September 20, 1998

Carolina Power and Light Company
ATTN: Mr. James Scarola
Vice President - Harris Plant
Shearon Harris Nuclear Power Plant
P. O. Box 165, Mail Code: Zone 1
New Hill, NC 27562-0165

THIS IS A COPY

SUBJECT: SAFETY SYSTEM DESIGN AND PERFORMANCE CAPABILITY INSPECTION (NRC INSPECTION REPORT NO. 50-400/99-11)

Dear Mr. Scarola:

This refers to the inspection conducted on July 19 - 23 and August 2 - 6, 1999, at your Harris facility. This was a Safety System Design and Performance Capability Inspection which was performed in accordance with Inspection Procedure 71111.21 under the pilot plant study for the new inspection oversight process. The primary objective of this inspection was to assess the adequacy of calculations, analyses, and other engineering activities used to support operability and reliability of the high head safety injection (HHSI) and low head safety injection (LHSI) systems in the performance of the safety functions required by their design bases. The results of this inspection were discussed on August 6, 1999, with you and other members of your staff,

The inspection found that engineering activities supported the safe and reliable operation of the systems. No violations of NRC requirements were identified during the inspection.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

Sincerely,
ORIGINAL SIGNED BY
KERRY LANDIS

Kerry D. Landis, Chief
Engineering Branch
Division of Reactor Safety

Docket Nos. 50-400
License Nos. NPF-63

Enclosure: NRC Inspection Report

cc w/encl: (See page 2)

cc w/encl:
Terry C. Morton, Manager
Performance Evaluation and
Regulatory Affairs CPB 9
Carolina Power & Light Company
Electronic Mail Distribution

Chris L. Burton
Director of Site Operations
Carolina Power & Light Company
Shearon Harris Nuclear Power Plant
Electronic Mail Distribution

Bo Clark
Plant General Manager--Harris Plant
Carolina Power & Light Company
Shearon Harris Nuclear Power Plant
Electronic Mail Distribution

Donna B. Alexander, Manager
Regulatory Affairs
Carolina Power & Light Company
Shearon Harris Nuclear Power Plant
Electronic Mail Distribution

Johnny H. Eads, Supervisor
Licensing/Regulatory Programs
Carolina Power & Light Company
Shearon Harris Nuclear Power Plant
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

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

(cc w/encl cont'd)
Mel Fry, Director
Division of Radiation Protection
N. C. Department of Environmental
Commerce & Natural Resources
Electronic Mail Distribution

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

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

Chairman of the North Carolina
Utilities Commission
P. O. Box 29510
Raleigh, NC 27626-0510

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

Vernon Malone, Chairman
Board of County Commissioners
of Wake County
P. O. Box 550
Raleigh, NC 27602

Richard H. Givens, Chairman
Board of County Commissioners
of Chatham County
Electronic Mail Distribution

Distribution w/encl:
R. Laufer, NRR
PUBLIC

Distribution w/encl: (See page 4)

Distribution w/encl:
U. S. Nuclear Regulatory Commission
5421 Shearon Harris Rd.
New Hill, NC 27562-9998

OFFICE	RII:DRS	RII:DRS	RII:DRP	RII:DRS	RII:DRS	RII:DRS	RII:DRS
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DATE			4/ /0	4/ /0	4/ /0	4/ /0	
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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-400
License Nos.:	NPF-63
Report Nos.:	50-400/99-11
Licensee:	Carolina Power & Light Company (CP&L)
Facility:	Shearon Harris Nuclear Power Plant, Unit 1
Location:	5413 Shearon Harris Road New Hill, NC 27562
Dates:	July 19 - 23 and August 2 - 6 , 1999
Team Leader:	J. Lenahan, PE, Senior Reactor Inspector Engineering Branch Division of Reactor Safety
Inspectors:	W. Kleinsorge, PE, Senior Reactor Inspector M. Thomas, Senior Reactor Inspector C. Smith, PE, Senior Reactor Inspector J. Coley, Reactor Inspector A. Hutto, Resident Inspector (August 2 - 6 only)
Approved By:	Kerry D. Landis, Chief Engineering Branch Division of Reactor Safety

ENCLOSURE

ENCLOSURE

EXECUTIVE SUMMARY

Shearon Harris Nuclear Power Plant
NRC Inspection Report 50-400/99-11

This inspection included a review of the licensee's calculations, analyses, performance test procedures and other engineering documents that were used to support design and performance of the low head and high head safety injection systems during normal and accident or abnormal conditions. The inspection was performed in accordance with the new NRC regulatory oversight process using a risk-informed approach for selection of components and attributes for the inspection focus. The report covered a two-week period of inspection.

The inspection found that maintenance, testing, and operation of the low head and high head safety injection systems were consistent with the design and licensing basis. During this inspection the licensee initiated several Condition Reports which are listed in the Appendix. No violations were identified.

REPORT DETAILS

REACTOR SAFETY

CORNER STONES MITIGATING SYSTEMS

R21 SAFETY SYSTEM DESIGN

INTRODUCTION

The objective of this Safety System Design and Performance Capability Inspection was to assess the adequacy of calculations, analyses, other engineering documents, and maintenance practices that were used to support the performance of the low head safety injection (LHSI) function of the residual heat removal (RHR) system and the high head safety injection (HHSI) system during normal and accident or abnormal conditions. The inspection was performed by a team of inspectors that included a Team Leader, four Region II Specialist Inspectors, and a Resident Inspector. The systems, structures, and components (SSCs) examined during the inspection were selected by reviewing the licensee's probabilistic risk model to determine the dominant SSCs ranked by importance in their potential contribution to dominant accident sequences and/or initiators. Acceptance criteria utilized by the NRC inspection team included the Shearon Harris Technical Specifications (TS), applicable sections of the updated Final Safety Analysis Report (UFSAR), Section 11 of the American Society of Mechanical Engineers (ASME) Code, industry initiatives implemented by the licensee, licensee procedures, and the design bases for the systems. Prior to this inspection, the licensee performed a self-assessment which included review of the design and licensing basis of the LHSI and HHSI systems.

SYSTEM REQUIREMENTS

WATER SOURCE

Inspection Scope

The team conducted a walk down inspection of the "A" train RHR and "B" train safety injection (SI) systems to verify that a sufficient quantity of borated water will be available and unimpeded during accident/event conditions for the HHSI and LHSI systems. The team reviewed the calculations for sizing the refueling water storage tank (RWST) and establishing various level requirements in the RWST to verify that sufficient quantities of water are available for accident and normal operating conditions, and calculation SC-N-157 which established RWST level instrumentation setpoints. The team also reviewed the results of monthly surveillance tests performed in accordance with OST -1107 which verifies that the ECCS piping is full of water, thereby reducing potential for occurrences of a water hammer during system initiation, and tests performed in accordance with MST-1004 which demonstrate that RWST level transmitters calibrations are accurate.

Observations and Findings

There were no findings identified and documented during this inspection.

ELECTRICAL POWER SOURCE

POWER SUPPLY TO PUMP MOTORS

Inspection Scope

The team reviewed the pump performance curve for RHR pump 1B-SB to verify that the LHSI pump motors had been adequately sized based on process system parameters. The team performed alternate calculations in order to verify that the HHSI pump motors had been adequately sized and the plant electrical distribution system would be adequate for motor operation during a design basis loss of coolant accident (LOCA). Using applicable design input information from Calculation E-6000, Auxiliary System Load Study, the team performed alternate calculations to evaluate the capability of the plant electrical distribution system to support operation under the most degraded voltage condition and to verify that the plant electrical distribution system would be adequate for LHSI and HHSI motor operation during a LOCA.

Observations and Findings

There were no findings identified and documented during this inspection.

CONTROL SYSTEM

CHARGING / SAFETY INJECTION SYSTEM OPERATION

Inspection Scope

The team reviewed design output documents and calculations to verify that the control system logic generated by the volume control tank (VCT) level switches and the engineered safeguard "S" signal enabled the charging/safety injection pumps (CSIPs) to take suction from the VCT during normal conditions and from the RWST during accident conditions. The team reviewed the logic for the VCT level transmitters 1-LT 112 and 1-LT115 which provide the control signals which automatically realign the suction of the from the VCT to the RWST by closing motor operated valves (MOVs) 1CS-165 and 1CS-166.

Observations and Findings

There were no findings identified and documented during this inspection.

COLD LEG RECIRCULATION PHASE

Inspection Scope

The team reviewed design output documents and calculations to verify that the control circuit protection logic which provide control signals to open containment sump isolation valves 1SI-

300, 1SI-301, 1SI-310, and 1SI-311 and align the two RHR pumps to take suction from the containment sump during the recirculation phase following a design base accident were adequate.

Observations and Findings

There were no findings identified and documented during this inspection.

TRANSITION FROM INJECTION TO RECIRCULATION PHASE

Inspection Scope

The team reviewed design output documents and calculations to verify that the control systems provide desired control during transition from the injection phase to the recirculation phase during accident conditions. The team reviewed the electrical interlock of the RHR to CSIP isolation valves 1RH-25 and 1RH-63 to verify that controls permitted the operators to manually isolate the RWST from the RHR pumps and align them to deliver flow to the CSIP suction header as specified in system description SD-111.

Observations and Findings

There were no findings identified and documented during this inspection.

OPERATOR ACTIONS

Inspection Scope

The team reviewed operating procedures for transferring emergency core cooling systems (ECCS) from injection phase to cold leg recirculation phase, and between cold leg and hot leg recirculation, to verify that the procedures specify correct operator actions, and can be performed in the time required as described in the UFSAR. The team performed a walkdown of the reactor turbine gauge board (RTGB) in the control room to verify that instrumentation and alarms for RWST level, VCT level, SI and RHR flows and pressures were available and adequate for the operators to make the necessary decisions during performance of the emergency operating procedures (EOPs), and that placement of controls and indications allowed operators to perform the required actions in the times specified in the USFAR.

Observations and Findings

There were no findings identified and documented during this inspection.

ENVIRONMENTAL QUALIFICATION

Inspection Scope

The team reviewed environmental qualification data packages (EQDP) No. 3.3, Motorized Valve Operators, Revision 15, for motor operated valve (MOV) numbers 1CS-165, 1CS-166, 1CS-291,

1CS-292 1SI-1, 1SI-2, 1SI-3, 1SI-4, 1RHR-25 and 1RHR-63 to verify the MOVs met the qualification requirements of 10 CFR 50.49. The team also reviewed EQDP No. 4.10, Pump Motors, Revision 12, to verify that RHR pump motors P1A-SARH and P1B-SBRH and centrifugal charging pump motors P1A-SA, P1B-SB, and P1C-SAB were qualified to the requirements of 10 CFR 50.49.

Observations and Findings

There were no findings identified and documented during this inspection.

EQUIPMENT PROTECTION

FREEZE PROTECTION

Inspection Scope

The team conducted a walk down inspection of the RWST and associated piping subject to freezing, and reviewed the UFSAR, system descriptions, vendor manuals, licensee procedures, and design basis calculations to verify that freeze vulnerable portions of the high head injection flow path (RWST to the Reactor Vessel (RV) via the CSIPs) and the low head injection flow path (RWST to the RV via the RHR pumps) were protected from freezing,

Observations and Findings

There were no findings identified and documented during this inspection.

FLOOD PROTECTION

Inspection Scope

The team conducted a walk down inspection in the reactor auxiliary building and the service water tunnel and examined the LHSI and HHSI systems to verify equipment were not subjected to damage resulting from internal flooding (e. g. pipe breaks). The team reviewed the internal flooding analysis design calculations performed to demonstrate that safety related equipment in the reactor auxiliary building was not vulnerable to internal flooding. The team also reviewed the design basis for the plant site to veriy that the reactor auxiliary building and service water tunnel was not vulnerable to external flooding events.

Observations and Findings

There were no findings identified and documented during this inspection.

HEAT REMOVAL

LHSI SYSTEM

Inspection Scope

The team conducted a walk down inspection of the "A" RHR pump room, the "A" RHR heat exchanger room, the Component Cooling Water (CCW) system train "A" loop (the cooling source for the RHR heat exchangers), and reviewed the UFSAR, system descriptions, vendor manuals, licensee procedures, and design basis calculations to verify that adequate provisions have been made to remove heat from the low head injection flow path.

Observations and Findings

There were no findings identified and documented during this inspection.

HHSI SYSTEM

Inspection Scope

The team conducted a walk down inspection of the CSIP rooms, the Engineered Safety Feature Ventilation (ESFV) system (the cooling source for CSIP rooms) and the Essential Services Chilled Water (ESCW) system (the cooling source for the ESFV system), and reviewed the UFSAR, system descriptions, vendor manuals, licensee procedures, and design basis calculations to verify that adequate provisions have been made to remove heat from the high head injection flow path.

Observations and Findings

During review of procedures and alarm setpoints, the team made the following observation: The high temperature alarms for the CSIP rooms were set at 104 EF. An instrument uncertainty of 3.4 EF existed for the instrumentation. When considering instrument uncertainty, it is possible that the alarm may not actuate until the temperature is actually above the 104 EF limit set in PLP 114, Attachment 4. The licensee entered this issue into their corrective action program in CR HNP 99-02173.

There were no findings identified and documented during this inspection.

SYSTEM CONDITION AND CAPACITY

INSTALLED CONFIGURATION

Inspection Scope

The team conducted walk down inspections of selected portions of the RHR, ESFVS, ESCW, CCW, SI, and Containment Spray (CS) systems, and reviewed the UFSAR, system descriptions, vendor manuals, licensee procedures, and design basis calculations to verify the high head and

low head injection flow paths installed configuration complied with design requirements and will support system operation under accident condition. The Team also reviewed the in-service inspection (ISI) program to verify that weld integrity was monitored by the licensee for suction piping from the RWST to the CSIPs and the RHR pumps, common failure mode piping welds and injection piping connected to the reactor coolant (RC) system that would be susceptible to thermal stresses were also examined.

Observations and Findings

There were no findings identified and documented during this inspection.

MAINTENANCE

CHECK VALVES

Inspection Scope

The team reviewed the maintenance work history and the surveillance test results for the last three years for risk significant check valve numbers 1CS-294, 1CS-775, 1CS-776, !RH-34, 1RH-70, 1SI-320, 1SI-321, 1SI-346 and 1SI-347 to verify the valves were operable and would perform their intended safety function.

Observations and Findings

There were no findings identified and documented during this inspection.

MANUAL VALVES

The team reviewed the work history and completed surveillance test procedures OST-1814, OST-1008 and OST-1092 for the last five years for manual valves RH-19 and RH-57 (RHR pump discharge valves) to verify these valve were operable and would perform their safety function.

Observations and Findings

There were no findings identified and documented during this inspection.

AIR OPERATED VALVES

Inspection Scope

The team reviewed the maintenance work history for the previous three years for air operated valves (AOVs) numbers 1RH-20, 1RH-30, 1RH-58, and 1RH-66. The team also reviewed the maintenance work history for the instrument air system supply for these AOVs.

Observations and Findings

There were no findings identified and documented during this inspection.

SYSTEM OPERATION

Inspection Scope

The team conducted walk down inspections of selected portions of the HHSI and LHSI systems. During the walk down, valve positions were examined and compared to drawings and the control room indication to verify system alignment was in accordance with operational requirements.

Observations and Findings

There were no findings identified and documented during this inspection.

DESIGN ISSUES

Inspection Scope

The team reviewed corrective actions developed by the licensee for condition reports (CRs) numbers HNP98-02211, HNP98-02267, and HNP96-00889 to verify that the root cause analysis, extent of condition review, and developed corrective appropriately resolved design issues. The team also reviewed the results of the licensee's pre-inspection self-assessment of the LHSI and HHSI systems, self-assessments performed within the engineering organization, and Nuclear Assessment Section reports to verify assessment findings were documented and dispositioned within the licensee's corrective action program.

Observations and Findings

There were no findings identified and documented during this inspection.

TESTED PARAMETERS

SURVEILLANCE TESTING

Inspection Scope

The team reviewed surveillance test procedures to verify that requirements for boration flow path, safety injection time response, and ECCS subsystem operability were incorporated correctly in the test procedures and to verify that test acceptance criteria were consistent with the TS and UFSAR requirements. The inspection team also reviewed completed surveillance test data to verify that selected risk significant components in the RHR/LHSI system and the chemical and volume control (CVCS)/HHSI system were capable of performing their safety function within the time specified.

Observation and Findings

There were no findings identified and documented during this inspection.

INSERVICE TESTING OF PUMPS

Inspection Scope

The team reviewed surveillance test procedures and test data for the CSIP numbers 1A-SA, 1B-SB, and 1C-SAB and RHR pumps 1A-SA and 1B-SB to verify that the pumps and valves test acceptance criteria were in accordance with the licensing and design basis requirements and that quarterly operability tests were performed satisfactorily for the pumps.

Observation and Findings

There were no findings identified and documented during this inspection.

INSERVICE TESTING OF VALVES

Inspection Scope

The team reviewed surveillance test procedures and test data for MOV numbers 1CS-165, 1CS-166, 1CS-291, 1CS-292, 1RH-25, 1RH-63, 1SI-300, 1SI-301, 1SI-310, 1SI-311, 1SI-340, and 1SI-341 to verify:

- that the MOVs were included in the licensee's Generic Letter (GL) 89-10 MOV program and were being maintained and tested in accordance with the guidance specified for the GL 89-10 MOV program.

- that MOV setup calculations appropriately considered the most limiting design basis conditions (including degraded voltage, motor torque requirements, and maximum differential pressure) in the sizing of the MOV actuators.

Observation and Findings

There were no findings identified and documented during this inspection.

COMPONENT INSPECTION

DEGRADATION MECHANISMS

Inspection Scope

The team performed an in-depth inspection of the RWST; Train A CCW heat exchanger, Train A RHR heat exchanger; charging pump 1A-SA, area cooling unit AH-9(1A-SA); charging pump SAB area cooling unit AH-10(1A-SA); charging pump SA area cooling unit AH-9(1B-SB); and charging pump ASB area cooling unit AH-10(1B-SB), and reviewed the UFSAR, system descriptions, vendor manuals, licensee procedures, and design basis calculations to verify the high head and low head injection flow path piping and components had been maintained to verify that design assumptions have been maintained and potential degradation mechanisms were monitored or prevented.

Observation and Findings

There were no findings identified and documented during this inspection.

SEISMIC QUALIFICATION

Inspection Scope

The team examined 14 pipe supports on the LHSI and HHSI piping systems between the RWST and RHR and charging pumps to verify the supports were installed in accordance with applicable design requirements and that seismic qualification of the piping systems was being maintained. The team also reviewed engineering service request (ESR 97-00676) and verified that a modification which resulted in an increased valve weight on the HHSI piping was evaluated and approved by the designer, Westinghouse.

Observation and Findings

There were no findings identified and documented during this inspection.

CONFIGURATION

MOTOR OPERATED VALVES

The team performed alternate calculations for AC MOV actuator motors in order to determine the minimum available motor output torque assuming motor control center (MCC) minimum transient voltage and the minimum available motor output torque assuming MCC minimum steady state voltage. The results from the alternate calculations were compared with the licensee's calculations. Alternate calculations were performed for the following MOVs :

- Boron injection tank inlet and outlet isolation valves 1SI-1, 1SI-2, 1SI-3, and 1SI-4
- RHR to CSIP suction isolation valves 1RHR-25 and 1RHR-63.
- RWST to CSIP valves 1CS-291 and 1CS-292
- VCT outlet isolation valves 1CS-165 and 1CS-166

Observations and Findings

There were no findings identified and documented during this inspection.

CONTAINMENT SUMP

Inspection Scope

The team reviewed a minor modification performed in accordance with Engineering Service Request No. 97-00429 to verify that design attributes / assumptions not verified by testing had been determined through inspection or maintenance activities to insure that this modification did not change the drain grid design criteria. In addition, the team reviewed the sump inspections conducted in accordance with CP&L procedure OST-1803 to verify that the sump was inspected each refueling outage and any other time the sump is opened for work.

Observations and Findings

There were no findings identified and documented during this inspection.

COMPONENT INPUTS/OUTPUTS

Inspection Scope

Maintenance history and test procedures were reviewed to verify adequate pump flow for both the HHSI and LHSI pumps.

Observation and Findings

There were no findings identified and documented during this inspection.

PROCUREMENT

Inspection Scope

The team reviewed procurement documentation for replacement of the shaft, suction impeller, intermediate impeller and several small piece parts such as shaft keys on the B CSIP which had previously experienced vibration problems. This work had been performed during refueling outage 8 .

Observation and Findings

There were no findings identified and documented during this inspection.

OPERATING EXPERIENCE

Inspection Scope

The team reviewed NRC Information Notices (IN) numbers 97-76 and 98-22 to verify that the licensee appropriately considered impact of operating experience problems on the affected components.

Observation and Findings

There were no findings identified and documented during this inspection.

V. MANAGEMENT MEETINGS

EXIT MEETING SUMMARY

The Team Leader discussed the progress of the inspection with licensee representatives on a daily basis and presented the results to members of licensee management and staff at the conclusion of the inspection on August, 6, 1999. The licensee acknowledged the findings presented.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

D. Alexander, Manager, Regulatory Affairs
B. Clark, General Manager, Harris Plant
A. Cockerill, Superintendent, I&C Electrical Systems
J. Eads, Supervisor, Licensing and Regulatory Programs
G. Kline, Manager, Harris Engineering Support Services
S. O'Connor, ECCS Supervisor
J. Scarola, Vice President, Harris Plant
J. Turner, HHSI System Engineer
V. Stephenson, Mechanical Engineering Superintedent
M. Wallace, Senior Analyst, Licensing
M. Worth, LHSI System Engineer

Other licensee employees contacted included engineers, Nuclear Assessment personnel and administrative personnel.

NRC:

J. Brady, Senior Resident Inspector
R. Hagar, Resident Inspector
K. Landis, Chief, Engineering Branch, Division of Reactor Safety

LIST OF INSPECTION PROCEDURES USED

IP 71111.21, Safety System Design and Performance Capability

LIST OF ITEMS OPENED, CLOSED, OR DISCUSSED

NONE

APPENDIX

LIST OF DOCUMENTS REVIEWED

PROCEDURES

EGR-NGGC-0101, Electrical Calculation of Motor Output Torque for AC and DC Motor Operated Valves(MOVS), Revision 3.

EGR-NGGC-0106, AC and DC Over Current Protection and Coordination, Revision 2

EGR-NGGC-0203, Motor-Operated Valve Performance Prediction, Actuator Settings, and Diagnostic Test Data Reconciliation, Revision 7

EOP-EPP-008, SI Termination, Revision 10

EOP-EPP-010, Transfer to Cold Leg Recirculation, Revision 11

EOP-EPP-011, Transfer Between Cold Leg and Hot Leg Recirculation, Revision 10

EPT-033, Emergency Safeguards Sequencer System Test, Revision 20

EPT-054, Essential Services Chilled Water Flow Balancing (Individual Air Handler Throttle Valve Settings), Revision 10

EPT-404, Charging Safety Injection Pumps Curve Verification Test, Revisions 3 & 4

EPT-835, Temporary Procedure for Charging Safety Injection Pump B-SB Performance Verification Test, Revision 0

EST-206, ECCS Flow Balance, Revision 9

EST-301, Engineered Safety Features Response Time Evaluation Safety Injection

EST-313, Engineered Safety Features Response Time Evaluation Switchover to Recirculation Sumps With SI, Revision 7

EST-316, Emergency Sequencer System 1A-SA Response Time Test, Revision 14

HNP-IST-002, HNP IST Program Plan - 2nd Interval, Revision 1

ISI-800, Inservice Testing of Pumps, Revision 10

ISI-801, Inservice Testing of Valves, Revision 15

MST-I004, Calibration of Refueling Water Storage Tank Level, Revision. 5

OMM-001, Conduct of Operations, Revision 3

OP-107, Chemical and Control System, Revision 24

OP-110, Safety Injection, Revision 14

OP-111, Residual Heat Removal System, Revision 16

OP-161.01, Operations Freeze Protection and Temperature Maintenance Systems, Revision 10

OP-172, Reactor Auxiliary Building HVAC System, Revision 14

OST-1007, CVCS/SI System Operability Train A Quarterly Interval Modes 1-4, Revision 17

OST-1008, 1A-SA RHR Pump Operability Quarterly Interval Modes 1-2-3, Revision 11

OST-1021, Daily Surveillance Requirements Daily Interval Mode 1, 2, Revision 27

OST-1022, Daily Surveillance Requirements, Revision 25

OST-1041, A Train HVAC Safety Related ERCW TCVs IST Operability Test Quarterly Interval Modes 1-6, Revisions 4 & 7

OST-1044, ESFAS Train A Slave Relay Test Quarterly Interval Modes 1-4, Revision 13

OST-1092, 1B-SB RHR Pump Operability Quarterly Interval Modes 1-2-3, Revision 7

OST-1093, CVCS/SI System Operability Train B Quarterly Interval Modes 1-4, Revision 14

OST-1094, Sequencer Block Circuit and Containment Fan Cooler Testing Train A Quarterly Interval All modes, Revision 6

OST-1095, Sequencer Block Circuit and Containment Fan Cooler Testing Train B Quarterly Interval All modes, Revision 8

OST-1107, ECCS Flow Path and Piping Filled Verification Monthly Interval Modes 1-2-3-4-5, Revision 14

OST-1108, RHR Pump Operability Quarterly Interval Mode 4, 5, and 6, Revision 9

OST-1505, Boric Acid Flow Path Check Valve IST Test Quarterly Interval, Revision 7

OST-1506, Reactor Coolant System Isolation Valve Leak Test, Revision 7

OST-1508, Operability Test for 1CS-167, 1CS-775, & 1CS-776, Revision 6

OST-1513, Operability Test for 1CS-294, 1CS-775, and 1CS-776, Revision 1

OST-1801, ECCS Throttle Valve, CSIP, and Check Valve Verification 18 Month Interval Mode 6, Defueled, Revision 15

OST-1803, Containment Sump Visual Inspection, Revision 5

OST-1813, Remote Shutdown System Operability 18 Month Interval Modes 5, 6, of Defueled, Revision 14

OST-1823, 1A-SA Emergency Diesel Generator Operability Test 18 Month Interval Modes 5 & 6, Revision 12

OST-1824, 1B-SB Emergency Diesel Generator Operability Test 18 Month Interval Modes 5 & 6, Revision 15

OST-1825, Safety Injection: ESF Response Time, Train A 18 Month Interval on Staggered Test Basis Mode 5 - 6, Revisions 9 & 10

OST-1826, Safety Injection: ESF Response Time, Train B 18 Month Interval on Staggered Test Basis Mode 5 - 6, Revision 13

OST-1852, Backseat Testing of 1SI-320 and 1SI-321, Revision 2

PLP-106, Technical Specification Equipment List Program and Core Operating Limits Report, Revision 20

PLP-112, Motor Operated Valve Program, Revision 13

PLP-114, Relocated Technical Specifications and Design Basis Requirements - Attachment 4 Area Temperature Monitoring, Revision 7

PMM-014, Limitorque Inspection and Lubrication, Revision 16

RST-201, Boron Concentration Surveillance of Boric Acid and Refueling Water Storage Tank, Revisions 7 & 8

TMM-133, SI Thermal Stratification Monitoring Program, Revision 0

TMM-406, Analysis and Trending of NRC Generic Letter 89-10 Applicable Motor Operated Valves, Revision 8

DRAWINGS

Drawing No. 0354-00212-013, Revision 3, General Purpose Head, Hex Nipple, thermocouple, Mounting Bracket

Drawing No. 20625-HT-18751A, Sheet 18, Revision 1, Heat Tracing System Freeze Protection Refueling Water Storage Tank

Drawing No. 20625-HT-18751A,, Sheet 17, Revision 5, Heat Tracing System Freeze Protection Refueling Water Storage Tank

Drawing No. 20625-HT-18751A, Sheet 16, Revision 4, Heat Tracing System Freeze Protection Refueling Water Storage Tank

Drawing No. 20625-HT-18751N&P, Sheet 1, Revision 4, Heat Tracing System Freeze Protection Refueling Water Storage Tank

Drawing No. 20625-HT-18751N&P, Sheet 2, Revision 5, Heat Tracing System Freeze Protection Refueling Water Storage Tank

Drawing No. 20625-HT-18751N&P,, Sheet 3, Revision 4, Heat Tracing System Freeze Protection Refueling Water Storage Tank

Drawing No. 2165-G-116, Revision 13, Containment Spray Piping Reactor Auxiliary Building Plan - El 190.00'

Drawing No. 2165-G-117, Revision 12, Containment Spray Piping Reactor Auxiliary Building Plan - El 236.00'

Drawing No. 2165-G-151, Revision 22, RHR & Safety Injection Piping Reactor Auxiliary Building Plan - El 190.00' & 216.00'

Drawing No. 2165-G-250, Revision 20, Reactor Auxiliary Building Tank Area Plans

Drawing No. 2165-G-805, Revision 22, Flow Diagram Chemical & Volume Control System

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Calculation No. E2-0005.09, Degraded Grid appropriately considered the most limiting design basis conditions Voltage Protection for 6.9KV Busses 1A-SA & 1B-SB, Revision 1.

Calculation No. E-6000, Auxiliary System Load Study, Revision 6.

Calculation No. E5-0001, Analysis of Motor Output Torque for AC Motor Operated Valves, Revision 4.

Calculation No. EQS-2, Refueling Water Storage Tank Level Setpoint, Revision 6.

Calculation No. HNP-I/INST-1046, Volume Control Tank Pressure & Level, Revision 1.

Calculation No. CC-0020, Component Cooling Water System Performance, Revision 1

Calculation No. CT-30, Containment Spray Switchover Calculation, Revision 2

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Calculation No. NSSS-38, RHR Heat Exchanger and Pump Cooling Water Outlet Temperature, Revision 2

Calculation No. NSSS-0056, Post -LOCA Containment Sump Boron Concentration, Revision 0

Calculation No. PRA-F/E-4, RAB Unit 1 Elev. 190 and 216 Flood Analysis

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Calculation No. SC-N-157, RWST Level L- 0990 (Scaling Calculation), Revision 3

Siemens Engineering Calculation E-5850-592-3, Revision 1, Disposition of Events for Harris Cycle 9 for Changed HHSI Curve

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DBD-202, Plant Electrical Distribution System, Revision 6.

DBD-104, Safety Injection System Design Basis Document, Revision 5

DBD-105, Residual Heat Removal System Design Basis Document, Revision 3

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System Descriptions

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SD-111, Residual Heat Removal System, Revision 9.

SD-112, Containment Spray System, Revision 8.

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SD-145, Component Cooling Water System, Revision 5

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ESR 9700620, Revision 1, “B” CSIP Vibration Trending to High, Replace Rotating Element

ESR 9700429, Revision 0, Containment Recirculation Sump Modification

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BULLETINS / INFORMATION NOTICES

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NRC Information Notice 97-76, Degraded Throttle Valves in Emergency Core Cooling Systems Resulting from Cavitation-Induced Erosion During a Loss-of-Coolant Accident

NRC Information Notice 98-22, Deficiencies Identified During NRC Design Inspections

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HNP 98-02911, 1CS-480 Failed Stroke Time in OST-1106

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HNP 99-01938, ECCS Flow Balance Procedure

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