 hours. Corrective actions include revising the RHR procedure to ensure the system temperature remains below the operability limit. The inspectors reviewed the corrective actions and determined they were adequate. The enforcement aspects of this finding are discussed in Section 1R15b.3. This LER is closed.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors observed Security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

An exit meeting was conducted on February 17, 2011, to discuss the results of the Biennial Licensed Operator Requalification inspection. A follow-up exit meeting was conducted via telephone on March 22, 2011, with the Training Manager to inform the licensee that the finding had been categorized as a self-revealing finding rather than the original classification of licensee-identified. The inspectors confirmed that no proprietary information was retained during this inspection.

On April 20, 2011, the resident inspectors presented the inspection results to Mr. Duncan and other members of his staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

40A7 Licensee-Identified Violations

The following findings of very low significance were identified by the licensee and are violations of NRC requirements, and, consistent with the NRC Enforcement Policy, are being dispositioned as NCVs.

- TS 3.5.3, ECCS – Shutdown, required immediate actions to restore One ECCS RHR train to operable status when the required train was inoperable. Contrary to this on September 27, 2008, during the shutdown and on November 2, 2008, during the startup from a refueling outage RHR temperature was above the 250 degree Fahrenheit temperature limit for a combined total of approximately 15 hours. The cause of the violation was an inadequate review of operating experience which had identified the potential for voiding in the RHR system when responding to a loss of coolant accident if RHR temperature is too high. The licensee entered the issue into the corrective action program as NCR 367186. The finding was evaluated in accordance with IMC 0609.04, Significance Determination Process (SDP) Phase 1 screening worksheets. Because it represented an actual loss of safety function of both trains of RHR, an SDP Phase 2 analysis was attempted. The inspectors determined that the finding could not be adequately modeled using the Phase 2 process. An SDP Phase 3 analysis was performed for the deficiency using an at-power (vice a shutdown evaluation) because the performance deficiency would manifest itself immediately after shutting down the unit or immediately preceding returning to power. The NRC's risk model was modified to reflect the total loss of RHR pumping capability due to either voiding of the pump suction or the associated water-hammer event. The resulting analysis, including the risk contribution due to external sources, was less than 1E-6/year and the finding is GREEN. The dominant cutsets were medium and small break loss of coolant accidents that proceed immediately to core damage due to the lack of low pressure injection.
- TS 5.4.1, Procedures, required preventive maintenance be accomplished on safety-related systems in accordance with Regulatory Guide 1.33, Revision 2, Appendix A, 1978. Contrary to this in 2004, during preventive maintenance on the "B" Inverter, the sync board was not replaced as planned and the work order was closed as completed. This resulted in the sync board remaining in service beyond the vendor 10 year replacement recommendations. The 10 year life expired in 2009. As a result, the "B" Inverter failed during surveillance testing on June 24, 2010. The failure resulted in a loss of RHR temperature control and inoperability of the "B" EDG. The cause of the violation was inadequate review of the work order which did not track the sync board replacement deviation. The licensee entered the issue into the corrective action program as AR 406834. Significance Determination Process (SDP) phase 1 screening for the finding determined that the finding required a phase 2 shutdown risk assessment in accordance with Inspection Manual Chapter (IMC) 0609 Appendix G. A loss of RHR(LORHR) event assessment was performed for the June 24, 2010 event. The event risk assessment period was <3 days while in mode 5 (Plant Operating State (POS-2)). A condition assessment was performed to cover the likelihood of an inverter failure conditional on a loss of offsite power (LOOP) event covering the period between the failure of inverter B and the last successful

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demonstration of inverter B to synchronize properly (March 28, 2010 – June 23, 2010). The major assumptions of the LORHR event assessment were an initiating event likelihood (IEL) of 1.0, reactor coolant system (RCS) time to boil of 8.6 hours, time to core uncovery of 13.9 hours, full operator and equipment credit for RHR recovery, refueling water storage tank (RWST) makeup and feed capability due to availability of safety injection and charging systems. The LORHR sequences were (1) LORHR with failure to recover RHR before RCS boiling, successful RCS injection, failure to recover RHR before RWST depletion and failure to accomplish RWST makeup leading to core damage, and (2) LORHR, failure to recover RHR prior to RCS boiling and failure of RCS injection leading to core damage. The major assumptions of the LOOP condition assessment were an IEL of 2 for the duration in POS 1, IEL of 3 for the duration in POS2, full credit for emergency ac power due to availability of EDG A, ability to manually load EDG B and the availability of steam generator (S/G) cooling due to motor driven and turbine driven auxiliary feedwater trains. The dominant LOOP condition assessment sequences were (1) LOOP, failure of AC power, failure to maintain S/G cooling with a failure to recover offsite power prior to core damage and (2) LOOP, failure of AC power, successful gravity feed, with failure to recover offsite power or EDGs prior to core damage. The LORHR event risk was mitigated by the low decay heat present during the event, the availability of RHR trains and indications, and ease of diagnosis and restoration of the loss of instrument bus power allowing a recovery of RHR flow control from the main control room. The LOOP condition assessment risk was mitigated by the fact that the inverter B failure was conditional upon a LOOP event occurring during the evaluation period and the availability of EDG A during the evaluation period with EDG B available but requiring manual loading. The phase 2 SDP risk evaluation including the event and condition assessments resulted in a risk increase of $<1E-6$ in core damage frequency, a Green finding of very low safety significance.

- TS 3.4.9, Pressurizer, required Pressurizer heaters operable with a capacity of greater than or equal to 125 kW and capable of being powered from an emergency power supply. Contrary to this in December of 2008 the pressurizer heaters were inoperable for approximately 95 hours which exceeds the allowed outage time of 72 hours. The cause of the event occurred in the fall of 1979 in response to NUREG-0578, TMI-2 Lessons Learned Task Force Status Report and Short-term Recommendations. The licensee revised procedure EI-15, Control Room Inaccessibility based on the assumption the pressurizer heater emergency power supply scheme was redundant. The cause of the violation was the licensee did not recognize the low pressurizer level heater cutoff relay was powered from the "A" train and would preclude energizing the required pressurizer heaters from the "B" train if the "A" train was inoperable. Immediate corrective actions included revising the implementing procedure to lift a control lead to allow the "B" EDG to power the required pressurizer heaters if needed during an event with the "A" EDG inoperable. The licensee entered the issue into the corrective action program as NCR 413865. The finding was evaluated in accordance with IMC 0609.04, Significance Determination Process. A regional Senior Reactor Analyst evaluated the performance deficiency using the Phase 3 protocol of the Significance Determination Process. Based upon the results of that evaluation, the performance deficiency was

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characterized as of very low safety significance (Green). The major assumptions of the evaluation included a one year exposure time, that the performance deficiency was only associated with a Loss of Offsite Power initiator and, that the lack of Pressurizer heaters eventually led to a loss of sub-cooled margin, which removed the steam generators as a viable heat sink and resulted in a feed and bleed safety injection condition. The postulated dominant accident sequence was a switchyard induced Loss of Offsite Power with Emergency Diesel Generator A out of service for test and maintenance. Neither offsite power nor Emergency Diesel Generator A was returned to service within one hour. Within that one hour operators were unable to preclude a feed and bleed safety injection. Consequently, the opened safety relief valve initiated a Small Break Loss of Coolant Accident. Operators then failed to place High Pressure Recirculation into service properly in response to the Small Break Loss of Coolant Accident. Therefore, the core was not cooled and core damage ensued.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

S. Barlatski, Nuclear Oversight Superintendent
C. Castell, Licensing Supervisor
J. Cole, Manager - Shift Operations
S. Conner, Requalification Training Supervisor (Acting)
T. Cosgrove, Plant General Manager
H. Curry, Training Manager
R. Duncan, Vice President
J. Edwards, Operations Training Superintendent
C. Freligh, Nuclear Oversight
D. Gardner, Systems Engineering Superintendent
T. Hobbs, Manager, Nuclear Oversight
D. Hoffman, Organizational Effectiveness
B. Houston, Radiation Protection Superintendent
C. Kamilaris, Manager, Support Services - Nuclear
G. Kilpatrick, Operations Manager
L. Martin, Engineering Manager
B. Matherne, Outage & Scheduling Manager
B. McCabe, Manager - Regulatory Affairs
C. Morris, Maintenance Manager
R. Lindsay, Training Consultant
J. Pierce, Corporate Training Manager, Progress Energy
G. Sanders, Licensing Engineer
D. Sunthakar, Lead Simulator Support
T. White, Occupational Health

NRC personnel

R. Musser, Chief, Reactor Projects Branch 4

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000261/2011002-04 URI Refueling Water Storage Tank Operability While On Purification (Section 1R15b.2)

Closed

05000261/2010-002-00 LER Plant Trip due to Electrical Fault (Section 4OA3.1)

05000261/2010-003-00 LER Potential Loss of Residual Heat Removal System Safety Function in Modes 3 and 4 (Section 4OA3.2)

05000261/2010-005-00 LER Emergency Diesel Generator Inoperable Due to Inverter Failure (Section 4OA3.3)

05000261/2010-006-00 LER Pressurizer Heaters Inoperable Longer Than Allowed Due to Inadequate Procedure (Section 4OA3.4)

05000261/2010-007-01 LER Reactor Trip Due to a Degraded Connection on a Circuit Board in the Electro-Hydraulic Control Cabinet (Section 4OA3.5)

05000261/2010-008-00 LER Emergency Core Cooling System Inoperable in Mode 4 Due to Technical Specification Misinterpretation (Section 4OA3.6)

Opened and Closed

05000261/2011002-01 FIN Two of Six Operating Crew Failures on the Simulator Operational Evaluation Portion of the 2011 Annual Requalification Operating Test (Section 1R11.2)

05000261/2011002-02 NCV Failure to Update the Updated Final Safety Analysis Report Contributed to Insufficient Emergency Diesel Generator Lube Oil Inventory (Section 1R15b.1)

05000261/2010002-03 NCV Inadequate 10 CFR 50.59 evaluation results in Emergency Core Cooling System Inoperability (Section 1R15b.3)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Partial System Walkdown

Procedures

OP-604, Diesel Generators "A" and "B", Rev. 84
OP-402, Auxiliary Feedwater System, Rev. 75
OP-910, Spent Fuel Pit Cooling and Purification System, Rev. 34

Other documents

Improved Technical Specifications LCO 3.8.1, LCO 3.8.2, LCO3.8.3
SD-005, Emergency Diesel Generators, Rev. 15
SD-042, Auxiliary Feedwater System, Rev. 13
Improved Technical Specifications LCO 3.3.8, 3.7.4
SD-014, Spent Fuel Pit Cooling and Purification System, Rev. 4

Complete System Walkdown

Procedures

OP-903, Service Water System, Rev. 118

Work Orders

1165979, "B" Service Water Pump Oiler Change
1707218, "B" Service Water Pump Vibration Absorber Tuning
1829713, "A" Service Water Pump Replace Motor
1879426, "D" Service Water Pump Hole in Pullbox for Conduits DS038 A & B
1775168, "C" Service Water Pump Motor Ground Loose
1127879, Perform South Header Underground Pipe Inspection

Action Requests

375304, "B" Service Water Pump Vibration in Alert Range
393683, "B" Service Water Pump Seal Leakoff Line Clogged
402910, Service Water Pit High Level Alarm Not Working
434414, Service Water Strainer Design Precludes Rotation Observation

Other documents

SD-4, Service Water System Description, Rev. 14
Drawings: G-190199, Sheets 1-13
Robinson UFSAR: Section 9.2.1, "SW System"
Improved Technical Specifications 3.7.7, "Service Water System (SWS)"
Improved Technical Specifications 3.7.8, "Ultimate Heat Sink (UHS)"
Maintenance Rule Monitoring Status dated 2/14/2011
Maintenance Rule Scoping and Performance Criteria for the Service Water System
Maintenance Rule Expert Panel Meeting Minutes for the Service Water System

Section 1R05: Fire ProtectionUFSAR Sections of Appendix 9.5.1ADrawings

HBR2-11937, "Fire Pre-Plan Auxiliary Building - Second Level (General Layout)", sheet 21, Rev. 1
 HBR2-11937, "Fire Pre-Plan Auxiliary Building - Second Level Hallway and Adjoining Rooms", sheet 22, Rev. 1
 HBR2-11937, "Fire Pre-Plan 4:60 V Switchgear Room", sheet 59, Rev. 0
 HBR2-11937, "Fire Pre-Plan D.S. Diesel Enclosure", sheet 52, Rev. 0
 HBR2-11937, "Fire Pre-Plan Auxiliary Feedwater Pump Room", sheet 47, Rev. 1
 HBR2-11937, "Fire Pre-Plan Waste Holdup Tank, RHR Heat Exchangers", sheet 18, Rev. 0

Other documents

OMM-002, "Fire Protection Manual", Rev. 41
 OMM-003, "Fire Protection Pre-Plans/Unit 2", Rev. 55

Section 1R07: Heat Sink PerformanceProcedures

CM-632, EDG Heat Exchanger Maintenance, Rev. 18
 CM-201, Safety Related and Non-Safety Related Heat Exchanger Maintenance, Rev. 47

Work Orders

1452793
 1849809

Other documents

SD-005, Emergency Diesel Generators System Description, Rev. 15

Section 1R11: Licensed Operator RequalificationProcedures

AOP-18, Reactor Coolant Pump Abnormal Conditions, Rev. 21
 EPP-Foldouts, End Path Procedure, Rev. 31
 EPP-Supplements, End Path Procedure, Rev. 40
 PATH-1, Reactor Trip or Safety Injection, Rev. 20

Lesson Plans

JITT-RCP Seal Cooling Procedure Changes, Rev.0
 RCP Seal Injection, Rev. 0, JITT12811

Records:

License Reactivation Packages (3).
 LORP Training Attendance records (20 Training sessions).
 Medical Files (8 files).
 Remedial Training Records (8).

Remedial Training Examinations (4).
Feedback Summaries (100 forms).

Written Examinations:

Operations Training 2011 Biennial Exam Week 1 RO
Operations Training 2011 Biennial Exam Week 1 SRO

Procedures:

TRN-NGGC-0420, "Conduct of Simulator Training and Evaluation", Rev. 0
TRN-NGGC-0002, "Performance Review and Remedial Training", Rev. 0
TAP-303, "Operations Examination Review and Validation", Rev. 12
TAP-403, "Examination and Testing", Rev. 37
TAP-409, "Conduct of Simulator Training and Evaluation", Rev. 26
TAP-410, "NRC License Examination Security Program", Rev. 19
TAP-411, "Simulator Setup", Rev. 28
TAP-413, "Simulator Scenario-Based Testing", Rev. 4
TPP-200, "Licensed Operator / Shift Technical Advisor Continuing Training Program", Rev. 16
TPP-206, "Simulator Program", Rev. 18

Simulator Steady State Tests:

Test No. 1.0, "Real Time Simulation Verification", Rev. 10
Test No. 2.0.1, "Full Power Stability Test", Rev. 11
Test No. 2.0.2, "Full Power – Steady State Comparison Test", Rev. 9
Test No. 2.0.3, "Interim Power – Steady State Comparison Test", Rev. 9

Simulator Transient Tests:

Test No. 4.8, "DBA LOCA with Loss of Offsite Power Transient Test", Rev. 11
Test No. 4.10, "Pressurizer PORV Stuck Open without SI Transient Test", Rev. 18

Simulator Scenario Based Tests:

2011 Exam 1, Rev. 1 - Simulator Scenario Based Testing Checklist, 01/13/11, Rev. 4
2011 Exam 2, Rev. 1 - Simulator Scenario Based Testing Checklist, 01/13/11, Rev. 4
2011 Exam 3, Rev. 1 - Simulator Scenario Based Testing Checklist, 01/13/11, Rev. 4

Action Request Numbers (ARs):

ARN 395800, "Failure to Enter Appropriate Technical Specification Action Statement with Two
Emergency Diesel Generators Inoperable"
ARN 412621, "Adverse Trend in the Cause Code of Work Oversight Methods"
ARN 412623, "Rising Number of Self-Identified Human Performance Occurrences"
ARN 412627, "Adverse Trend in the Keyword Corrective Action Program"
ARN 412628, "Logkeeping Deficiencies"

Simulator Work Requests/Orders Reports (closed):

201005130730, Post-Event Simulator Testing (PEST) – Turbine Ramp
201006080949, PEST – Unit 1 Reactor Trip/SI
200912151000, Correct Annunciators Related to High CLS on Loss of 125 VDC
201011230900, ICCM Train A & B Dropping Out Due to Data Link Failure

Simulator Work Requests/Orders Reports (open)

201011130730, Cycling of Generator Output Breakers on the Simulator

201101061500, Intermittent ICCM Data Link Failure in Simulator

201101261300, Modify Simulator Test Procedures to Require Comparison to Plant Data

Scenario Packages:

2011 Exam 1, Rev. 1

2011 Exam 2, Rev. 1

2011 Exam 3, Rev. 1

JPM Packages:

JPM IP-028, "Startup and Parallel 'B' Rod Drive Motor Generator Set", Rev. 25

JPM IP-020, "Establish Service Water Using DSP-002, Attachment 2, Electrical Operator Actions", Rev. 42

JPM IP-035, "Manually Actuate Halon for Suppression System for E-1/E-2 Room", Rev. 16

JPM CR-008, "Safety Injection Verification", Rev. 12

JPM CR-108, "Startup of a Main Feed Pump Following a Feedwater Isolation (OP-403)", Rev. 0

Other Documents:

JITT-AOP-018/PATH-1, Licensed Operator Continuing Training, Lesson Number LOC0015R, 2-6-2011, Rev. 0

JITT-RCP Seal Cooling Procedure Changes, Licensed Operator Continuing Training, Lesson Number LOC0015R, 2-6-2011, Rev. 0

Assessment Number 395150, "Pre-71111.11 Assessment", December 13-17, 2010.

Simulator Crew Evaluation Summaries (3)

Simulator Individual Evaluation Summaries (15)

Section 1R12: Maintenance EffectivenessWork Orders

1902813, LC-112 Not Controlling As Expected

Action Requests

454566, LV-112 Not Controlling LCV-115A as Expected

456414, Incorrect Manual/Auto Station Identified on work order For LC-112

Other documents

For system Chemical and Volume Control System:

- : Event Log Report for 3/22/2011 – 7/12/2008
- : Scoping and Performance Criteria
- : MR PMG Monitoring Trend
- : Expert Meeting Minutes
- : SD-021, Chemical and Volume Control System, Rev 12
- : Maintenance Rule Monitoring Status
- : Design Bases Document, CVCS, Rev. 5

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

Procedure

OMM-048, Work Coordination and Risk Assessment, Rev. 47
 OP-604, Section 8.4.14, Diesel Generator A Operation While Diesel Generator B is Out of Service (OOS), Rev. 84
 LP-358,
 PM-107, Dedicated Shutdown Diesel Coolant Check (Semi-Annual), Rev. 21

Other documents

High Risk Approval Sheet for February 3, 2011
 Risk Mitigation Plan for 1/31 - 2/06
 Risk Mitigation Plan for 2/7 - 14
 Risk Mitigation Plan for 2/14 – 21
 Risk Profile for 1/03-1/10/2011

Work Orders

1097999-01, Check the Cooling Water in Dedicated Shutdown Diesel

Section 1R15: Operability Evaluations

Procedures

OST-108-2, Boric Acid Pump B Inservice Test, Rev. 22
 OP-604, Diesel Generators "A" and "B", Rev .85
 OST-410, Emergency Diesel Generator "A" (Twenty-Four Hour Load Test), Rev. 43
 OST- 411, Emergency Diesel Generator "B" (Twenty-Four Hour Load Test), Rev. 44
 OST 401-1, EDG A Slow Speed Start, Rev. 47
 OST 401-2, EDG B Slow Speed Start, Rev. 44
 OST-163, Safety Injection Test and Emergency Diesel Generator Auto Start on Loss of Power and Safety Injection (Refueling), Rev. 57

Action Requests

446001, Incomplete Installation Records, A-EDG-Voltage Regulator
 449560, LI-948 Will Not Indicate Below 14 percent
 398062, Boric Acid Transfer Pump "B" Deadheaded for one hour
 452251, Diesel Lube Oil Not on Hand When Requested by Maintenance
 452617, EDG Lube Oil Consumption Evaluation for Mission Time
 446164, EDG Fuel Rack Tripped During Performance of OP-604
 452617, EDG Lube Oil Consumption for Mission Time

Other documents

Justification For Differences, ITS Specification 3.8 –Electrical Power Systems, Part 5
 80384R0, Engineering Evaluation on EDG Lube Oil Consumption
 NEI 99-04, Guidelines for Managing NRC Commitment Changes, Rev 0
 Amendment No. 174, EDG Surveillance Requirements, 9/11/1996
 Operability Evaluation, 'B' EDG Previously Inoperable Since 1/31/11 0303 For Maintenance
 Fagnat
 Fairbanks Morris Service Information Letter (SIL) A-22, Rev 1

Section 1R19: Post Maintenance TestingProcedures

MST-012-3, Maintenance and Testing of Reactor Trip Bypass Breakers, Rev. 3
 MST-012-2, Maintenance and Testing of "B" Reactor Trip Breaker, Rev. 3
 CM-023, Emergency Diesel Generator Standby Jacket Water Pumps A and B, Rev. 9
 OST-401-1, EDG A Slow Speed Start, Rev. 46
 OST-206, Comprehensive Flow Test for the Steam Driven Auxiliary Feedwater Pump, Rev. 56
 OST-202, Steam Driven Auxiliary Feedwater System Component Test, Rev. 78
 OST-406, TSC/EOF/PAP Diesel Generator, Rev.27
 PM-026, EOF/TSC Emergency Diesel Generator Inspection Number 2, Rev. 13
 PM-025, EOF/TSC Emergency Diesel Generator Inspection Number 1, Rev. 13
 PM-028, EOF/TSC Emergency Diesel Generator Inspection Number 4, Rev. 12
 PM-027, EOF/TSC Emergency Diesel Generator Inspection Number 3, Rev. 13
 PLP-033, Post Maintenance Testing (PMT) Program, Rev. 51
 OST-908, Component Cooling System Component Test, Rev. 74

Work Orders

1690070. "B" Reactor Trip Breaker Testing
 1836453, Repair Seal Leak on "A" EDG Standby Circulating Coolant Pump
 1452821, "B" EDG Engine Inspection
 1452820, "B" EDG Generator Inspection
 1849810, Replace "B" EDG Water Jacket Seals
 1291080, Replace "B" EDG Lube Oil Seals
 1452765, Repair Air Start Valve DA-23B
 1788018, Replace "B" EDG Overspeed Switch
 1648702, Calibrate Steam Drive Auxiliary Feedwater Pump Flow Indication and Controller
 1534496-02, GEMCO Switch Continuity Testing for Service Water Header Cross-Connect Valve
 (CS/V6-12B)

Action Requests

426517 – Small Seal Leak

Section 1R22: Surveillance TestingProcedures

OP-602, Dedicated Shutdown Diesel Generator, Rev. 55
 OST-910, Dedicated Shutdown Diesel Generator (Monthly), Rev. 46
 OST-918, Dedicated Shutdown Equipment and Instrumentation Check (Monthly), Rev. 15
 OST-402-1, Emergency Diesel Generator A Diesel Fuel Oil System Flow Test, Rev. 30
 OST-251-1, RHR Pump A and Components Test, Rev. 25
 OP-201, Residual Heat Removal System, Rev. 64
 TMM-004, Inservice Testing Program, Rev. 77

Other documents

Improved Technical Specifications LCO 3.3.4 and SR 3.3.4.1
 Improved Technical Specifications LCO 3.5.2, LCO 5.5.8 and SR 3.5.2.3

Section 40A1: Performance Indicator Verification

Operating Logs

Dose Equivalent Iodine Reports for 2010

Reactor Coolant System Specific Activity Reports for 2010

Reactor Coolant System Leakage Reports for 2010

System Health Reports for Residual Heat Removal and Cooling Water Systems

Performance Indicator Summary Documentation for 2010

Section 40A2: Identification and Resolution of Problems

Procedures

CAP-NGGC-0200, Corrective Action Program, Rev. 33

CAP-NGGC-0206, Corrective Action Program Trending and Analysis, Rev. 5

ADM-NGGC-0106, Configuration Management Program Implementation, Rev. 8

Action Requests

451147, "B" EDG Starting Air Compressor line Check Valve Stuck Closed Requiring Use of a Compressed Air Source to maintain Starting Air Pressure

452475, Inadequate 50.59 screening for SP-1575, Connect Compressed Gas Supply to A or B Emergency Diesel Generator Air Receiver Tank, Rev. 0

Other documents

G-190204-A, Emergency Diesel Generator Flow Diagram Sheet 1 of 3, Rev. 32