



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

April 21, 2008

Carolina Power and Light Company  
ATTN: Mr. Robert J. Duncan, II  
Vice President - Harris Plant  
Shearon Harris Nuclear Power Plant  
P. O. Box 165, Mail Code: Zone 1  
New Hill, North Carolina 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT - NRC INTEGRATED  
INSPECTION REPORT 05000400/2008002

Dear Mr. Duncan:

On March 31, 2008, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Shearon Harris reactor facility. The enclosed integrated inspection report documents the inspection findings, which were discussed on April 2, 2008 with you and other members of your staff.

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

Based on the results of this inspection, no findings of significance were identified by the NRC. However, one licensee identified violation is listed in Section 40A7 of this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy because of its very low safety significance and because it is entered into your corrective action program. If you contest this non-cited violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the 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 Shearon Harris 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

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Sincerely,

***/RA/***

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

Docket No.: 50-400

License No.: NPF-63

Enclosure: NRC Inspection Report 05000400/2008002  
w/Attachment: Supplemental Information

cc w/encl: (See next page)

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CP&L

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Letter to Robert J. Duncan, II from Randy Musser dated April 21, 2008

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT - NRC INTEGRATED  
INSPECTION REPORT 05000400/2008002

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No: 50-400

License No: NPF-63

Report No: 05000400/2008002

Licensee: Carolina Power and Light Company

Facility: Shearon Harris Nuclear Power Plant, Unit 1

Location: 5413 Shearon Harris Road  
New Hill, NC 27562

Dates: January 1, 2008 through March 31, 2008

Inspectors: P. O'Bryan, Senior Resident Inspector  
M. King, Resident Inspector  
R. Rodriguez, Senior Reactor Inspector, Section 4OA3  
S. Walker, Senior Reactor Inspector, Section 4OA5  
C. Even, Reactor Inspector, Sections 1R05 and 1R19  
J. Austin, Senior Resident Inspector, Sections 1R05 and 1R19

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

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## SUMMARY OF FINDINGS

IR 05000400/2008-002; January 1, 2008 - March 31, 2008; Shearon Harris Nuclear Power Plant, Unit 1; Routine Integrated Report.

The report covered a three-month period of inspection by resident inspectors and announced inspection by regional operator licensing inspectors. 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. Inspector-Identified and Self-Revealing Findings

None

B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and its corrective action tracking number is listed in Section 40A7 of this report.

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## REPORT DETAILS

### Summary of Plant Status

The unit began the inspection period at rated thermal power, and operated at or near full power for the entire inspection period.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R04 Equipment Alignment

##### a. Inspection Scope

##### Partial System Walkdowns:

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

- A motor driven and the turbine driven auxiliary feed water trains with the B motor driven auxiliary feed water pump out-of-service on January 16, 2008.
- A essential services chilled water train with the B essential services chilled water train out-of-service on January 17, 2008.
- B charging and safety injection train with A charging and safety injection train out-of-service on February 9, 2008.

To evaluate the operability of the selected trains or systems under these conditions, the inspectors reviewed valve and power alignments by comparing 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 auxiliary feed water system. To determine the proper system alignment, the inspectors reviewed the procedures, drawings, and Final Safety Analysis Report (FSAR) sections listed in the Attachment.

The inspectors walked down the system, to verify that the existing alignment of the system was consistent with the correct alignment. Items reviewed during the walkdown included the following:

- Valves are correctly positioned and do not exhibit leakage that would impact the function(s) of any given valve.
- Electrical power is available as required.

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- Major system components are correctly labeled, lubricated, cooled, ventilated, etc.
- Hangers and supports are correctly installed and functional.
- Essential support systems are operational.
- Ancillary equipment or debris does not interfere with system performance.
- Tagging clearances are appropriate.
- Valves are locked as required by the licensee's locked valve program.

The inspectors reviewed the documents listed in the Attachment, to verify that the ability of the system to perform its function 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:

- AR #235850, T&T Valve Dimension on 1364 DWG not the Same as in CM-M0213
- AR #237239, AFW Pump "A" Increased Vibration During Perf of OST-1211
- AR #248518, Valve 1AF-50 Stroke Time Open Adverse Trend
- AR #249509, EST-211 Test Failure of 1CE-1158

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

For the 21 areas identified below, the inspectors reviewed the licensee's control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures, to verify that those items were consistent with final safety analysis report (FSAR) Section 9.5.1, Fire Protection System, and FSAR 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 applicable FSAR sections. Documents reviewed are listed in the Attachment.

- 286' level of the reactor auxiliary building including areas 1-A-CSRA, 1-A-CSR, and 1-A-ACP (3 areas)
- A emergency diesel generator complex including areas 1-D-1-DGA-RM, 1-D-3-DGA-ES, 1-D-DTA, 1-D-1-DGA-ASU, 1-D-1-DGA-ER, and 1-D-3-DGA-HVR (6 areas)
- B emergency diesel generator complex including areas 1-D-1-DGB-RM, 1-D-3-DGB-ES, 1-D-DTB, 1-D-1-DGB-ASU, 1-D-1-DGB-ER, and 1-D-3-DGB-HVR (6 areas)

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- Emergency diesel generator fuel oil storage building including areas 1-O-PB, 1-O-PA, and 5-O-BAL (3 areas)
- 305' elevation of the reactor auxiliary building including the following areas: 12-A-CRC1, 12-A-HV&IR (2 areas)
- 236' elevation of the reactor auxiliary building including the area 1-A-BAL-A (1 area)

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

Internal Flooding

The inspectors walked down the 190', 216', and the 286' elevations of the reactor auxiliary building, which are below flood levels or otherwise susceptible to flooding from postulated pipe breaks, to verify that the area configuration, features, and equipment functions were consistent with the descriptions and assumptions used in FSAR section 3.6A.6, Flooding Analysis, and in the supporting basis documents listed in the Attachment. The inspectors reviewed the operator actions credited in the analysis, to verify that the desired results could be achieved using the plant procedures listed in the Attachment.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification

a. Inspection Scope

On February 13, 2008, the inspectors observed licensed-operator performance during licensed operator continuing simulator training for crew E, to verify that operator performance was consistent with expected operator performance, as described in Exercise Guide EOP-sim-17.77. This training tested the operators' ability to respond to a large break loss-of-coolant accident. 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 had identified deficiencies and discrepancies that occurred during the simulator training.

b. Findings

No findings of significance were identified.

## 1R12 Maintenance Effectiveness

### a. Inspection Scope

The inspectors reviewed two degraded SSC/function performance problems or conditions listed below to verify the licensee's 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.

- Possible stem/disk separation for valve 1MS-231
- Adjustments required to 1CT-118 and 1CT-119 during surveillance testing of the containment spray system

The inspectors focused on the following attributes:

- 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:

- AR #260360, Possible Stem/Disk Separation for Valve 1MS-231
- AR #260827, OST-1118 Required Adjustment to 1CT-118
- AR #267361, OST-1119 Required Adjustment to 1CT-119
- AR #256119, OST-1119 B Containment Spray Flow
- AR #254402, OST-1118 Containment Spray Eductor Flow Required Adjustment

### b. Findings

No findings of significance were identified.

## 1R13 Maintenance Risk Assessments and Emergent Work Control

### a. Inspection Scope

The inspectors reviewed the licensee's risk assessments and the risk management actions for the plant configurations associated with the five activities listed below. The inspectors verified that the licensee performed adequate risk assessments, and implemented appropriate risk management actions when required by 10 CFR 50.65(a)

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(4). For emergent work, the inspectors also verified that any increase in risk was promptly assessed, and that the appropriate risk management actions were promptly implemented.

- Emergent corrective maintenance on air handler AH-10 on January 14, 2008.
- Planned maintenance on the B essential services chiller on February 21, 2008.
- Tornado Watch issued by National Weather Service on March 4, 2008.
- Planned maintenance on A charging and safety injection pump with A emergency diesel generator ventilation fan A out of service on March 6, 2008.
- Planned maintenance requiring opening the Cape Fear feeder to the A start-up transformer on March 26, 2008.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed five operability determinations addressed in 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 made in the determination to the requirements from the TS, the FSAR, and associated design-basis documents, to verify that operability was properly justified and the subject component or system remained available, such that no unrecognized increase in risk occurred:

- AR #260706, A-SA Emergency Diesel Generator Left Bank Turbocharger Bolt Broken
- AR #264717, A ESW Pump and Screen Wash Pump Inoperable Based on OST-1214 Data
- AR #266234, Gas Void in Containment Spray System
- AR #265528, B Chiller Pre-rotational Vane Actuator Linkage Out of Position
- AR #267026, B Chiller Hot Gas Bypass Valve Actuator Found with Excessive Travel

b. Findings

No findings of significance were identified.

1R18 Plant Modificationsa. Inspection Scope

The inspectors reviewed the modification described in Engineering Change 68821, Flanged Cooling Coils in Containment Air Cooler AH-3, to verify that:

- this modification did not degrade the design bases, licensing bases, and performance capabilities of risk significant SSCs,
- implementing this modification did not place the plant in an unsafe condition, and
- the design, implementation, and testing of this modification satisfied the requirements of 10 CFR 50, Appendix B.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testinga. Inspection Scope

For the five post-maintenance tests listed below, the inspectors witnessed the test and/or reviewed the test data, to verify that test results adequately demonstrated restoration of the affected safety function(s) described in the FSAR and TS. The tests included the following:

- OST-1076, Auxiliary Feedwater Pump 1B-SB Operability Test Quarterly Interval following replacement of B train electrical circuit breaker on January 16, 2008.
- OPT-1512, Essential Chilled Water Turbopak Units Quarterly Inspection/Checks after troubleshooting the ESCW Chiller temperature control module on January 17, 2008.
- Operation test of valve 1CS-261 after corrective maintenance on January 22, 2008.
- OST-1007, CVCS/SI System Operability Train A Quarterly Interval following maintenance to the A CSIP on February 9, 2008.
- Execution of WO 01312515-01, 1B-ESW Motor Heater Relay and Ring Terminal Replacement on March 12, 2008.

The inspectors reviewed AR 248518, Adverse Trend of Valve 1AF-50 Stroke Time, to verify that the licensee identified and implemented appropriate corrective actions.

b. Findings

No findings of significance were identified.

## 1R22 Surveillance Testing

### a. Inspection Scope

For the six surveillance tests identified below, the inspectors witnessed testing and/or reviewed test data, to verify that the systems, structures, and components involved in these tests satisfied the requirements described in the TS and the FSAR, and that the tests demonstrated that the SSCs were capable of performing their intended safety functions.

- OST-1094, Sequencer Block Circuit and Containment Fan Cooler Testing Train A Quarterly Interval on January 2, 2008
- MST-I0320, Train B Solid State Protection System Actuation Logic & Master Relay Test on January 15, 2008
- OST-1089, Emergency Diesel Generator Starting Air Dryer Check Valve Operability Test Quarterly Interval on January 28, 2008
- OST-1045, ESFAS Train B Slave Relay Test Quarterly Interval on February 17, 2008
- \* OST-1211, Auxiliary Feedwater Pump 1A-SA Operability Test Quarterly Interval on February 25, 2008
- OST-1013, 1A-SA Emergency Diesel Generator Operability Test Monthly Interval Modes 1-6 on March 26, 2008.

\*This procedure included inservice testing requirements.

### b. Findings

No findings of significance were identified.

## 4. OTHER ACTIVITIES

### 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.

### 4OA3 Event Follow-up

#### .1 (Closed) LER 05000400/2002004, Revs. 00-08, Unanalyzed Condition Due to Inadequate Separation of Associated Circuits.

On December 20, 2002, upon inspection of the Safe Shutdown Analysis, the licensee identified that postulated fires could cause spurious actuation of certain valves. Valve actuation in the flowpath for the protected Charging/Safety Injection Pump could result in loss of the pump. Similarly, simultaneous spurious closure of multiple valves in the

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flowpaths to the Reactor Coolant Pump (RCP) seals could result in the loss of the RCP seal cooling. The licensee also identified other postulated fires which could cause spurious actuation of certain valves or components that could result in the conditions described above including transfer of Refueling Water Storage Tank inventory to the containment recirculation sump, transfer of some Reactor Coolant System (RCS) inventory to containment, inadvertent pressurizer spray, or potential impact to indication used to monitor RCS pressure and level. Revision 09 of this Licensee Event Report (LER) is a revision to a previously submitted LER that describes an unanalyzed condition due to inadequate separation of associated circuits. Specifically, LER 2002-004-00, submitted on February 18, 2003; LER 2002-004-01, submitted on March 26, 2003; LER 2002-004-02, submitted on September 19, 2003; LER 2002-004-03, submitted on April 12, 2004; LER 2002-004-04, submitted on October 12, 2004; LER 2002-004-05, submitted on November 15, 2004; LER 2002-004-06, submitted on December 20, 2004; LER 2002-004-07, submitted on March 21, 2005; and LER 2002-004-08, submitted on September 20, 2005, described similar unanalyzed conditions. Therefore, revisions 00 through 08 are administratively closed to revision 09. Any subsequent concerns or issues will be evaluated pursuant review and assessment of LER 2002-004-09, and the licensee's transition from the current licensing basis to NFPA 805, "Performance Based Standard for Fire Protection," in accordance with 10 CFR 50.48 (c).

- .2 (Closed) LER 05000400/2007-004-00, Bare Conductors on B Steam Generator Wide Range Level Barton Transmitter as Identified via 10 CFR Part 21 Process.

On October 19, 2007, while replacing connector assemblies in response to a 10 CFR Part 21 Nuclear Industry Advisory issued by PRIME Measurement and Nuclear Regulatory Commission Information Notice 2006-14, the licensee discovered bare conductors at the connector assembly of Barton transmitter LT-487 (B steam generator wide range level indication). This condition was identified by the manufacturer of the transmitter as a condition resulting from the manufacturing process. This connector assembly is required to provide a water-tight seal in the postulated harsh post-accident environment of the reactor containment building. Technical Specifications require LT-487 to be operable in modes 1, 2, and 3. Without a proper watertight seal, the transmitter may not have operated properly in an accident condition. Since the transmitter was installed during initial plant construction, the licensee reported this event as a condition prohibited by Technical Specifications. The licensee replaced the transmitter on October 19, 2007. The enforcement aspects of this finding are discussed in Section 4OA7 of this report.

- .3 (Closed) LER 05000400/2007-005-00, B Train of Essential Services Chilled Water was Inoperable for a Period Longer than Allowed by Technical Specifications.

On November 5, 2007, while attempting to place the B essential services chilled water system chiller in service, the chiller tripped off-line due to low refrigerant pressure. The cause of the low pressure trip was a loss of refrigerant from the chiller to the chiller receiver tank. This receiver tank is used to temporarily store refrigerant during maintenance requiring the refrigerant to be evacuated from the chiller. The receiver is isolated from the chiller during normal operations by an isolation valve, 1CY-7. After

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maintenance was completed October 13, 2007, 1CY-7 was not completely shut and refrigerant slowly leaked from the chiller to the receiver tank. Eventually, the refrigerant pressure dropped below the level required for chiller operation. This event was determined to be a self-revealing non-cited violation (NCV) of Technical Specification 3.7.13 and of very low safety significance (Green). This NCV was previously documented and closed in NRC inspection report 05000400/2007005 as NCV 05000400/2007005-01.

#### 4 Derailment of Train Cars During Movement of Spent Fuel

##### a. Inspection Scope.

The inspectors responded to the site owner-controlled area when two cars of a train carrying spent reactor fuel from the Brunswick Nuclear Plant to the Shearon Harris Nuclear Plant derailed at the Shearon Harris Nuclear Plant on October 25, 2007. The inspectors observed the derailed train to ensure that there was no danger to the public health and safety or the environment. The inspectors also interviewed licensee personnel to gain an understanding of the event and assess follow-up actions, and reviewed the licensee's root cause investigation to assess the detail of review and adequacy of the root cause and proposed corrective actions.

The inspectors' investigation determined that, while transporting spent reactor fuel by train from the Brunswick Nuclear Power Plant to the Shearon Harris Nuclear Power Plant, the train's caboose derailed and the adjacent flat car partially derailed. The train cars derailed in the Shearon Harris owner controlled area and outside the protected area (PA) fence. The train approached the site in reverse and the cars derailed when they struck derailleurs that were installed on the tracks as security measures. The cars were set back on the train rails by railroad maintenance personnel on October 26, 2007. Once the cars were back on the train tracks, the spent reactor fuel was transported into the Shearon Harris PA. The train tracks were not properly prepared prior to the approach of the train because of miscommunication between licensee operations personnel and site security personnel.

The inspectors also found that, while the train cars were derailed and during the transport of the spent reactor fuel, there was no danger to the public health and safety, or the environment.

##### b. Findings

No findings of significance were identified.

#### 4OA5 Other Activities

##### .1 (Closed) URI 50-400/99-13-03: Adequacy of HEMYC Cable Wrap Fire Barrier Qualification Tests and Evaluations to Scope Installed Configurations.

Inspection Report 05000400/1999-13 documented the potential inadequacy of Hemyc fire barrier wrap material at Harris Nuclear Power Plant. The issue was unresolved

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pending further NRC review to determine whether the qualification tests of the Hemyc fire wrap systems were acceptable. In subsequent NRC fire tests, results indicated that Hemyc/MT materials could not be routinely relied upon as one hour fire barriers. The NRC staff has completed a significant effort informing industry of the concerns associated with these materials by issuing information notice (IN) 2005-07, Results of Hemyc Electrical Raceway Fire Barrier System Full Scale Fire Testing, and Generic Letter (GL) 2006-03, Potentially Nonconforming Hemyc and MT Fire Barrier Configurations. As required by GL 2006-03, Harris Nuclear Power Plant has responded to the NRC concerns by identifying all applications of Hemyc/MT materials, implementing compensatory measures as appropriate, and initiating corrective actions to resolve as necessary. Based upon the licensee's letter of intent received by the NRC to transition the current licensing basis to NFPA 805 Performance Based Standard for Fire Protection in accordance with 10 CFR 50.48 (c), these compensatory measures will remain in place until a license amendment is approved by the NRC. Therefore, the NRC staff has determined this unresolved item (URI) is closed and any further evaluation of this issue will be conducted pursuant to review of the licensee's GL 2006-03 response and subsequent license amendment approval

#### 4OA6 Meetings, Including Exit

On April 2, 2008, the resident inspectors presented the inspection results to Mr. Robert Duncan and other members of his staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

#### 4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

Technical Specification 3.3.3.6 requires that the B steam generator wide range level transmitter, LT-487, be operable or the plant be shutdown to hot standby with seven days. Contrary to this requirement, LT-487 was not operable since installation of the transmitter connector assembly during initial plant construction because the connector conductors were not properly insulated. Improper insulation of the conductors could have led to an electrical short circuit in the post-accident reactor containment building environment. This finding was determined to be of very low safety significance because alternate indications of adequate heat sink (narrow range steam generator level and auxiliary feedwater flow to the B steam generator) were available during an event which may have caused a harsh environment inside of the reactor containment building. For events that would not cause a harsh environment inside the reactor containment building, LT-487 would function properly as evidenced by its satisfactory operation since it was installed during plant construction. Therefore, the B steam generator was available for core cooling. This event is documented in the licensee's corrective action program as AR 221840.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

## KEY POINTS OF CONTACT

### Licensee personnel

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G. Simmons, Superintendent, Radiation Control  
J. Warner, Manager, Operations

### NRC personnel

R. Musser, Chief, Reactor Projects Branch 4

**LIST OF ITEMS OPEN, CLOSED AND DISCUSSED**Opened

None.

Closed

50-400/99-13-03	URI	Adequacy of HEMYC Cable Wrap Fire Barrier Qualification Tests and Evaluations to Scope Installed Configurations (Section 4OA5)
05000400/2002004-00	LER	Unanalyzed Condition Due to Inadequate Separation of Associated Circuits. (Section 4OA3)
05000400/2002004-01	LER	Unanalyzed Condition Due to Inadequate Separation of Associated Circuits. (Section 4OA3)
05000400/2002004-02	LER	Unanalyzed Condition Due to Inadequate Separation of Associated Circuits. (Section 4OA3)
05000400/2002004-03	LER	Unanalyzed Condition Due to Inadequate Separation of Associated Circuits. (Section 4OA3)
05000400/2002004-04	LER	Unanalyzed Condition Due to Inadequate Separation of Associated Circuits. (Section 4OA3)
05000400/2002004-05	LER	Unanalyzed Condition Due to Inadequate Separation of Associated Circuits. (Section 4OA3)
05000400/2002004-06	LER	Unanalyzed Condition Due to Inadequate Separation of Associated Circuits. (Section 4OA3)
05000400/2002004-07	LER	Unanalyzed Condition Due to Inadequate Separation of Associated Circuits. (Section 4OA3)
05000400/2002004-08	LER	Unanalyzed Condition Due to Inadequate Separation of Associated Circuits. (Section 4OA3)

05000400/2007004-00	LER	Bare Conductors on 'B' Steam Generator Wide Range Level Barton Transmitter as Identified via 10 CFR Part 21 Process (Section 4OA3)
05000400/2007005-00	LER	'B' Train of Essential Services Chilled Water was inoperable for a period longer than allowed by Technical Specifications (4OA3)

## LIST OF DOCUMENTS REVIEWED

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

#### Partial System Walkdown

Auxiliary feedwater system:

- Procedure OP-137, Auxiliary Feedwater System
- Drawing 2165-S-0544, Simplified Flow Diagram Feedwater Systems

Essential services chilled water system:

- Procedure OP-148, Essential Services Chilled Water System,
- Drawing 2165-S-0998, Simplified Flow Diagram Essential Services Chilled Water Systems

High head safety injection system:

- Procedure OP-110, Safety Injection System,
- Drawing 2165-S-1309, 1310, and 1311, Simplified Flow Diagram Safety Injection Systems Sheets 1, 2 and 3.

#### Complete System Walkdown

- Procedure OP-137, Auxiliary Feedwater System
- System Description 137, Auxiliary Feedwater System
- Design Basis Document-114, Auxiliary Feedwater System
- Drawing 2165-S-0544, Simplified Flow Diagram Feedwater System
- FSAR section 10.4.9, Auxiliary Feedwater
- Work Orders 1116804, 1117034, 1130497, 1138167

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

- FPP-012-04-DBG, Diesel Generator Building Fire Pre-Plan
- FPP-012-08-SEC, Out Building Fire Pre-Plan
- FPP-012-09-LAF, Large Area Fire Pre-Plan
- FPP-012-02-RAB 236, Reactor Auxiliary Building Elevation 236 Fire Pre-Plan
- FPP-012-02-RAB286, Reactor Auxiliary Building Elevation 286 Fire Pre-Plan
- FSAR Section 9.5
- FPP-001, Fire Protection Program, Rev. 31
- FPP-004, Transient Combustibles Control

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

FSAR Sections:

- 2.4.10, Flooding Protection Requirements
- 3.6A.6, Flooding Analysis

Calculations:

- Appendix I to the HNP Probabilistic Safety Assessment, Internal Flooding Analysis
- Calculation #PRA-F/E-4, RAB Unit 1 Elevation 190' & 216' Flood Analysis

Procedures:

- AOP-022, Loss of Service Water
- OP-139, Service Water System

**Section 1R11: Licensed Operator Requalification**

- Exercise Guide EOP-SIM-17.77, Large Break LOCA
- EOP-EPP-010, Transfer to Cold Leg Recirculation
- EOP-EPP-004, Reactor Trip Response
- EOP-PATH-1, Path 1

**Section 1R12: Maintenance Effectiveness**

- NUMARC 93-01, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants
- ADM-NGGC-0101, Maintenance Rule Program

**Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation**

- WCM-001, On-line Maintenance.

**Section 1R15: Operability Evaluations**

- OPS-NGGC-1305, Operability Determinations

**Section 1R18: Plant Modifications**

- System Description SD-139, Service Water Systems
- Design Basis Document DBD-136, Containment Ventilation and Cooling Systems
- Drawing 2165-S-0547, Simplified Flow Diagram Circulating and Service Water Systems, sheet 1
- EGR-NGGC-0005, Engineering Change

**Section 4OA2: Identification and Resolution of Problems**

- CAP-NGGC-0200, Corrective Action Program.

**Section 4OA3: Event Follow-up**

- NGGM-PM-0006, Spent Nuclear Fuel Shipping Program
- MMM-104, Railcar Movement
- PLP-625, Harris Nuclear Plant Spent Fuel Management Program