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

July 10, 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 COMPONENT DESIGN BASIS INSPECTION REPORT 05000400/2008006

Dear Mr. Duncan:

On May 29, 2008, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your Shearon Harris reactor facility. The enclosed inspection report documents the inspection findings, which were discussed onsite, May 16, 2008, and again by teleconference on May 29, 2008, with members of your staff.

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

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

Binoy B. Desai, Chief
Engineering Branch 1
Division of Reactor Safety

Docket No.: 50-400
License No.: NPF-63

Enclosure: Inspection Report 05000400/2008006
w/Attachment: Supplemental Information

cc w/encl: (See next page)

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SUNSI REVIEW COMPLETED 7/10/2008 /Binoy Desai/

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Report to Robert J. Duncan from Binoy B. Desai dated July 10, 2008.

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT - NRC COMPONENT DESIGN BASIS INSPECTION REPORT 05000400/2008006

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	50-400
License No.:	NPF-63
Report No.:	05000400/2008006
Licensee:	Carolina Power and Light (CP&L) Company
Facility:	Shearon Harris Nuclear Power Plant, Unit 1
Location:	5413 Shearon Harris Road New Hill, NC 27562
Dates:	April 14, 2008 through May 29, 2008
Inspectors:	R. Lewis, Senior Reactor Inspector (Lead) R. Berryman, P.E., Senior Reactor Inspector C. Even, Reactor Inspector B. Mooney, Reactor Inspector C. Baron, Contract Inspector J. Leivo, Contract Inspector
Approved by:	Binoy B. Desai, Chief Engineering Branch 1 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000400/2008006; 04/14/08 - 05/29/08; Shearon Harris Nuclear Power Plant, Unit 1; Component Design Basis Inspection.

This inspection was conducted by a team of four NRC inspectors from the Region II office, and two NRC contract inspectors. There were two findings of very low safety significance (i.e., Green) identified by the activities covered in this inspection. 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 may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," (ROP) Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XI, Test Control, for incorrect test acceptance criteria for Emergency Service Water (ESW) pump discharge check valves 1SW-9 and 10 during test procedure OST-1214/1215, ESW System Operability Train A/B Quarterly Interval Modes 1-2-3-4-5-6-Defueled. This finding was entered into the licensee's corrective action program as condition report NCR 277362. The procedure was immediately placed on hold and planned corrective actions included revision of the ESW pump test procedures to directly observe absence of reverse rotation of the ESW pumps to verify adequate performance of the ESW pump discharge check valves.

  This finding is more than minor because if left uncorrected, it would become a more significant safety concern since the test procedure could have allowed an inoperable check valve to satisfactorily pass surveillance testing. Specifically, test criteria established would not ensure that the safety objective of preventing pump reverse rotation was achieved. The inspectors assessed the finding using the SDP and determined that the finding was of very low safety significance (Green) because the deficiency did not result in the ESW pumps being inoperable. (Section 1R21.2.2)

- Green. The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion III, Design Control, for failure to translate critical design attributes into drawings and the as-built condition of the plant. As a result, the fuel and air supplies to the emergency diesel generators (EDGs) were susceptible to risk from impingement due to potential structural failures of a wall for two external events, tornado and seismic.

  This finding is more than minor because it impacts the mitigating systems' cornerstone objective of ensuring the availability, reliability, and capability of systems needed to mitigate the consequences of an accident. The inspectors assessed the finding using the SDP and determined that the finding was of very low safety significance (Green) because the deficiency, although sufficient to exceed the critical deflection limits and result in cracking, was analyzed to not result in catastrophic collapse. This issue is documented in the corrective action program as NCRs 276674, 277720, and 279326. (Section 1R21.2.9)

B. Licensee-Identified Violations

None

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R21 Component Design Bases Inspection (71111.21)

.1 Inspection Sample Selection Process

The team selected risk significant components and operator actions for review using information contained in the licensee's Probabilistic Risk Assessment (PRA). In general, this included components and operator actions that had a risk achievement worth factor greater than two or Birnbaum value greater than 1 $X10^{-6}$. The components selected were located within the Essential Service Water (ESW), Auxiliary Feedwater (AFW), Component Cooling Water (CC), Residual Heat Removal (RH), Instrument Air (IA), Reactor Coolant (RCS), Emergency Diesel Generator (EDG), Heating/Ventilation/Air Conditioning (HVAC), Reactor Water Make Up (RWMU), and Reactor Protection (RPS) Systems. The sample selection included 20 components, 5 operator actions, and 4 operating experience items. Additionally, the team reviewed 2 modifications by performing activities identified in IP 71111.17, "Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications."

The team performed a margin assessment and detailed review of the selected risk-significant components to verify that the design bases have been correctly implemented and maintained. This design margin assessment considered original design issues, margin reductions due to modification, or margin reductions identified as a result of material condition issues. Equipment reliability issues were also considered in the selection of components for detailed review. These included items such as failed performance test results, significant corrective action, repeated maintenance, maintenance rule (a)1 status, RIS 05-020 (formerly GL 91-18) conditions, NRC resident inspector input of problem equipment, system health reports, industry operating experience and licensee problem equipment lists. Consideration was also given to the uniqueness and complexity of the design, operating experience, and the available defense in depth margins. An overall summary of the reviews performed and the specific inspection findings identified is included in the following sections of the report.

.2 Results of Detailed Reviews

.2.1 1SW-E041/42, Essential Service Water (ESW) Pump Discharge Strainer and Downstream Isolations

a. Inspection Scope

The team reviewed the Technical Specifications (TS), Updated Final Safety Analysis Report (UFSAR), Design Basis Documents (DBDs), drawings, calculations, maintenance records, and operating procedures to verify the capability of the ESW pump discharge strainers and isolation valves to perform the intended function during design basis events. The team reviewed associated electrical loading studies to verify that the strainer electrical load was taken into account during response to design basis events. This review was also conducted to verify that the licensee's analytical methods were appropriate. Plant procedures were reviewed to verify that design assumptions and limitations were translated to operational and testing procedures. A system walk down

was also conducted to verify that the observable material condition would support the design operation, component configurations were being maintained consistent with design assumptions, and the equipment was adequately protected from external events. The team also reviewed maintenance and corrective action history and interviewed plant personnel to verify that potential degradation was being monitored or prevented and that component replacement was consistent with qualification life.

b. Findings

No findings of significance were identified.

.2.2 1SW-9/10, ESW Pump Discharge Check Valves

a. Inspection Scope

The team reviewed the TS, UFSAR, design drawings, and calculations to verify the appropriateness of design assumptions, boundary conditions, and models. This review was also conducted to verify that the licensee's analytical methods were appropriate. The team performed procedure reviews to verify that design assumptions and limitations were translated to operational and testing procedures. Plant personnel were interviewed and a system walk down was conducted to verify that the observable material condition would support the design operation, component configurations were being maintained consistent with design assumptions, and the equipment was adequately protected from external events. The team also reviewed maintenance and corrective action history to verify that potential degradation was being monitored or prevented and that component replacement was consistent with qualification life.

b. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XI, Test Control, for incorrect test acceptance criteria for ESW pump discharge check valves 1SW-9 and 10.

Description: The inspectors identified an incorrect acceptance criterion in test procedures OST-1214 and 1215, which contained provisions for testing the closing function of check valves 1SW-9 and 10. 1SW-9 and 10 were identified by the licensee's in-service testing (IST) program as having a safety function to close in order to prevent reverse flow through the ESW pumps which could cause reverse rotation of the pumps during starting. The ESW pumps are not designed to start with the rotating element rotating in the reverse direction. OST-1214 and 1215 measured the pressure upstream and downstream of check valves 1SW-9 and 10 to determine the differential pressure (dP) across the check valves. The acceptance criterion was defined as a dP value of greater than or equal to 14 psid to ensure check valve closure. These criteria had been in place since initial operation. The licensee did not have a calculation that supported the selection of 14 psid.

The inspectors noted that the design of the ESW pump traveling screens would allow debris sized as large as 7/16 inch to reach the valve. 1SW-9 and 10 are 30 inch dual plate check valves. The inspectors determined that 7/16 inch debris blocking the closing of the two check valve plates would allow significant flow rates with a dP across the valve of 14 psid. A maximum reverse flow value through the ESW pump to preclude reverse rotation had not been determined by the licensee.

Analysis: The inspectors determined that failure to use adequate acceptance criteria for ensuring 1SW-9 and 10 would close sufficiently to prevent reverse ESW pump rotation was a performance deficiency. The inspectors concluded that the finding was more than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," because if left uncorrected, it would become a more significant safety concern since the test procedure could have allowed an inoperable check valve to satisfactorily pass surveillance testing. The inspectors assessed the finding using IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At – Power Situations" and determined that the finding was of very low safety significance (Green) because the deficiency did not result in the ESW pumps being inoperable. This was based upon the inspectors' observation that the ESW pumps were not rotating in the reverse direction with expected dP values across 1SW-9 and 10. Additionally, the inspectors found no documented history of any ESW pump rotating in the reverse direction. This finding was reviewed for cross-cutting aspects and none were identified.

Enforcement: 10 CFR 50, Appendix B, Criterion XI, Test Control, states, in part, that test programs shall be established to assure that all testing required to demonstrate that structures, systems and components will perform satisfactorily in service. Contrary to the above, the licensee did not establish an adequate test control program for EFW check valves in that the test acceptance criteria did not precluded reverse EFW pump rotation and assure that check valves 1SW-9 and 10 would perform its intended design function. Because this finding is of very low safety significance and was entered into the licensee's corrective action program as NCR 00277362, this violation is being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. This finding is identified as NCV 05000400/2008006-01, Failure to use Appropriate Acceptance Criteria for Testing Check Valves 1SW-9 and 10.

.2.3 1AF-68/87/106, Steam Generator (SG) Auxiliary Feed Water (AFW) Header Check Valves

a. Inspection Scope

The team reviewed the TS, UFSAR, design drawings and calculations to verify the appropriateness of design assumptions, boundary conditions, and models. This review was also conducted to verify that the licensee's analytical methods were appropriate. The team performed procedure reviews to verify that design assumptions and limitations were translated to operational and testing procedures. Plant personnel were interviewed and a component walk down was conducted to verify that the observable material condition would support the design operation, component configurations were being maintained consistent with design assumptions, and the equipment was adequately protected from external events. The team also reviewed maintenance and corrective action history to verify that potential degradation was being monitored or prevented and that component replacement was consistent with qualification life.

b. Findings

No findings of significance were identified.

.2.4 1RH-HXB, B-Train Residual Heat Exchanger

a. Inspection Scope

The team reviewed the TS, UFSAR, and associated design and licensing information to verify that design bases and design assumptions have been appropriately translated into supporting documentation. Calculations and associated design basis analyses were reviewed to verify minimum CC flow and maximum CC supply temperature to the heat exchanger under accident conditions were consistent with performance requirements and operating procedures. These reviews were also intended to verify that component performance requirements are consistent with accident analyses and that inputs and assumptions are appropriate. Operating procedures for aligning RH heat exchanger during post-accident cooldown were reviewed to verify that operation of that component was consistent with design basis requirements and analyzed conditions. System health reports were reviewed to asses the material condition of the component and identify any known issues. A system walkdown was performed to verify those material conditions and to confirm that system configuration has been maintained to support design assumptions.

b. Findings

No findings of significance were identified.

.2.5 1CC-147/167, CC RH Heat Exchanger Isolation Motor Operated Valves (MOVs)

a. Inspection Scope

The team reviewed TS, UFSAR, and design basis documentation, including applicable MOV calculations and analysis, to confirm the valve was capable of functioning under design conditions. In addition, the team selectively reviewed valve motor electrical calculations to confirm that the design basis minimum voltage at the motor terminals would be adequate for starting and running. The team also selectively reviewed the thermal overload bypass circuits used by the licensee to satisfy RG 1.106, “Thermal Overload Protection for Electric Motors on Motor-Operated Valves.” Control wiring diagrams were reviewed to confirm the interlocks and functional requirements were properly implemented, and that circuit configurations for redundant valves satisfied design and licensing basis criteria for single failure, independence, and separation. Diagnostic and in-service test (IST) results were reviewed to verify acceptance criteria were met and performance degradation would be identified. The team also performed a walkdown to assess observable material condition and to verify that the system configuration was consistent with design basis assumptions.

b. Findings

No findings of significance were identified.

.2.6 1CC-129/186/194/294/313, CC Relief Valves

a. Inspection Scope

The team reviewed the TS and UFSAR to verify the design basis relative to system relief valves. The basis documents for setpoints and capacities of relief valves were also reviewed to verify their capability to prevent overpressure. Changes to relief valve setpoints were reviewed to verify code compliance and to verify valves will not remain

open under accident/transient conditions. Operating procedures were reviewed in order to verify recovery of the CC system due to potential failures of these devices was addressed. System health reports and recent corrective action documentation were reviewed to confirm that adverse trends were identified and/or monitored. The team integrated that information into the results of a walkdown to verify that the material condition of the components, as well as the installed configuration, supported design requirements. Surveillance test procedures and results were reviewed to verify that appropriate acceptance values were translated from design basis documentation and that the system was operating within expected limits.

b. Findings

No findings of significance were identified.

.2.7 1RH-1/2/39/40, RCS Loop to RH Isolation MOVs

a. Inspection Scope

The team reviewed the TS, UFSAR, and design basis documentation, including applicable MOV calculations and analysis, to confirm the valve is capable of functioning under design conditions. In addition, the team selectively reviewed valve motor electrical calculations to confirm that the design basis minimum voltage at the motor terminals would be adequate for starting and running. The team also selectively reviewed the thermal overload bypass circuits used by the licensee to satisfy RG 1.106, “Thermal Overload Protection for Electric Motors on Motor-Operated Valves.” Control wiring diagrams were reviewed to confirm the design basis assumptions related to interlocks and functional requirements were properly implemented, and that circuit configurations for redundant valves satisfied design and licensing basis criteria for single failure, independence, and separation. Diagnostic and in-service testing (IST) results were reviewed to verify acceptance criteria were met and performance degradation would be identified. The team also performed a walkdown to verify that the material condition supported design assumptions and that system configuration had been maintained to support design assumptions.

b. Findings

No findings of significance were identified.

.2.8 1RC-123/125/127, Pressurizer Safety Valves

a. Inspection Scope

The inspection team reviewed design basis information within the TS and UFSAR. Design basis setpoint requirements along with the most recent calibration data were reviewed to verify that design basis requirements were met. Operating procedures were reviewed for monitoring of safety valve operation during both normal and post-accident operation to verify that safety valves close when required and contingency actions are appropriate. Surveillance test procedures and the most recent results were reviewed to verify that design basis requirements were met and that trends were monitored. System health reports and corrective action documents were reviewed to verify that the material condition of the component was known and any adverse conditions or trends were appropriately addressed.

b. Findings

No findings of significance were identified.

.2.9 EDG Air Start System

a. Inspection Scope

The team reviewed the TS, UFSAR and design basis requirements to verify that system requirements were adequately translated into the as-built design. The team reviewed available calculations and testing data in support of design characteristics to verify that assumptions and methods were appropriate. The team reviewed surveillance test procedures and results to verify that system operation supported applicable design requirements. A walkdown was performed to verify that observable degradation was identified and reported as appropriate, and that system protection from external events and missile hazards was appropriate. The team performed a detailed review of the capacity of the air start system, including the acceptance criteria of the system leakage tests. A review of corrective action program history was performed to verify that emerging issues were properly identified and addressed.

b. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion III, Design Control, for failure to analyze an interior wall structure for impact from a tornado induced differential pressure and ensure construction of the same structure in accordance with the assumptions of the seismic analysis of record.

Description: Elevated masonry block internal walls serve to create a removable divide between the fuel oil day tank rooms and the areas containing the emergency diesel generator (EDG) air start equipment within the EDG building. Interior building walls were documented in UFSAR section 9.5.8 as having a design differential pressure to withstand capability of 2 psid for protection against the differential pressure effects of a design basis tornado event. Additionally, seismic limitations identified in the seismic calculation of record, CAR-C-0091, “Analysis of Safety Related Block Walls,” Revision 3, for this particular wall required vertical structural steel I-beam reinforcements, rigidly applied on the centerline so as to reduce an effective horizontal free span of 10 feet to only 5 feet.

The inspection team’s inquiries revealed that no analysis had been performed for the tornado loading conditions. Further, gaps which the team pointed out on accompanied walkdowns were not consistent with rigidly constrained design assumptions supporting the wall’s satisfactory performance (i.e., reducing the available free span) within the seismic calculation of record. Following the team’s identification of these concerns, the licensee subsequently determined that the walls would exceed their design limits (modulus of rupture), and may crack under design basis conditions, but would not fail catastrophically due to the post-rupture support provided by the beams as the wall’s displacement closed the gaps. The licensee performed a modification (EC 70186) to add shim plates to the reinforcement steel in the areas with the largest gaps (previously measuring approximately 1/2-inch).

The inspectors, assisted by NRC headquarters staff within the civil/mechanical design engineering branch, reviewed the methodology used for the licensee’s analyses in support of EDG operability given the degraded, nonconforming block wall, and concluded that these analyses provided reasonable assurance of operability. During the inspection, the licensee initiated NCR 276674, to address the lack of a tornado pressure load

analysis; NCR 277720, to address the gap between the block walls and the existing structural steel reinforcements; and NCR 279326, to address the gaps between the block walls the modified structural steel reinforcements as well as the gaps between the outer edges of the block walls and the existing structural steel reinforcements. They have initiated actions to modify the block wall design and/or revise their licensing basis, redo the applicable design analyses, and perform an extent of condition review.

Analysis: The failure to translate critical design attributes into drawings and the as-built condition of the plant is a performance deficiency. This finding is more than minor because it impacts the mitigating systems' cornerstone objective relative to the availability, reliability, and capability of systems needed to mitigate the consequences of an accident. Specifically, the structural integrity of the wall during external events is designed to protect the EDG fuel oil supply from the day tank, which is routed through the poured concrete wall just below the masonry segment, as well as the air start complex, which is located in relatively close proximity. The inspectors assessed the finding using the SDP and determined that the finding was of very low safety significance (Green) because the deficiency, although sufficient to exceed the critical deflection limits and result in cracking, was analyzed to not result in catastrophic collapse. The finding was reviewed for cross-cutting aspects and none were identified.

Enforcement: 10 CFR 50, Appendix B, Criterion III, Design Control, requires that measures shall be established to assure that applicable regulatory requirements and design basis are correctly translated into specifications, drawings, and instructions. Contrary to the above, measures failed to assure that the design basis was correctly translated into specifications, drawings and instructions, in that the licensee had failed to evaluate the wall for dp effects and failed to ensure the design basis assumption of a five foot free span for the seismic qualification calculation of the EDG interior walls was translated into drawings and specifications for the as-built condition of the plant. Consequently, the as-built walls were not consistent with the seismic design basis. Additionally, there was no verification of the walls' capability to withstand a design basis tornado event. Because this finding is of very low safety significance and was entered into the licensee's corrective action program as NCRs 276674, 277720, and 279326, this violation is being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. This finding is identified as NCV 05000400/2008006-02, Failure to Correctly Translate Design Requirements into Plant Construction Details of Masonry Block Walls.

.2.10 HVAC for 6.9kV Switchgear Rooms

a. Inspection Scope

The team reviewed applicable design basis information to verify that requirements for system operability in support of safety related functions within the switchgear rooms were adequately translated into as-built design, as well as to system operation. A walkdown and interviews were conducted to verify that system performance and configuration was appropriate to support design considerations and that no security modifications had impacted the system's ability to satisfy those requirements. A review of corrective action history was performed to confirm that issues were identified at the appropriate threshold and adequately addressed. A review of related modifications was performed to confirm that such modifications did not negatively impact the required capabilities.

b. Findings

No findings of significance were identified.

.2.11 3DW-533, 1DW-2/8, PM-138, Demin Water to RWST Flowpath

a. Inspection Scope

The inspectors reviewed the TS, FSAR and plant operating procedures to verify the flowpath and its relevant requirements. The team performed a walkdown of the flowpath and its components to verify material condition and system configuration and lineup. Maintenance records and corrective action history for the components was reviewed to confirm that the components would be capable of performing their needed functions in a manner which supports operational requirements. The team also interviewed operations and engineering personnel regarding the off-normal scenarios that might require the use of this flowpath.

b. Findings

No findings of significance were identified.

.2.12 LI-670/676, CCW Surge Tank Level Instruments

a. Inspection Scope

The team reviewed requirements from the UFSAR, DBD, and operating procedures, to confirm that the low level alarm and indication would perform in accordance with these requirements, and to confirm that appropriate allowance was provided for instrument uncertainty. The team reviewed instrument installation details, CCW surge tank details, loop diagrams, scaling / uncertainty calculations, calibration procedures, and a sample of past calibration results to confirm the instruments were providing remote indication and alarms consistent with operational requirements, and that corrective actions were being identified and dispositioned when necessary. The team performed a plant walkdown of the components to review visible material condition, actual readings, and vulnerability to common cause failures resulting from hazards or degradation mechanisms, including those posed by non-safety circuits or devices. A review of selected maintenance and corrective action history was performed to confirm that adverse conditions were being appropriately identified and addressed.

b. Findings

No findings of significance were identified.

.2.13 LI-01FW-0473/4/5/6SBW (80&90series) SG Narrow Range Level Indication

a. Inspection Scope

The inspection team reviewed requirements from the TS, UFSAR, and operating procedures to confirm that the narrow range level indication would perform in accordance with these requirements, and to confirm that appropriate allowance was provided for instrument uncertainty and process effects. The team selectively reviewed instrument installation details, steam generator configuration drawings, loop diagrams, scaling calculations, uncertainty calculations, and associated emergency operating procedure (EOP) setpoint calculations to confirm that the scaling and setpoints were consistent with the configuration, and that process effects and other uncertainties identified by industry operating experience had been properly considered. The team reviewed calibration procedures and a sample of calibration results to confirm the instruments were providing

remote indication consistent with operational requirements, and that corrective actions were being identified and dispositioned when necessary. The team selectively reviewed plant drawings and design details to assess vulnerability to common cause failures resulting from hazards or degradation mechanisms, including those posed by non-safety circuits or devices. A review of selected maintenance and corrective action history was performed to confirm that adverse conditions were being appropriately identified and addressed. The team also reviewed licensee actions in response to a 10 CFR 21 notification initiated for Barton differential pressure instruments, to confirm that the actions were appropriate.

b. Findings

No findings of significance were identified.

.2.14 FIS-602A/B, Residual Heat Removal Pump 1A/B Flow Indication Switches

a. Inspection Scope

The team reviewed requirements from the UFSAR and design basis documents to confirm the high and low flow interlocks and indication would perform in accordance with these requirements and to confirm that appropriate allowance was made for instrument uncertainty and process effects. Process information, piping isometric drawings, and scaling were reviewed to verify the consistency of the instrument and process configuration with assumptions or design inputs associated with scaling, uncertainty, and calibration. Control wiring diagrams were reviewed to verify the low and high flow interlocks would satisfy functional requirements associated with design basis accident analyses. The team reviewed calibration and test procedures and a sample of results to confirm the instruments were performing in accordance with functional requirements, and that corrective actions were being identified and dispositioned when necessary. A walkdown of the flow orifices and interfacing process piping configuration was performed to confirm there was sufficient unobstructed straight run upstream and downstream consistent with instrument uncertainty assumptions, and that observable impulse lines were properly sloped and configured from the process to the instruments. The team performed walkdowns to confirm the adequacy of the visible external material condition of the flow indicating switches, impulse lines, and appurtenances. Maintenance and corrective action history were selectively reviewed to verify that component degradation was being identified and corrected at the appropriate threshold and interval.

b. Findings

No findings of significance were identified.

.2.15 EDG Emergency Safeguards Sequencer (System 5096)

a. Inspection Scope

The inspection team reviewed the TS, UFSAR, and DBDs to verify that the EDG sequencer would perform in accordance with these requirements. The team selectively reviewed the sequence time intervals for consistency with assumptions contained in the accident analysis and electrical loading calculations, including allowance for device repeatability. The logic diagrams, control wiring diagrams, and a sample of surveillance test procedures were selectively reviewed to assess vulnerability to common cause failures and failures undetectable by testing. The team selectively reviewed calibration and test procedures and a sample of results to confirm the sequencer and devices were

performing in accordance with functional requirements, and that corrective actions were being identified and dispositioned when necessary. A walkdown of the sequencer cabinets and relays was performed to assess visible material condition and circuit separation, as well as potential vulnerability to external hazards and temperature effects. Maintenance and corrective action history were selectively reviewed to verify that component degradation was being identified and corrected at the appropriate threshold and interval.

b. Findings

No findings of significance were identified.

.2.16 Anticipated Transient Without Scram (ATWS) Mitigating System Actuation Circuitry (AMSAC)

a. Inspection Scope

The team reviewed the licensee's commitments for ATWS and AMSAC to confirm that AMSAC would perform in accordance with these requirements, and selectively reviewed vendor documentation that included evidence of verification and validation of the software. The team reviewed control wiring diagrams to confirm the required diversity with RPS, as well as a sample of programmable logic controller (PLC) ladder logic to confirm that functional requirements were satisfied. In conjunction with review of steam generator level, the team reviewed the scaling and uncertainty calculations supporting the low level input to AMSAC, to confirm that the setpoint basis was consistent with the ATWS analysis and that instrument uncertainties and process effects had been appropriately considered. The team selectively reviewed calibration and test procedures and a sample of results to confirm the AMSAC system was performing in accordance with functional requirements, and that corrective actions were being identified and dispositioned when necessary. A walkdown of the AMSAC rack mounted hardware was performed to assess visible material condition. Maintenance and corrective action history were selectively reviewed to verify that component degradation was being identified and corrected at the appropriate threshold and interval.

b. Findings

No findings of significance were identified.

.2.17 EDG Output Breaker

a. Inspection Scope

The team reviewed TS, UFSAR and associated design and licensing basis documents to verify breaker response expectations were consistently applied. Electrical control schematic diagrams were reviewed in order to verify the logic of operation satisfies the requirements described in the design documentation. Differential and overcurrent protection relays were reviewed to verify that the breaker response expectations are translated into protective device settings. A walkdown was performed to verify that there was no visible degradation and the installed configuration was consistent with the design expectations. Surveillance and preventative maintenance (PM) acceptance criteria were reviewed to verify that the acceptance criteria were consistent with the design calculations and assumptions. Corrective action and maintenance history were reviewed to verify that the breakers will respond appropriately when called upon and that issues were identified at appropriate thresholds and tracked to resolution. The component was

reviewed with respect to its maintenance rule category to verify that appropriate and effective maintenance is being performed to support operational expectations.

b. Findings

No findings of significance were identified.

.2.18 Safety Injection (SI) Reset

a. Inspection Scope

The inspection team reviewed the licensing and design basis documents, as well as operational procedures, supporting SI reset. Control Wire Diagrams and PLC ladder diagrams were reviewed to verify that the circuit satisfies the operational requirements described in the bases. Voltage calculations were reviewed to confirm that relays and associated components will operate under all plausible accident or event conditions. Vendor manuals were reviewed to confirm that licensee programs and procedures incorporate relevant vendor recommendations, or are sufficiently justified in their exclusion. Test acceptance criteria were reviewed to verify consistency with design requirements, measurability, and repeatability. A walkdown was performed to verify no visible signs of degradation and that the installed configuration is as specified in the design documentation. The Solid State Protection System (SSPS) logic card replacement program was reviewed to verify that the program meets all vendor recommendations including periodicity, storage and handling. Maintenance and corrective action histories were reviewed to confirm that issues were being raised at the appropriate thresholds, actions were taken appropriate to the circumstance, and accountability for action item closure was being maintained.

b. Findings

No findings of significance were identified.

.2.19 RTA/B & BYA/B-CUB:002, Reactor Trip and Bypass Breakers

a. Inspection Scope

The team reviewed licensing and design basis documents, as well as operating procedures, pertinent to the reactor trip and bypass breakers. Control Wire Diagrams were reviewed to confirm that operational requirements are supported in the circuit construct, including appropriate interlocks. Relevant calculations were reviewed to confirm that pertinent values were transcribed to appropriate design and operational documents. Undervoltage and shunt trip relay design, and settings were reviewed to verify that they are adequate for performing the design basis functions. Surveillance testing and preventative maintenance acceptance criteria were reviewed to verify their consistency with relevant derived or assumed design basis values. A walkdown was performed to verify the physical condition of the components and their support structures are not degraded to such an extent as to conceivably affect operations. Licensee operational and maintenance procedures were reviewed in context of the appropriate vendor manuals to verify that recommendations were incorporated or that a proper engineering evaluation supports an alternate course of action. Select component modifications were reviewed to confirm that performance capability had not been degraded through such modifications. Maintenance and corrective action histories were reviewed to verify that issues were being identified at the appropriate level and managed by the licensee in compliance with program requirements and reasonable expectation.

b. Findings

No findings of significance were identified.

.2.20 CO-E027/42/43, Air Compressor Control Circuit and Logic Interlocks

a. Inspection Scope

The team reviewed TS, UFSAR, design drawings and calculations, vendor documentation, and plant procedures to verify the appropriateness of design assumptions, boundary conditions, as well as the appropriateness of the licensee's analysis methods. This review was also intended to verify that the process medium would be available and unimpeded during accident/event conditions to the extent necessary to support the equipment's safety functions. Control wire diagrams were reviewed to verify that energy sources, including those used for control functions would be available and adequate during accident/event conditions to the extent necessary to support the equipment's safety functions. The team reviewed plant procedures to verify that design assumptions and limitations were translated into operational and testing procedures. Surveillance and testing data was reviewed to confirm the design basis was met by the installed and tested configuration and that acceptance criteria for tested parameters were supported by calculations or other engineering documents. Plant personnel were interviewed and a component/system walk down was conducted to verify that the observable material condition supports its design operation, and component configurations have been maintained consistent with design assumptions. Plant use of the component was reviewed to verify that component operation and alignments were consistent with design and licensing basis assumptions. The team reviewed maintenance and corrective action history to verify that potential degradation was being monitored or prevented and that component replacement interval was consistent with qualification life.

b. Findings

No findings of significance were identified.

.3 Review of Low Margin Operator Actions

a. Inspection Scope

The team performed a margin assessment and detailed review of five risk significant and time critical operator actions. Where possible, margins were determined by the review of the assumed design basis and UFSAR response times and performance times documented by job performance measures (JPMs). For the selected components and operator actions, the team performed an assessment of the Emergency Operating Procedures (EOPs), Abnormal Operating Procedures (AOPs), Alarm Panel Procedures (APPs), and other operations procedures to determine the adequacy of the procedures and availability of equipment required to complete the actions. Operator actions were observed on the plant simulator and during plant walk downs.

The following operator actions were observed on the licensee's operator training simulator:

- EOP actions for an anticipated transient without scram (ATWS) per EOP-FRP-S.1, Response to Nuclear Power Generation/ATWS
- EOP actions for an inadvertent safety injection per EOP-PATH-1
- AOP actions for a loss of component cooling water (CCW) per AOP-014, Loss of Component Cooling Water
- AOP actions for a loss of instrument air per AOP-017, Loss of Instrument Air

Additionally, the team walked down, "table-topped" and investigated the following operational scenarios:

- Actions to provide alternate cooling to the EDGs in the event of loss of ESW cooling per ISG-SAC, Safety AC Power

b. Findings

No findings of significance were identified.

.4 Review of Industry Operating Experience

a. Inspection Scope

The team reviewed selected operating experience issues that had occurred at domestic and foreign nuclear facilities for applicability at the Shearon Harris Nuclear Plant. The team performed an independent applicability review for issues that were identified as applicable to the plant and were selected for a detailed review. The issues that received a detailed review by the team included:

- LER 339-2007-003, Automatic Reactor Trip Due to Invalid Safety Injection Relay Actuations
- IN 00-21, Detached Check Valves Disc not detected by the use of Acoustic and Magnetic Non-Intrusive Test Techniques
- IN 2007-27, Recurring Events Involving Emergency Diesel Generator Operability
- LER 400-1990-018 and 1991-016, CCW Relief Valve Setpoint and Reseat Concerns

b. Findings

No findings of significance were identified.

.5 Review of Permanent Plant Modifications

a. Inspection Scope

The team reviewed two modifications related to the selected risk significant components in detail to verify that the design bases, licensing bases, and performance capability of the components have not been degraded through modifications. The adequacy of design and post modification testing of these modifications was reviewed by performing activities identified in IP 71111.17, Licensee Evaluation of Changes, Tests and Experiments and Permanent Plant Modifications, Section 02.02.b. Additionally, the team reviewed the modifications in accordance with IP 71111.17, Section 02.02.a, to verify the licensee had appropriately evaluated them for 10 CFR 50.59 applicability. The following modifications were reviewed:

- EC 65755, Correct FSAR Figure Error, Correct Open Flow &Tolerance for FIS-01RIH-0602ASAW & FIS-01RIH-0602BSBW Rev. 0
- EC 67237, Overload Relay Replacement Rev. 0

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA6 Meetings, Including Exit

Exit Meeting Summary

On May 16, 2008, the team presented preliminary inspection results to Mr. Burton and other members of the licensee's staff. The inspection was formally exited by teleconference on May 29, 2008, with Mr. Martin and other members of the licensee's staff. No proprietary information was identified or reviewed over the course of the inspection.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel
D. McGee, Manager Shift Operations
L. Martin, Acting Engineering Manager
D. Corlett, Licensing Supervisor
R. Prichard, Shift Technical Advisor
C. George, Balance of Plant Systems Supervisor
K. Long, Sr. Nuclear Work Management Specialist
C. Williams, Mechanical/Civil Design Supervisor
R. Atkins, Reactor Operator
J. Langness, Reactor Operator

NRC
P. O'Bryan, Senior Resident Inspector, Harris Nuclear Plant
M. King, Resident Inspector, Harris Nuclear Plant
G. Thomas, Structural Engineer, NRR
F. Farzam, Structural Engineer, NRR
M. Vaaler, Project Manager, NRR

LIST OF ITEMS OPENED, CLOSED, AND REVIEWED

Opened and Closed

05000400/2008006-01	NCV	Failure to use Appropriate Acceptance Criteria for Testing Check Valves 1SW-9 and 10
05000400/2008006-02	NCV	Failure to Correctly Translate Design Requirements into Plant Construction Details of Masonry Block Walls

LIST OF DOCUMENTS REVIEWED

Licensing Documents

CP&L Letter, Safety Review Questions Responses, August 2, 1982
LAP-83-447, Responses to Requests for Additional Information, September 30, 1983

Design Basis Documents

DBD-114, AFW System, Rev. 10
DBD-128, Service Water System, Rev. 15
DBD-131, Component Cooling Water System, Rev. 12
DBD-133, Compressed Air System, Rev. 11
DBD-201, Emergency Diesel Generator System, Rev. 8

Procedures

AOP-003, Malfunction of Reactor Makeup Control, Rev. 25
AOP-010, Feedwater Malfunctions, Rev. 31
AOP-014, Loss of Component Cooling Water, Rev. 30
AOP-017, Loss of Instrument Air, Rev. 26
AOP-017-BD, Loss of Instrument Air, Rev. 5

AOP-019-BD, Basis Document - Malfunction Of RCS Pressure Control, Rev. 6
APP-2, Auxiliary Control Panel, Rev. 16
APP-ALB-009, Main Control Board, Rev. 11
APP-ALB-016, Main Control Board, Rev. 17
CM-I0002, AC Limitorque Setup Check and Stroking, Sections 7.4, 7.7 [limit switch testing], Rev. 17
EDMG-001, Extreme Damage Event Initial Actions, Rev. 2
EGR-NGGC-0106, AC and DC Overcurrent Protection and Coordination, Section 9.6, MOV Motor Circuit Protection, Rev. 3
EOP-EPP-009, Post LOCA Cooldown and Depressurization, Rev. 13
EOP-EPP-010, Transfer to Cold Leg Recirculation, Rev. 21
EOP-FRP-S.1, Response to Nuclear Power Generation/ATWS, Rev. 15
EOP-GUIDE-1, PATH-1 Guide, Rev. 21
EPT-033, Emergency Safeguards Sequencer System Test, Rev. 31
EPT-163, Generic Letter 89-13 Inspections, Rev. 13
EST-201, ASME System Pressure Tests, Rev. 16
EST-203, Pressurizer Safety Valve Test, Rev. 11
EST-211, Auxiliary Relief Valve Testing, Rev. 35
EST-316, Emergency Safeguards Sequencer 1A-SA Response Time Test, Rev. 22
GP-007, Normal Plant Cooldown Mode 3 to Mode 5, Rev. 47
ISG-FAFC, Function Availability Flow Chart, Rev. 1
ISG-SAC, Safety AC Power, Rev. 7
LP-T-0469, Pressurizer Safety Valve Line Temperature, Rev. 5
LP-T-2006A, Steam Generator A Backleakage, Rev. 6
MNT-NGGC-0007, Foreign Material Exclusion Program, Rev. 6
MPT-E0005, Maintenance Periodic Test, Rev. 24
MPT-I0049, ATWS Mitigation System Actuation Circuitry Functional Tests, Rev. 10
MST-10072, Train A 18-Month Manual Reactor Trip, Solid State Protection System Actuation Logic & Master Relay Test, Rev. 30
MST-I0023, Steam Generator A Narrow Range Level (L-0474) Calibration, Rev. 13
MST-I0093, Auxiliary Feedwater Flow Loop (F-2050A) to Steam Generator A, Rev. 9
MST-I0178, Component Cooling Surge Tank – Tank 1 (L-0670) Calibration, Rev.12.
OMM-004, Post-Trip/Safeguards Actuation Review, Rev. 31
OP-102, Placing the RMWST Bypass Line in Service, Rev. 19
OP-111, Residual Heat Removal System, Rev. 39
OP-139, Service Water System, Rev. 67
OP-151.01, Compressed Air, Rev. 50
OPT-1523, ESW Strainer Actuation on High Differential Pressure Quarterly Interval Mode 1-4, Rev. 2
OST-1026, Reactor Coolant System Leakage Evaluation, Computer Calculation, Rev. 38
OST-1074, Motor Operated Valves Thermal Overload and Torque Switch Protection Bypass Test, 18 Month Interval Modes 1 – 6, Rev. 14
OST-1080, Auxiliary Feedwater Pump 1SX-SAB Full Flow
OST-1098, Emergency Diesel Generator Starting Air Drier Check Valve Operability Test, Rev 11
OST-1214, ESW System Operability Train A Quarterly Interval Modes 1-2-3-4-5-6-Defueled, Rev. 48
OST-1215, ESW System Operability Train B Quarterly Interval Modes 1-2-3-4-5-6-Defueled, Rev. 44
OST-1216, Component Cooling Water System Operability (A-SA AND B-SB Pumps In Service), Rev. 24
OST-1316, Component Cooling Water System Operability (Pump 1C-SAB In Service), Rev. 21
OST-1502, RHR Loop Suction Timing Test, Rev. 10
OST-1507, RHR Loop Isolation Valve Leak Test, Rev. 12

OST-1804, RHR Remote Position Indication And Timing Test, Rev. 15
OST-1839, Component Cooling Water Valve Remote Position Indication Test, Rev. 12
PIC-E069, Sequencer Electromechanical Timing Relays; DC Pick-Up, DC Drop-Out, AC Pick-Up, AC Drop-Out, Rev. 6
PIC-I032, ITT Barton Differential Pressure Indicating Switch Calibration Check and Calibration, Rev. 9
PLP-400, Post-Maintenance Testing, Attachment 1 [contact position check], Rev. 39

Completed Calibration and Test Procedures

EPT-033, Emergency Safeguards Sequencer System Test, completed March 26, 2008
EST-316, Emergency Safeguards Sequencer 1A-SA Response Time Test, completed October 5, 2007
MPT-I0049, ATWS Mitigation System Actuation Circuitry Functional Tests, completed October 20, 2007; April 13, 2006; October 19, 2004
MST-I0023, Steam Generator A Narrow Range Level (L-0474) Calibration, completed October 19, 2007; November 6, 2006; June 21, 2005.
MST-I0178, Component Cooling Surge Tank – Tank 1 (L-0670) Calibration, completed January 4, 2007 (WO 00721022); October 21, 2005 (WO 00491308); January 7, 2004 (WO 00274888, 00274889)
MST-I0179, Component Cooling Surge Tank – Tank 2 (L-0676) Calibration, completed February 15, 2008 (WOs 00869658, 00869656); November 6, 2006 (WO 00667352); January 20, 2005 (WO 0455588)
OST-1080, Auxiliary Feedwater Pump 1SX-SAB Full Flow completed September 5, 2007
OST-1214, ESW System Operability Train A Quarterly Interval Modes 1-2-3-4-5-6-Defueled, completed February 4, 2008; February 5, 2008; February 25, 2007; May 3, 2006; May 19, 2007, June 17, 2006; July 27, 2006; August 18, 2007; September 9, 2006; November 10, 2007; December 3, 2006
OST-1215, ESW System Operability Train B Quarterly Interval Modes 1-2-3-4-5-6-Defueled, completed January 17, 2007; February 15, 2008; March 11, 2008; March 17, 2008; April 17, 2007; May 16, 2006; July 6, 2007; July 29, 2006; September 24, 2007; October 21, 2006; December 29, 2007
PIC-E069, Sequencer Electromechanical Timing Relays; DC Pick-Up, DC Drop-Out, AC Pick-Up, AC Drop-Out, completed October 13, 2007; April 26, 2006; April 27, 2006
PIC-I032, ITT Barton Differential Pressure Indicating Switch Calibration Check and Calibration [FIS-602A], completed January 10, 2007; November 20, 2002; August 2, 2002
PIC-I032, ITT Barton Differential Pressure Indicating Switch Calibration Check and Calibration [FIS-602B], completed August 3, 2005; June 19, 2002

Drawings

1363-011923, Sheet 5, Level Systems Installation Schematic, Vertical Steam Generator, Rev. 9
1364-001328, Sheet 31, Process Control Block Diagram, CCW Surge Tank Level, Rev. 14
1364-001328, Sheet 7, Process Control Block Diagram, Steam Generator Level Protection, Rev 16
1364-001880, Nozzle Type Relief Valve, Rev. 3
1364-001898, Nozzle Type Relief Valve, Rev. 1
1364-002322, Sheet 1, Component Cooling Surge Tank, Rev. 4
1364-002322, Sheet 2, Component Cooling Surge Tank, Rev. 4
1364-002833, Nozzle Type Relief Valve, Rev. 0
1364-006318, ESW Self Cleaning Strainer Cross Section, Rev. 3
1364-007812, Jacket Water Piping Schem., Rev. 17
1364-007813, Diesel Generator Starting Air Piping Schem., Rev. 18
1364-007817, Lube Oil Piping Schem., Rev. 15

1364-007818, Diesel Generator Fuel Oil Piping Schem., Rev. 14
1364-011923, Sheet 18, Level Systems Installation Schematic, Component Cooling Surge Tank, Rev. 8.
1364-030321, Emerg Diesel Gen Start Air Dryer Flow Diag, Rev. 11
1364-045831, Sh. 20, SSPS Schematic Diagram, Rev. 5
1364-045841, Sh. 19, SSPS Schematic Diagram, Rev. 5
1364-046574, Sheet 19, Interconnecting Wiring Diagram, L-670
1364-047265, Westinghouse Specification Sheet 03810, Specification for Orifice Plates, Rev. 6
1364-097016, Flexonics Tied Expansion Joint Assembly, Rev. 1
1364-098014, Wafer Check Valve 30 IN 150 LB S.S, Rev. 0
1364-21620R2, 6”-900 Weld Ends Carbon Steel Swing Check Valve, Rev. B
1364-25900R6, Emergency Service Water Self Cleaning Strainer Outline – Unit 1, Rev. 7
2166-B-041, Sh. 125, Power Distribution & Motor Data 480V Emergency Bus 1A1, Rev. 13
2166-B-041, Sh. 1992, Diesel Generator 1A-SA Differential & Ground Fault Protection, Rev. 4
2166-B-041, Sh. 1994, Diesel Generator 1A-SA Protection & Instrumentation (Current), Rev. 7
2166-B-041, Sh. 91, Reactor Trip System, Rev. 7
2166-B-041, Sh. 92, Reactor Trip System, Rev. 7
2166-B-041, Sh. 93, Reactor Trip System, Rev. 7
2166-B-041, Sh. 94, Reactor Trip System, Rev. 7
2166-G-029, Main & 6900 Volt Auxiliary One Line Wiring Diagram, Rev. 15
CAR-2165-G-0049 Sheet 1, Flow Diagram – Potable & Demineralized Wtr Systems – Unit 1, Rev. 32
CAR-2165-G-0049 Sheet 2, Flow Diagram – Potable & Demineralized Wtr Systems – Unit 1, Rev. 24
CAR-2165-G-0299, Flow Diagram – Primary & Demineralized Wtr Systems – Reactor Auxiliary Building - Unit 1, Rev. 19
CAR-2165-G-047, Flow Diagram Circulating and Service Water Systems Sheet 1 Unit 1, Rev. 65
CAR-2165-G-133, Flow Diagram – Diesel Generator Systems, Rev. 14
CAR-2165-G-301, Flow Diagram Instrument Air System, Rev. 35
CAR-2165-G-801, Flow Diagram – Reator Coolant System – Sheet 2, Rev. 21
CAR-2165-G-819, Flow Diagram – Component Cooling Water System – Sheet 1, Rev. 27
CAR-2165-G-820, Flow Diagram – Component Cooling Water System – Sheet 2, Rev. 11
CAR-2165-G-821, Flow Diagram – Component Cooling Water System, Rev. 16
CAR-2165-G-822, Flow Diagram – Component Cooling Water System – Sheet 4, Rev. 18
CAR-2165-G-824, Flow Diagram – Residual Heat Removal System, Rev. 19
CAR-2166-B-060, Sheet 7D, Miscellaneous Electrical Details and Notes [separation], Rev. 8
CAR-2166-B-401 Sheet 2221, Emergency Service Water Pump 1A-SA Strainer 3SW-S21SA-1 and Valve 3SW-H2SA-1, Rev. 7
CAR-2166-B-401 Sheet 2222, Emergency Service Water Pump 1A-SA Strainer 3SW-S22SB-1 and Valve 3SW-H3SB-1, Rev. 7
CAR-2166-B-401 Sheet 2223, Control Wiring Diagram Emergency Service Water Pump 1A-SA Discharge Valves 3SW-B7SA-1 and 3SW-B105SA-1, Rev. 6
CAR-2166-B-401 Sheet 2224, Control Wiring Diagram Emergency Service Water Pump 1B-SB Discharge Valves 3SW-B9SB-1 and 3SW-B106SB-1, Rev. 6
CAR-2166-B-401, Sheet 1101, Control Wiring Diagram, Emergency Load Sequencer ESS Cabinet 1A-SA, Rev. 14
CAR-2166-B-401, Sheet 1102, Control Wiring Diagram, Emergency Load Sequencer ESS Cabinet 1A-SA, Rev. 13
CAR-2166-B-401, Sheet 1103, Control Wiring Diagram, Emergency Load Sequencer ESS Cabinet 1A-SA, Rev. 13
CAR-2166-B-401, Sheet 1104, Control Wiring Diagram, Emergency Load Sequencer ESS Cabinet 1A-SA, Rev. 11

CAR-2166-B-401, Sheet 1113, Control Wiring Diagram, Emergency Load Sequencer ESS Cabinet 1A-SA, Rev. 13
CAR-2166-B-401, Sheet 1124, Control Wiring Diagram, Emergency Load Sequencer ESS Cabinet 1A-SA, Rev. 8
CAR-2166-B-401, Sheet 1125, Control Wiring Diagram, Emergency Load Sequencer ESS Cabinet 1A-SA, Rev. 11
CAR-2166-B-401, Sheet 1126, Control Wiring Diagram, Emergency Load Sequencer ESS Cabinet 1A-SA, Rev. 10
CAR-2166-B-401, Sheet 1138, Control Wiring Diagram, Emergency Load Sequencer ESS Cabinet 1A-SA, Rev. 12
CAR-2166-B-401, Sheet 1139, Control Wiring Diagram, Emergency Load Sequencer ESS Cabinet 1A-SA, Rev. 10
CAR-2166-B-401, Sheet 1789, Control Wiring Diagram, Valve Overload & Torque Switch Bypass Relays – SA, Rev. 13
CAR-2166-B-401, Sheet 1936, ATWS Control Wiring Diagram, Rev. 0
CAR-2166-B-401, Sheet 317, Control Wiring Diagram, MOV 1CS-746, Rev. 9
CAR-2166-B-401, Sheet 318, Control Wiring Diagram, MOV 1CS-745, Rev. 9
CAR-2166-B-401, Sheet 319, Control Wiring Diagram, MOV 1CS-752, Rev. 10
CAR-2166-B-401, Sheet 320, Control Wiring Diagram, MOV 1CS-753, Rev. 8
CAR-2166-B-401, Sheet 323, Control Wiring Diagram, MOV FCV-602A, Rev. 17
CAR-2166-B-401, Sheet 324, Control Wiring Diagram, MOV FCV-602B, Rev. 17
CAR-2166-B-401, Sheet 325, Control Wiring Diagram, MOV 1RH-2, Rev. 22
CAR-2166-B-401, Sheet 326, Control Wiring Diagram, MOV 1RH-40, Rev. 26
CAR-2166-B-401, Sheet 327, Control Wiring Diagram, MOV 1RH-1, Rev. 24
CAR-2166-B-401, Sheet 328, Control Wiring Diagram, MOV 1RH-39, Rev. 27
CAR-2166-B-401, Sheet 329, Control Wiring Diagram, MOV 1RH-25, Rev. 21
CAR-2166-B-401, Sheet 330, Control Wiring Diagram, MOV 1RH-63, Rev. 21
CAR-2166-B-401, Sheet 952, Control Wiring Diagram, MOV ICC-147, Rev. 15
CAR-2166-B-401, Sheet 953, Control Wiring Diagram, MOV ICC-167, Rev. 19
CAR-2166-B-401, Sheet1145, Control Wiring Diagram, Emergency Load Sequencer ESS Cabinet 1A-SA, Rev. 17
CAR-2167-G-3040, Diesel Generator Building MAS – Sh. 1, Rev. 9
CAR-2167-G-3050, Diesel Generator Building MAS – Sh. 2, Rev. 7
CAR-2167-G-3060, Diesel Generator Building MAS – Sh. 3, Rev. 8
CAR-2167-G-3061, Diesel Generator Building MAS – Sh. 4, Rev. 9
CAR-2168-G-0498 Sheet 2, HVAC Essential Services Chilled Water Condenser Flow Diagram – Unit 1 - SA, Rev. 27
CAR-2168-G-0498 Sheet 3, HVAC Essential Services Chilled Water Cooling Water Flow Diagram – Unit 1 - SA, Rev. 12
CAR-2168-G-0498, HVAC Essential Services Chilled Water - Distribution Flow Diagram – Unit 1 - SA, Rev. 15
CAR-2168-G-0499 Sheet 2, HVAC Essential Services Chilled Water - Condenser Flow Diagram – Unit 1 - SB, Rev. 28
CAR-2168-G-0499 Sheet 3, HVAC Essential Services Chilled Water – Cooling Coils Flow Diagram – Unit 1 - SB, Rev. 11
CAR-2168-G-0499, HVAC Essential Services Chilled Water - Distribution Flow Diagram – Unit 1 - SB, Rev. 14
CAR-2168-G-0517, HVAC – Reactor Auxiliary Bldg. Switchgear & Protection Rm. Air Flow Diagram – Unit 1, Rev. 20
CAR-2168-G-0586, Diesel Generator Building – Plumbing & Drainage – Unit 1& 2, Rev. 7
CAR-2168-G-0599, Details – Plumbing & Drainage, Rev. 13
CAR-2168-G-0701 Sheet 30, Diesel Generator Bldg. – Units 1&2 - Plans, Rev. 2
CPL-2165-S-0134, Simplified Flow Diagram – Residual Heat Removal System, Rev. 11
CPL-2165-S-0544, Simplified Flow Diagram Feedwater System Unit 1, Rev. 41

CPL-2165-S-0547, Simplified Flow Diagram Circulating and Service Water Systems, Rev. 45
CPL-2165-S-0549 Sheet 1, Simplified Flow Diagram – Potable & Demineralized Wtr Systems – Unit 1, Rev. 29
CPL-2165-S-0549 Sheet 2, Simplified Flow Diagram – Potable & Demineralized Wtr Systems – Unit 1, Rev. 27
CPL-2165-S-0550, Simplified Flow Diagram Containment Spray System, Rev. 16
CPL-2165-S-0563, Simplified Flow Diagram – Diesel Fuel Oil System – Unit 1, Rev. 8
CPL-2165-S-0633 Sheet 1, Simplified Flow Diagram – Emergency Diesel Generator Lube Oil and Air Intake & Exhaust System – Unit 1, Rev. 11
CPL-2165-S-0633 Sheet 2, Simplified Flow Diagram – Emergency Diesel Generator 1A-SA & 1B-SB Jacket Water System – Unit 1, Rev. 10
CPL-2165-S-0633 Sheet 3, Simplified Flow Diagram – Emergency Diesel Generator 1A-SA & 1B-SB Fuel Oil and Drainage Systems – Unit 1, Rev. 9
CPL-2165-S-0633 Sheet 4, Simplified Flow Diagram – Emergency Diesel Generator 1A-SA & 1B-SB Starting Air System – Unit 1, Rev. 19
CPL-2165-S-0799, Simplified Flow Diagram – Primary & Demineralized Wtr Systems – Reactor Auxiliary Building – Unit 1, Rev. 13
CPL-2165-S-0801, Simplified Flow Diagram Instrument Air System, Rev. 0
CPL-2165-S-0998 Sheet 2, Simplified Flow Diagram – HVAC Essential Services Chilled Water Condenser – Unit 1 - SA, Rev. 20
CPL-2165-S-0998 Sheet 3, Simplified Flow Diagram – HVAC Essential Services Chilled Water - Distribution – Unit 1 - SB, Rev. 6
CPL-2165-S-0998, Simplified Flow Diagram – HVAC Essential Services Chilled Water Distribution – Unit 1 - SA, Rev. 7
CPL-2165-S-0999 Sheet 2, Simplified Flow Diagram – HVAC Essential Services Chilled Water - Condenser – Unit 1 - SB, Rev. 23
CPL-2165-S-0999 Sheet 3, Simplified Flow Diagram – HVAC Essential Services Chilled Water - Details – Unit 1 - SB, Rev. 8
CPL-2165-S-0999, Simplified Flow Diagram – HVAC Essential Services Chilled Water - Details – Unit 1 - SA, Rev. 9
CPL-2165-S-1301, Simplified Flow Diagram – Reactor Coolant System – Sheet 2 – Unit 1, Rev. 9
CPL-2165-S-1304, Simplified Flow Diagram Chemical and Volume Control System Sheet 2, Rev. 12
CPL-2165-S-1305, Simplified Flow Diagram Chemical and Volume Control System Unit 1, Rev. 21
CPL-2165-S-1319, Simplified Flow Diagram – Component Cooling Water System – Sheet 1 – Unit 1, Rev. 17
CPL-2165-S-1320, Simplified Flow Diagram – Component Cooling Water System – Sheet 2 – Unit 1, Rev. 3
CPL-2165-S-1321, Simplified Flow Diagram – Component Cooling Water System – Sheet 3 – Unit 1, Rev. 8
CPL-2165-S-1322, Simplified Flow Diagram – Component Cooling Water System – Sheet 4 – Unit 1, Rev. 10
ND-28404-02, 30 inch Wafer Sphere Valve Nuclear Class 3, Rev. H

Calculations

26-SKD, Emergency Diesel Generator Neutral Grounding, Rev. 1
4-RMB, High Resistance Grounding 6.9kV System, Rev. 3
9-RAB-6B, Switchgear Room “B” Ventilation System Served by AH-13, Rev. 2
AF-0023, AFW System Flow Rate Study, Rev. 2
CAR-C-0091, Analysis of Safety Related Masonry Walls, Rev. 3
CC-0008, Mechanical Analysis and Calculation for Gate Valve 1CC-147, Rev. 7

CC-0009, Mechanical Analysis and Calculation for Gate Valve 1CC-167, Rev. 7
CN-FSE-99-134, Component Cooling Water System Heat Load And Temperature Analysis - Shearon Harris Steam Generator Replacement/Uprating, Rev. 4
CN-FSE-99-136, RHR Cooldown Analysis for the Replacement Steam Generator and Uprating Program, Rev. 4
E2-017.2, Diesel Generator Differential Protection, Rev. 0
E2-017.6, Diesel Generator Voltage Controlled Overcurrent Protection, Rev. 0
E-2-018, UVGP and UVR1 Voltage Relays Diesel Generators (TDI), Rev. 0
E4-0008, 125VDC 1E Battery Sizing and Battery/Panel Voltages for Station Blackout, Rev. 5
E5-0001, Analysis of Motor Output Torque for AC Motor Operated Valves, Rev. 0
E-6000 Tab D, AC Distribution System Voltage/Load Flow/Fault Current, Rev. 9
E-6000, Pg. D29, Load Summary – EDG Scenarios, Rev. 9
E-6001 Addendum 7, Electrical Distribution System Load Factor Study, Rev. 4
E-6003, Emergency Power System Voltage Criteria, Rev. 7
EQS-0045, EDG Starting Air Check Valve Leakage Calculation, Rev. 1
ESR 9800217, SSPS Undervoltage Coil Minimum Voltage, Rev. 0
HNP-I/INST-1010, Evaluation of Tech Spec Related Setpoints, Allowable Values, and Uncertainties Associated with RTS / ESFAS Functions for Steam Generator Replacement.
HNP-I/INST-1014, ERG Footnotes M.03, M.11, Steam Generator Narrow Range Level, Rev. 0
RH-0008, Mechanical Analysis and Calculation for Gate Valve 1RH-1, Rev. 3
RH-0009, Mechanical Analysis and Calculation for Gate Valve 1RH-2, Rev. 4
RH-0011, Mechanical Analysis and Calculation for Gate Valve 1RH-39, Rev. 3
RH-0012, Mechanical Analysis and Calculation for Gate Valve 1RH-40, Rev. 4
SC-N-008, Process Instrumentation & Control Scaling Calculations, Component Cooling Surge Tank #1 Level LT-670, Rev. 2
SC-N-040, Process Instrumentation & Control Scaling Calculations, Steam Generator A Narrow Range Level, Rev. 13.
9-RAB-6A, Switchgear Room “A” Ventilation System Served by AH-12, Rev. 3
SW-0051, Emergency Service Water System Performance, Rev. 7

Corrective Action Documents

AR 00043580, B ESW Strainer Runs Continually after Calibration of PDS-9101B
AR 00052239-09, Reduced ECCS flow due to RHR mini-flow valve (NSAL 01-8)
AR 00055906, Steam generator mid-deck plate pressure loss issue (NSAL 02-03)
AR 00079228, [Medium voltage cable failures due to submergence]
AR 00081332, Steam generator water level control system uncertainty issue (NSAL 02-05)
AR 00089100, B ESW Strainer Cover Leak
AR 00091805, Thermocouples TE2006A1, A2, B1, B2, C1, C2 Displaying Data as Bad
AR 00091818, CCW Surge Tank Level Was Observed To Be Decreasing
AR 00096163, AOP-10 Entry due to AFW Backleakage
AR 00097954, A ESW Strainer Continuously Backflushing
AR 00106110, Steam generator water level uncertainties (NSAL-03-9)
AR 00112271, LT-676 was found out of allowable range during performance of MST-I0179.
AR 00123776, Relay LY/676C1 did not actuate during performance of MST-I0179
AR 00132022-09, Steam generator level process pressure effect on level uncertainty
AR 00140328, Active Leak At Packing Identified On Valve 1RH-40
AR 00148696, LR-670 had a broken latch that was removed and recorder was left in service without the seismic support of the latch
AR 00150110, ESW Strainer Frequent Backwashing
AR 00151186, ‘C’ Air Compressor Load/Unload Switch Found in ‘Load’, 2/16/05
AR 00152012, ‘C’ Air Compressor Tripping on Low Oil Pressure, 2/25/05
AR 00154927, T.S. 3.3.1 Item 20 Action 8 Two Hour Test Limit Exceeded, 3/29/05
AR 00157870, AOP-10 Entry due to AFW Backleakage

AR 00177046, 'B' Air Compressor Trip, 11/25/05
AR 00182855, SSPS Door Latch Bar Detached and Fell, 1/31/06
AR 00191183, 'C' Air Compressor Trip, 4/15/05
AR 00191878, B ESW Strainer Hand Hole Leak
AR 00191993, Faulty SSPS Isolation Board, 4/22/06
AR 00192504, Channel II Spray Test Failure during 'A' SSPS Testing, 4/27/06
AR 00193661, Active Leak At Packing Identified On Valve 1RH-40
AR 00194002, Rework Suspected for 1AF-87
AR 00195725, Prime (Barton) Pressure Transmitter Part 21
AR 00202357, 'B' Air Compressor Trip, 8/4/06
AR 00203882, ERFIS Point IDS "TFW 2006A through F" Steam Generator Backleakage Temperatures Displaying a Value of "NAN" (Not a Number) with a Quality of "Bad"
AR 00210447, 1SW-26 has Excessive Leak-by
AR 00211048, LT-676 was found out of allowable range during performance of MST-I0179.
AR 00219449, 'B' Air Compressor Failed to Load, 1/17/07
AR 00220768, 'A' sequencer load block failure during EPT-33
AR 00220923, Loose terminal lugs on UR1 relay on 'A' sequencer cabinet
AR 00222660, SSPS Output relay Continuity Test Relay Contacts Required, 2/15/06
AR 00224317, A-SA sequencer declared inoperable
AR 00224951, Failures of Potter & Brumfield MDR relates in EDG sequencers
AR 00225025, Sequencer 'A' UR2/SA failure to initiate load blocks 3, 4, 6, 7
AR 00225711, Reactor Coolant Piping Not Classified Correctly
AR 00233335, ATWS Panel Channel B Digital Indicator Erratic
AR 00235021, 'C' Air Compressor Trip, 6/6/06
AR 00239651, 'A' sequencer relay failure during testing
AR 00242330-09, Recurring Events Involving EDG Operability [disposition of NRC IN 2007-27]
AR 00251437, LT-487 Connector Assembly Bare Conductor
AR 00252335, 'B' Air Compressor Tripped When Changing CAS to Sequence 2, 10/27/07
AR 00258085, Steam Generator C Backleakage Computer Point
AR 00260706, Broken Bolt Was Discovered on the 'A' EDG Left Bank Turbo Intercooler Flange
AR 00263318, 'B' Air Compressor Failed to Start After Maintenance, 1/23/08
AR 01022223, AOP-10 Entry due to AFW Backleakage

Work Orders

00363789 01, Inspect 1EA-4 for Degradation, March 10, 2003
00405880 01, Verify 1CC-129 Blowdown Nozzle Ring, May 17, 2006
00405880 02, Verify 1CC-129 Blowdown Nozzle Ring, May 16, 2006
00405880 03, Verify 1CC-129 Blowdown Nozzle Ring, February 24, 2006
00405880 06, Verify 1CC-129 Blowdown Nozzle Ring, May 11, 2006
WO 00103137-01, Perform PM-E0005: 6.9kV EDG-B Output Breaker PM, 1/24/02
WO 00151754-01, Perform PM-E0005: 6.9kV 1200/2000A Air Circuit Breaker, 10/23/02
WO 00186758-01, Perform PM-E0005: 6.9kV 1200/2000A Air Circuit Breaker, 5/8/03
WO 00403483-01, Perform MPT-0005 on Reactor Trip Breaker, 3/8/05
WO 00407688-01, Perform MPT-0005 on Reactor Trip Breaker, 10/18/04
WO 00481851-01, Perform MPT-0005 on Reactor Trip Breaker, 8/10/05
WO 00490974-01, Perform MPT-0005 on Reactor Trip Breaker, 11/8/05
WO 00517106, Pump out manholes
WO 00632868-01, Perform MPT-0005 on Reactor Trip Breaker, 4/29/06
WO 00636799-01, Perform MPT-0005 on Reactor Trip Breaker, 4/9/06
WO 00708648-01, Perform MPT-0005 on Reactor Trip Breaker, 4/29/06
WO 00720952-01, Perform MPT-0005 on Reactor Trip Breaker, 5/30/06
WO 00814970, Tighten Dresser coupling to stop leak
WO 00852987-01, Perform MPT-0005 on Reactor Trip Breaker, 2/7/08

WO 00853667-01, Perform MPT-0005 on Reactor Trip Breaker, 10/10/07
WO 00858706-0, Perform MPT-0005 on Reactor Trip Breaker, 10/7/07
WO 00867024-01, Perform MPT-0005 on Reactor Trip Breaker, 10/7/07
WO 00875004-01, Perform MPT-0005 on Reactor Trip Breaker, 10/7/07
WO 00883951, Pump out manholes
WO 01051059, Pump out manholes
WO 01121753, Pump out manholes
WO 01146095, Pump out manholes

Job Performance Measures

JPM-CR-062, ATWS, Rev. 14
JPM-IP-116, ATWS – Locally Trip the Reactor, Rev. 11
JPM-IP-212, Locally Torque Shut the VCT Outlet Valves with Low VCT Level During a Loss of Air when the Reactor in Critical, Rev. 0

Design Change Packages

EC 0000065150, Revise Scaling for TE-2006A1, A2, B1, B2, C1, and C2, Rev. 0
EC 0000066510, Prime Measurements Pressure / Level Transmitter Electrical Connector Replacement, Rev. 3

Training Procedures

CDBI-SIM-17.01, HNP Continuing Training Exercise Guide, dated April 17, 2008

Engineering Service Requests

ESR 94-00049, PCR-7030 MDR Rotary Relays in Sequencer Panels, Rev. 0
ESR 97-00532, ESW Valve Upgrade, Rev. 1
ESR 99-00466, Replacement Steam Generator Level Instrumentation Setpoints, Rev. 2

Miscellaneous

IST Program Basis Document for 1AF-68
IST Program Basis Document for 1SW-09
IST Program Basis Document for 1SW-25
System Scoping Review for System 3065 (Auxiliary Feedwater) dated April 14, 2008
System Scoping Review for System 4065 (Emergency Service Water) dated September 13, 2007
VM-JCE, Adams Company Strainers, Separators, and Coolers, Rev. 6
NGG-PMB-PCB-01, Printed Circuit Boards, Rev. 0
Health Reports for CCW [surge tank level], 3rd Quarter 2007, 4th Quarter 2007, 1st Quarter 2008
Health Reports for RPS [steam generator level], 3rd Quarter 2007, 4th Quarter 2007, 1st Quarter 2008
Health Reports for EDG sequencer, 3rd Quarter 2007, 4th Quarter 2007, 1st Quarter 2008
Health Reports for low head safety injection system [FIS-602A/B], 3rd Quarter 2007, 4th Quarter 2007, 1st Quarter 2008
ERFIS trend data, CCW surge tank level, April 1 through May 1, 2008
Technical Manual TM 1440-C366, Figure 1-20A, As Built Dimensions, Unit 6705J [Steam Generator], Pages 1 & 5
Vendor Manual VM-PEB, Sequencer and Miscellaneous Panels, Rev. 13
1364-053872, Precautions, Limitations and Setpoints, Rev. 32
CAR 1364.481 S19, Diesel Generator Building Design Specification, Rev. 2

CAR-SH-AS-27, Masonry Specification, Rev. 4
FCR-AS-9270, Information Required for BW Restraint Steel, Rev. 2

Non-Conformances Identified in the Course of Inspection

AR 00275350, PQD Training Record Not Updated in a Timely Manner
AR 00275389, Incorrect Pipe Data Worksheet in Calculation AF-0023
AR 00275413, MOV Thermal Overload Relay / Torque Switch Bypass Clarification
AR 00275491, Handle Missing for Manual Operator for C SG PORV
AR 00275642, CCW Tube Plugging Limitations Do Not Match
AR 00275644, Guidance for RHR Heat Exchanger Tube Plugging Limits
AR 00276674, DGB Masonry Wall Pressure Analysis Missing
AR 00277029, Pipe Stub on Line 2RH10-3SA-1
AR 00277450, Nonconservative Acceptance Criterion for EDG SA Check Valves
AR 00277720, DGB Masonry Wall / Seismic Restraint Gap
AR 00278730, Evaluate IST Acceptance Criteria for 1SW-9 and 10 Testing
AR 00279108, Condition in Design Calc Not Captured in Procedures
AR 00279268, CCW Surge Tank Level Instrument 3% Channel Offset
AR 00279326, EDG Fuel Oil Day Tank Room Block Wall Deflection Limits
AR 00279467, Summation of ECCS Allowable Actuation Times in Error
AR 00279511, Inadequate Criteria / Basis for Testing Trend
AR 00279561, Stem Operated Limit Switches not Tested
WR 333368, Remove duct tape and tape residue on high side impulse line to RH-FE-602B