



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION II  
SAM NUNN ATLANTA FEDERAL CENTER  
61 FORSYTH STREET SW SUITE 23T85  
ATLANTA, GEORGIA 30303-8931

December 13, 2001

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

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT 2 - NRC INSPECTION  
REPORT 50-261/01-08

Dear Mr. Moyer:

On November 30, 2001, the Nuclear Regulatory Commission (NRC) completed a triennial fire protection inspection at your H. B. Robinson facility. The enclosed report documents the results of this inspection which were discussed on November 30, 2001, 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.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's Document system (ADAMS). ADAMS is accessible from the NRC web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Charles R. Ogle, Chief  
Engineering Branch 1  
Division of Reactor Safety

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

Enclosure: (See page 2)

Enclosure: NRC Inspection Report 50-261/01-08  
w/Attachment

cc w/encl:

T. D. Walt  
Director, Site Operations  
Carolina Power & Light Company  
H. B. Robinson Steam Electric Plant  
Electronic Mail Distribution

T. P. Cleary  
Plant General Manager  
Carolina Power & Light Company  
H. B. Robinson Steam Electric Plant  
Electronic Mail Distribution

Terry C. Morton, Manager  
Performance Evaluation and  
Regulatory Affairs CPB 9  
Electronic Mail Distribution

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

B. L. Fletcher III, Manager  
Regulatory Affairs  
Carolina Power & Light Company  
H. B. Robinson Steam Electric Plant  
Electronic Mail Distribution

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

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

(cc w/encl cont'd - See page 3)

(cc w/encl cont'd)

Mel Fry, Director  
Division of Radiation Protection  
N. C. Department of Environment,  
Health and Natural Resources  
Electronic Mail Distribution

William D. Johnson  
Vice President & Corporate Secretary  
Carolina Power & Light Company  
Electronic Mail Distribution

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

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

Robert P. Gruber  
Executive Director  
Public Staff - NCUC  
P. O. Box 29520  
Raleigh, NC 27626-0520

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

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

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

Report No: 50-261/01-08

Licensee: Carolina Power & Light Company (CP&L)

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

Location: 3581 West Entrance Road  
Hartsville, SC 29550

Dates: November 26 - 30, 2001

Inspectors: E. Brown, Resident Inspector, Brunswick  
A. Hutto, Resident Inspector, H. B. Robinson  
N. Merriweather, Senior Reactor Inspector  
R. Schin, Senior Reactor Inspector (Lead Inspector)  
S. Walker, Reactor Inspector

Approved by: C. Ogle, Chief  
Engineering Branch 1  
Division of Reactor Safety

Enclosure

## SUMMARY OF FINDINGS

IR 05000261-01-08, on 11/26 - 30/2001, Carolina Power & Light Company, H. B. Robinson Steam Electric Plant, Unit 2, triennial fire protection baseline inspection.

The inspection was conducted by a team of regional and resident inspectors. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at <http://nrr10.nrc.gov/NRR/OVERSIGHT/index.html>.

No findings of significance were identified.

## Report Details

### 1. REACTOR SAFETY

#### **Cornerstones: Initiating Events, Mitigating Systems**

#### 1R05 FIRE PROTECTION

##### .01 Systems Required To Achieve and Maintain Post-Fire Safe Shutdown

###### a. Inspection Scope

The team evaluated the licensee's fire protection program against applicable requirements, including License Condition E, Fire Protection; Title 10 of the Code of Federal Regulations Part 50 (10 CFR 50), Appendix R; Appendix A of Branch Technical Position (BTP) Auxiliary and Power Conversion Systems Branch (APCSB) 9.5-1; 10 CFR 50.48; and related NRC Safety Evaluation Reports (SERs).

The team used the licensee's Individual Plant Examination for External Events (IPEEE) and in-plant walkdowns to select three risk significant fire areas for inspection. The three fire areas selected were:

- Fire Area A3, Fire Zone 7; Auxiliary Building Hallway (ground floor): A fire in this area would involve evacuation of the control room and use of alternate/dedicated shutdown equipment.
- Fire Area A5, Fire Zone 20; E-1/E-2 Electrical Switchgear Room: A fire in this area would involve evacuation of the control room and use of alternate/dedicated shutdown equipment.
- Fire Area G1, Fire Zone 26; Yard Transformers: A fire in this area would involve shutdown from the control room.

The team reviewed the IPEEE, Safe Shutdown Analysis (SSA), associated procedures, and system drawings to identify those systems credited for safe shutdown (SSD) of the facility in the event of a fire in the selected fire areas. The inspection included review of the post-fire safe shutdown capability and the fire protection features to ensure that at least one post-fire SSD success path was maintained free of fire damage in the event of a fire.

For a selected sample of SSD systems, components, and plant monitoring instruments [e.g., charging pump A, steam-driven auxiliary feedwater (AFW) pump, component cooling water (CCW) pump A, service water (SW) pumps A, B, C, and D, charging pump C, motor-driven AFW pumps A & B, SW valve V6-12D, pressurizer pressure indication, and alternating and direct current (AC & DC) electrical power supplies], the team reviewed the SSA and the applicable fire protection related SERs, specific electrical one-line and control wiring diagrams, cabling routing data, instrument loop drawings, and system flow diagrams

to evaluate the completeness and adequacy of the procedures (including operator actions) and the lists of shutdown equipment relied upon to mitigate fires in the selected fire areas.

b. Findings

No findings of significance were identified.

.02 Fire Protection of Safe Shutdown Capability

a. Inspection Scope

The team reviewed Updated Final Safety Analysis Report (UFSAR) Section 9.5.1, Fire Protection System, Appendix 9.5.1A, the Fire Hazards Analysis (FHA), and Appendix 9.5.1B, Program Description to determine design features and administrative program requirements for fire protection barriers, systems, and components. The team walked down the selected plant fire areas to observe the licensee's implementation of these administrative controls to verify the activities to limit fire hazards were implemented consistent with licensee procedures such as Fire Protection Procedure FP-03, Control of Transient Combustibles, Revision (Rev) 16, and Fire Protection Procedure FP-06, Handling of Flammable Liquids and Gases, Rev 3. The team also reviewed selected modifications to plant systems and components to verify that they were adequately evaluated for potential impact on the fire protection program and the SSD equipment and procedures.

The team performed a walk down of the fire brigade dress-out building to assess the condition of fire fighting equipment and personal protective gear to evaluate accessibility and functionality. The team also assessed whether backup emergency lighting was provided for access pathways to and within the fire brigade staging areas and dress-out building in support of fire brigade operations, should a power failure occur from any cause during a fire emergency. The fire brigade's self-contained breathing apparatuses (SCBAs) were reviewed to assure the availability of extra SCBA tanks and the availability of reserve air to permit the quick replenishment of exhausted air supply against the requirements in 10 CFR 50, Appendix R, Section III.H, Fire Brigade. Team members also performed walk downs of the selected fire areas and compared associated fire fighting pre-fire plan procedures and drawings with as-built plant conditions to verify that they were consistent with the fire protection features and potential fire conditions described in the FHA.

The team reviewed the fire brigade response procedure and fire brigade training and drill program procedures. Operating shifts' fire drill critiques for 2000-2001 and fire brigade training and drill records for the selected fire areas were reviewed to verify that fire brigade drills had been conducted in the risk-significant plant areas and that the fire brigade personnel qualifications, brigade drill response, and brigade performance were consistent with the requirements of the licensee's approved fire protection program and 10 CFR 50, Appendix R.

Additionally, the team reviewed ventilation diagrams and flooding analysis calculations associated with the auxiliary building hallway floor drain and heating, ventilation, and air-conditioning (HVAC) system to verify that systems and operator actions required for post-

fire safe shutdown would not be inhibited by smoke, flooding from fire suppression activities, or rupture of fire suppression systems.

The team also reviewed the adequacy of the licensee's Appendix R Safe Shutdown Component/Cable Separation and Cable Schedule Analyses, and performed field walk downs on a sample of SSD component cabling in order to verify that adequate electrical and physical separation and fire protection features were provided for the components in accordance with the separation requirements of 10 CFR 50, Appendix R. Specifically, the team verified that active SSD circuits [e.g. SW pump D, CCW pump A, charging pump A, and motor control center (MCC) 24] were protected from fire damage from potential fires in the fire areas selected. The team also walked down the cable routing for the refueling water storage tank (RWST) level indicator instrument cable and supply feeder cables for MCC 5 and MCC 24.

b. Findings

No findings of significance were identified.

.03 Post-Fire SSD Circuit Analysis

a. Inspection Scope

On a sample basis, the team reviewed control wiring diagrams for control circuits of SSD components [e.g., pressurizer power-operated relief valves (PORVs); charging pumps A and C; steam-driven AFW pump; CCW pump A; SW pumps A, B, C, and D; and SW valve V6-12D] and looked for the potential effects of open circuits, short circuits, and shorts to ground. In addition, power and control circuit cable routing information was evaluated for potential damage due to any fire in the selected fire areas.

The team also reviewed the licensee's breaker and fuse coordination analysis for SSD components such as SW pump D, CCW pump A, charging pump A, power panel 51 feeder breaker, residual heat removal (RHR) pumps A and B, and the emergency feeder breaker to MCC-5, in order to verify that SSD components had proper breaker and fuse selective coordination. The team also reviewed a sample of completed preventive maintenance work orders that performed testing of overload relays and breaker trip devices (i.e., thermal, magnetic, and instantaneous trip devices). In addition, the team examined the licensee's fuse replacement program to ensure proper controls were promulgated and implemented to maintain plant fuse configuration in accordance with design documents. The team reviewed fuse replacement records for a sample of SSD components and verified that the proper fuses had been installed for that location.

b. Findings

No findings of significance were identified.



.04 Alternative Shutdown (ASD) Capability

a. Inspection Scope

The team reviewed the licensee's procedures for fire response and ASD capability for the fire areas selected to verify conformance with applicable requirements as listed in Section .01 above. The team's review included the licensee's ASD methodology to determine the adequacy of the identified components and systems to achieve and maintain safe shutdown. The team reviewed calculations supporting the time critical operator actions identified in the ASD methodology. The team also reviewed the licensee's ASD procedures to verify their consistency with the ASD methodology and assumptions. The team reviewed the licensee's smoke control procedures, ventilation systems, and SCBA availability to verify that smoke would not prevent operators from performing the procedures.

Additionally, the team reviewed control wiring diagrams for a sample of ASD equipment (e.g. charging pump A, CCW pump A, and SW pump D) to determine if the electrical isolation and protective fusing in the transfer circuits of remote shutdown panels were physically and electrically separated from the fire area and fire damage. The team also examined the electrical isolation for a sample of plant monitoring instruments (e.g., pressurizer pressure and level indicators) used for ASD and located on the charging pump room and secondary dedicated shutdown (DS) control panels. The team verified that SSD equipment could be powered from the DS diesel generator through the DS bus and associated electrical panels.

b. Findings

No findings of significance were identified.

.05 Operational Implementation Of ASD Capability

a. Inspection Scope

The team reviewed the operational implementation of the ASD capability for a fire in the selected fire areas to verify that: (1) the training program for licensed personnel included alternative or dedicated SSD capability; (2) personnel required to achieve and maintain the plant in hot standby from outside the control room could be provided from normal onsite staff, exclusive of the fire brigade; and (3) the licensee periodically performed operability testing of the SSD instrumentation and transfer and control functions. Selected attachments of DSP-002, "Hot Shutdown Using the Dedicated/Alternate Shutdown System," Rev 25, were walked down to verify that the procedures could be performed within the required times, given the minimum required staffing level of operators, concurrent with a loss of offsite power. Operators were timed in performing the time critical operations identified by the licensee's SSA. These actions included de-energization of the electrical buses, restoration of charging, restoration of service water, restoration of component cooling water to the reactor coolant pumps, and starting the dedicated shutdown diesel. The team observed the contents of pre-staged repair

equipment to verify that equipment needed to implement the transfer from hot standby to cold shutdown was being properly maintained. Fire brigade staffing was reviewed to verify compliance with the Technical Specifications. The team reviewed the training requirements for operators, fire brigade personnel, and related support personnel to verify compliance with the licensee's fire protection program. The team reviewed lesson plans, job performance measures (JPMs), and the licensed operator continuing training backbone schedule to verify that ASD activities were included in the training program.

In addition, the team reviewed portions of completed maintenance and operations surveillance test procedures and instrument calibration test procedures associated with the remote shutdown controls and instrumentation located on panels in the charging pump room and secondary control station in the turbine area, to verify that the licensee conducted periodic operational tests of the ASD transfer capability and instrumentation and control functions. The team reviewed completed maintenance surveillance testing records of dedicated shutdown batteries, power supplies, and ASD electrical breakers. In addition, the team reviewed the completed surveillance procedure audit of cold shutdown repair equipment which is stored in a warehouse on site.

b. Findings

No findings of significance were identified.

.06 Communications for Performance of ASD Capability

a. Inspection Scope

The team verified the contents of emergency storage lockers to verify the availability of SSD procedures, that portable radio communication was available, operable, and adequate for the performance of ASD activities as outlined in procedure DSP-002.

b. Findings

No findings of significance were identified.

.07 Emergency Lighting for Performance of ASD Capability

a. Inspection Scope

The team reviewed the design, operation, and manufacturer's data sheets on the installed individual DC emergency lighting system self-contained, battery powered units to verify that battery power supplies were rated with at least an 8-hour capacity as required by Section III. J of Appendix R. The team performed a walk down of the remote shutdown equipment to verify that emergency lighting units (ELUs) were operational and the lamp heads were aimed to verify sufficient illumination was provided to support fire fighting activities and manual SSD operator actions. The team reviewed the emergency lighting in the selected fire areas to verify that it was adequate for the access and egress pathways to the required SSD equipment. The team also reviewed periodic test and maintenance

procedures and documents to determine if adequate surveillance testing was in place to ensure operation of the ELUs in the event of a fire.

b. Findings

No findings of significance were identified.

.08 Cold Shutdown Repairs

a. Inspection Scope

The team reviewed existing procedures and equipment to verify that the licensee had dedicated repair procedures, equipment, and materials to accomplish repairs of damaged components required for cold shutdown, that these components could be made operable, and that cold shutdown could be achieved within 72 hours. The team observed cold shutdown repair equipment and cables pre-staged for residual heat removal pump operation and pressurizer PORV control to verify that the equipment was maintained in good condition, was properly labeled, and the associated instrument calibrations were being maintained.

b. Findings

No findings of significance were identified.

.09 Fire Barriers and Fire Area/Zone/Room Penetration Seals

a. Inspection Scope

The team reviewed the selected fire areas to evaluate the adequacy of the fire resistance of fire area barrier enclosure walls, ceilings, floors, cable coatings, structural steel support protection, fire barrier penetration seals, fire doors, and fire dampers. The team observed the material condition and configuration of the installed fire barrier features, as well as surveillance testing and corrective maintenance work tickets for selected fire barrier features. The team performed a walkdown of the selected areas to verify that the fire loading used by the licensee was appropriate for determining the fire resistance rating of the fire barrier enclosures and was consistent with the fire zone configuration.

The team reviewed remote shutdown procedures, selected pre-fire strategy plans, and flow diagrams associated with HVAC systems to verify that remote shutdown equipment and operator manual actions would not be inhibited by smoke migration from one fire area to adjacent plant areas used to accomplish safe shutdown.

b. Findings

No findings of significance were identified.

.10 Fire Protection Systems, Features, and Equipment

a. Inspection Scope

The team reviewed flow diagrams, cable routing information, periodic test procedures, engineering evaluations for National Fire Protection Association (NFPA) code deviations, and operational valve lineup procedures associated with the motor and engine-driven fire pumps and fire protection water supply system. The review was to determine whether the common fire protection water delivery and supply components could be damaged or inhibited by fire-induced failures of electrical power supplies or control circuits. Additionally, team members performed a walk down of the fire pumps and portions of fire protection water supply system in the selected areas to assess the material condition, availability under SSD conditions, and operational effectiveness.

The team walked down accessible portions of the fire detection and alarm systems in the selected fire areas to evaluate the engineering design and operation of the installed configurations. The team also reviewed engineering drawings for the detection, design, spacing criteria, and detector locations for the installed detection systems in the selected fire areas to verify effectiveness of the systems and compliance with the licensee's UFSAR and associated NFPA Code of Record. The team reviewed the halon fire suppression systems in Fire Area 5 Zone 20, E1/E2 switchgear room, to assess the operational status and material condition. Team members performed a walk down of the E1/E2 switchgear room to assure proper placement and spacing of halon nozzles. Additional walkdowns were performed of the partial area sprinkler system contained in Fire Area 3 Zone 7, auxiliary building hallway. The team specifically reviewed the location and spacing of sprinkler heads and the lack of NFPA code variant sprinkler head obstructions. The team reviewed a sample of manual fire hose lengths to verify that they could reach the SSD equipment. The team also reviewed the fire brigade pre-fire plans to determine if the design and placement of the manual fire fighting fire hose equipment and fire extinguishers were properly reflected in the pre-fire plans. The team performed a walkdown of the carbon dioxide (CO<sub>2</sub>) fire suppression system controls located in Fire Area 3 Zone 7 to assure accessibility and functionality of the system would be maintained in the event of a fire in this area or in the adjacent emergency diesel generator areas that were protected by the CO<sub>2</sub>.

b. Findings

No findings of significance were identified.

.11 Compensatory Measures

a. Inspection Scope

The team reviewed the licensee's Fire Protection Procedure FP-012, "Fire Protection Systems Minimum Equipment List and Compensatory Actions," Rev 8, which controls fire protection and SSD structures, systems, and components unavailability and compensatory measures. The review was performed to verify that the risk associated with removing fire

protection and/or post-fire systems or components was properly assessed and adequate compensatory measures were implemented in accordance with the approved fire protection program. The team also reviewed Action Requests (ARs) generated over the last 18 months as a result of any fire protection features that were not returned to service within the time frames specified by FP-012.

b. Findings

No findings of significance were identified.

.12 Identification and Resolution of Problems

a. Inspection Scope

The team reviewed selected licensee audits, assessments, and ARs to verify that the items related to fire protection and safe shutdown were appropriately entered into the licensee's corrective action program in accordance with the licensee's quality assurance program and procedural requirements and were appropriately dispositioned.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA6 MEETINGS

.01 Exit Meeting Summary

The team presented the inspection results to Mr. J. W. Moyer, Vice President, and other members of licensee management and staff at the conclusion of the inspection on November 30, 2001. The licensee acknowledged the findings presented. No proprietary information is included in this report.

**PARTIAL LIST OF PERSONS CONTACTED**Licensee

C. Castell, Licensing Engineer  
H. Chernoff, Supervisor, Licensing and Regulatory Programs  
B. Dolan, Probabilistic Safety Analysis Engineer  
W. Farmer, Superintendent, Technical Services  
J. Fletcher, Manager, Regulatory Affairs  
B. Gerwe, Fire Protection Engineer  
S. Hardy, Nuclear Engineering and Services Engineer  
J. Henderson, Manager, Nuclear Assurance Section  
R. Hightower, Fire Protection Engineer  
F. Modlin, Electrical Engineer  
C. Moon, Training Specialist  
J. W. Moyer, Vice President  
V. Smith, Plant Support Group  
D. Stoddard, Manager, Robinson Engineering Section  
S. Weise, Manager, Training  
H. Worrell, Training Specialist

NRC

B. Desai, Senior Resident Inspector

**ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened

None

Closed

None

Discussed

None

**LIST OF ACRONYMS AND ABBREVIATIONS USED**

|                 |   |
|-----------------|---|
| AC              | Alternating Current                             |
| AFW             | Auxiliary Feedwater                             |
| APCSB           | Auxiliary and Power Conversion Systems Branch   |
| AR              | Action Requests                                 |
| ASD             | Alternate Shutdown                              |
| BTP             | Branch Technical Position                       |
| CCW             | Component Cooling Water                         |
| CO <sub>2</sub> | Carbon Dioxide                                  |
| DC              | Direct Current                                  |
| DS              | Dedicated Shutdown                              |
| ELU             | Emergency Lighting Unit                         |
| FHA             | Fire Hazards Analysis                           |
| HVAC            | Heating, Ventilation, and Air Conditioning      |
| IPEEE           | Individual Plant Examination of External Events |
| JPM             | Job Performance Measure                         |
| MCC             | Motor Control Center                            |
| NFPA            | National Fire Protection Association            |
| PORV            | Power Operated Relief Valve                     |
| Rev             | Revision  |
| RHR             | Residual Heat Removal                           |
| RWST            | Refueling Water Storage Tank                    |
| SCBA            | Self-Contained Breathing Apparatus              |
| SER             | Safety Evaluation Report                        |
| SSA             | Safe Shutdown Analysis                          |
| SSD             | Safe Shutdown                                   |
| SW              | Service Water                                   |
| UFSAR           | Updated Final Safety Analysis Report            |



## LIST OF DOCUMENTS REVIEWED

### Procedures

AOP-004, "Control Room Inaccessibility," Rev 12

DSP-001, "Alternate Shutdown Diagnostic," Rev 5

DSP-002, "Hot Shutdown Using the Dedicated/Alternate Shutdown System," Rev 25

DSP-007, "Cold Shutdown Using the Dedicated/Alternate Shutdown System," Rev 15

DSP-008, "RHR Pump Repair Procedure," Rev 5

DSP-009, "RHR System Flow Indication Repair Procedure," Rev 2

DSP-011, "RHR System Temperature Indication Repair Procedure," Rev 2

DSP-012, "Pressurizer PORV Control/Power Repair Procedure," Rev 9

EDP-003, MCC Buses, Rev 25

EDP-007, Power Panels, Rev 33

EGR-NGGC-0012, Equipment Data Base, Rev 2

EGR-NGGC-0005, Engineering Service Requests, Rev 15

EGR-NGGC-0104, Low Voltage AC and DC Fuse Selection, Rev 3

FP-03, Control of Transient Combustibles, Rev 16

FP-06, Handling of Flammable Liquids and Gases, Rev 3

FP-012, "Fire Protection System Minimum Equipment and Compensatory Actions," Rev 8

MST-912, Emergency Fire Pump Batteries ( Weekly Test), Rev 12

MST-913, Emergency Fire Pump Batteries ( Quarterly Test), Rev 9

OMM-007, "Equipment Inoperable Record," Rev 52

OMM-048, "Work Coordination and Risk Assessment," Rev 14

PM-451, Single and Double Pole Thermal Magnetic Molded Case Circuit Breaker Testing,  
Rev 3

PLP-049, Fuse Control Program, Rev 5

PM-459, Self Contained DC Emergency System, Rev 3

PM-047, Emergency Lighting System Unit Load Test, Rev 4

**Job Performance Measures**

JPM IP-002, "Shift Auxiliary Feedwater Pump Suction to Service Water," Rev 11

JPM IP-007, "Energize DS Bus IAW EPP-22," Rev 0

JPM IP-012, "Utilize Dedicated Shutdown System to Restore RCP Seal Cooling," Rev 0

JPM IP-019, "Operate PZR PORV PCV-456 at Local Control Station," Rev 3

JPM IP-020, "Perform Electrical Operator Actions of DSP-002 (In Auxiliary Building)," Rev 7

JPM IP-026, "Establish Charging Flow to the RCS per DSP-002," Rev 5

JPM IP-037, "Perform Electrical Operator Actions of DSP-002 (In Turbine Building)," Rev 5

JPM IP-040, "Verify Natural Circulation (Outside Control Room)," Rev 1

**Calculations and Design Specifications**

Calculation No. 115, H. B. Robinson Post Fire Procedure: Spurious Operation Analysis, Rev 0

ESR 00-00042, "Appendix R Analysis for Fire Area A and HVAC," Rev 0

PCN 89-00075, "Input to HBR Appendix R Analysis with Reduced AFW Flow," Rev 2

PCN 89-00077, "Impact on HBR Appendix R Analysis of Reducing AFW Flow to 240 gpm,"  
Rev 2

RNP-E-2.017, 10 CFR 50 Appendix R Coordination Study Of Protective Devices Associated  
With 480V DS Bus, MCC 24, PP-50, PP-51, And LP-41, Rev 1

RNP-E-8.005, 10 CFR 50 Appendix R Associated Circuit Common Power Supply Analysis,  
Rev 2

RNP-E-9.021, 10CFR50 Appendix R Fuse Analysis For DS Bus, Rev 0

RNP-M/MECH-1712, "Appendix R Mechanical Basis," Rev 1

**Drawings**

B-190627, Sheet USDE1-2, Auxiliary Electric Distribution System Load List and Front Views, Rev 45

B-190628, Sheet 163A, Charging Pump "C" 52/23A, Rev 20

B-190628, Sheet 163B, Charging Pump "C" 52/23A, Rev 14

B-190628, Sheet 830A, V6-12D, Service Water Discharge (Normal Power), Rev 10

B-190628, Sheet 839B, V6-12D, North Service Water Header Isolation (Alternate Power), Rev 5

B-190628, Sheet 839C, Service Water Discharge Valve V6-12, Rev 6

B-190628, Sheet 655, Auxiliary Feedwater Pump "B" 52/24C, Rev 27

B-190628, Sheet 651, Auxiliary Feedwater Pump "A" 52/20A, Rev 25

B-190628, Sheet 833, Service Water Pump "C" 52/24A, Rev 16

B-190628, Sheet 832, Service Water Pump "B" 52/19C, Rev 18

B-190628, Sheet 831, Service Water Pump "A", Rev 17

B-190628, Sheet 630A, Steam Driven Feedwater Pump, Rev 16

B-190628, Sheet 630B, Steam Driven Feedwater Pump, Rev 13

B-190628, Sheet 630C, Steam Driven Feedwater Pump, Rev 20

B-190628, Sheet 468, Reactor Coolant System, Rev 17

B-190628, Sheet 462, Reactor Coolant System, Rev 29

B-190628, Sheet 1277, Make Up Water Treatment Building- CST Level Indication, Rev 2

B-190628, Sheet 601, Primary Water and Condensate Tank Level, Rev 13

B-190628, Sheet 1070, Dedicated Shutdown Instrumentation Interconnection Diagram, Rev 8

B-190628, Sheet 198, RWST to Charging Pump Suction Header Valve LCV-115B, Rev 7

B-190628, Sheet 160, LCV-115C Volume Control Tank Discharge, Rev 14

B-190628, Sheet 479, Control Volume and Chemical System, Rev 13

B-190628, Sheet 165, CVC-381 RCP Seal Water Return Isolation, Rev 16

B-190628, Sheet 161, 52/34B, Charging Pump "A", Rev 24

B-190628, Sheet 201, 52/33C Component Cooling Pump "A", Rev 27

B-190628, Sheet 450B, Nuclear Instrumentation System Detector Connection, Rev 7

B-190628, Sheet 450A, Nuclear Instrumentation System Detector Connection, Rev 9

CP-320, 5379-3527, RCS Cold Leg Temperature -Pressurizer Relief Tank Pressure, Rev 27

G-190626, Sheet 3, 125 Volt DC & 120 Volt Vital AC One Line Diagram, Rev 11

G-190626, Sheet 1, Main & 4160 Volt One Line Diagram, Rev 4

G-190626, Sheet 2, 480 & 120/208 Volt One Line Diagram, Rev 12

HBR2-11390-02, Appendix R and Station Blackout Safe Shutdown Analysis Flowpath/Boundary Diagram, Rev 2

HBR2-11390-03, Appendix R and Station Blackout Safe Shutdown Analysis Flowpath/Boundary Diagram, Rev 2

HBR2-11390-04, Appendix R and Station Blackout Safe Shutdown Analysis Flowpath/Boundary Diagram, Rev 4

HBR2-11390-05, Appendix R and Station Blackout Safe Shutdown Analysis Flowpath/Boundary Diagram, Rev 5

HBR2-11390-06, Appendix R and Station Blackout Safe Shutdown Analysis Flowpath/Boundary Diagram, Rev 5

HBR2-11390-07, Appendix R and Station Blackout Safe Shutdown Analysis Flowpath/Boundary Diagram, Rev 3

HBR2-11390-13, Appendix R and Station Blackout Safe Shutdown Analysis Flowpath/Boundary Diagram, Rev 4

HBR2-11390-25, Appendix R and Station Blackout Safe Shutdown Analysis Flowpath/Boundary Diagram, Rev 3

HWD CP-320, 5379-3502, RCS Hot Leg Temperature, Rev 25

**Completed Surveillance Test Records**

MST-801, Testing Operability of the Dedicated Shutdown, Uninterruptible Power Supply and AMSAC batteries, Rev 14, completed on 11/14/01

MST-925, Westinghouse Molded Case Circuit Breakers Thermal and Instantaneous Trip Testing, Rev 9, completed 9/28/96

OST-906, Emergency Control Station Test (Refueling), Rev 12, completed 5/8/01

OST-910, Dedicated Shutdown Diesel Generator (Monthly), Rev 27, completed 10/27/01

OST-911, Dedicated Shutdown Control Station Test (Refueling), Rev 17, completed 5/5/01

OST-918, Dedicated Shutdown Instrumentation Check (Monthly), Rev 9, completed 10/30/01

OST-922, Dedicated Shutdown Equipment Identification Audit, Rev 16, completed 10/24/01

**Instrument Calibration Data Sheets**

LI-607A-1, Steam Generator "A" Wide Range Level, dated April 13, 2001

LI-607A-2, Steam Generator "A" Wide Range Level, dated April 13, 2001

LI-607B-1, Steam Generator "B" Wide Range Level, dated April 13, 2001

LI-607B-2, Steam Generator "B" Wide Range Level, dated April 13, 2001

LI-607C-1, Steam Generator "C" Wide Range Level, dated April 13, 2001

LI-607C-2, Steam Generator "C" Wide Range Level, dated April 13, 2001

LI-607D-1, Pressurizer Level, dated April 17, 2001

LI-607D-2, Pressurizer Level, dated April 17, 2001

LI-1454C, Dedicated Shutdown Condensate Storage Tank Level, dated July 1, 2001

LT-1454C, Dedicated Shutdown Condensate Storage Tank Level Transmitter, dated July 1, 2001

LT-607A, Steam Generator "A" Wide Range Level, dated April 13, 2001

LT-607B, Steam Generator "B" Wide Range Level, dated April 13, 2001

LT-607C, Steam Generator "C" Wide Range Level, dated April 13, 2001

LT-607D, Pressurizer Level, dated April 17, 2001

PI-607E-1, Pressurizer Pressure, dated April 13, 2001

PI-607E-2, Pressurizer Pressure, dated April 13, 2001

PT-607E, Pressurizer Pressure Transmitter, dated April 13, 2001

TI-410A, RCS Cold Leg Wide Range T Cold Temperature Channel 410 Temperature Indicator, dated September 10, 2000

TI-410B, RCS Cold Leg Wide Range T Cold Temperature Channel 410 Temperature Indicator, dated September 10, 2000

TI-410C, RCS Cold Leg Wide Range T Cold Temperature Channel 410 Temperature Indicator, dated September 10, 2000

TI-413A, RCS Hot Leg Wide Range Temperature T Hot Channel 413 Temperature Indicator, dated September 11, 2000

TI-413B, RCS Hot Leg Wide Range Temperature T Hot Channel 413 Temperature Indicator, dated September 11, 2000

TI-413C, RCS Hot Leg Wide Range Temperature T Hot Channel 413 Temperature Indicator, dated September 11, 2000

TM-410, RCS Cold Leg Wide Range T Cold Temperature Channel 410 Low Level Amplifier, dated September 10, 2000

TM-410A, RCS Cold Leg Wide Range T Cold Temperature Channel 410 Signal Isolator, dated September 10, 2000

TM-410B, RCS Cold Leg Wide Range T Cold Temperature Channel 410 Signal Isolator, dated September 10, 2000

TM-413, RCS Hot Leg Wide Range T Hot Temperature Channel 413 Low Level Amplifier, dated September 11, 2000

TM-413A, RCS Hot Leg Wide Range Temperature T Hot Channel 413 Signal Isolator, dated September 11, 2000

TM-413B, RCS Hot Leg Wide Range Temperature T Hot Channel 413 Signal Isolator, dated September 11, 2000

TR-410 Pen 1, RCS Cold Leg Wide Range T Cold Temperature Channel 410 Temperature Recorder, dated September 10, 2000

TR-410 Pen 2, RCS Cold Leg Wide Range T Cold Temperature Channel 420 Temperature Recorder, dated September 11, 2000

TR-410 Pen 3, RCS Cold Leg Wide Range T Cold Temperature Channel 430 Temperature Recorder, dated September 11, 2000

TY-410, RCS Cold Leg Wide Range T Cold Temperature Channel 410 Current Repeater, dated September 10, 2000

TY-413, RCS Hot Leg Wide Range Temperature T Hot Channel 413 Current Repeater, dated September 11, 2000

TR-413 Pen 1, RCS Hot Leg Wide Range Temperature T Hot Channel 413 Temperature Recorder, dated September 11, 2000

TR-413 Pen 2, RCS Hot Leg Wide Range Temperature T Hot Channel 423 Temperature Recorder, dated September 11, 2000

TR-413 Pen 3, RCS Hot Leg Wide Range Temperature T Hot Channel 433 Temperature Recorder, dated September 11, 2000

**Work Requests (WRs), Job Orders (JOs), Work Orders (WOs)**

WR/JO AAGQ 002, PM-209, dated November 11, 2000

WR/JO AAHC 001, PM-210, dated October 2, 1999

WR/JO AHTM 002, PM-124, dated October 10, 1999

WR/JO AHTP 002, PM-207, dated August 3, 2000

WR/JO AHZS 006, PM-459, dated February 16, 2000

WR/JO AHZS 007, PM-459/ PM-047, ELS Inspection 89-92, dated August 6, 2000

WR/JO AHZL 007, PM-459, ELS Inspection 53-56, dated July 6, 2000

WR/JO AHZV 008, PM-459, ELS Inspection 101-104, dated September 2, 2000

WR/JO AJXT 002, PM-447, dated September 7, 2000

WR/JO AJYY 002, PM-450, dated June 15, 2000

WR/JO 00-AACP1, Replaced Defective Bulb and Checked For Proper Indication, dated January 10, 2000

WR/JO 00-AAGX1, Replaced Defective Bulb, dated January 20, 2000

WR/JO 00-ABLI1, Replaced Defective Bulb And Checked For Proper Indication, dated April 4, 2000

WO 00055050, Emergency Light Inspection of ELS-89

WO 00058959, Replace & Test ELS 1,2,3,8,4, PM-047

WO 00060526, Inspect all Emergency Lights for Proper Orientation, dated November 15, 2001

WO 64395 01 , Replacement of Emergency Diesel Fire Pump (EDFP) Batteries

WO 64395 02 , Functional Test of Replacement Battery (MST-912)

WO 64395 03 , Start of EDFP 2 times (Once per Battery Bank) (OST-603)

WO 00119923, Perform MST-913 EFP Battery (Quarterly), dated April 16, 2001

WO 00142227, Perform MST-913 EFP Battery (Quarterly), dated July 9, 2001

WO 00164533, Perform MST-913 EFP Battery (Quarterly), dated October 1, 2001

WO 00167359, Perform MST-912 EFP Battery (Weekly), dated October 21, 2001

WO 00169118, Perform MST-912 EFP Battery (Weekly), dated October 28, 2001

WO 00170573, Perform MST-912 EFP Battery (Weekly), dated November 15, 2001

WO 0018800601, DS UPS Suspected Of Having Blown Fuse, dated October 25, 2001

WO 0018800603, DS UPS Suspected Of Having Blown Fuse, dated November 8, 2001

**Audit and Assessment Reports**

CES Passport AR 10262, NEI Fire Protection Level 1 Self Assessment, June 12-16, 2000

R-FP-01-01, Robinson Fire Protection Program Assessment, dated February 8, 2001



RNAS 98-034, Independent Consultant's Audit of RNP Fire Protection, Dated April 15, 1998  
Self-Assessments 26232 and 24197, Appendix R and Safe Shutdown, September 4 - 11, 2001

**Action Requests (ARs)**

AR 0011028, Issues From NAS Assessment R-FP-99-01, dated February 23, 1999

AR 0011732, Unable to Hear PA Message, dated May 18, 1999

AR 0016374, NAS Assessment of Fire Protection Weaknesses R-FP-00-01-WI, dated  
November 28, 2001

AR 0023068, Engine Driven Fire Pump[ Unavailable Due To High Temperature, dated  
November 28, 2001

AR 0028217, Evaluate Deviations Noted in NFPA Cpde Compliance Documents, dated  
November 28, 2001

AR 0048918, Improvement Item - Review Drainage Methods, dated October 1, 2001

**ARs Written During This Inspection**

AR 0051866, Discrepancies from Fire Protection Walkdown with NRC

AR 0051868, Walkdown Items from NRC Inspection

AR 0051876, D.S. Lanterns Missing Straps

AR 0051878, Appendix R Safe Shutdown Documentation Discrepancies

AR 0051883, Improvements to DSP Procedures

AR 0051935, Training not Conducted on DSP-2 in Required Frequency

AR 0052033, Enhancements to OMM-003 Fire Pre-Plans

AR 0052045, Improvements to Radiation Survey Maps for Emergency Briefings

**Other Documents Reviewed**

DBD/R87038/SD16, "Electrical Power Distribution System", Rev 2

DBD/R87038/SD21, "Chemical and Volume Control System", Rev 3

ESR 00-00042, "Appendix R Analysis for Fire Area A and HVAC", Rev 0

FPP-RNP-100, "10 CFR 50 Appendix R Long-Term Compliance Safe Shutdown Component Index Document", Rev 6

FPP-RNP-150, "10 CFR 50 Appendix R Long-Term Compliance Safe Shutdown Cable Schedule Document", Rev 6

FPP-RNP-300, "10 CFR 50 Appendix R Section III.G Safe Shutdown Component/Cable Separation Analysis Document", Rev 6

UFSAR Section 5.4.6, Pressurizer

UFSAR Section 5.4.9, Safety and Relief Valves

UFSAR Section 7.4, Systems Required for Safe Shutdown

UFSAR Section 9.5.1, Fire Protection System

UFSAR Section 9.5.1C, Post-Fire Safe Shutdown Analysis Report