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

July 21, 2008

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

SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION REPORT 05000261/2008003

Dear Mr. Walt:

On June 30, 2008, the US Nuclear Regulatory Commission (NRC) completed an inspection at your H.B. Robinson reactor facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on July 9, with Mr. Eric McCartney and other members of your staff.

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

Based on the results of this inspection, the inspectors identified two issues of very low safety significance (Green). Both of these issues were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they have been entered into your corrective action program (CAP), the NRC is treating these issues as non-cited violations, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny these non-cited violations (NCV), you should provide a response with the basis for your denial, within 30 days of the date of this inspection report to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the H.B. Robinson facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html http://www.nrc.gov/NRC/ADAMS/index.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 05000261/2008003
w/Attachment: Supplemental Information

cc w\encls.

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Letter to Thomas D. Walt from Randall A. Musser dated July 21, 2008

SUBJECT: H.B. ROBINSON STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION REPORT 05000261/2008003

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No:	50-261
License No:	DPR-23
Report No:	005000261/2008003
Facility:	H. B. Robinson Steam Electric Plant, Unit 2
Location:	3581 West Entrance Road Hartsville, SC 29550
Dates:	April 1, 2008 - June 30, 2008
Inspectors:	R. Hagar, Senior Resident Inspector E. Morris, Resident Inspector M. Bates, Senior Operations Engineer (Section 1R11.2)
Approved by:	R. Musser, Chief Reactor Projects Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000261/2008-003, Carolina Power and Light Company; on 4/1/2008-6/30/2008; H.B. Robinson Steam Electric Plant, Unit 2; Maintenance Risk Assessments and Emergent Work Control, Problem Identification and Resolution.

The report covered a three month period of inspection by resident inspectors and an announced inspection by a Senior Operations Engineer. Two violations 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. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.65(a)(4) for the failure to protect the Emergency Diesel Generators (EDGs) and Auxiliary Feedwater (AFW) pumps during maintenance activities involving the operation of bucket trucks in the switchyard. The licensee determined that this activity would increase the Loss of Offsite Power event initiator and resulted in Yellow risk condition. As a result of failing to protect the EDGs and AFW pumps, the licensee failed to implement the appropriate risk-management actions prior to performing maintenance.

  The finding is more-than-minor because it is related to a risk-management issue where the licensee failed to implement the risk-management action, which the licensee determined to be a significant compensatory measure. The finding has a cross-cutting aspect in the area of Human Performance because the licensee did not ensure supervisory and management oversight of work activities such that nuclear safety is supported, in that supervisory oversight of work activities did not verify that risk-management actions were completed prior to conducting maintenance activities which increased nuclear risk. (H.4(c)) (Section 1R13)

Cornerstone: Occupational Radiation Safety

- Green. The inspectors identified a Green non-cited violation of Technical Specification (TS) 5.7.1 for the failure to barricade and conspicuously post a High Radiation Area (HRA) during refueling outage 24.

  The finding is more-than-minor because the area radiation levels within the boundaries exceeded the levels (greater than 100 mr/hr) such that the area was required to be barricaded and conspicuously posted as a HRA. The finding has a cross-cutting aspect in the area of Problem Identification and Resolution because the licensee did not thoroughly evaluate problems such that the resolutions address causes and extent of conditions, in that the root cause investigations had failed to thoroughly evaluate the recurring nature of these issues and had failed to establish effective corrective actions that addressed the root cause and failed to prevent recurrence of these issues (P.1(c)) (Section 4OA2.2).

REPORT DETAILS

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

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

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 maintenance activities which could affect grid reliability, or the ability of the transmission system to provide offsite power; and
- The communications between the plant and the TSO when changes at the plant could impact the transmission system, or when the capability of the transmission system to provide adequate offsite power was challenged.

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

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

Partial System Walkdowns:

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

System Walked Down	SSC Out of Service	Date Inspected
safety injection train A	safety injection pump "C"	April 1
emergency diesel generator B	emergency diesel generator A	May 7
A & B charging pumps	C charging pump	May 20

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

Complete System Walkdown:

The inspectors conducted a detailed review of the alignment and condition of the residual heat removal 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, and
- Breakers were correctly positioned.

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.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

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

The following areas were inspected:

Fire Zone	Description
25A/25B	turbine building ground floor
15	auxiliary building second level hallway
25F/25G	turbine building east/west mezzanine
25D	dedicated shutdown diesel generator
16	battery room

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

.1 Licensed Operator Continuing Training

a. Inspection Scope

The inspectors observed licensed-operator performance during requalification simulator training for crew 2 to verify that operator performance was consistent with expected

operator performance, as described in Licensed Operator Continuing Training guide LOCT-07-5, Rev.3. This training tested the operators' ability to operate components from the control room, direct auxiliary operator actions, and determine the appropriate emergency action level classifications while responding to a loss of a circulating-water pump, a loss of an instrument bus, degraded-grid frequency requiring a reactor trip, and three simultaneously faulted steam generators. The inspectors focused on clarity and formality of communication, the use of procedures, alarm response, control board manipulations, group dynamics, and supervisory oversight.

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

Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

.2 Annual review of Licensee Requalification Examination Results.

a. Inspection Scope

On March 6, 2008, the licensee completed the requalification annual operating tests, required to be given to all licensed operators by 10 CFR 55.59(a) (2). The inspectors performed an in-office review of the overall pass/fail results of the individual operating tests and the crew simulator operating tests. These results were compared to the thresholds established in IMC 609 Appendix I, Operator Requalification Human Performance Significance Determination Process.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the two degraded SSC/function performance problems or conditions 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 action requests (AR) were:

Performance Problem/Condition	AR
High unavailability of the C deepwell pump	205569
Air-operated valve actuators not set up in compliance with procedures and design	241456

During the reviews, the inspectors focused on the following:

- Appropriate work practices,
- Identifying and addressing common cause failures,
- Scoping in accordance with 10 CFR 50.65(b),
- Characterizing reliability issues (performance),
- Charging unavailability (performance),
- Trending key parameters (condition monitoring),
- 10 CFR 50.65(a)(1) or (a)(2) classification and reclassification, and
- Appropriateness of performance criteria for SSCs/functions classified (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs/functions classified (a)(1).

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

For the five time periods 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. The inspected periods included the following:

- April 5 – April 11, including scheduled maintenance on the B charging pump and testing of reactor protection train A

- April 21 – April 25, including scheduled maintenance on B motor-driven auxiliary feedwater pump train, A residual heat removal pump, and a diaphragm leak repair for a valve in the chemical and volume control system

- May 5 – May 9, including scheduled maintenance on the A safety injection pump and the A emergency diesel generator

- May 10 – May 16, including scheduled maintenance in the switchyard
- May 17 – May 23, including scheduled replacement of a breaker on a motor control center

b. Findings

Introduction: The inspectors identified a Green non-cited violation of 10 CFR 50.65(a)(4) for the failure to protect the emergency diesel generators (EDGs) and auxiliary feedwater (AFW) pumps during maintenance activities involving the operation of bucket trucks in the switchyard. For this maintenance activity, the licensee determined that plant risk increased to a Yellow risk condition and the risk-management action of protecting the EDGs and AFW pumps was required. As a result of failing to protect the EDGs and AFW pumps, the licensee failed to manage the increase in plant risk by implementing risk-management actions they determined were necessary.

Description: On May 13, the licensee performed maintenance in the switchyard which they determined increased the probability of a loss-of-offsite-power event and therefore increased plant risk to a Yellow risk condition. The licensee also determined that they would manage the increased risk by protecting the EDGs and the AFW pumps while the maintenance activity was underway. In the control room log, the licensee documented that both EDGs, both motor-driven AFW pumps, and the steam-driven AFW pump were designated as protected equipment. Site procedure OMM-048, Work Coordination and Risk Assessment, requires, in part, that protected equipment be designated at a minimum with a “Protected Equipment” sign and, if practical, with a physical boundary made with yellow “caution” barrier tape. However, the inspectors found that the licensee had failed to install protected-equipment signs and boundary barriers and had therefore failed to protect the EDGs and the AFW pumps. This issue was identified by the inspectors during verification that the licensee performed appropriate risk-management actions for this maintenance activity.

Through their review of the licensee’s investigation of this incident, the inspectors determined that a major contributor to this failure was that supervisory oversight had failed to verify that risk-management actions were completed prior to performing activities that increased plant risk.

Analysis: The failure to implement risk-management actions to manage an increase in plant risk was a performance deficiency and affects the Mitigating System cornerstone. This performance deficiency is related to risk-management actions only. In accordance with IMC 0612, Appendix B, Section 3, item 5(i), this finding is more-than-minor because it is related to a risk-management issue where the licensee failed to implement the significant compensatory measure of protecting the EDGs and the AFW pumps during high-risk switchyard activities. In accordance with Flowchart 1 and 2 of IMC 0609, Appendix K, the significance of this finding was determined to be of very low safety significance (Green), because the finding was related to risk-management actions only and the calculated Incremental Core Damage Probability (1.8E-8) was not greater than 1.0E-6.

The finding has a cross-cutting aspect in the area of Human Performance because the licensee did not ensure supervisory and management oversight of work activities such that nuclear safety is supported, in that supervisory and management oversight of work activities did not verify that risk-management actions were performed prior to conducting maintenance that increased nuclear risk. (H.4(c))

Enforcement: 10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities, the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Site procedure OMM-048, Work Coordination and Risk Assessment, requires, in part, that protected equipment be designated at a minimum with a "Protected Equipment" sign and, if practical, with a physical boundary made with yellow "caution" barrier tape.

Contrary to the above, on May 13, 2008, prior to performing maintenance in the switchyard that increased plant risk, the licensee failed to manage the increase in risk that resulted from that maintenance activity, in that, the licensee failed to implement the risk-management actions required by OMM-048 of protecting the EDGs and the AFW pumps during that activity. Because this finding was of very low safety significance and has been entered into the CAP as AR 279173 and consistent with Section VI.A.1 of the NRC Enforcement Policy, this violation is being treated as a non-cited violation, NCV 05000261/2008003-01, Failure to manage the increase in plant risk by failing to implement risk-management actions prior to performing switchyard maintenance activities.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the four operability determinations associated with the ARs, work request, and work order 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 in 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. The inspected issues were:

- AR 271925, Piping support in the chemical and volume control system outside system design basis criteria,
- Work Request 335978, Residual heat removal pump A room cooler (HVH-8A) tube leak,
- Work Order 1363758, Battery room high temperature, and
- AR 283547, Motor driven auxiliary feedwater flow to steam generator "A" indication (FI-1425A) erratic,

Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed the temporary modification described in Engineering Change 69700, temporary leak repair to vent valve CVC-368B, to verify that the modification did not affect the safety functions of important safety systems, and to verify that the modification satisfied the requirements of procedure EGR-NGGC-005, Engineering Change, and 10 CFR 50, Appendix B, Criterion III, Design Control.

Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

For the 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:

Test Procedure	Title	Related Maintenance Activity	Date Inspected
OST-201-2	[Motor Driven Auxiliary Feedwater] Component Test – Train B	Calibrate instruments and maintain valves	April 23
OST-251-1	[Residual Heat Removal] Pump A and Component Test	Repair a leak in the shaft seal area	April 25
OST-101-3	[Chemical and Volume Control System] Component Test Charging Pump C	Calibrate instruments and replace a low-speed alarm	May 20

OST-302-2	Service Water Pumps C & D Inservice Test	Re-balance the C pump shaft	May 28
EST-099	Controlotron Ultrasonic Flow Measurement	Replacement of residual heat removal pump A room cooler HVH-8A	June 4
OST-401-2	[Emergency Diesel Generator] Slow Speed Start	Replacement of B emergency diesel generator breaker 52/27B	June 19

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the five surveillance tests listed below, the inspectors witnessed testing and/or reviewed the test data to verify that the 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.

Test Procedure	Title	Date Inspected
OST-155	Safety Injection System Integrity Test	April 1
OST-401-2	[Emergency Diesel Generator] B Slow Speed Start	April 25
OST-101-1*	[Chemical and Volume Control System] Component Test Charging Pump A	April 29
OST-151-3	Safety Injection System Components Test – Pump C	May 1
OST-202	Steam Driven Auxiliary Feedwater System Component Test	May 14

*This procedure included inservice testing requirements.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

On April 28, the inspectors observed an emergency-preparedness drill to verify licensee self-assessment of classification, notification, and protective action recommendation development in accordance with 10 CFR 50, Appendix E. The inspectors also attended the post-drill critique to verify that the licensee properly identified failures in classification, notification and protective action recommendation development activities. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors verified the five 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 basis in reporting each data element to the PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Rev. 5. In addition, the inspectors interviewed licensee personnel associated with collecting, evaluating, and distributing these data. Documents reviewed are listed in the attachments.

Initiating Events Cornerstone

- Unplanned Scrams per 7000 Critical Hours
- Unplanned Scrams With Complications
- Unplanned Transients per 7000 Critical Hours

For the period from the first quarter of 2007 through the first quarter of 2008, 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 and unplanned power changes greater than 20 percent 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 basis for crediting normal heat removal capability for each of the reported reactor scrams.

Mitigating Systems Cornerstone

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

For the period from the first quarter of 2007 through the first quarter of 2008, the inspectors reviewed Licensee Event Reports (LERs), records of inoperable equipment, and Maintenance Rule records to verify that the licensee had accurately accounted for unavailability hours that the subject systems had experienced during the subject period. The inspectors also reviewed the number of hours those systems were required to be available and the basis for identifying unavailability hours.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Routine Review of ARs

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

.2 Annual Sample Review

a. Inspection Scope

The inspectors selected AR 230589, High Radiation Area gate found open, for detailed review. The inspectors selected this AR because it relates specifically to the Occupational Radiation Safety Cornerstone. The inspectors reviewed this report to verify:

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

The inspectors also reviewed this AR to verify compliance with the requirements of the CAP as delineated in Procedure CAP-NGGC-0200, Corrective Action Program, and 10 CFR 50, Appendix B. Documents reviewed are listed in the attachment.

b. Observations and Findings

Introduction: A Green NCV of TS 5.7.1 was identified for failure to barricade and conspicuously post a high radiation area (HRA) during refueling outage (RFO) 24.

Description: On April 23, 2007 (during RFO-24), the licensee discovered that the HRA swing gate to "B" and "C" reactor coolant pump bays had been tied open and the audible alarm had been turned off. With the swing gate in this condition it caused the HRA to no longer be barricaded which resulted in a violation of TS 5.7.1. Specifically, TS 5.7.1 requires, in part, that HRAs be barricaded and conspicuously posted. The radiological controls technician who discovered that the swing gate had been tied open immediately untied the gate and restored compliance of the TS. The licensee conducted a stand down for all work performed in that area and performed a root cause investigation under significant adverse condition AR 236014. This investigation determined the following:

- The swing gate had been tied open for no more than ten minutes.
- An apparent cause of this violation was that workers had used a shortcut to transfer materials through the HRA boundary.
- The root cause of this violation was that management follow-up or monitoring of activities did not identify problems which resulted in lapses in oversight of radiological posting and boundary control.

The inspectors' review of the circumstances associated with this event revealed the following similar events during two previous outages:

- On May 20, 2001 (during RFO-20), the HRA door to the excess-letdown heat exchanger area had been propped open and two HRA swing gates had been secured open. Under AR 31289, the licensee had classified this issue as a significant adverse condition, completed a root-cause investigation, and developed corrective actions to prevent the recurrence of disabling HRA boundaries.
- On October 16, 2002 (during RFO-21), the HRA door to the "A" reactor coolant pump bay had been tied open and the associated HRA sign had been fully blocked from view. Under AR 74525, the licensee had classified this issue as a significant adverse condition, completed a root-cause investigation, and developed corrective actions to prevent the recurrence of disabling HRA boundaries.

All of the above events had been identified by the licensee. However, the inspectors determined that the following problems existed with the corrective actions for these events:

- The investigations had not recognized that the RFO-21 event showed that the corrective actions taken in response to the RFO-20 event had been ineffective and the RFO-24 event showed the corrective actions taken in response to RFO-21 event had also been ineffective. At least partially as a result, the corrective actions taken in response to each of these events were essentially the same. The licensee failed to identify the three events as a trend and therefore failed to address the similarities in corrective actions taken which twice had shown to be ineffective.

- Although HRA gates had been tied opened and associated audible alarms had been turned off through specific actions and behaviors of radiological workers, the corrective actions taken by the licensee did not directly address radiological worker behavior. Instead, those corrective actions had only changed procedures, HRA swing-gate configurations, and training materials for radiological workers.

- Although the investigations had determined that a root cause of each event had been a lack of oversight by radiological control department personnel, no corrective actions had changed the level of or nature of that oversight.

The inspectors added significant value by identifying these problems and thereby focused the licensee's attention on corrective actions to change radiological worker behavior and radiological control department oversight.

Analysis: The failure on April 23, 2007, to barricade and conspicuously post a HRA as required by TS 5.7.1 was a performance deficiency and affects the Occupational Radiation Safety cornerstone.

In accordance with IMC 0612, Appendix E, minor example 2.b, this finding was determined to be more-than-minor because the area radiation levels within the boundaries on that day exceeded the levels (greater than 100 mr/hr) such that the area was required to be barricaded and conspicuously posted as a HRA. In accordance with IMC 0609, Appendix C, this finding was determined to be of very-low safety significance (Green), because the finding did not involve ALARA planning or work controls, was not an overexposure, and did not compromise the ability to assess dose.

The inspectors determined that although the issue on April 23, 2007, had been identified by the licensee, problems existed with the licensee's corrective actions associated with this event and the inspectors added significant value. The circumstances, therefore, did not meet the criteria in IMC 0612 for documenting the issue as a licensee-identified violation, so this violation is being treated as NRC-identified. The events described during RFO-20 and 21, although also identified by the licensee as TS 5.7.1 violations, did not meet the criteria in IMC 0612 for documenting as more-than-minor violations.

The finding has a cross-cutting aspect in the Problem Identification and Resolution area because the licensee did not thoroughly evaluate problems such that the resolutions address causes and extent of conditions, in that the root cause investigations of the RFO-20 and RFO-21 events had failed to thoroughly evaluate the recurring nature of

these issues and had failed to establish effective corrective actions that addressed the root cause. (P.1(c))

Enforcement: TS 5.7.1 requires, in part, that each HRA in which the intensity of radiation is 1000 mRem/hour or less shall be barricaded and conspicuously posted as a HRA. Contrary to the above, on April 23, 2007, the licensee failed to barricade and conspicuously post as an HRA a HRA in which the intensity radiation was 1000 mRem/hour or less. Because this finding was of very-low safety significance and has been entered into the licensee's CAP as ARs 279210 and 279443, and consistent with Section VI.A.1 of the NRC Enforcement Policy, this violation is being treated as a non-cited violation and has been designated NCV 05000261/2008003-02; Failure to barricade and conspicuously post a High Radiation Area during refueling outage 24.

.3 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, licensee human performance results, and results from the annual sample review discussed in Section 4OA2.2. The inspector's review nominally considered the six month period of January, 2008, through June, 2008, although some examples expanded beyond those dates when the scope of the trend warranted. The review 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.

The inspectors also evaluated the trend reports against the requirements of the CAP as specified in 10 CFR 50, Appendix B, Criterion XVI, and in Procedures CAP-NGGC-0200, Corrective Action Program, CAP-NGGC-0206, Corrective Action Program Trending and Analysis.

b. Assessment and Observations

The inspectors evaluated trending methodology and observed that the licensee had performed a detailed review. The licensee routinely reviewed cause codes, involved organizations, key words, and system links to identify potential trends in their CAP data. The inspectors compared the licensee process results with the results of the inspectors' daily screening, and identified the following trends that the licensee had failed to identify:

- This inspection report is the third consecutive inspection report in which a more-than-minor violation of 10 CFR 50.65(a)(4) has been documented.

- The more-than-minor violation of TS 5.7.1 that was identified as discussed in Section 4OA2.2 is the most-recent example in a trend of HRA boundary issues that extends back through four of the last six refueling outages.

The inspectors also identified that the licensee's trending program was not able to identify the trend of HRA boundary issues extending through several outages because the scope of the trending program was generally limited to one-year periods.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted the following observations of 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.

- Tours of operations within the Central and Secondary Security Alarm Stations;
- Tours of selected security officer response posts;
- Direct observation of personnel entry screening operations within the plant's Main Access Facility; and
- Security force shift turnover activities

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 of significance were identified.

.2 Operation of an Independent Spent Fuel Storage Installation (ISFSI) (IP 60855.1)

a. Inspection Scope

The inspectors performed a walkdown of the two ISFSIs on site (reference dockets 72-3 and 72-60) and monitored the activities associated with the dry fuel storage campaign conducted May 11 through May 22. The inspectors also reviewed changes made to programs and procedures and their associated 10 CFR 72.48 screens and/or evaluations to verify that changes made were consistent with the license or Certificate of Compliance; reviewed records to verify that the licensee has recorded and maintained the location of each fuel assembly placed in the ISFSIs; and reviewed surveillance

records to verify that daily surveillance requirements were performed as required by technical specifications. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

On July 9, 2008, the resident inspectors presented the inspection results to Mr. Eric McCartney and other members of your staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

C. Baucom, Manager, Support Services - Nuclear
B. Clark, Training Manager
C. Castell, Supervisor – Licensing/Regulatory Programs
W. Farmer, Engineering Manager
J. Huegel, Maintenance Manager
E. Kapopoulos, Plant General Manager
J. Lucas, Nuclear Assurance Manager
J. Rhodes, Radiation Protection Superintendent
T. Tovar, Operations Manager
T. Walt, Vice President
S. Wheeler, Supervisor, Regulatory Support

NRC personnel

R. Musser, Chief, Reactor Projects Branch 4

Attachment

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Opened & Closed

05000261/2008003-01	NCV	Failure to manage the increase in plant risk by failing to implement risk-management actions prior to performing switchyard maintenance activities. (1R13)
05000261/2008003-02	NCV	Failure to barricade and conspicuously post a High Radiation Area during refueling outage 24. (4OA2.2)

Previous Items Closed

None

Discussed

None

Attachment

LIST OF DOCUMENTS REVIEWED

1R01 Adverse Weather Protection

Procedures
EMG-SUBS-00006, General Load Reduction and System Restoration Plan, Rev. 7
Systems Operational Reference Manual Carolinas
OMM-001-2, Shift Routines and Operating Practices, Rev. 57
OMM-048, Work Coordination and Risk Assessment, Rev. 33
NGGM-IA-0003, Transmission Interface Agreement for Operation, Maintenance, and Engineering Activities at Nuclear Plants, Rev. 6
OP-604, Diesel Generators "A" and "B", Rev. 70

1R04 Equipment Alignment

Partial System Walkdown

Safety injection A Train:
OP-202, Safety Injection and Containment Vessel Spray System, Rev. 75
5379-1082, Safety Injection System Flow Diagram sheet 1 of 5, Rev. 43
5379-1082, Safety Injection System Flow Diagram sheet 2 of 5, Rev. 47

Emergency diesel generator B:
OP-604, Diesel Generators "A" and "B", Rev. 70
G-190204-A, Emergency Diesel Generator System Flow Diagram, Rev. 31
SD-005, Emergency Diesel Generators, Rev. 11
UFSAR section 8.3.1.1.5, Emergency Power Sources

Chemical & volume control:
OP-301, Chemical and Volume Control System, Rev. 90
Drawing 5379-685, Chemical and Volume Control System Purification and Make-Up Flow Diagram, Sheet 1 of 3, Rev. 52
Drawing 5379-685, Chemical and Volume Control System Purification and Make-Up Flow Diagram, Sheet 2 of 3, Rev. 57

Complete System Walkdown

Procedure OP-201, Residual Heat Removal, Rev. 52
Procedure OWP-013, Residual Heat Removal System, Rev. 35
System Description SD-003, Residual Heat Removal System, Rev. 14
Drawing 5379-1484, Residual Heat Removal System Flow Diagram, Rev. 40
UFSAR section 5.4.4, Residual Heat Removal System
UFSAR section 6.3, Emergency Core Cooling System

1R05 Fire Protection

UFSAR Sections of Appendix 9.5.1A
3.7.1, Fire Zone 25A, Turbine Building East Ground Floor
3.7.2, Fire Zone 25B, Turbine Building West Ground Floor
3.1.5.1, Fire Zone 15, Auxiliary Building Second Floor Hallway
3.7.4, Fire Zone 25D, Dedicated Shutdown Diesel Generator
3.7.5, Fire Zone 25F, Turbine Building East Mezzanine
3.7.6, Fire Zone 25G, Turbine Building West Mezzanine
3.1.5.2, Fire Zone 16, Battery Room

Procedures
FP-003, Control of Transient Combustibles, Rev. 24
OST-610, Unit 2 Portable Fire Extinguishers, Fire Hose Stations, and Houses (Monthly), Rev. 48
results from OST-645, Turbine Lube Oil Deluge System Flow Test (Annually), Rev. 17, dated 6/4/07
results from OST-611-1, Low Voltage Fire Detection and Actuation System Zones 1 & 2, Rev. 6, dated 2/25/08
results from OST-611-3, Low Voltage Fire Detection and Actuation System Zones 6 & 7, Rev. 3, dated 3/22/08
results from OST-610, Unit No.2 Portable Fire Extinguishers, Fire Hose Stations and Houses (Monthly), Rev. 48, dated 4/21/08
results from OST-621, Diesel Generator CO_2 System Cylinder Weight Test (Semi-Annual), Rev. 24, completed 3/5/08
results from OST-611-10, Low Voltage Fire Detection and Actuation System Zones 16, 17, 18, 29 & 30 (Semi-Annual), Rev. 8, completed 12/16/07

Other documents
Transient and Permanent Combustible Database

1R11 Licensed Operator Requalification

Abnormal Operating Procedure AOP -012, Partial Loss of Condenser Vacuum or Circulating Water Pump Trip, Rev. 21
Abnormal Operating Procedure AOP-024, Loss of Instrument Bus, Rev. 29
Abnormal Operating Procedure AOP-026, Grid Instability, Rev. 9
End Path Procedure EPP-11, Faulted Steam Generator Isolation, Rev. 5
End Path Procedure EPP-16, Uncontrolled Depressurization of All Steam Generators, Rev. 16
Licensed Operator Continuing Training guide LOCT-07-5, Rev.3

1R12 Maintenance Effectiveness

Action Requests
205569, Deepwell Pump C Unavailability
204752, Unplanned Unavailability of the "C" Deepwell Pump
241456, [Air-operated valve] Actuator Set-Up Non-Compliance With Procedure And Design

Procedures
CM-101, Quick Change Trim Air Operated Control Valve Maintenance, Rev. 27
CM-101, Quick Change Trim Air Operated Control Valve Maintenance, Rev. 28
CM-118, Copes-Vulcan Series D- 100 Air Actuator Maintenance, Rev. 24
CM-118, Copes-Vulcan Series D- 100 Air Actuator Maintenance, Rev. 26
OMM-007, Equipment Inoperable Record, Rev. 74

Maintenance Rule Documents
For system 2060:
- Maintenance Rule Monitoring Status
- Event Log Report for 1/07 – 1/08
- Scoping and Performance Criteria
- Expert Panel Meeting Minutes

For system 6270:
- Event Log Report for 12/06 – 12/07
- Scoping and Performance Criteria
- Expert Panel Meeting Minutes

Work Orders
1016118, The CVC-200C letdown orifice [isolation valve] leaks by
1085778, [Letdown orifice isolation valve] CVC-200C actuator adjustment
1085775, [Letdown orifice isolation valve] CVC-200B actuator adjustment

Other Documents
Engineering Change 65658, Replace deepwell A,B,C motors
Calculation RNP-F/PSA-0015, [Probabilistic Safety Analysis] Evaluation of Maintenance Rule Performance Criteria, Rev. 1
Work Request 484697, [Letdown orifice isolation valve] CVC-200B leakby has increased by 2.5 GPM

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

Procedure OMM-048, Work Coordination and Risk Assessment, Rev. 34
Robinson Nuclear Plant Plan of the Week for April 4 – April 11
Robinson Nuclear Plant Plan of the Week for April 18 – April 25
Robinson Nuclear Plant Plan of the Week for May 2 – May 9
Robinson Nuclear Plant Plan of the Week for May 10 – May 16
Robinson Nuclear Plant Plan of the Week for May 17 – May 23

1R15 Operability Evaluations

Procedures
EGR-NGGC-0320, Civil/Structural Operability Reviews, Rev. 6
OPS-NGGC-1305, Operability Determinations, Rev. 1
OST-013, Weekly Checks and Operations (Weekly), Rev. 83
OST-023, Monthly Surveillances, Rev. 21

Other Documents
Calculation RNP-E-6.021, Load Profile and Battery Sizing Calculation for Battery A, Rev. 6
Control Room Logs dated 5/18/08 – 6/2/08
Engineering Service Request 9401044, Troubleshooting FI-1425B spiking
Specification CPL-HBR2C-008, Specification for Floor Response Spectra, Rev. 1
Standard ANSI B31.1, Power Piping, 1967 and 2001 edition
Work Order 1360278, Service Water leak upstream of V6-146A on HVH-8A
Work Request 335978, Service Water leak upstream of V6-146A on HVH-8A
Work Request 338502, FI-1425A indication erratic

1R18 Plant Modifications

Procedures
EGR-NGGC-0005, Engineering Change, Rev. 27
OP-301, Chemical and Volume Control System, Rev. 90
MMM-049, Injectable Sealant Control, Rev. 3

Design Basis Documents
DBD/R87038/SD21, Chemical and Volume Control System, Rev. 5
GID/R87038/003, Seismic Qualification, Rev. 2

Other Documents
Engineering Change 69700, CVC-368B Vent Valve Temporary Leak Repair, Rev. 3
Drawing 5379-0685, Chemical and Volume Control System Purification and Make-up Flow Diagram, Sheet 2 of 3, Rev. 57

1R19 Post Maintenance Testing

Procedures
EST-099, Controlotron Ultrasonic Flow Measurement, Rev. 25
OST-201-2, [Motor Driven Auxiliary Feedwater] System Component Test – Train B, Rev. 24
OST-251-1, [Residual Heat Removal] Pump A and Component Test, Rev. 19
OST-302-2, Service Water Pumps C & D Inservice Test, Rev. 43
OST-401-2, [Emergency Diesel Generator] B Slow Speed Start, Rev. 34
PLP-033, Post-Maintenance Testing (PMT) Program, Rev. 43

Other Documents
H.B. Robinson Steam Electric Plant Unit No.2 Technical Specifications
Engineering Change 49207, HVH-6A/B, HVH-7A/B, and HVH 8A/B Coil Replacement, Rev. 15
Work Order 670810, Replace HVH-8A cooling coil
Work Order 1371192, Replace breaker 52/27B with refurbished DB-100 breaker

1R22 Surveillance Testing

Procedures
OST-155, Safety Injection System Integrity Test, Rev. 28
OST-401-2, [Emergency Diesel Generator] B Slow Speed Start, Rev. 33

OST-101-1, [Chemical and Volume Control System] Component Test Charging Pump A, Rev. 42
OST-151-3, Safety Injection System Components Test – Pump C, Rev. 28
OST-202, Steam Driven Feedwater System Component Test, Rev. 70

1EP6 Drill Evaluation

Procedures
ERO 00-0002, Emergency Response Organization Exercise, dated April 28, 2008
EPCLA-001, Emergency Control, Rev. 24
PLP-007, Robinson Emergency Plan, Rev. 66

4OA1 Performance Indicator Verification

Procedures
REG-NGGC-0009, NRC Performance Indicators and Monthly Operating Report Data, Rev. 5
ADM-NGGC-0101, Maintenance Rule Program, Rev. 20

Other Documents
NEI 99-02, Regulatory Assessment Performance Indicator Guidance, Rev. 5
RNP-F/PSA-0057, NRC Mitigating System Performance Index (MSPI) Basis Document, Rev. 7
Consolidated Date Entry 3.0 MSPI Derivation Report, MSPI Residual Heat Removal System Unreliability Index, generated 4/14/2008
Consolidated Date Entry 3.0 MSPI Derivation Report, MSPI Residual Heat Removal System Unavailability Index, generated 4/14/2008
Consolidated Date Entry 3.0 MSPI Derivation Report, MSPI Cooling Water System Unreliability Index, generated 4/14/2008
Consolidated Date Entry 3.0 MSPI Derivation Report, MSPI Cooling Water System Unavailability Index, generated 4/14/2008
Maintenance Rule event reports that cover the previous 18 months, for the following systems:
2045 (Residual Heat Removal)
4060 (Service Water System)
4080 (Component Cooling Water)

4OA2 Identification and Resolution of Problems

Action Requests
230589, High Radiation Area swing gate open with audible alarm turned off
12763, Posting errors during RO-19
31289, High Radiation Area door propped open and two High Radiation Area swing gates were secured open
74525, High Radiation Area door open and High Radiation Area sign not visible
236014, Radiation posting discrepancies during RO-24

Procedures
CAP-NGGC-0205, Significant Adverse Condition Investigations, Rev. 6
CAP-NGGC-0200, Corrective Action Program, Rev. 22
PLP-080, Radiation Control Outage Planning Procedure, Rev. 1

Radiological Survey Records
Excess Letdown Area, survey 58-050201, dated 5/21/01
"A" Pump Bay, survey 41-101302, dated 10/14/02
"C" Pump Bay, survey 042407-36, dated 4/22/07
"B" Pump Bay, survey 042207-48, dated 4/22/07
#2 Auxiliary Sump Room, survey 092999-4, dated 9/29/1999

Other Documents
H.B. Robinson Steam Electric Plant Unit No.2 Technical Specifications

4OA5 Other Activities

Procedures
OST-021, Daily Surveillance, Rev. 22
FMP-004, Special Nuclear Material (SNM) Inventory, Rev. 22
REG-NGGC-0010, 10 CFR 50.59 and Selected Regulatory Reviews, Rev. 10
NGGM-PM-0028, Transnuclear NUHOMS Dry Fuel Storage Program Manual, Rev. 0
OM-NUH24PTH-118, NUHOMS System Operations Manual, Rev. 0
AOP-028, [Independent Spent Fuel Storage Installation] Abnormal Events, Rev. 6
ISFS-011, 24P-ISFSI Transfer Cask and Dry Shielded Canister Preparations for Loading, Rev. 5
ISFS-012, 24P-ISFSI Transfer Cask Handling Operations for Fuel Loading, Rev. 6
ISFS-013, 24P-ISFSI Dry Shielded Canister Fuel Loading, Rev. 4
ISFS-014, 24P ISFSI DSC Sealing Operations, Rev. 7
ISFS-015, 24P-ISFSI Transfer Cask and Dry Shielded Canister Transfer to HSM, Rev. 8
ISFS-022, Cask Preparation Area HVAC and HEPA Filter Operation, Rev. 3
FHP-003, Fuel Assembly Movement in the Spent Fuel Pit, Rev. 33
MNT-NGGC-0007, Foreign Material Exclusion Program, Rev. 6

Other Documents
Certificate of Compliance No. 1004, Standardized NUHOMS Horizontal Modular Storage System