



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

July 30, 2012

Carolina Power and Light Company  
ATTN: Mr. Randy Gideon  
Vice President - Robinson Plant  
H. B. Robinson Steam Electric Plant  
Unit 2  
3581 West Entrance Road  
Hartsville, South Carolina 29550

**SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT - NRC INTEGRATED  
INSPECTION REPORT 05000261/2012003 AND 05000261/2012502**

Dear Mr. Gideon,

On June 30, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your H. B. Robinson Steam Electric Plant, Unit 2. The enclosed inspection report documents the inspection results which were discussed on July 30, 2012 with M. Glover and other members of your staff.

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

One NRC identified and one self-revealing findings of very low safety significance (Green) were identified during this inspection. Additionally, the NRC has determined that a traditional enforcement SL-IV violation occurred. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest these findings, 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 H. B. Robinson Steam Electric Plant, Unit 2.

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 report, with the basis for your disagreement, to the Regional Administrator, Region II, and the Senior Resident Inspector at H.B. Robinson.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's Agency wide Document Access and Management 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 05000261/2012003  
w/Attachment: Supplemental Information

cc w/encls: (See page 3)

R. Gideon

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/RA/

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

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R. Gideon

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Letter to William R. Gideon from Randall A. Musser dated July 30, 2012

SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT - NRC INTEGRATED  
INSPECTION REPORT 05000261/2012003 AND 05000261/2012502

Distribution w/encl:

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**U. S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket No: 50-261

License No: DPR-23

Report No: 05000261/2012003 and 05000261/2012502

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

Location: 3581 West Entrance Road  
Hartsville, SC 29550

Dates: April 1, 2012 - June 30, 2012

Inspectors: J. Hickey, Senior Resident Inspector  
C. Scott, Resident Inspector  
G. Laska, Sr. Operations Examiner, (Section 40A2)  
D. Lanyi, Operations Examiner, (Section 40A2)  
M. Speck, Senior Emergency Preparedness Inspector,  
(Sections 1EP2, 1EP3, 1EP5, 4OA1, 4OA5)  
W. Loo, Senior Health Physicist, (Sections 1EP2, 1EP3, 1EP5,  
4OA1, 4OA5)  
A. Sengupta, Reactor Inspector, (Section 1R07)

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

Enclosure

## SUMMARY OF FINDINGS

IR 05000261/2012003 and 05000261/2012502, Carolina Power and Light Company; on 4/01/2012-6/30/2012; H.B. Robinson Steam Electric Plant, Unit 2; Maintenance Effectiveness, Performance Indicator Verification.

The report covered a three month period of inspection by resident inspectors, and announced inspections by emergency preparedness inspectors, health physics inspectors and reactor inspectors. Three findings of very low safety significance (Green) 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). 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: Initiating Events

- Green. A self-revealing Green finding was identified when the licensee failed to establish adequate preventative maintenance for equipment associated with the feedwater control systems. Specifically, the licensee's inappropriate classification of the feedwater flow loop selector switch as a "run-to-failure" component permitted the switch to remain in service, without preventative maintenance, until its failure on March 28, 2012, which resulted in a feedwater transient and reactor trip. Corrective actions included the replacement of the failed switch and future replacement of seven additional switches that were deemed to be at risk for a similar failure. This issue has been entered into the corrective action program (CAP) as Nuclear Condition Report (NCR) #527203.

The licensee's inappropriate classification of plant equipment in accordance with ADM-NGGC-0107 Rev. 1, Equipment Reliability Process Guideline, which permitted feed flow selector switch 1/FM-488B to remain in service, without preventative maintenance, until failure was a performance deficiency. This finding was determined not to be a violation of NRC requirements. The finding was more than minor because it was associated with the initiating events cornerstone attribute of Equipment Performance, and it affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the performance deficiency caused an automatic reactor trip from 55 percent power operations on March 28, 2012. The finding was determined to be of very low safety significance (Green) because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available. The performance deficiency had a cross-cutting aspect of Evaluation of Identified Problems in the area of Problem Identification and Resolution, because the licensee failed to thoroughly evaluate the events in 2010 and 2008 such that the resolutions addressed the causes and extent of conditions as necessary.(P.1(c)) (Section 1R12)

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### Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green finding for the licensee's failure to identify and document Safety System Functional Failures (SSFF) in accordance with REG-NGGC-0009, NRC Performance Indicators and Monthly Operating Report Data. The licensee did not recognize that rendering the refueling water storage tank inoperable by placing the non-seismically qualified purification system in operation as documented in LER 05000261/2011-001-00, "Condition Prohibited by Technical Specifications When Non-Seismic System was Aligned to Refueling Water Storage Tank due to Regulatory Requirements not Adequately Incorporated in Plant Documentation" also created a SSFF. The licensee entered the issue into the CAP as NCR 539132. Corrective actions are still being evaluated.

The inspectors determined that the licensee's failure to identify and document a SSFF was a performance deficiency. Specifically, Attachment 7 of REG-NGGC-009, NRC Performance Indicators and Monthly Operating Report Data, Rev. 11 requires documenting SSFF's. The finding was determined to be more than minor because the minor screening question of whether the performance deficiency would have caused the SSFF PI to exceed a threshold was determined to have occurred. Specifically, had the licensee recognized the SSFFs and documented them during the investigation of LER 05000261/2011-001-00, the SSFF PI would have crossed the green/white threshold in the 4<sup>th</sup> quarter of 2010. The finding screened as Green because no loss of operability or functionality resulted from the failure to recognize the SSFF and document the event as described in LER 05000261/2011-001-00. The inspectors determined this performance deficiency had a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution Area, because the licensee did not thoroughly evaluate the condition described in LER 05000261/2011-001-00, to include conditions such as a SSFF. (P.1(c))(Section 4OA1)

- Green. The inspectors identified a Severity Level (SL) IV NCV of 10 CFR 50.9(a), "Completeness and Accuracy of Information," when the licensee inaccurately reported Safety System Functional Failure (SSFF) performance indicator data beginning with the 4th quarter of 2010. The licensee entered the issue into the CAP as NCR 539132. Corrective actions are still being evaluated.

The inspectors determined the licensee's failure to identify and document a SSFF was a performance deficiency. Specifically, Attachment 7 of REG-NGGC-009, NRC Performance Indicators and Monthly Operating Report Data, Rev. 11 requires documenting SSFF's for inclusion in the NRC performance indicator (PI) submittal. This resulted in a failure to submit complete and accurate PI data resulting from the investigation of LER 05000261/2011-001-00, "Condition Prohibited by Technical Specifications When Non-Seismic System was Aligned to Refueling Water Storage Tank due to Regulatory Requirements". Due to the inadequate review of LER 05000261/2011-001-00, the licensee submitted inaccurate data for the SSFF PI beginning in the 4<sup>th</sup> quarter of 2010. If accurate data had been provided the SSFF PI would have transitioned from green to white in the 4<sup>th</sup> quarter of 2010. The finding was more than minor because it impacted the ability of the NRC to perform its regulatory oversight function. The finding was determined to be a SL IV violation using the

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examples in the Enforcement Policy, where a licensee submits inaccurate or incomplete PI data to the NRC that would have caused a PI to change from green to white. No cross-cutting aspect was assign due to traditional enforcement violations are not screened for cross-cutting aspects. (Section 4OA1)

B. Licensee-Identified Violations

None.

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## REPORT DETAILS

Summary of Plant Status. The unit began the inspection period at approximately 53 percent reactor power. The unit reached full power on April 2, 2012, and operated at rated thermal power for the remainder of the inspection period.

### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R01 Adverse Weather Protection

##### .1 Readiness of Offsite and Alternate AC Power Systems

###### a. Inspection Scope

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

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

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

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

Documents reviewed are listed in the Attachment.

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## .2 Response to Impending Severe Weather

### a. Inspection Scope

When a severe thunderstorm watch was issued for the site on May 15 and a lightning strike resulted in several plant alarms, the inspectors reviewed actions taken by the licensee in accordance with Procedure OMM-021, Operation During Adverse Weather Conditions. The inspectors utilized the guidance contained in Operating Experience Smart Sample 2012/01, High Wind Generated Missile Hazards to assist in the performance of this inspection. The inspectors verified the adverse weather conditions did not initiate a plant event nor prevent any system, structure, or component from performing its design function.

Documents reviewed are listed in the Attachment.

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

- 537071, Alarms Received on the Control Board During Thunderstorm on 5/15/12
- 511553, Freeze Protection Breaker Found Out of Position

### b. Findings

No findings were identified.

## 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 the “A” EDG was inoperable for surveillance testing on April 9, 2012
- “A” Emergency Diesel Generator (EDG) Fuel Oil System while the “B” EDG Fuel Oil System was inoperable for surveillance testing on April 23, 2012
- “C” Charging Pump while the “B” Charging Pump was inoperable for maintenance on May 8, 2012

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.

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### Complete System Walkdown:

The inspectors conducted a detailed review of the alignment and condition of the Safety Injection 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.
- 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 ARs associated with this area to verify that the licensee identified and implemented appropriate corrective actions:

- 524540, Steam Generator Blowdown Valves Found Out of Position
- 515778, Breaker for Containment Recirculation Cooling Unit with Dual Position Indication

### 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.

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The following areas were inspected:

- Emergency Switchgear Room (E1/E2) (fire zone 20)
- Safety Injection Pump Room (fire zone 3)
- Auxiliary Building Second Level and Adjoining Rooms (fire zone 15)
- "A" Diesel Generator Room (fire zone 2)
- HVAC Equipment Room for Control Room (fire zone 17)

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

- 509350, Fire Brigade Radios Degraded
- 515395, Fire Damper FD-1 Drop Test Failed

b. Findings

No findings were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors walked down two underground cable manholes/bunkers to verify the following:

- The cable was not submerged in water;
- The condition of any cable splices;
- The condition of any cable support structures; and
- The condition of any dewatering devices, if applicable.

The following cable/locations were inspected:

- "A" and "B" Service Water Pump location M-35
- "C" and "D" Service Water Pump location M-36

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

## 1R07T Heat Sink Performance

### a. Inspection Scope

The inspectors reviewed operability determinations, completed surveillances, vendor manual information, associated calculations, performance test results and cooler inspection results associated with the Component Cooling Water (CCW) Heat Exchanger-B, Auxiliary Feedwater (AFW) MDP Oil Cooler Heat Exchanger-A and the Reactor Coolant Pump (RCP) Thermal Barrier Heat Exchangers-A, B, and C. These heat exchangers/coolers were chosen based on their risk significance in the licensee's probabilistic safety analysis, their important safety-related mitigating system support functions in the NRC's model for Robinson Nuclear Power Plant, Unit 2.

For the Component Cooling Water (CCW) Heat Exchanger-B and Auxiliary Feedwater (AFW) MDP Oil Cooler Heat Exchanger-A, the inspectors determined whether inspection, maintenance, and monitoring of biotic fouling and macrofouling programs were adequate to ensure proper heat transfer. This was accomplished by determining whether the methods used were consistent with accepted industry practices.

For the Component Cooling Water (CCW) Heat Exchanger-B and Auxiliary Feedwater (AFW) MDP Oil Cooler Heat Exchanger-A, the inspectors reviewed the methods and results of heat exchanger performance inspections. The inspectors determined whether the methods used to inspect and clean heat exchangers were consistent with as-found conditions identified and expected degradation trends and industry standards, the licensee's inspection and cleaning activities had established acceptance criteria consistent with industry standards, and the as-found results were recorded, evaluated, and appropriately dispositioned such that the as-left condition was acceptable.

In addition, the inspectors determined whether the condition and operation of the Component Cooling Water (CCW) Heat Exchanger-B and Auxiliary Feedwater (AFW) MDP Oil Cooler Heat Exchanger-A Heat Exchanger were consistent with design assumptions in heat transfer calculations and as described in the final safety analysis report. This included determining whether the number of plugged tubes was within pre-established limits based on capacity and heat transfer assumptions. The inspectors determined whether the licensee evaluated the potential for water hammer and established adequate controls and operational limits to prevent heat exchanger degradation due to excessive flow induced vibration during operation. In addition, visual inspection records were reviewed to determine the structural integrity of the heat exchanger.

For the Reactor Coolant Pump (RCP) Thermal Barrier Heat Exchangers-A, B, and C, the inspectors determined whether the condition and operation of the heat exchangers were consistent with design assumptions in heat transfer calculations and as described in the final safety analysis report. This included determining whether the number of plugged tubes was within pre-established limits based on capacity and heat transfer assumptions. The inspectors determined whether the licensee evaluated the potential for water hammer and established adequate controls and operational limits to prevent heat exchanger degradation due to excessive flow induced vibration during operation. In

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addition, eddy current test reports and visual inspection records were reviewed to determine the structural integrity of the heat exchanger. The inspectors determined whether the licensee's chemical treatment programs for corrosion control were consistent with industry norms and implemented accordingly.

The inspectors determined whether the performance of the ultimate heat sink (UHS)- Lake Robinson and its subcomponents such as piping, intake screens, pumps, valves, etc. was appropriately evaluated by tests or other equivalent methods to ensure availability and accessibility to the in-plant cooling water systems.

The inspectors performed a system walkdown on service water system to determine whether the licensee's assessment on structural integrity was adequate. In addition, the inspectors reviewed available licensee's testing and inspections results, licensee's disposition of any active thru wall pipe leaks, and the history of thru wall pipe leakage to identify any adverse trends since the last NRC inspection.

For buried or inaccessible piping, the inspectors reviewed the licensee's pipe testing, inspection, and monitoring program to determine whether structural integrity was ensured and that any leakage or degradation was appropriately identified and dispositioned by the licensee.

The inspector performed a system walkdown of the service water intake structure to determine whether the licensee's assessment on structural integrity and component functionality was adequate and that the licensee ensured proper functioning of traveling screens and strainers, and structural integrity of component mounts. In addition, the inspectors determined whether service water pump bay silt accumulation was monitored, trended, and maintained at an acceptable level by the licensee, and that water level instruments were functional and routinely monitored. The inspectors also determined whether the licensee's ability to ensure functionality during adverse weather conditions was adequate.

In addition, the inspectors reviewed condition reports related to the heat exchangers and heat sink performance issues to determine whether the licensee had an appropriate threshold for identifying issues and to evaluate the effectiveness of the corrective actions. The documents that were reviewed are included in the attachment to this report.

Records were also reviewed to verify that the licensee actions were consistent with Generic Letter (GL) 89-13 licensee commitments, EPRI and other industry guidelines. These inspection activities constituted five heat sink inspection samples as defined in IP 71111.07-05.

b. Findings

No findings were identified.

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## 1R11 Licensed Operator Requalification Program

### Licensed Operator Requalification Activities in Simulator

#### a. Inspection Scope

The inspectors observed licensed-operator performance during requalification simulator training for the following two samples to verify that operator performance was consistent with expected operator performance, as described in Exercise Guide Cycle 12-5 Exam 2 Rev. 0a and Exercise Guide Cycle 12-6 Exam 4 Rev. 0. 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 the following:

- The scenario included a failed power range instrument, a failed closed left turbine stop valve and resultant load rejection, a steam leak in the main turbine enclosure, loss of the startup transformer and de-energization of the E-2 bus, reactor trip and failure of the "A" and "C" main steam isolation valves to close.
- The scenario included a dropped control rod, a failure of the "B" FRV to the full open position and resultant S/G level rise, a reactor trip, a faulted S/G outside of containment and upstream of the main steam isolation valves and a safety injection initiation with a safety injection pump failing to start. 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 or reviewed the post-exercise critique to verify that the licensee identified deficiencies and discrepancies that occurred during the simulator training.

### Licensed Operator Performance in the Actual Plant/Main Control Room

The resident inspectors were in the control room to observe and assess licensee operator performance during a power reduction to support running the steam driven auxiliary feedwater pump and the "B" motor driven auxiliary feedwater pump in accordance with OST-023, Monthly Surveillances, Rev. 28 on June 2, 2012. During this period of heightened risk the inspectors verified that the licensed operator's actions and communication were in accordance with OMM-001, Conduct of Operations, Rev. 38.

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

- 527546, Erratic Operation of Simulator Audible Source Range Nuclear Instrument Monitor
- 510122, Operations Simulator Crew Notebooks Inconsistent

Documents reviewed are listed in the Attachment.

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b. Findings

No findings were identified.

1R12 Maintenance Effectivenessa. Inspection Scope

The inspectors reviewed the two degraded SSC/function performance problems or conditions 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 problems/conditions and their corresponding AR were:

- Spent Fuel Pool Cooling System Condition Monitoring and Maintenance
- 527203, FCV-488, Feed Regulating Valve Failed Full Open Causing Reactor Trip

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:

- 538125, Containment Alternate Cooling Strainer Clogged
- 538867, Functional Failure of RCS Pressurizer Vapor High Temperature Alarm Comparator

b. Findings

Introduction: A self-revealing Green finding was identified for the licensee's failure to establish adequate preventative maintenance for equipment associated with the feedwater control systems. Specifically, the licensee's inappropriate classification of the feedwater flow loop selector switch as a "run-to-failure" component permitted the switch to remain in service, without preventative maintenance, until failure, which ultimately resulted in a feedwater transient and reactor trip.

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Description: On March 28, 2012, with Unit 2 at 55 percent power, the control room received an alarm for the “B” Steam Generator (SG) feed flow/ steam flow mismatch and then a high level alarm for the “B” SG. The “B” feedwater regulating valve (FRV) traveled to the full open position. Operators took the immediate actions of placing the “B” feedwater flow selector switch in manual and attempted to close the FRV to restore level in the “B” SG. However, feedwater flow could not be brought under control before the SG “B” high level initiated a feedwater isolation, turbine trip and corresponding reactor trip. Following the shutdown the licensee entered the issue into the CAP as NCR 527203. The licensee’s investigation determined that a failure of the flow selector switch 1/FM-488B caused the feed regulating valve FCV-488 to go 100 percent open. Post mortem analysis revealed that fouled contacts on selector switch resulted in a spurious signal to fully open FCV-488. The affected switch was replaced and the licensee performed a root cause analysis of the event.

The inspectors reviewed the licensee’s corrective actions and root cause evaluation. The licensee discovered that the failed switch from the event in March was not monitored under any plant program to address degrading equipment, nor was it included in the site’s preventative maintenance program. The evaluation stated that this was partially based on the determination that there was a low risk of a switch failure and that the consequence would only be a transient in the feed water controls which could be resolved by operators placing the control in manual. The preventive maintenance practices for the selector switches are established according to their classification within the Equipment Reliability Program. The licensee determined that based upon the guidance in ADM-NGGC-0107, Rev. 1, Equipment Reliability Process Guideline, the feedwater flow selector switches were incorrectly classified as “run-to-failure” components and should have been listed as “Non-Critical Components”. With the appropriate classification, the feedwater selector switches would have had greater visibility in the site programs that monitor the health of equipment. Additionally, the evaluation noted that the site had two similar feedwater transient events in 2008 and 2010. The previous events did not result in a reactor trip but the licensee concluded that these events should have led to the consideration of switch replacements as directed by NGG Equipment Reliability Template for Control Switches, NGG-PMB-COS-1. However the site’s inappropriate classification and inadequate attention to previous failures of this type of switch resulted in flow selector switch 1/FM-488B remaining in-service for over 40 years without preventive maintenance. As a result of this event the licensee initiated corrective actions to replace similar switches of this style.

Analysis: The inappropriate classification of plant equipment in accordance with ADM-NGGC-0107 Rev. 1, which permitted flow selector switch 1/FM-488B to remain in service, without preventative maintenance, until failure was a performance deficiency. The finding was more than minor because it was associated with the initiating events cornerstone attribute of Equipment Performance, and it affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the performance deficiency caused an automatic reactor trip from 55 percent power operations on March 28, 2012. In accordance with IMC 0609 Attachment 4, “Phase 1 – Initial Screen and Characterization of Findings,” the finding was determined to be of very low safety significance (Green) because the finding did not

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contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available. The performance deficiency had a cross-cutting aspect of Evaluation of Identified Problems in the area of Problem Identification and Resolution, because the licensee failed to thoroughly evaluate the events in 2010 and 2008 such that the resolutions addressed the causes and extent of conditions as necessary. (P.1 (c)).

Enforcement: This finding did not involve a violation of regulatory requirements; therefore enforcement action does not apply. Because the finding does not involve a violation of regulatory requirements and has very low safety significance, it is identified as FIN 05000261/2012003-02, Lack of Preventive Maintenance on Feedwater Control Switch Results in an Automatic Reactor Trip.

### 1R13 Maintenance Risk Assessments and Emergent Work Control

#### a. Inspection Scope

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

- April 24, "B" Motor Driven Auxiliary Feedwater Pump out of service concurrent with scheduled maintenance on "B" Emergency Diesel Generator and the "B" Fuel Oil System
- May 7, "A" Service Water Booster Pump out of service for scheduled maintenance with the "A" Emergency Diesel Generator out of service for surveillance testing.
- May 10, "B" Service Water Pump and the "B" Component Cooling Water Pump out of service for scheduled maintenance.
- May 11 through May 14, "A" Emergency Diesel Generator out of service for planned maintenance.

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

- 520639, Errors in Protected Equipment Boundaries and Logs
- 542145, On-line Risk Profile and Mitigation Strategies not Communicate

#### b. Findings

No findings were identified.

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## 1R15 Operability Determinations

### a. Inspection Scope

The inspectors reviewed the four 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 and associated design-basis documents to verify that operability was properly justified and the subject components or systems remained available, such that no unrecognized increase in risk occurred:

- 509123, "A" Service Water Pump Upper Motor Bearing Sight Glass Oil Leakage
- 532617, CC-739, Excess Letdown Heat Exchanger Outlet Isolation Valve stroke time increase
- 537096, "A" Auxiliary Feedwater Pump Motor Breaker Opened Unexpectedly in Test
- 541645, Inadequate Control Room In-leakage Testing

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:

- 536077, Containment Alternative Cooling Water Low Flow
- 535851, Evaluate Inverter "A" and "B" DC Voltage Setpoints

### b. Findings

(Opened) Unresolved item (URI): Adequacy of Pre-planned Mitigating Actions in Response to Declaring the Control Room Envelope Inoperable.

Introduction: An URI is being opened to provide for additional inspection in response to the actions performed by the licensee after declaring the control room envelope (CRE) inoperable due to not performing an adequate surveillance to demonstrate the integrity of the CRE.

Description: The inspectors noted on June 12, 2012, that in response to declaring the CRE inoperable on June 6, 2012, the licensee was required to verify mitigating actions to ensure CRE occupancy for design basis conditions in accordance with Technical Specification (TS) 3.7.9 Action G.2 was completed within 24 hours. Those actions are described in PLP-019, Control Room Envelope Habitability Program. An aspect of the mitigating actions included having self-contained breathing apparatus' (SCBA) available for the control room occupants. The licensee verified five SCBAs were available in the control room for use by normal shift complement of licensed operators and shift technical advisor. The inspectors questioned whether the emergency communicator should have

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an SCBA. The licensee responded by adding a sixth SCBA on June 12, 2012. Additional inspection is required to determine if the emergency communicator is required to have an SCBA staged in the control room to support response to design basis conditions. This issue will be identified as URI 05000261/2012003-01, Adequacy of Pre-planned Mitigating Actions in Response to Declaring the Control Room Envelope Inoperable.

#### 1R18 Plant Modifications

##### .1 Permanent Modification

###### a. Inspection Scope

The inspectors reviewed the permanent modification described in Engineering Change 82844, Provide Air Motor Replacement for EDG Room Ventilation Supply, Exhaust and Recirculation Dampers, Rev.12, to verify that the modification design, implementation, and testing did not degrade the design basis, and performance capabilities of risk significant equipment and did not place the plant in an unsafe or unanalyzed condition. The inspectors verified the modification satisfied the requirements of Procedure EGR-NGGC-005, Engineering Change, and 10 CFR 50, Appendix B, Criterion III, Design Control.

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:

- 536113, Engineering Change 82844 EDG Air Motor Replacement Incorrect Dimension
- 526134, A-1, B-1 Battery Charger Test not Consistent with A and B Battery Charger

###### b. Findings

No findings were identified.

#### 1R19 Post Maintenance Testing

###### a. Inspection Scope

For the six 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 witnessed/reviewed:

- WO 2035189, Repack Service Water "D" to Correct Packing Follower; PMT in accordance with OP-903 Service Water System Operation, Rev. 126
- WO 02047568, Replace Auxiliary Relay for the Motor Driven Auxiliary Pump A; PMT in accordance with OST-201-1, MDAFW System Component Test- Train A, Rev. 34
- WO 1758941, Trip Testing for V6-35B, Containment Fan Cooler HVH-2 Radiation Monitor Return, PMT in accordance with OST-902-1, Containment Fan Coolers Component Test "A" Train, Rev. 0
- WO 1707799, Perform Thermal Overload Testing for V6-12D, SW North Supply Header Isolation Valve, PMT in accordance with OST-302-2, Service Water Pumps C & D In-service Test, Rev. 54
- WO 2068837, Correct Unexpected Voltage Fluctuations during Surveillance of the DSDG, PMT in accordance OST-910, Dedicated Shutdown Diesel Generator (Monthly), Rev. 51
- WO 02074929, Perform Valve Maintenance on "B" Charging Pump, PMT in accordance with Chemical Volume and Control System (CVCS) Component Test Charging Pump B, Rev. 41

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

- 520969, EDG's "B" Voltage Regulator Failure
- 519366, Failed PMT on Engineering Change 82814 Pressurizer Heater Back-up Breaker Control

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the seven surveillance tests listed below, the inspectors witnessed testing and/or reviewed the test data to verify that the systems, structures, and components 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-401-1, EDG "A" Slow Speed Start, Rev. 52
- OST-303-1, Service Water Booster Pump A Test, Rev. 16
- OST-201-2, Motor Driven Auxiliary Feedwater System Component Test- Train B, Rev. 30
- OST-401-2, EDG "B" Slow Speed Start, Rev. 49

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- OST-750-2, Control Room Emergency Ventilation System- Train "B" (Monthly), Rev. 18
- MST-018, Spent Fuel Cask Handling Crane Surveillance Testing, Rev. 17

Inservice Testing Surveillance

- OST-402-1, EDG "A" Diesel Fuel Oil System Flow Test, Rev. 31

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

- 521110, Power Operated Relief Valve, PCV-456 Failed Timing Open
- 521376, Auxiliary Building Ventilation Fan HVE-17 Failed to Start

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Testing

a. Inspection Scope

The inspectors evaluated the adequacy of the licensee's methods for testing the alert and notification system in accordance with NRC Inspection Procedure 71114, Attachment 02, Alert and Notification System (ANS) Testing. The applicable planning standard, 10 CFR Part 50.47(b)(5) and its related 10 CFR Part 50, Appendix E, Section IV.D requirements were used as reference criteria. The criteria contained in NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Revision 1, were also used as a reference.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

b. Findings

No findings were identified.



### 1EP3 Emergency Preparedness Organization Staffing and Augmentation System

#### a. Inspection Scope

The inspectors reviewed the licensee's Emergency Response Organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection was reviewed to assess the effectiveness of corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, Emergency Preparedness Organization Staffing and Augmentation System. The applicable planning standard, 10 CFR 50.47(b)(2), and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

#### b. Findings

No findings were identified.

### 1EP5 Correction of Emergency Preparedness Weaknesses

#### a. Inspection Scope

The inspectors reviewed the corrective actions identified through the Emergency Preparedness program to determine the significance of the issues and to determine if repeat problems were occurring. The facility's self-assessments and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. In addition, the inspectors reviewed licensee self-assessments and audits to assess the completeness and effectiveness of all emergency preparedness related corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 05, Correction of Emergency Preparedness Weaknesses. The applicable planning standard, 10 CFR 50.47(b)(14) and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the correction of emergency preparedness weaknesses on a biennial basis.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors verified the six 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," Rev. 6. In addition, the inspectors interviewed licensee personnel associated with collecting, evaluating, and distributing these data.

Initiating Events Cornerstone

- Unplanned Scrams per 7000 Critical Hours

For the period from the first quarter of 2011 through the first quarter of 2012, the inspectors reviewed a selection of licensee event reports, operator log entries, daily reports (including the daily CR descriptions), monthly operating reports, and PI data sheets to verify that the licensee had accurately identified the number of scrams that occurred during the subject period. The inspectors compared those numbers to the numbers reported by the licensee for the PI. The inspectors also reviewed the accuracy of the number of critical hours reported, and the licensee's basis for crediting normal heat removal capability for each of the reported reactor scrams.

Mitigating Systems Cornerstone

- Mitigating Systems Performance Index, Emergency AC Power
- Safety System Functional Failures

For the period from the first quarter of 2011 through the first quarter of 2012, the inspectors reviewed, licensee event reports, 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.

Emergency Preparedness Cornerstone

The inspectors sampled licensee submittals relative to the PIs listed below for the period October 1, 2011, and March 31, 2012. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory

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Assessment Performance Indicator Guideline,” Revision 6, 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 inspector examined data reported to the NRC, procedural guidance for reporting PI information, 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 and event 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 system tests. The inspectors also interviewed the licensee personnel who were responsible for collecting and evaluating the PI data. Licensee procedures, records, and other documents reviewed within this inspection area are listed in the Attachment.

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

- 532184, Timely Release of RNP Monthly Operating Report

b. Findings

.1 Inoperability of the Refueling Water Storage Tank Not Recognized as a Safety System Functional Failure

Introduction: The inspectors identified a Green finding for the licensee’s failure to identify and document Safety System Functional Failures (SSFF) in accordance with REG-NGGC-0009, NRC Performance Indicators and Monthly Operating Report Data, Attachment 7. The licensee did not recognize that rendering the refueling water storage tank inoperable by placing the non-seismically qualified purification system in operation as documented in LER 05000261/2011-001-00, “Condition Prohibited by Technical Specifications When Non-Seismic System was Aligned to Refueling Water Storage Tank due to Regulatory Requirements not Adequately Incorporated in Plant Documentation” also created a SSFF. The traditional enforcement aspects of this performance deficiency are documented in Section 4OA1 b2. of this report.

Description: During performance of the annual performance indicator verification, the inspectors questioned the licensee whether the condition described in LER 05000261/2011-001-00, “Condition Prohibited by Technical Specifications When Non-Seismic System was Aligned to Refueling Water Storage Tank due to Regulatory Requirements not Adequately Incorporated in Plant Documentation” also resulted in a SSFF. The licensee initiated NCR 531569 to review and evaluate the concern. The licensee concluded the condition did result in a SSFF and should have been

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documented in accordance with Attachment 7 of REG-NGGC-0009, NRC Performance Indicators and Monthly Operating Report Data, Rev. 11. Planned corrective actions include revising LER 05000261/2011-001-00, the root cause associated with the event to capture the SSFF, and evaluate the current SSFF evaluation process for programmatic deficiencies which require change.

Analysis: The inspectors determined that the licensee's failure to identify and document a SSFF was a performance deficiency. Specifically, Attachment 7 of REG-NGGC-009, NRC Performance Indicators and Monthly Operating Report Data, Rev. 11 requires documenting SSFF's. The inspectors evaluated the performance deficiency in accordance with IMC 0612 Appendix B Issue Screening. The performance deficiency was not similar to any of the examples in IMC 0612 Appendix E, Examples of Minor Issues, but was characterized as more than minor because the minor screening question of whether the performance deficiency would have caused the SSFF PI to exceed a threshold was determined to have occurred. Specifically, had the licensee recognized the SSFFs and documented them during the investigation of LER 05000261/2001-001-00, the SSFF PI would have crossed the green/white threshold in the 4<sup>th</sup> quarter of 2010.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, Significance Determination Process, Attachment 0609.04 Phase 1 Initial Screening and Characterization of Findings, Table 4a for the Mitigating Systems Cornerstone. The finding screened as Green because no loss of operability or functionality resulted from the failure to recognize and document the SSFF in response to the event described in LER 05000261/2011-001-00, "Condition Prohibited by Technical Specifications When Non-Seismic System was Aligned to Refueling Water Storage Tank due to Regulatory Requirements not Adequately Incorporated in Plant Documentation".

The inspectors determined this performance deficiency had a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution Area, because the licensee did not thoroughly evaluate the condition described in LER 05000261/2011-001-00, "Condition Prohibited by Technical Specifications When Non-Seismic System was Aligned to Refueling Water Storage Tank due to Regulatory Requirements not Adequately Incorporated in Plant Documentation" to include conditions such as a SSFF. (P.1(c))

Enforcement: Enforcement does not apply because the performance deficiency did not involve a violation of regulatory requirements. Because this finding does not involve a violation and has very low safety significance, it is identified as FIN 05000261/2012003-03, Inoperability of the Refueling Water Storage Tank Not Recognized as a Safety System Functional Failure.

## .2 Inaccurate Safety System Functional Failure Performance Indicator Submittal

Introduction: The inspectors identified a Severity Level (SL) IV NCV of 10 CFR 50.9(a), "Completeness and Accuracy of Information," when the licensee inaccurately reported Safety System Functional Failure (SSFF) performance indicator data since the 4th quarter of 2010. The licensee did not report events where the refueling water storage

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tank (RWST) could have failed to perform its safety function during times the non-seismically qualified purification system was in operation and rendered the RWST inoperable as described in LER 05000261/2011-001-00, "Condition Prohibited by Technical Specifications When Non-Seismic System was Aligned to Refueling Water Storage Tank due to Regulatory Requirements". A finding associated with this performance deficiency which was not a violation of NRC requirements is described in Section 4OA1 b1. of this report.

Description: During performance of the annual performance indicator verification, the inspectors questioned the licensee whether LER 05000261/2011-001-00 "Condition Prohibited by Technical Specifications When Non-Seismic System was Aligned to Refueling Water Storage Tank due to Regulatory Requirements not Adequately Incorporated in Plant Documentation" was a SSFF. The licensee initiated NCR 539132 to review this issue. The licensee concluded the event was evaluated primarily as a condition prohibited by technical specifications and reported per 10 CFR 50.73(a)(2)(i)(B). The licensee also concluded they did not adequately consider the event for a SSFF and subsequently did not document the SSFFs on Attachment 7 of REG-NGGC-009, NRC Performance Indicators and Monthly Operating Report Data, Rev. 11 for inclusion in the SSFF performance indicator submittal. The licensee is planning on revising the SSFF performance indicator in accordance with NEI 99-02 Regulatory Assessment Performance Indicator Guidance, Rev. 6.

Analysis: The inspectors determined the licensee's failure to identify and document a SSFF was a performance deficiency. Specifically, Attachment 7 of REG-NGGC-009, NRC Performance Indicators and Monthly Operating Report Data, Rev. 11 requires documenting SSFF's for inclusion in the NRC performance indicator (PI) submittal. This resulted in a failure to submit complete and accurate PI data resulting from the investigation of LER 05000261/2011-001-00, "Condition Prohibited by Technical Specifications When Non-Seismic System was Aligned to Refueling Water Storage Tank due to Regulatory Requirements". Due to the inadequate review of LER 05000261/2011-001-00, the licensee submitted inaccurate data for the SSFF PI beginning in the 4<sup>th</sup> quarter of 2010. Had accurate data been provided the SSFF PI would have transitioned from green to white in the 4<sup>th</sup> quarter of 2010. The finding was evaluated using Section 2.2.1.c of the Enforcement Policy and the inspectors determined the violation was more than minor because it impacted the ability of the NRC to perform its regulatory oversight function.

The finding was determined to be a SL IV violation using the examples in the Enforcement Policy. Specifically, example 6.9 d.11 describes a SL IV violation as one where a licensee submits inaccurate or incomplete PI data to the NRC that would have caused a PI to change from green to white.

No cross-cutting aspect was assign due to traditional enforcement violations are not screened for cross-cutting aspects.

Enforcement: 10 CFR 50.9(a) requires, in part, that information provided to the NRC by a licensee be complete and accurate in all material respects. Contrary to this, since the 4<sup>th</sup> quarter of 2010, the licensee provided inaccurate information to the NRC.

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Specifically, the licensee did not report the times the RWST was made inoperable as described in LER 05000261/2011-001-00 as SSFFs for the SSFF PI. This violation is characterized as an SL-IV NCV, consistent with the Enforcement Policy. Because the violation was of very low safety significance, was not repetitive or willful and was entered in the licensee's corrective action program as NCR 539132, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy. NCV 05000261/2012003-04, Inaccurate Safety System Functional Failure Performance Indicator Submittal.

#### 4OA2 Problem Identification and Resolution

##### .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 CAP. The review was accomplished by reviewing daily AR reports.

##### .2 Annual Sample Review

###### a. Inspection Scope

The inspectors selected numerous NCRs/ARs of previously identified issues related to emergency operating procedures, inadequate lesson material, and operations training, and performed reviews to ensure the licensee has taken corrective actions commensurate with the significance of the issues. Inspectors reviewed the new draft emergency operating procedures (EOPs) the licensee will use during the phase 1 transition from the previously used PATH procedures. Inspectors also reviewed newly developed training material (lesson plans and training scenarios) used to instruct initial licensed operator and licensed operator continuing training. Inspectors also observed simulator training, and evaluation scenarios used to check the operators mastery of skills required to safely operate the plant.

###### b. Observations and Findings

No findings were identified. The inspectors reviewed the draft emergency operating procedures, and compared the new EOPs to the Westinghouse Owners Group (WOG) emergency response guidelines (revision 2). The new draft procedures appeared to be adequate and in alignment with the WOG guidelines. Inspectors also observed two operating crews implement the new procedures on the simulator adequately. Inspectors reviewed the lesson material for the newly developed procedures, the lesson material included objectives and basis document references and appeared to be adequate and in alignment with a systems approach to training. Inspectors also reviewed several training scenarios used to evaluate the operators on their mastery of the skills required to safely operate the plant. Inspectors observed operators in the use of abnormal operating procedures and annunciator panel procedures (APPs) and observed two examples of operators not performing immediate operator actions in a timely manner and several examples of inconsistent use of the APPs. Inspectors observed two scenarios used to evaluate the operators and observed the operations/training department critique of the operators. In some of the cases the evaluators missed opportunities to critique

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operators on fundamental weaknesses. These weaknesses were items the training staff intended to reinforce during the training week. The licensee wrote NCR 530970 to address the inspectors' observations.

### .3 Annual Sample Review

#### a. Inspection Scope

The inspectors selected AR 505986, Fire Damper 45 failed to close following the inadvertent actuation of the Fire Zone 20 (E1/E2 Room), for detailed review. The inspectors reviewed these reports 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 these ARs 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.

- 541234, Cathodic Protection System Continued Organizational Failure
- 545628, AR 535317 Non-Conformance( NCON) Assignment Closed Prior to Resolution of NCON

#### b. Observations and Findings

No findings were identified. Following the inadvertent discharge of Halon in E1/E2 Emergency Bus rooms, on December 23, 2011, the licensee discovered that Fire Damper 45 failed to close as designed. Fire Damper 45 is an automatic damper and is required to close following actuation of the gaseous suppression system. The dampers failure to close could inhibit gas capture of the gaseous suppressing agent and potentially prevent the system from reaching a design Halon gas concentration of 5 percent in the emergency bus rooms. Engineering performed an evaluation to determine the Halon concentration in the E1/E2 rooms immediately following the December 23, 2011, event and concluded that the designed Halon concentration was achieved. The licensee entered this issue into their corrective action program as NCR 505986. Further investigation revealed that FD-45 failed to close due to damage to the damper track. The licensee was unable to determine when the damage to the damper track occurred but identified that the 18 month fire damper inspection should have identified the obstruction. The licensee determined that the fire damper procedure did

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not have sufficient guidance to identify the obstruction. A review of the most recent inspection did not identify the obstruction. The licensee has since initiated actions to revise the fire damper inspection procedure to include sufficient guidance to identify damper obstructions. The licensee's extent condition identified that all the manual and automatic fire dampers at the station were vulnerable to this failure mode and developed an action plan to functionally test or repair the fire dampers as needed. The inspectors reviewed the licensee's plan to address extent of condition concerns and determined that the corrective actions were adequate. Note that no fire was associated with the Halon actuation on December 23, 2012, and the associated Alert declaration was documented in IR05000261/2012002. The specific documents reviewed are listed in the Attachment.

#### .4 Semi-Annual Trend Review

##### a. Inspection Scope

The inspectors performed a review of the CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspector's review focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.1, licensee trending efforts, and licensee human performance results. The inspector's review nominally considered the six month period of January 2012 through June 2012, although some examples may expand beyond those dates when the scope of the trend warranted. The reviews included issues documented outside the normal CAP in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the latest monthly and quarterly trend reports. Corrective actions associated with a sample of the issues identified in the trend reports were reviewed for adequacy. The specific documents reviewed are listed in the Attachment.

##### b. Assessment and Observations

No findings were identified. The inspectors compared the licensee process results with the results of the inspectors' daily screening, and did not identify any discrepancies or potential trends in the CAP data that the licensee had failed to identify.

#### 4OA3 Follow-up of Events

##### .1 (Closed) LER 2012-001-00, "Technical Specification Required Plant Shutdown Due To Missed Surveillance and Operation Prohibited by Technical Specifications".

On January 17, 2011, the licensee determined that the surveillance test for the Station 'B' Battery had become overdue. Improved Technical Specification (ITS) Surveillance Requirement (SR) 3.8.4.6 requires that the operability of Station Batteries be verified every 60 months by conducting a performance capacity test. The last performance of SR 3.8.4.6 was on October 12, 2005, and should have been conducted no later than

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January 12, 2012, with 25 percent grace period. As a result of the missed surveillance, on January 18, the plant completed a TS required shutdown for the failure to meet LCO 3.8.4.6. Following the shutdown the licensee successfully completed the required surveillance testing. The cause of the event was due to Robinson not having an accurate means of monitoring ITS SR due dates and over due dates to support scheduling and completion of SRs required to ensure ITS compliance. The licensee entered this issue into their CAP as NCR 511315 and established interim measures to track the performance or required surveillances. The failure to comply with TS Surveillance Requirement (SR) 3.8.4.6 constitutes a violation of minor significance because the Station B battery was always capable of performing its safety function as demonstrated by the successful completion of the surveillance. This minor violation is not subject to enforcement action in accordance with the NRC's Enforcement Policy. Minor violations are not routinely documented in inspection reports however documentation is warranted as part of closing out a LER. This LER is closed.

.2 (Closed) LER 2012-002-00, "Unplanned Limiting Condition of Operation (LCO) 3.5.4 Entry Due to Refueling Water Storage Tank (RWST) Alignment to Purification".

On March 16, 2012, the licensee discovered that the refueling water purification pump was placed into operation to support make up of level to the RWST. The plant was in Mode 4 and alignment of the RWST to the refueling water purification pump rendered the RWST inoperable due to the purification piping being non-seismically qualified. Once this condition was discovered, operation immediately removed the RWST from purification. Technical Specification (TS) 3.5.4 was applied from 04:00, based upon when it was determined that the condition had been entered, and TS 3.5.4 was exited at 06:22 on March 16. The cause of this event was determined to be a result of ineffective implementation of previous corrective actions from an event reported in LER 05000261/2011-001-00. The inspectors reviewed the corrective actions and determined that they were adequate. The enforcement aspects of this LER were documented in IR 05000261/2012007, Section 4OA2(a)3i, as a Green NCV 05000261/2012007-01. This LER is closed.

.3 (Closed) LER 2012-003-00, "Plant Modification Interfered with the Operation of Containment Wide Range Level Indicator"

On January 19, 2012, with the unit in Mode 5, the inspectors identified a chain used to secure a high radiation boundary gate interfered with and prevented the "B" train of the post accident containment vessel sump level transmitter from moving through its complete range of motion. The licensee determined the level transmitter was inoperable because the chain would interfere with sump level readings above 375 inches. The condition had existed since October of 2005 when the chain was installed. The licensee corrected the condition by moving the chain on March 7, 2012, prior to entering a mode where the sump level indication was required to be operable. Enforcement action associated with this issue is described in inspection report 05000261/2012002, as NCV 05000261/2012002-02, Inadequate Design Change resulted in interference and inoperability of Containment Water Level Indication. The inspectors reviewed the LER and no additional findings or violations of NRC requirements occurred. This LER is closed.

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.4 (Closed) Licensee Event Report (LER) 2012-004-00, "Reactor Tripped due to a Turbine Trip Caused by Feedwater Isolation Signal from Steam Generator 'B' High Level"

On March 28, 2012, with the unit in Mode 1 at 55 percent power, a reactor trip occurred due to a turbine trip caused by a Feedwater Isolation signal from the Steam Generator 'B' high level. The Feed Regulating Valve FCV -488 went full open and caused a feed flow greater than steam flow alarm. This resulted in a rapid increase in SG 'B' water level. Operators placed the valve in manual control and attempted to close FCV-488. However feed flow could not be controlled before the SG 'B' high level set point was reached. The licensee determined that the 1/FM-488B selector switch for FCV-488 failed, and sent a spurious signal to the feedwater regulating valve which resulted in feed regulating valve going full open. In the licensee investigation, RCE 527203, it was revealed that the unexpected feed flow signal was the result of dirty contacts. The investigation determined that the site failed to establish appropriate preventative maintenance for the control switch. For corrective actions, prior to returning the unit to service, the licensee replaced the failed switch and performed post maintenance testing to verify proper operation. The inspectors reviewed the corrective actions and determined that they were adequate. The enforcement aspects of this LER are documented in Section 1R12. 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.

.2 (Closed) Unresolved Item Simultaneous Closure of Several Engineering Requests Not Meeting Administrative Requirements

a. Inspection Scope

The inspectors evaluated the licensee's response to Unresolved Item 05000261/2011010-01, Simultaneous Closure of Several Engineering Requests Not Meeting Administrative Requirements. The inspectors reviewed several condition reports and engineering change databases to verify the licensee adequately captured

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the scope of the issue. The inspectors also assessed the corrective actions and verified they were commensurate with the safety significance of issue.

b. Observations and Findings

In an effort to clean up a backlog of engineering change requests (ECR) the licensee cancelled 412 ECRs without formally notifying the originator. This action was contrary to EGR-NGGC-0009, Engineering Change Work Management Revisions 5 and 6. The population of ECRs included safety related components such as boric acid storage tank level instrumentation improvements and preparing for replacement of obsolete safety injection check valves. The licensee re-reviewed all 412 ECRs and took action to ensure each ECR was appropriately dispositioned. The dispositions included actions such as confirming the ECR was documented in the Long Term Asset Management (LTAM) database, covered by a CR corrective action, was a duplicate of another corrective action, or the ECR was not required or invalid. The inspectors reviewed all 412 ECRs which were cancelled and determined the issues were enhancements to improve the facility and did not impact the current ability of the facility to operate safely. However, the inspectors did identify a minor violation of 10 CFR Appendix B Criterion III Design Control in that the design change control process was not followed when the original 412 ECRs were cancelled. The issue was captured in the licensee's corrective action program as NCR 382451. Unresolved Item 05000261/2011010-01, Simultaneous Closure of Several Engineering Requests Not Meeting Administrative Requirements is closed.

4OA6 Meetings, Including Exit

An exit meeting was conducted on April 5, 2012, to discuss the findings and observations of the Operations inspection. The inspectors informed the licensee that no findings were identified. The inspectors discussed several observations with the plant management and staff. The inspectors confirmed that no proprietary information was retained during this inspection.

On May 24, 2012, the lead inspector presented the inspection results of the Emergency Preparedness inspection to Mr. R. Gideon, and other members of licensee staff. The inspector confirmed that proprietary information was not provided or reviewed during the inspection.

On June 21, 2012, the inspectors presented the inspection results of the Heat Sink inspection to the plant management and staff. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

On July 30, 2012, the resident inspectors presented the inspection results to Mr. M. Glover and other members of his staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

Attachment: Supplemental Information

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## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee personnel

R. Adams, Operations Training Manager  
D. Barker, Nuclear Oversight Manager  
T. Cosgrove, Plant General Manager  
H. Curry, Training Manager  
W. Farmer, Recovery Manager  
R. Gideon, Vice President  
R. Hightower, Licensing  
K. Holbrook, Operations Manager  
B. Houston, Radiation Protection Superintendent  
G. Kilpatrick, Nuclear Operations Director  
L. Martin, Engineering Director  
B. Matherne, Outage & Scheduling Manager  
C. Morris, Maintenance Manager  
M. Pastva, Licensing and Regulatory Programs  
T. Pilo, Supervisor, Emergency Preparedness  
R. Rogalski, Licensing and Regulatory Programs  
J. Rotchford Jr., Environmental & Chemistry Superintendent  
C. Smith, Project Manager, EOP Upgrade Project  
B. Stover, EOP Coordinator  
S. Wheeler, Support Services Manager

#### NRC personnel

R. Musser, Chief, Reactor Projects Branch 4

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

|                     |     |   |
|---------------------|-----|---|
| 05000261/2012003-01 | URI | Adequacy of Pre-planned Mitigating Actions in Response to Declaring the Control Room Envelope Inoperable (Section 1R15) |
|---------------------|-----|---|

### Closed

|                      |     |   |
|----------------------|-----|---|
| 05000261/2012-001-00 | LER | Technical Specification Required Plant Shutdown Due To Missed Surveillance and Operation Prohibited by Technical Specifications (Section 4OA3.1)  |
| 05000261/2012-002-00 | LER | Unplanned Limiting Condition of Operation (LCO) 3.5.4 Entry Due to Refueling Water Storage Tank (RWST) Alignment to Purification (Section 4OA3.2) |
| 05000261/2012-003-00 | LER | Plant Modification Interfered with the Operation of Containment Wide Range Level Indicator (Section 4OA3.3)                                       |
| 05000261/2012-004-00 | LER | Reactor Tripped due to a Turbine Trip Caused by Feedwater Isolation Signal from Steam Generator 'B' High Level (Section 4OA3.4)                   |
| 05000261/2011010-01  | URI | Simultaneous Closure of Several Engineering Requests Not Meeting Administrative Requirements (Section 4OA5.2)                                     |

### Opened & Closed

|                     |     |   |
|---------------------|-----|---|
| 05000261/2012003-02 | FIN | Lack of Preventive Maintenance on Feedwater Control Switch Results in an Automatic Reactor Trip (Section 1R12)          |
| 05000261/2012003-03 | FIN | Inoperability Of The Refueling Water Storage Tank Not Recognized as a Safety System Functional Failure (Section 4OA1.1) |
| 05000261/2012003-04 | NCV | Inaccurate Safety System Functional Failure Performance Indicator Submittal. (Section 4OA1.2)                           |

## **LIST OF DOCUMENTS REVIEWED**

### **Section 1R01: Adverse Weather Protection**

#### Procedures

OMM-021, Operation During Adverse Weather Conditions, Rev. 43  
AOP-26, Grid Instability, Rev. 12  
AOP-026, Basis Document, Grid Instability, Rev. 12  
PLP-118, Hot Weather Operations, Rev. 11  
OMM-001-2, Shift Routines and Operating Practices, Rev. 76

#### Other Documents

Operating Experience Smart Sample 2012/01, High Wind Generated Missile Hazards, dated 12/29/2011  
Operating logs for 05/15/2012

### **Section 1R04: Equipment Alignment**

#### Partial System Walkdown

#### Procedures

OP-909, Fuel Oil System, Rev. 43  
OMM-048, Work Coordination and Risk Assessment, Rev. 48  
OMM-001-8, Control of Equipment and System Status, Rev. 49  
OP-301, Chemical and Volume Control System, Rev. 102

#### Action Requests

535557, CVC-297 A, B, C Valves Missing Orange CV Isolation Tags

#### Complete System Walkdown

#### Procedures

OP-202, Safety Injection and Containment Vessel Spray System, Rev.87  
OST-013, Weekly Checks & Operations, Rev. 101

#### Work Orders

1370470, Replace SI Pump "B" Breaker 52/22B Control Switch

#### Action Requests

494572, Low Service Water Flow Through SI-Pump A Thrust Bearing  
520629, Possible Boric Acid Observed at SI Pump A & C Inboard Bearing

#### Other documents

Drawing No. 5379-1082, Safety Injection Flow Diagram, Sheet 1,2, 3 and 5, Rev. 49  
QCE49572, Low Flow Observed For the "A" SI Pump Thrust Bearing Cooler  
RNP-C/SPPT-2099, SI Pump Thrust Bearing Cooling  
SD-002, Safety Injection System, Rev.15

## **Section 1R05: Fire Protection**

### Procedures

OMM-OO3, Fire Pre Plans, Rev. 57

### Drawings

HBR2-11937, Fire Pre-Plan Emergency Switchgear Room, Rev.1

HBR2-11937, Fire Pre-Plan auxiliary Building Second Level hallway and Adjoining Rooms Rev.1

HBR2-11937, Fire Pre-Plan Spray Additive Tank Room and Waste Gas Compressors, Rev. 0

HBR2-11937, Fire Pre-Plan "A" Diesel Generator Room, Rev. 2

HBR2-11937, Fire Pre-Plan HVAC Equipment Room for Control Room, Rev.0

## **Section 1R06: Flood Protection Measures**

### Procedures

APP-051, Manholes M36 & M35 Sump Pump Control Panel

### Work Orders

1995811, Removal and Reinstallation of M-35 and M-36, Rev. 3

### Action Requests

529959, Manhole 35 and Manhole 36 Increased Inspection Frequency Not Implemented

476676, Water Present in Manholes M-35 and M-36

## **Section 1R07T: Heat Sink Performance**

### Calculations

9F02-M-05, High Temperature Water Temperature Effect On Auxiliary Feedwater Pump (Motor Driven) Lube Oil Heat Exchanger, Rev. 0

RNP-M/MECH-1646, Impact of 99 F SW On CCW System

RNP-M/MECH-1645, Availability of Lake Robinson to provide Ultimate Heat Sink Cooling

RNP-M/MECH-1653, Service Water System Hydraulic Evaluation

### Procedures

OST-302-1, Service Water Pumps A & B Inservice Test, Rev 63

TMM-123, Vibration Program, Rev 4

OP-306, Component Cooling Water System, Rev 71

AOP-022, Loss of Service Water, Rev 35

EPP-28, Loss of Ultimate Heat Sink, Rev 12

EGR-NGGC-0351, Condition Monitoring of Structures, Rev 17

TMM-004, In-service Testing Program, Rev 79

CP-001, Chemistry Monitoring Program, Rev 108

CM-201, Safety Related and Non-Safety Related Heat Exchanger Maintenance, Rev 51

SR-1479, Service Water Pipe Replacement for the CCW Heat Exchanger Return Piping, Rev 3

OST-302-2, Service Water Pumps C & D In-service Test, Rev 53

EST-116, Service Water Piping Inspection, Rev 8

OST-201-1, MDAFW System Component Test-Train A, Rev 34

CP-051, Use of the Betz Microbiological Test Kit, Rev 9  
 CP-009, Chlorination, Rev 16  
 CP-003, Systems Sampling procedure, Rev 107  
 CAP-NGGC-0206, Performance Assessment and Trending, Rev 6  
 CAP-NGGC-0205, Condition Evaluation and Corrective Action Process, Rev 15  
 CAP-NGGC-0200, Condition identification and Screening Process, Rev 34  
 OST-013, Weekly Check and Operations  
 TMM-104, System Walkdown Procedure, Rev 17

#### Work Orders

01425901-01, Clean and Test 'A' Motor Driven AFW Pump Oil Cooler  
 01952112-01, Clean and Test 'A' Motor Driven AFW Pump Oil Cooler  
 01711349-01, Clean and Test 'A' Motor Driven AFW Pump Oil Cooler  
 01127880-01, Perform Underground Pipe Inspection per EDT-116  
 01810311-01, Cleaning and Inspection of CCW Heat Exchanger

#### Action Requests

CR 534045  
 CR 472487  
 CR 511838  
 CR 489293  
 CR 512470  
 CR 454705  
 CR 481722-04  
 CR 500176  
 CR 505565-14

#### Drawings

5-140-03-024-006, 03024 Heat Exchanger-4 Pass, Rev 10  
 510F048, Thermal Barrier Final Machined Shaft Seal Pump

#### Other documents

RNP Unit 2 Shift Logs, 6/18/2012  
 Plant Health Action Plan for Tainter Gates, AR377649-02  
 SL-7176, Service Water Performance Test, Sergeant & Lundy, 1989  
 Component Cooling Water Measurements, Samplepoint, Analysis, Sampledate, Jan-June 2012  
 NGG Equipment Reliability Template, Vertical Pump, NGG-PMB-PMP-01, Rev 1  
 DBD/R87038/SD04, UHS  
 DBD/R87038/SD32, Oil Cooler  
 DBD/R87038/SD13, CCW  
 DBD/R87038/SD01, Thermal Barrier Heat Exchanger  
 System Health Report, Q2-2012, Component Cooling Water  
 System Health Report, Q2-2012, Service Water  
 System Health Report, Q2-2012, Screen Wash/Discharge Canal/Reservoir  
 Areva 916-773D295-Hol-2, Repair of RCP Thermal Barrier Inlet Water Supply Pipe Weld  
 NRC Inspection Report 05000261/2004005 and 0702000003/2004002 discussing GL89-13



### **Section 1R11: Licensed Operator Regualification Program and Licensed Operator Performance**

#### Procedures

OST- 023, Monthly Surveillances, Rev. 28

OP-402, Auxiliary Feedwater System, Rev. 80

TRN-NGGC-0420, Conduct of Simulator Training and Evaluation, Rev. 3

### **Section 1R12: Maintenance Effectiveness**

#### Procedures

EGR-NGGC-0008, Engineering Programs, Rev. 12

ADM-NGGC-0101, Maintenance Rule Program, Rev. 22

NGG-PMB-COS-01, NGG Equipment Reliability Template Control Switches, Rev. 0

ADM-NGGC-0107, Equipment Reliability Process Guideline, Rev. 14

#### Work Orders

2040497, 1518515, 1518518, 2021390, 1954397, 1918718, 2077047, 1117701, 1168351, 2063143-09,

#### Action Requests

506891, Unsatisfactory Inspection of the Spent Fuel Demineralizer Tank Legs

#### Other documents

Maintenance Rule Scoping and Performance Criteria for the Spent Fuel Pool Cooling System

Maintenance Rule Event Log for the Spent Fuel Pool Cooling System

Maintenance Rule Performance Summary for the Spent Fuel Pool Cooling System

Expert Panel Meeting Minutes for the Spent Fuel Pool Cooling System

RCE-527203, Failure of 1/FM, Feedwater Flow Selector Switch, which resulted in Reactor Trip

### **Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

#### Procedure

OMM-048, Work Coordination and Risk Assessment, Rev. 48

WCP-NGG-0500, Work Activity Integrated Risk Management Program, Rev. 0

### **Section 1R15: Operability Determinations and Functionality Assessments**

#### Work Orders

2031188, Replace Oil Sightglass on the "A" Service Water Pump Motor

#### Action Requests

509123, "A" Service Water Pump Upper Motor Bearing Sight Glass Oil Leakage

#### Other documents

Drawing B-190628 "A" Auxiliary Feedwater Pump Control Wiring Diagram Sheet 651 Rev. 25

## **Section 1R18: Plant Modifications**

### Work Orders

1999507, Replace Air Motor for HVS-6 "A" EDG Recirculation Damper

### Action Requests

536113, EC 82844 EDG Air Motor Replacement incorrect Dimension

## **Section 1R19: Post Maintenance Testing**

### Work Orders

2060336, Repack SW-PMP-D IAW CM-010 to correct packing Follower is Not Seated Properly

1707799, Perform Thermal Overload Testing on MCC-6 & MCC-5

### Action Requests

QCE 526053, The Packing Glands are not Engaging in the Stuffing Box

### Other documents

CM-010, Service Water Pump Overhaul, Rev. 21

SD-021, Chemical and Volume Control System, Rev. 13

### Procedures

OST-302-2, Service Water Pumps C & D In-service Test, Rev. 54

OST-910, Dedicated Shutdown Diesel Generator (Monthly), Rev. 51

CM-035, Charging Pump Maintenance Valve Disassembly and Reassembly, Rev. 19

OST-201-1, MDAFW System Component Test-Train A, Rev. 34

OST-207, Comprehensive Flow Test For The Motor Driven Auxiliary Feedwater Pumps, Rev. 56

## **Section 1R22: Surveillance Testing**

### Procedures

OST-401-1, EDG A Slow Speed Start, Rev. 52

OST-402-1, EDG A Diesel Fuel Oil System Flow Test, Rev. 31

OST-303-1, Service Water Booster Pump A Test, Rev. 16

OST-201-2, MDAFW System Component Test- Train B, Rev. 30

OST-401-2, EDG B Slow Speed Start, Rev. 49

OST-750-2, Control Room Emergency Ventilation System- Train "B" (Monthly), Rev. 18

### Work Orders

2024604-01, OST-201-2 (M1-Stage) "B" MDAFW & Applicable Valves

02047588, Replace DPX/AFW-PMP-A( Auxiliary relay for MDAFW A

## **Section 1EP2: Alert and Notification System Testing**

### Procedures and Reports

PLP-007, Robinson Emergency Plan, Rev. 78

Whelen WPS-2900 Series High Power Voice & Siren System Operating and Troubleshooting Manual

Robinson Plant Public Warning System Operator Guide  
 EPPRO-02, Maintenance and Testing, Rev. 37  
 EPPRO-07, Operation and Maintenance of the Alert and Notification System, Rev. 8  
 Self-Assessment 439375, 2011 Siren System Health (EP)

#### Records and Data

Documentation of Quarterly siren maintenance for 2011 and 2012  
 Documentation of bi-weekly siren tests and maintenance for 2011 and 2012  
 Siren Annual Maintenance records: 2011  
 Siren Maintenance history records

### **Section 1EP3: Emergency Preparedness Organization Staffing and Augmentation System**

#### Procedures

CAP-NGGC-0201, Self Assessment/Benchmark Programs, Rev. 17  
 CAP-NGGC-0205, Condition Evaluation and Corrective Action Process, Rev. 15  
 EMG-NGGC-0004, Maintenance of the Emergency Response Organization Notification System, Rev. 1  
 EMG-NGGC-0005, Activation of the Emergency Response Organization Notification System, Rev. 1  
 EMG-NGGC-1000, Fleet Conduct of Emergency Preparedness, Rev. 4  
 EPEOF-00, Activation and Operation of the Emergency Operations Facility, Rev. 17  
 EPOSC-00, Activation and Operation of the Operational Support Center, Rev. 22  
 EPPRO-02, Maintenance and Testing, Rev. 37  
 EPPRO-03, Training and Qualification, Rev. 31  
 EPPRO-05, Scenario Development and Drill Control Guidelines, Rev. 20  
 EPTSC-00, Activation and Operation of the Technical Support Center, Rev. 14  
 PLP-007, Robinson Emergency Plan, Rev. 78

#### Records and Data

1<sup>st</sup> Quarter ERO Augmentation Drill, Dated 03/29/11  
 Assessment No. 439369, Assessment of the Fleet (ERONS-01) ERO Notification System,  
 EP Staff Orientation Checklist for Selected EP Personnel  
 Robinson Plant Alert, December 23, 2011, Emergency Plant Implementation, Dated 01/31/12  
 Selected Qualification Records for Key Position ERO Personnel

### **Section 1EP5: Correction of Emergency Preparedness Weaknesses**

#### Procedures

CAP-NGGC-0200, Condition Identification and Screening Process, Rev. 34  
 CAP-NGGC-0201, Self-Assessment/Benchmark Programs, Rev. 17  
 EMG-NGGC-0010, Emergency Plan Change Screening and Evaluation, Rev. 3  
 EMG-NGGC-1000, Fleet Conduct of Emergency Preparedness, Rev. 4  
 OPS-NGGC-1000, Fleet Conduct of Operations, Rev. 9  
 OMM-022, Emergency operating Procedures User's Guide, Rev. 38

Records and Data

Robinson Nuclear Plant Safety Information public brochure (Spanish and English)  
 Drill and exercise reports (2011 and 2012)  
 FCT 11-011, 10CFR50.54q evaluation of OSC Renovation  
 Plant Nuclear Safety Committee Meeting Minutes August 18, 2010 and July 16, 2011  
 Self-Assessment Report 447737, Robinson Nuclear Plant - Emergency Plan (2011)  
 Self-Assessment Report 439369, Fleet Implementation of new ERO Notification System  
 R-EP-11-01, Nuclear Oversight Assessment of Emergency Preparedness dated 2/3/12  
 R-EP-10-02, Nuclear Oversight Assessment of Emergency Preparedness dated 2/17/11

Corrective Actions –Condition Report (CR)/Action Requests (AR)

458836, Leaks in EOF Roof  
 474403, EAL Bases and Matrix Inconsistent  
 483221, PARS Vary With Flowchart Path  
 506368, Halon Not on List in EPCLA-01  
 530788, Alternate EOF Reference Previously Removed from Document  
 479227, Dose Projection Failure at EOF  
 530287, TSC Diesel Out of Service  
 531190, EOF Filtration Duct Heater Out of Service  
 463714, Upper Wind Speed Sensor Failed  
 493950, OSC Priority One Mission Not Sent Out Due to ALARA Concerns

Corrective Actions – Condition Report (CR)

507165, Missed Documentation of Annually Required Drill Objectives

Corrective Actions – Work Order (WO)

1924761, Replace Wind Speed Sensor

**Section 40A1: Performance Indicator Verification**Procedures

REG-NGGC-0009, NRC Performance Indicators and Monthly Operating Report Data, Rev. 11  
 EPNOT-01, CR/EOF Emergency Communicator, Rev. 38  
 EPPRO-04, EP Performance Indicators, Rev. 18

Records and Data

Documentation of DEP opportunities for 4<sup>th</sup> quarter 2011/1<sup>st</sup> quarter 2012  
 Documentation of ANS tests for 4<sup>th</sup> quarter 2011/1<sup>st</sup> quarter 2012  
 Documentation of ERO drill and exercise participation for 4<sup>th</sup> quarter 2011/1<sup>st</sup> quarter 2012  
 Various ERO Personnel Qualification and Participation records

Corrective Actions – Action Requests (AR)

538708, Annual siren maintenance documentation data missing  
 538709, EP siren growl test interval exceeded 115 days  
 538865, Use of consistent method to document siren repairs  
 538891, Evaluate need for siren C-04 solar panel  
 539005, Annual siren maintenance improvement items

Corrective Actions – Procedure Revision Requests (PRR)

539006, Siren out-of-service criteria correction

539008, Correct typographical error in EPPRO-05

**Section 40A2: Problem Identification and Resolution**

Procedures

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

CAP-NGGC-0206, Corrective Action Program Trending and Analysis, Rev. 6

OMM-022, Emergency Operating Procedure Users Guide, Revision 35

OMM-044, Emergency Operating Procedure Program, Revision 10

EOP-E-0, Reactor Trip or Safety Injection

EOP-E-0-BD, Reactor trip or Safety Injection Basis Document (Revision 0)

EOP-E-1, Loss of Primary or Secondary Coolant

EOP-E-1-BD, Loss of Primary or Secondary Coolant Basis Document (Revision 0)

EOP-E-2, Faulted Steam Generator Isolation

EOP-E-2-BD, Faulted Steam Generator Isolation Basis Document (Revision 0)

EOP-E-3, Steam Generator Tube Rupture

EOP-E-3-BD, Steam Generator Tube Rupture Basis Document (Revision 0)

Lesson Plans for all of the newly developed Emergency Operating Procedure, Revision 0

PATH-1 Operations Initial Training (OIT) (Revision 1)

PATH-1 and Basis with OMM-22 Application (Revision 0) LOC0008R

EGR-NGGC-0009, Engineering Change Work Management, Rev. 5 and 6

OST-6111-11, Low Voltage Fire Detection and Actuation Systems Zones 19 & 20 (Semi-Annual), Rev. 6

FP-012, Fire Protection Systems Minimum Equipment and Compensatory Actions, Rev. 14

AOP-041, Response to a Fire, Rev. 5

OST-624, Fire Damper Inspection (18-Month), Rev. 21

Work Orders

2021784-05, Inspect Fire Dampers in Zone 20

1918155, Inspect and Functionally Test all Remaining Fire Dampers

Action Requests

344234, 45705, 390095, 403260, 403837, 403839, 403845, 403846, 403849, 422989, 423147, 423238, 423246, 423729, 425643, 431960, 436407, 438374, 438394, 438396, 440367, 443650, 444843, 445206, 445804, 445805, 445806, 445807, 445808, 445809, 448349, 449577, 459673, 469301, 469836, 470049, 477109, 484111, 484634, 487032, 382451, 390464, 417814, 470120

Other documents

QCE 505986, Fire Dampers for Fire 20 do not operate properly, Rev.0

EC 84079, Halon Concentration of the E1/E2 Emergency Bus Rooms, Rev.0

**Simulator Scenarios:**

LOCT 1205-1, Revision 0  
LOCT 1205-2, Revision 0  
LOCT 1205-3, Revision 0  
LOCT 1205-4, Revision 0  
LOCT 1205-5, Revision 0  
LOCT Cycle 12-5 Exam 1, Revision 0