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

January 24, 2008

South Carolina Electric & Gas Company
ATTN: Mr. Jeffrey B. Archie
Vice President, Nuclear Operations
Virgil C. Summer Nuclear Station
P. O. Box 88
Jenkinsville, SC 29065

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 05000395/2007005

Dear Mr. Archie:

On December 31, 2007, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Virgil C. Summer Nuclear Station. The enclosed integrated inspection report documents the inspection results, which were discussed with you and other members of your staff on January 10, 2008.

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.

This report documents two NRC-identified findings of very low safety significance (Green) which were determined to be violations of NRC requirements. However, because of the very low safety significance of the issues and because they were entered into your corrective action program, the NRC is treating these violations as non-cited violations (NCVs) consistent with Section VI.A. of the NRC's Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the United States 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 Virgil C. Summer Nuclear Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) 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/

Eugene F. Guthrie, Chief
Reactor Projects Branch 5
Division of Reactor Projects

Docket No.: 50-395
License No.: NPF-12

Enclosure: NRC Integrated Inspection Report 05000395/2007005
w/Attachment: Supplemental Information

cc w/encl: (See next page)

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cc w/encl: (See page 3)

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R. J. White
Nuclear Coordinator Mail Code 802
S.C. Public Service Authority
Virgil C. Summer Nuclear Station
Electronic Mail Distribution

Kathryn M. Sutton, Esq.
Morgan, Lewis & Bockius LLP
Electronic Mail Distribution

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

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

Bruce L. Thompson, Manager
Nuclear Licensing (Mail Code 830)
South Carolina Electric & Gas Company
Virgil C. Summer Nuclear Station
Electronic Mail Distribution

Robert M. Fowlkes, General Manager
Engineering Services
South Carolina Electric & Gas Company
Virgil C. Summer Nuclear Station
Electronic Mail Distribution

Thomas D. Gatlin, General Manager
Nuclear Plant Operations (Mail Code 303)
South Carolina Electric & Gas Company
Virgil C. Summer Nuclear Station
Electronic Mail Distribution

David A. Lavigne, General Manager
Organizational Effectiveness
South Carolina Electric & Gas Company
Virgil C. Summer Nuclear Station
Electronic Mail Distribution

Letter to Jeffrey B. Archie from Eugene F. Guthrie dated January 28, 2007

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 05000395/2007005

Distribution w/encl:
R. Martin, NRR
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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	50-395
License No.:	NPF-12
Report No.:	05000395/2007005
Licensee:	South Carolina Electric & Gas (SCE&G) Company
Facility:	Virgil C. Summer Nuclear Station
Location:	P. O. Box 88 Jenkinsville, SC 29065
Dates:	October 1, 2007 - December 31, 2007
Inspectors:	J. Zeiler, Senior Resident Inspector J. Policikoski, Resident Inspector W. Fowler, Reactor Inspector (Section 1R02 and 1R17.2) C. Moore, Licensing Examiner, Region III (Section 1R11) R. Moore, Senior Reactor Inspector (Section 1R02 and 1R17.2) C. Peabody, Reactor Inspector (Section 1R02 and 1R17.2) D. Mas Peñaranda, Reactor Inspector (Section 1R02 and 1R17.2) L. Miller, Senior Emergency Preparedness Inspector (Section 1EP4)
Approved by:	Eugene F. Guthrie, Chief Reactor Projects Branch 5 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000395/2007-005; 10/01/2007 - 12/31/2007; Virgil C. Summer Nuclear Station; Maintenance Risk Assessment and Emergent Work Control and Surveillance Testing.

The report covered a three-month period of inspection by two resident inspectors, Region II reactor inspectors, an emergency preparedness inspector and a Region III licensing examiner. Two Green findings, which were non-cited violations (NCVs), were identified by the NRC. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified Findings

Cornerstone: Initiating Events

- Green. A Green non-cited violation (NCV) of Technical Specifications (TS) Limiting Condition for Operation (LCO) 3.4.6.1, "Leak Detection Systems", was identified by the inspectors for failure to maintain two required reactor coolant system (RCS) leak detection systems operable and complete the required TS actions. Specifically, the Reactor Building Cooling Unit (RBCU) condensate drain flow detector (IFS01900A) was discovered to be inoperable for a significant period of time due to debris clogging the flow detector flow path. During the last three years prior to October 4, 2007, this condition was coincident with multiple time periods when the reactor building atmosphere gaseous and particulate radioactivity monitors were also inoperable for greater than six hours. The licensee immediately cleaned the condensate flow detector piping, calibrated the detector, restored compliance with TS, and documented this issue in their corrective action program as CR-07-02167 and CR-07-03332.

  This finding was more than minor because it affected the availability, reliability, and maintenance of the barrier integrity equipment performance attribute of the initiating events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. With the RBCU condensate flow detector inoperable coincident with reactor building atmosphere gaseous and particulate radioactivity monitors, the capability of performing the TS, design bases function was lost for a significant period of time. The finding was evaluated using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," Phase I Worksheet for initiating events. The finding is determined to be of very low safety significance because at least one method of RCS leak detection (reactor building sump level) was available to the licensee and no actual leakage above one gpm (the TS required limit for RCS unidentified leakage) was indicated through the RCS water balance surveillance test during the reviewed time period. The finding directly involves the cross-cutting area of Human Performance under the "Complete Documentation and

Component Labeling" aspect of the "Resources" component, in that, the condensate flow detector TS surveillance procedure failed to test the capability of the system to perform its specified function to include support and auxiliary equipment (H.2.c). (Section 1R22)

Cornerstone: Barrier Integrity

- Green. A Green non-cited violation (NCV) of Technical Specifications (TS) Limiting Condition for Operation (LCO) 3.6.4, "Containment Isolation Valves", was identified by the inspectors for the failure to implement required administrative controls when opening the normally locked closed inner and outer manual containment isolation valves (CIVs) 8767-DN and 8768-DN, in containment penetration XRP0231. The licensee drained the penetration, returned the valves to their locked closed positions, and documented this violation in their corrective action program as CR-07-02894.

  The failure to implement TS required administrative controls when opening normally locked closed CIVs 8767-DN and 8768-DN constituted a performance deficiency and a finding. This finding is more than minor because it affected the containment boundary configuration control attribute of the barrier integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that the containment physical design barrier protects the public from radionuclide releases caused by accidents or events. The finding was evaluated using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix H, "Containment Integrity Significance Determination Process." This finding is of very low safety significance (Green) because of the short duration both valves were open and the small size of the piping (one-inch) penetrating containment. The finding directly involves the cross-cutting area of Human Performance under the "Work Planning" aspect of the "Work Control" component, in that, appropriate work plans were not implemented to ensure that operators were stationed locally to close both valves in the event of a design bases accident resulting in a violation of TS 3.6.4 (H.3.a). (Section 1R13)

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

The unit began the inspection period at 100 percent rated thermal power (RTP). The unit operated at or near RTP for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

Seasonal Weather Susceptibilities

a. Inspection Scope

The inspectors performed one adverse weather inspection for readiness of cold weather. The inspectors verified the licensee had implemented applicable sections of operations administrative procedure (OAP)-109.1, "Guidelines for Severe Weather," and heat trace instrument control procedures. The inspectors walked down three accessible areas of risk-significant equipment, including level instrumentation associated with the condensate storage tank, safety-related tanks in the refueling water storage tank (RWST) pit, and service water pump house cooling coil realignment, to assess whether the equipment was adequately protected from cold weather conditions. Also, the inspectors reviewed the licensee's corrective action program (CAP) database to verify that freeze protection problems were being identified at the appropriate level, entered into the CAP, and appropriately resolved.

b. Findings

No findings of significance were identified.

1R02 Evaluations of Changes, Tests or Experiments

a. Inspection Scope

The inspectors reviewed selected samples of evaluations to confirm that the licensee had appropriately considered the conditions under which changes to the facility, Final Safety Analysis Report (FSAR), or procedures may be made, and tests conducted, without prior NRC approval. The inspectors reviewed evaluations for five changes and additional information, such as calculations, supporting analyses, the FSAR, and drawings to confirm that the licensee had appropriately concluded that the changes could be accomplished without obtaining a license amendment. The evaluations reviewed are listed in the Attachment to this report.

The inspectors also reviewed samples of changes for which the licensee had determined that evaluations were not required to confirm that the licensee's conclusions to "screen

out" these changes were correct and consistent with 10 CFR 50.59. The sixteen "screened out" changes reviewed are listed in the Attachment to this report.

The inspectors also reviewed self assessments and condition reports (CRs) to verify that problems were identified at an appropriate threshold, were entered into the CAP, and appropriate corrective actions had been initiated.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns

a. Inspection Scope

The inspectors conducted three partial equipment alignment walkdowns (listed below) to evaluate the operability of selected redundant trains or backup systems with the other train or system inoperable or out of service (OOS). Correct alignment and operating conditions were determined from the applicable portions of drawings, system operating procedures (SOPs), FSAR, and technical specifications (TS). The inspections included review of outstanding maintenance work orders (WOs) and related CRs to verify that the licensee had properly identified and resolved equipment alignment problems that could lead to the initiation of an event or impact mitigating system availability. Documents reviewed are listed in the Attachment to this report.

- "B" service water booster pump (SWBP) (while "A" SWBP was OOS for scheduled maintenance);
- "A" residual heat removal (RHR) pump (while "B" RHR pump was OOS for scheduled maintenance); and,
- "B" emergency diesel generator (EDG) (while "A" EDG was OOS for scheduled maintenance).

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown

a. Inspection Scope

The inspectors performed one complete review and walkdown of the safety-related reactor building cooling system to identify any discrepancies between the current operating system equipment lineup and the designed lineup. This walkdown included the control room instrumentation and accessible areas outside the containment. In addition, the inspectors reviewed completed surveillance procedures, system health reports, and related CRs to verify that the licensee had properly identified and resolved

equipment problems that could affect the availability and operability of the system. Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

.1 Fire Protection - Tours

a. Inspection Scope

The inspectors reviewed recent CRs, WOs, and impairments associated with the fire protection system. The inspectors reviewed surveillance activities to determine whether they supported the operability and availability of the fire protection system. The inspectors assessed the material condition of the active and passive fire protection systems and features and observed the control of transient combustibles and ignition sources. The inspectors conducted routine inspections of the following nine areas (respective fire zones also noted):

- 1DA switchgear room (fire zone IB-20);
- 1DB switchgear rooms and heating, ventilation, and air-conditioning (HVAC) rooms (fire zones IB-16, 17, and 22.2);
- Intermediate building 412' general area (fire zones IB-25.1.1, 1.2, 1.3 and 1.5);
- Auxiliary building switchgear room (fire zone AB-1.29);
- Battery and charger rooms “A” and “B” (fire zones IB-2, 3, 4, 5, and 6);
- Turbine driven emergency feedwater (TDEFW) pump room (fire zone IB-25.2);
- Charging pump rooms “A,” “B,” and “C” (fire zones AB-1.5, 1.6, 1.7);
- Auxiliary building 374' elevation (fire zones AB-1.1, 1.2, and 1.3); and,
- Control rod motor generator and reactor trip breaker room (fire zones IB-21.1 and 21.2).

b. Findings

No findings of significance were identified.

.2 Fire Protection - Drill Observation

a. Inspection Scope

The inspectors observed the performance of the licensee’s fire drills on July 30, September 5, October 31, and November 14, 2007. The inspectors evaluated the readiness of licensee personnel to prevent and fight fires including the following aspects:

- Observe whether turnout clothing and self-contained breathing apparatus (SCBA) equipment were properly worn;
- Determine whether fire hose lines were properly laid out and nozzle pattern simulated being tested prior to entering the fire area of concern;

- Verify that the fire area was entered in a controlled manner;
- Review if sufficient firefighting equipment was brought to the scene by the fire brigade to properly perform their firefighting duties;
- Verify that the fire brigade leader's fire fighting directions were thorough, clear and effective, and that, if necessary, offsite fire team assistance was requested;
- Verify that radio communications with plant operators and between fire brigade members were efficient and effective;
- Confirm that fire brigade members checked for fire victims and fire propagation into applicable plant areas;
- Observe if effective smoke removal operations were simulated;
- Verify that the fire fighting pre-plans were properly utilized and were effective; and,
- Verify that the licensee pre-planned drill scenario was followed, drill objectives met the acceptance criteria, and deficiencies were captured in post drill critiques.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

Internal Flooding

a. Inspection Scope

The inspectors reviewed and walked down two areas (the diesel generator building and intermediate building IB-412' elevation) regarding internal flood protection features and equipment to determine consistency with design requirements, FSAR, and flood analysis documents. Risk significant structures, systems, and components (SSCs) in this area included the EDGs, emergency feedwater (EFW) pumps, component cooling water (CCW) pumps, and safety-related battery HVAC chiller rooms. The inspectors reviewed the licensee's CAP database to verify that internal flood protection problems were being identified at the appropriate level, entered into the CAP, and appropriately resolved.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

Resident Inspector Quarterly Review

a. Inspection Scope

On October 2, the inspectors observed performance of senior reactor and reactor operators on the plant simulator during an emergency preparedness biennial exercise. The scenario involved an earthquake with reactor fuel damage followed by a small break loss of cooling accident and containment leakage to outside atmosphere (EPP-07-01A). From the simulator control room, the inspectors assessed emergency procedure usage

and verified the operators were properly classifying the emergency events and making the required notifications and protective action recommendations in accordance with emergency plan procedures (EPP)-001, "Activation and Implementation of Emergency Plan," EPP-001.1, "Notification of Unusual Event," EPP-001.2, "Alert," EPP-001.3, "Site Area Emergency," and EPP-002, "Communication and Notification." The inspectors evaluated the adequacy of the licensee's conduct of the simulator critique performance and verified that any significant drill performance issues were captured by the licensee in their CAP.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors evaluated three equipment issues described in the CRs listed below to verify the licensee's effectiveness of the corresponding preventive or corrective maintenance associated with SSCs. The inspectors reviewed maintenance rule (MR) implementation to verify that component and equipment failures were identified, entered, and scoped within the MR program. Selected SSCs were reviewed to verify proper categorization and classification in accordance with 10 CFR 50.65. The inspectors examined the licensee's 10 CFR 50.65(a)(1) corrective action plans to determine if the licensee was identifying issues related to the MR at an appropriate threshold and that corrective actions were established and effective. The inspectors' review also evaluated if maintenance preventable functional failures (MPFF) or other MR findings existed that the licensee had not identified. The inspectors reviewed the licensee's controlling procedures, i.e., engineering services procedure (ES)-514, "Maintenance Rule Implementation," and the Virgil C. Summer "Important To Maintenance Rule System Function and Performance Criteria Analysis," to verify consistency with the MR requirements.

- CR-06-04466, Nuclear instrumentation N35 failed low due to A-4 pre-amplifier card failure;
- CR-07-01388, "A" HVAC chiller tripped during setup for normal service water flow; and,
- CR-07-02827, "B" HVAC chiller tripped on low lube oil pressure.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated, as appropriate, for the five selected work activities listed below: (1) the effectiveness of the risk assessments performed before maintenance activities were conducted; (2) the management of risk; (3) that, upon identification of an

unforseen situation, necessary steps were taken to plan and control the resulting emergent work activities; and, (4) that emergent work problems were adequately identified and resolved. The inspectors evaluated the licensee's work prioritization and risk characterization to determine, as appropriate, whether necessary steps were properly planned, controlled, and executed for the planned and emergent work activities listed below:

- Work Week 2007-40, risk assessment for scheduled maintenance and/or testing on TDEFW, "A" service water pump, and reactor building cooling unit (RBCU) condensate drain flow detector troubleshooting and repair;
- Work Week 2007-42, risk assessment for scheduled maintenance and/or testing on "B" RHR pump, "B" motor driven emergency feedwater pump (MDEFP), "C" charging pump, "B" reactor building (RB) spray system valves, and solid state protection system (SSPS) testing with reactor trip breaker rotation;
- Work Week 2007-43, risk assessment for scheduled maintenance and/or testing on "A" EDG, "A" EDG air-start compressors, and "A" RHR pump and valve operating test, and emergent maintenance on "A" chill water pump and "B" steam generator (SG) power operated relief valve (PORV) upstream manual isolation valve;
- Work Week 2007-45, risk assessment for scheduled maintenance and/or testing on "B" EDG, "B" EDG air-start compressors, and "B" component cooling water (CCW) pump; and,
- Work Week 2007-47, risk assessment for corrective maintenance replacing the primary power supply for the turbine closed cycle cooling digital control system cabinet.

b. Findings

Introduction: A Green non-cited violation (NCV) of TS Limiting Condition for Operation (LCO) 3.6.4, "Containment Isolation Valves", was identified by the inspectors for the failure to implement required administrative controls when opening the normally locked closed inner and outer manual containment isolation valves (CIVs) 8767-DN and 8768-DN, in containment penetration XRP0231.

Description: On October 5, 2007, with the unit operating in Mode 1, the inspectors noted that the licensee had established demineralized water via two CIVs (8767-DN and 8768-DN) in penetration XRP0231 to containment in order to provide a source of water for flushing debris found in piping upstream of the RBCU condensate drain flow detector, IFS01900A. These two CIVs were normally locked closed manual valves as required by TS Surveillance Requirement (SR) 4.6.1.1 to ensure primary containment integrity during accident conditions. TS 3.6.4 requires each CIV to be operable and allows normally locked closed manual CIVs to be opened on an intermittent basis under administrative control. These administrative controls include; stationing an operator at the valve controls, maintaining constant communication with the control room with instructions to close the valve in an accident situation, and ensuring that environmental conditions will not preclude access to close the valves. The inspectors questioned the on-shift Shift Supervisor on how the operators were controlling the opening of CIVs 8767-DN and 8768-DN. The inspectors learned that the CIVs had been opened between 10:27 am and 1:42 pm, without implementing administrative controls. The

inspectors determined that the operators had erroneously assumed that since the penetration was declared inoperable because it was not in its normally drained condition, the administrative controls were not necessary. Subsequently, the licensee drained the penetration, returned the valves to their locked closed positions, and documented the problem in their corrective action program as CR-07-02894.

Analysis: The failure to implement TS required administrative controls when opening normally locked closed CIVs 8767-DN and 8768-DN constituted a performance deficiency and a finding. This finding is more than minor because it affected the containment boundary configuration control attribute of the barrier integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that the containment physical design barrier protects the public from radionuclide releases caused by accidents or events. The finding was evaluated using Inspection Manual Chapter 0609, "Significance Determination Process," Appendix H, "Containment Integrity Significance Determination Process." This finding is of very low safety significance (Green) because of the short duration both valves were open and the small size of the piping (one-inch) penetrating containment. The finding directly involves the cross-cutting area of Human Performance under the "Work Planning" aspect of the "Work Control" component, in that, appropriate work plans were not implemented to ensure that operators were stationed locally to close both valves in the event of a design bases accident resulting in a violation of TS 3.6.4 (H.3(a)).

Enforcement: TS LCO 3.6.4, "Containment Isolation Valves", requires each CIV to be operable and allows normally locked closed manual CIVs to be opened on an intermittent basis under specified administrative control. These administrative controls include; stationing an operator at the valve controls, maintaining constant communication with the control room with instructions to close the valve in an accident situation, and ensuring that environmental conditions will not preclude access to close the valves. Contrary to the above, on October 5, 2007, between 10:27 am and 1:42 pm, the licensee opened normally locked closed CIVs 8767-DN and 8768-DN in containment penetration XRP0231 without implementing any appropriate administrative controls. Because this violation was determined to be of very low safety significance and was placed in the corrective action program as CR-07-02894, this violation is being treated as a NCV in accordance with Section VI.A.1 of the NRC Enforcement Policy, and is identified as NCV 05000395/2007005-01, Failure to Implement TS Required Administrative Controls When Opening Containment Isolation Valves 8767-DN and 8768-DN.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed three operability evaluations affecting risk significant mitigating systems to assess, as appropriate: (1) the technical adequacy of the evaluations; (2) whether operability was properly justified and the subject component or system remained available, such that no unrecognized increase in risk occurred; (3) whether other existing degraded conditions were considered; (4) that the licensee considered other degraded conditions and their impact on compensatory measures for the condition being evaluated; and, (5) the impact on TS limiting conditions for operations and the risk

significance in accordance with the Significance Determination Process (SDP). Also, the inspectors verified that the operability evaluations were performed in accordance with station administrative procedure (SAP)-209, "Operability Determination Process," and SAP-999, "Corrective Action Program."

- CR-07-02167, adequacy of testing and maintenance of the RBCU drain flow high alarm detectors;
- CR-07-02858, potential gap in rod insertion limit monitoring methodology in relation to TS 3.1.3.6 compliance and Surveillance Requirement 4.1.3.6.; and,
- CR-07-03082, "B" SG PORV upstream manual isolation valve (XVG-2808B) will not fully open.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

.1 Routine Inspection

a. Inspection Scope

The inspectors evaluated two engineering change request (ECR) packages for modifications in the initiating events and mitigating systems cornerstone areas to evaluate the modifications for adverse effects on system availability, reliability, and functional capability. The modifications and the associated attributes reviewed are as follows:

ECR-50690, Setpoint change for diesel generator crankcase pressure switches; and,
ECR-50629, Loose parts monitoring system replacement

- Plant Document Updating
- Post-Modification Testing
- Installation Records
- Materials / Replacement Components

For the selected modification packages, the inspectors observed portions of the as-built configuration. Documents reviewed included procedures, engineering calculations, modification design and implementation packages, work orders, site drawings, corrective action documents, applicable sections of the FSAR, supporting analyses, TS, and design basis information. The inspectors witnessed aspects of the post-modification testing of both modifications to verify adequate testing of the changes. The inspectors also reviewed selected CRs associated with the modifications to confirm that problems encountered with the implementation of the modifications were entered into the CAP. Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

.2 Biennial Inspection

a. Inspection Scope

The inspectors evaluated ECR packages for nine modifications to evaluate the modifications for adverse effects on system availability, reliability, and functional capability. The nine modifications and the associated attributes reviewed are as follows:
ECR 50064, EDG air start aftercooler removal

- Energy Needs
- Materials/Replacement Components
- Operations
- Flowpaths
- Structural
- Licensing Basis
- Failure Modes

ECR 70442, Replace TWINAX cable from level switch to level probe for ILS01973-LD and ILS01974-LD

- Energy Needs
- Materials/Replacement Components
- Control Signals
- Operations
- Structural

ECR 50157A, Upgrade of EFW mini-flow line from non-nuclear safety related to quality related

- Material Classification

ECR 50157B, Deletion of speed controller for TDEFW pump

- Timing
- Control Signals
- Operations

ECR 50482, Reactor coolant pump bay ladder cages and landing platforms

- Structural
- Equipment Protection
- Materials

ECR 50599, Main steam power operated relief valve circuit fix

- Control Signal
- Energy Needs
- Equipment Protection

ECR 70863, Replace Nuclear Instrumentation Channel 35A input power circuit breakers in Westinghouse 7300 cabinets with 30A circuit breakers

- Control Signal
- Energy Needs
- Equipment Protection

ECR 50478, Reactor building instrument air moisture removal upgrade
- Materials/Replacement Components
- Post Modification Testing
- Plant Document Updating
- Failure Modes
- Operations
- Implementation

ECR 50511, EDG starting air compressor replacement
- Materials/Replacement Components
- Post Modification Testing
- Plant Document Updating
- Failure Modes
- Operations
- Implementation
- Energy Needs

Documents reviewed included procedures, engineering calculations, modification design and implementation packages, work orders, site drawings, corrective action documents, applicable sections of the FSAR, supporting analyses, TS, and design basis information. Documents reviewed are listed in the Attachment to this report.

The inspectors also reviewed selected CRs associated with modifications to confirm that problems were identified at an appropriate threshold, were entered into the corrective action process, and appropriate corrective actions had been initiated.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

For the six maintenance activities listed below, the inspectors reviewed the associated post-maintenance testing (PMT) procedures and either witnessed the testing and/or reviewed test records to assess whether: (1) the effect of testing on the plant had been adequately addressed by control room and/or engineering personnel; (2) testing was adequate for the maintenance performed; (3) test acceptance criteria were clear and adequately demonstrated operational readiness consistent with design and licensing basis documents; (4) test instrumentation had current calibrations, range, and accuracy consistent with the application; (5) tests were performed as written with applicable prerequisites satisfied; (6) jumpers installed or leads lifted were properly controlled; (7) test equipment was removed following testing; and, (8) equipment was returned to the status required to perform its safety function. The inspectors verified that these activities were performed in accordance with general test procedure (GTP)-214, “Post Maintenance Testing Guideline.”

- PMT for “A” service water pump and “A” SWBP (WOs 0711341, 0711419, 0711420 and 0713444);
- PMT for “B” RHR heat exchanger bypass and outlet flow control valve (FCV-603B/605B) air pressure regulators (WOs 0708487 and 0708488);
- PMT for “A” EDG (WOs 0702178, 0708707 and 0711403);
- PMT for “B” EDG scheduled quarterly maintenance (WOs 0709184, 0702993 and 0702179);
- PMT for “C” SG pressure transmitter (IPT-496) (WO 0716821); and,
- PMT for “A” CCW pump (WOs 0713305 and 0714024).

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed and/or reviewed the five surveillance test procedures (STPs) listed below to verify that TS surveillance requirements were followed and that test acceptance criteria were properly specified to ensure that the equipment could perform its intended safety function. The inspectors verified that proper test conditions were established as specified in the procedures, that no equipment preconditioning activities occurred, and that acceptance criteria were met.

In-Service Tests:

- STP-205.004, “RHR Pump and Valve Operability Test,” Revision 6;

Other Surveillance Tests:

- STP-345.037, “Solid State Protection System Actuation Logic and Master Relay Test, Train A, Critical Surveillance Test Category III,” Revision 16;
- STP-503.003B, “Functional Test of B Train SW to EF Cross Connect Circuits,” Revision 0, Change C;
- STP-222.002, “Component Cooling Pump Test,” Revision 8; and,
- STP-342.003, “Reactor Building Cooling Unit Condensate Flow Detectors IFS01900A and IFS01900B Calibration,” Revision 4.

b. Findings

Introduction: A Green NCV of TS LCO 3.4.6.1, “Leak Detection Systems”, was identified by the inspectors for failure to maintain two required reactor coolant system leak detection systems operable and complete the required TS actions which were as follows; "With only two of the above required leakage detection systems OPERABLE, operation may continue for up to 30 days provided grab samples of the containment atmosphere are obtained and analyzed at least once per 24 hours when the required gaseous or particulate radioactive monitoring system is inoperable; otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours."

Specifically, the RBCU condensate drain flow detector (IFS01900A) was discovered to be inoperable for a significant period of time due to debris clogging the flow detector flow path. The licensee review of the last three years prior to October 4, 2007, indicated that this condition was coincident with multiple time periods when the reactor building atmosphere gaseous and particulate radioactivity monitors were also inoperable for greater than six hours.

Description: On July 25, 2007, the inspectors questioned the adequacy of the testing and maintenance of the RBCU condensate flow detectors, as documented in CR-07-02167. The inspectors noted that a portion of the RBCU condensate drain flow path from the RBCU to the flow detector was being bypassed in the surveillance procedure STP-342.003, "Reactor Building Cooling Unit Condensate Flow Detectors IFS01900A and IFS01900B Calibration," Revision 4, which is intended to meet TS SR 4.4.6.1.d. For reference, the as-built RBCU condensate drain 6-inch pipe forms an S-turn P-trap where the TS required flow detector takes a tap through a pipe penetration from the bottom of the P-trap. This 1-inch pipe for the flow detector forms a parallel branch line that re-connects with the main drain pipe downstream of the P-trap. The STP, as mentioned above, performs its calibration by using a calibrated flow through a separate pipe tap on the flow detector branch line.

On October 4, 2007, the licensee entered the Reactor Building to inspect, via borescope, the A-train RBCU condensate drain pipe P-trap pipe penetration for the A-train RBCU condensate flow detector (IFS01900A). The licensee investigation revealed complete blockage of the condensate flow detector pipe penetration with 1-2 inches of hard debris that the initial licensee evaluation states has been there for a significant period of time. The licensee immediately cleaned the condensate flow detector piping, calibrated the A-train flow detector using the existing STP, and restored compliance with TS 3.4.6.1. The licensee intends on inspecting and/or clean IFS01900B during the upcoming refueling outage in April 2008.

Further review by the inspectors revealed three sources of foreign material have been entering the RBCU condensate drain pipe for a significant period of time. First and as documented in CR-03-03487 and CR-06-03583, the carbon steel frame and cooling coil support structure of the RBCUs above the drain plenum have been experiencing material degradation for a number of years to include paint chipping and streaming rust. This condition was noted in more than one refueling outage inspection. Also, chemical analysis of the pipe blockage debris within the stainless steel drain pipe revealed ferrous content. The above inspection observations and chemical analysis support that on-line RBCU cooling coil condensation was providing a transport medium into the drain pipe for various corrosion products. Secondly, the on-line RBCU cooling coils act as a natural filter of dirt, debris, and dust within the reactor building over the course of an operating cycle due to the high air flow rates of the RBCUs. The on-line RBCU cooling coil condensation again provides the transport medium for this dirt, dust, and debris into the drain pipe. Finally, Mechanical Maintenance Procedure (MMP) 460.022, "Inspection, Cleaning, and Lubrication of Fan Coil Units," Revision 11, provided for the inspection and cleaning of the RBCUs each refueling outage. Steps 7.2.3.C and 7.2.5.B required the cleaning of the cooling coils and draining with pressurized water. As verified by the licensee's mechanical maintenance department, foreign material exclusion controls were

not provided for these steps as the intent was to flush dirt and debris from the RBCUs down the RBCU condensate drain flow pipe into the reactor building sump.

The inspectors concluded that STP-342.003 was inadequate to demonstrate the leakage detection system operable per TS SR 4.4.6.1.d. Without the ability to perform a channel check for the RBCU condensate flow detector and with multiple sources of known foreign material into the RBCU condensate drain pipe as discussed above, this STP was incapable of verifying the specified function of RBCU flow detector performance throughout the extent of all system components which include the RBCU drain plenum and drain pipe as support and auxiliary equipment.

Analysis: The licensee's failure to implement an adequate surveillance test procedure was a performance deficiency and a finding. This finding was more than minor because it affected the availability, reliability, and maintenance of the barrier integrity equipment performance attribute of the initiating events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. With the RBCU condensate flow detector inoperable, coincident with reactor building atmosphere gaseous and particulate radioactivity monitors, the capability of performing the TS, design bases function was lost for a significant period of time. The finding was evaluated using Inspection Manual Chapter 0609, "Significance Determination Process," Phase I Worksheet for initiating events. The finding was determined to be of very low safety significance (Green) because at least one method of RCS leak detection (reactor building sump level) was available to the licensee and no actual leakage above one gpm (the TS required limit for RCS unidentified leakage) was indicated through the RCS water balance surveillance test during the reviewed time period. The finding directly involved the cross-cutting area of Human Performance under the "Complete Documentation and Component labeling" aspect of the "Resources" component, in that, STP-342.003 failed to test the capability of the system to perform its specified function to include support and auxiliary equipment (H.2.c).

Enforcement: TS LCO 3.4.6.1, "Leak Detection Systems", requires in part that two of the TS required reactor coolant system leakage detection systems be operable. Contrary to the above, for multiple time periods over several years prior to October 4, 2007, the licensee failed to maintain operability of the RBCU condensate flow detector (IFS01900A) coincident with when the reactor building atmosphere gaseous and particulate radioactivity monitors were also inoperable for greater than six hours. Additionally, the licensee failed to complete the required TS actions. Because this finding is of very low safety significance and has been entered into the corrective action program as CR-07-02167 and CR-07-03332, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000395/2007005-02, Failure to Maintain Two Required Reactor Coolant System Leak Detection Systems Operable and Complete the Required TS Actions.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes

a. Inspection Scope

The inspector's in-office review of EP-100, Radiation Emergency Plan, revision 54 and EPP-001, Activation and Implementation of Emergency Plan, revision 29, was performed to determine that changes had not decreased the effectiveness of the plan. The review was conducted between October 31, 2007 to November 14, 2007.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04, "Emergency Action Level and Emergency Plan Changes." The applicable planning standard, 10 CFR 50.47(b)(4) and its related 10 CFR 50, Appendix E requirements were used as reference criteria. The criteria contained in NUREG-0654, Appendix 1, Emergency Action Level Guidelines for Nuclear Power Plants, Revision 1 and Regulatory Guide 1.101 were also used as references.

b. Findings

The NRC identified a violation related to the licensee's implementation of EAL changes which decreased the effectiveness of the Emergency Plan associated with changes in EP-100, Radiation Emergency Plan, revision 54 and EPP-001, Activation and Implementation of Emergency Plan, revision 29. Changes to Emergency Action Level 392A, "an aircraft crash into vital structures being experienced or projected with plant not in cold shutdown," resulted in the removal of the Diesel Generator Building and Intermediate Building from the list of vital buildings. Both the Diesel Generator Building and Intermediate Building were included in Revision 53 as vital structures, their removal was a decrease in effectiveness.

This violation constitutes an additional example of violation 05000395/2007502-01 and is not being cited individually. No additional response to violation 05000395/2007502-01 is required. Further corrective actions for this additional example are expected to be taken in conjunction with corrective actions for the previously cited violation.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

.1 Reactor Safety: Mitigating Systems Cornerstone

a. Inspection Scope

The inspectors verified the accuracy of the licensee's PI submittals listed below for the period July 1, 2006, through September 30, 2007. The inspectors used the performance indicator definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, and licensee procedure SAP-1360, "NRC and INPO/WANO Performance Indicators," to check the reporting for each data element. The inspectors sampled licensee event reports (LERs), operator logs, plant status reports, CRs, and performance indicator data sheets to verify that the licensee had identified the cumulative safety system unavailability and required hours, as applicable. The inspectors discussed the PI data with licensee personnel associated with performance indicator data collection and evaluation.

- Mitigating Systems Performance Index (MSPI) - Emergency Feedwater System;

- MSPI - Cooling Water Systems; and,
- Safety System Functional Failures.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Review of Items Entered into the Corrective Action Program

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. This review was accomplished by either attending daily screening meetings that briefly discussed major CRs, or accessing the licensee's computerized corrective action database and reviewing each CR that was initiated.

.2 Semi-Annual Review to Identify Trends

a. Inspection Scope

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," the inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The review was focused on repetitive equipment issues, but also considered trends in human performance errors, the results of daily inspector corrective action item screening discussed in Section 4OA2.1 above, licensee trending efforts, and licensee human performance results. The review nominally considered the six-month period of July 2007 through December 2007. Documents reviewed included licensee monthly and quarterly corrective action trend reports, engineering system health reports, maintenance rule documents, department self-assessment activities, and quality assurance audit reports.

b. Assessment and Observations

The inspectors identified two adverse trends, one of which was also independently identified by the licensee, as discussed below.

First, an adverse trend in site personnel human performance errors was identified by the inspectors, as well as by the licensee. The majority of these human performance errors involved personnel in the operations department. Noteworthy examples of these items included: 1) omitted steps in an EDG surveillance procedure for testing the fuel oil system, 2) maintenance personnel failure to properly conduct electrical manhole inspection (NRC identified), 3) inadvertent EDG emergency start due to wrong switch manipulation, 4) failure to implement required dedicated operator compensatory actions during EDG testing (NRC identified and subject of NCV 05000395/2007004-02), and 5) Failure to Implement TS Required Administrative Controls When Opening Containment Isolation Valves 8767-DN and 8768-DN (NRC identified and subject of NCV

05000395/2007005-01 documented in this report). To address the adverse trend in the number of human performance errors, the licensee conducted a mandatory human performance standdown with all plant personnel on October 18, 2007. In addition, the licensee initiated CR-07-02951 to conduct a common cause evaluation of the issues specific to the operations department adverse trend.

The second adverse trend was noted in the high number of minor fire brigade performance issues identified by the inspectors during observation of fire drills conducted on July 30, September 5, October 31, and November 14, 2007, that were not being captured by the licensee during the associated post drill critiques. The licensee had incorporated the inspector's comments in their corrective action program for each of the observed drills. In addition, the licensee initiated CR-07-03384 to address the noted adverse trend.

.3 Annual Sample Review

a. Inspection Scope

The inspectors reviewed two issues in detail to evaluate the effectiveness of the licensee's corrective actions for important safety issues documented in CR-06-01941 and CR-05-04358. CR-06-01941 was associated with the Operator Work Around of placing one RHR pump in pull-to-lock during plant heatup in Mode 4. CR-05-04358 was associated with heat trace control panel and breaker issues. The inspectors assessed whether the issues were identified; documented accurately and completely; properly classified and prioritized; adequately considered extent of condition, generic implications, common cause, and previous occurrences; adequately identified root causes/apparent causes; and identified appropriate corrective actions. Also, the inspectors verified the issues were processed in accordance with SAP-999, "Corrective Action Program."

b. Findings and Observations

The inspectors identified one weakness with the licensee's documentation and corrective action. Action #7 of CR-05-04358, which was closed as complete on June 29, 2007, committed to ensuring that heat trace preventive maintenance was completed prior to the onset of cold weather each season. The corrective action weakness involved was that both the primary and redundant trains for the safety-related RWST heat trace circuits and one train of the reactor make-up water tank heat trace circuit were incomplete following Operations Department declaration that the plant was aligned and prepared for cold weather per OAP 109.1 during the first week of November 2007. The licensee initiated CR-07-03256 to document this discrepancy.

4OA3 Event Followup

.1 (Closed) LER 05000395/2007002-00 : Failure to Follow Administrative Controls Results in Limiting Condition for Operation (LCO) 3.6.4 Violation.

The inspectors reviewed the subject LER and applicable condition report (CR-07-02894) associated with the issue to verify the LER accuracy and appropriateness of the

specified corrective actions. A detailed review of the issue and cause evaluation was documented in Section 1R13 of this report. The licensee's violation of TS 3.6.4 was the subject of NCV 05000395/2007005-01 documented in Section 1R13 of this report. No new findings of significance were identified. This LER is closed.

.2 (Closed) LER 05000395/2007003-00: Clogged Reactor Building Cooling Unit Drain Line Results in Violation of LCO 3.4.6.1.

The inspectors reviewed the subject LER and applicable condition reports (CR-07-02167 and CR-07-03332) associated with the issue to verify the LER accuracy and appropriateness of corrective actions. A detailed review of the issue and cause evaluation was documented in Section 1R22 of this report. The licensee's violation of TS 3.4.6.1 was the subject of NCV 05000395/2007005-02 documented in Section 1R22 of this report. No new findings of significance were identified. This LER is closed.

.3 (Closed) Unresolved Item (URI) 05000395/2007004-01: Review Risk Assessment Credit for Dedicated Manual Operator Actions During EDG Surveillance Testing.

During a previous plant risk assessment review for routine TS surveillance testing of the EDG, the inspectors noted that dedicated manual operator risk management compensatory actions were being relied upon to allow the EDG to be considered available during portions of the surveillance while key engine components were out of their normal standby alignment. The dedicated operator actions involved repositioning these critical components (i.e., mode selector switch, removal of blocking device for fuel oil stop lever, and closure of cylinder petcock valves) in the event of an EDG emergency start demand. At the time of the earlier inspection, the licensee could not provide documentation that these compensatory actions could be completed within the time necessary for the EDG to satisfy its safety function as assumed in the Probabilistic Risk Assessment (PRA) success criteria.

The inspectors reviewed CR-07-03120 that the licensee initiated to address this issue and discussed the details with licensee PRA personnel. The licensee determined that the limiting design bases event requiring EDG functionality was a reactor coolant pump seal loss-of-coolant accident. Associated with this event, the maximum time available to reposition the associated engine components to ensure EDG availability was determined to be six minutes. Based on this, the inspectors concluded that it was reasonable that the aforementioned operator actions could be accomplished within this timeframe. Based on the licensee's additional information provided, this URI is closed.

4OA6 Meetings, Including Exit

Integrated Report Exit

The inspectors presented the inspection results to Mr. Jeffrey Archie and other members of the licensee staff on January 10, 2008. The licensee acknowledged the findings. The inspectors confirmed that inspection activities discussed in this report did not contain proprietary material.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

J. Archie, Vice President, Nuclear Operations
F. Bacon, Manager, Chemistry Services
L. Bennett, Manager, Plant Support Engineering
L. Blue, Manager, Nuclear Training
M. Browne, Manager, Quality Systems
A. Cribb, Supervisor, Nuclear Licensing
G. Douglass, Manager, Nuclear Protection Services
M. Fowlkes, General Manager, Engineering Services
D. Gatlin, General Manager, Nuclear Plant Operations
R. Justice, Manager, Maintenance Services
D. Lavigne, General Manager, Organizational / Development Effectiveness
G. Lippard, Manager, Operations
P. Mothena, Manager, Health Physics and Safety Services
J. Nesbitt, Manager, Materials and Procurement
D. Shue, Manager, Planning / Outage
W. Stuart, Manager, Design Engineering
B. Thompson, Manager, Nuclear Licensing
S. Zarandi, General Manager, Nuclear Support Services

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None.

Opened and Closed

05000395/2007005-01	NCV	Failure to Implement TS Required Administrative Controls When Opening Containment Isolation Valves 8767-DN and 8768-DN. (Section 1R13)
05000395/2007005-02	NCV	Failure to Maintain Two Required Reactor Coolant System Leak Detection Systems Operable and Complete the Required TS Actions.(Section 1R22)

Closed

05000395/2007002-00	LER	Failure to Follow Administrative Controls Results in Limiting Condition for Operation (LCO) 3.6.4 Violation (Section 4OA3.1)

05000395/2007003-00	LER	Clogged Reactor Building Cooling Unit Drain Line Results in Violation of LCO 3.4.6.1 (Section 4OA3.2)
05000395/2007004-01	URI	Review Risk Assessment Credit for Dedicated Manual Operator Actions During EDG Surveillance Testing (4OA3.3)

Discussed

None.

LIST OF DOCUMENTS REVIEWED

Section 1R02: Evaluation of Changes, Tests, or Experiments

Safety Evaluations

ECR 70843, Primary to Secondary Leakage (1-gpm) – Conversion from Volumetric to Mass Units, Rev. 0
ECR 50579, Replacement Throttling Valves and Orifice Plates in the HHSI System, Rev. 2.
CR 07-629, Action 4, Operation Special Order SO-07-04, Manual Operation Interim Action for Starting EDG Cooling Fan, Rev. 0
ECR-03-1931, Re-evaluation of LOCA Radiological Consequences, dated 7/27/06
NCN 07-02961, Bypass VCT Hydrogen Check Valve - Procedure Revision to STP-102, dated 10/03/07

Screen Evaluations

CR 06-3505, ILS-2205 Non-Standard Repair, Rev. 0
GOP-2, SG Level Control increase from 60 to 65% NR to 45% to 70% NR to supper longer EF pump runs, Rev. 14
MRS-GEN-1176, Generic Field Procedure for the Manual Single Fuel Sipping Tool, Rev. 0
SOP-210, Initial Starting of FW Booster Pump with recirculation flow path isolated, Rev. 20
CR-07-0730, Interim Compensatory Action CER 07-0730 (Action 1), Rev. 0 (*Barrier Integrity)
ETBT-70884, Replacement Oil Sump Covers on Centrifugal Charging Pumps, Rev. 0
NCN-06-3498, "Accept As-is" for Scratches on the XCS08010B-RC Inlet Flange, Pressurizer Side, Rev. 0
WO 0703374, Install an Enclosure over Valve ILT03773A-HR2-HD by Furmanite Vendor, Rev.0
NCN-07-0011, Battery Charger XBC1X DC Output Connection Repair, Rev. 0
AOP-304.4, Loss of 1DA(1DB) with the Diesel Not Available, Rev. 0
NCN 06-3626, XHE0002A CCW HX Tube Plugging, dated 10/25/06
CR 07-1334, Valve XVB00631 Sealed Open, dated 5/2/07
WO 0613644, Main Turbine High Vibration Monitoring, dated 3/15/07
CR 07-0401, Backseating of XVG 01704-GS, dated 2/27/07
ECR 50478, Reactor building Instrument Air Moisture Removal Upgrade, dated 12/13/04
ECR 50511, Emergency Diesel Generator Starting Air Compressor Replacement, dated 6/25/03

Other Documents

CR 0-C-06-3505, FW Heater 1A&1B EX SUP LIine DRN HDR LS, 10/19/06
Self Assessment (SA05-DE-01), Design Engineering 50.59, October 24-27, 2005
CR 05-04194, Results of Self Assessment SA05-DE-01
CR 07-00629, DG Area A Ventilation Air Supply Fan A Start Failure

Section 1R04: Equipment Alignment

Procedures and Drawings

FSAR 5.5.7, Residual Heat Removal System;
FSAR 6.2.2.2.2, Reactor Building Cooling System;
FSAR 6.3, Emergency Core Cooling System;
FSAR 8.3.1.1.2, Onsite Standby Power Supplies;
FSAR 9.2.1, Service Water System;

FSAR 9.3.4, Chemical and Volume Control System;
Nuclear Operations Training, AB-7, Residual Heat Removal System;
SOP-102, Chemical and Volume Control System;
SOP-114, Reactor Building Ventilation System;
SOP-115, Residual Heat Removal;
SOP-117, Service Water System;
SOP-306, Emergency Diesel Generator;
TS 3/4.5.2/3 and Bases, Emergency Core Cooling Systems;
D-302-221/222, Service Water Cooling;
D-302-651, Spent Fuel Cooling;
D-912-102, Reactor Building Cooling System;
E-302-641/693, Residual Heat Removal/Safety Injection;
E-302-675/691, Chemical and Volume Control/Safety Injection;
E-922-101, Reactor Building Cooling System Plan, above 512 elevation North;
E-922-102, Reactor Building Cooling System Plan, above 512 elevation South;
E-922-103, Reactor Building Cooling System Plan, above 463 elevation North;
E-922-104, Reactor Building Cooling System Plan, above 463 elevation South;

Section 1R17: Permanent Plant Modifications

Design Change Packages (DCNs)

ECR 70442, Replace TWINAX cable from level switch to level proble for ILS01973-LD and ILS01974-LD, Rev. 0
ECR 50064, DG Aftercooler Removal, Rev. 0
ECR 50157A, Upgrade of EFW Mini-Flow Line from NNS to QR, Rev. 0
ECR 50157B, Deletion of Speed Controller for TDEFWP, Rev. 0
ECR 50482, Reactor Coolant Pump Bay Ladder Cages and Landing Platforms, Rev. 0
ECR 50599, MS PORV Circuit Fix, Rev.0
ECR 70863, Replace 35A Input Power Circuit Breakers in Westinghouse 7300 Cabinets with 30A Circuit Breakers, Rev. 0
ECR 50478, Reactor building Instrument Air Moisture Removal Upgrade, dated 12/13/04
ECR 50511, Emergency Diesel Generator Starting Air Compressor Replacement, dated 6/25/03

Condition Reports (CR)

CR-05-04155, The PRSC determined there is a need to perform a 50.59 screening for all hardware changes.
CR-05-04197, During the performance of self assessment SA05-DE-01,ES-107, ES-403, ES-416, and ES-445 not updated to current 50.59 rules.
CR-05-04198, During the performance of self assessment SA05-DE-01,list of 50.59 qualified personnel not current.
CR-05-04380, The nuclear safety culture self assessment (SA05-OD-01) identified temporary modifications that are not being controlled by a temporary modifications program.
CR-06-00595, The ECR program and the ETBT program are deficient in that the CHAMPS database is not being updated.
CR-06-00616, The design engineering modification schedule key performance indicator has been in an overall adverse trend for the past 5 months.
CR-06-02478, Finding QA-AUD-200608-0 identified weaknesses where engineering has not effectively implemented the program as specified by ECR program procedures.

Work Orders
0507408, Main Control Board System Cable Change, 05/15/05
0507491, Post MOD Testing for ECR 50599, 05/18/05
0510371, BOP Instrument Panels - Non train, 09/01/06
0510368, process I&C Rack Control Group 4, 09/01/06

Drawings
B-208-067, Power relief Valve IPV-2000, Rev. 6 Sheet 20B

Other Documents
DG DBD, Diesel Generator Design Basis Document, Rev. 7
04-4461-187, SCE&G V.C. Summer Nuclear Station – Unit 1 Standby Diesel Generator Set,12/16/77
WCAP-15307, 7300 Cabinet Electrical Coordination Study, Rev. 0

Condition Reports for NRC Identified Issues
CR-07-02894, Failure to adequately implement administrative controls in accordance with TS 3.6.4 opening demineralized penetration;
CR-07-02961, Volume control tank pressurize low alarm due to hydrogen control valve sticking;
CR-07-03256, Refueling water storage tank / reactor makeup tank heat trace panel calibrations not scheduled;
CR-07-03384, Third quarter fire brigade drill results adverse trends;
CR-07-03388, STP-345.037, “A” Solid State Protection System Testing, pre-job brief not updated per TS 3.3.1 change;
CR-07-03524, Continuous use procedural discrepancy in surveillance STP-503.003B;
CR-07-03584, Security training issues with handling total loss of all mast head lights in the protected area;
CR-07-03606, 1DA steam propagation door gasket found degraded;
CR-07-03632, “B” Train RBCU service water return header thermal-well cap missing;
CR-07-03634, “A” component cooling water pump inboard seal deflector ring abnormal;
CR-07-03636, Refueling water storage tank heat tracing conduit pulled away from pipe;
CR-07-03642, “A” EDG relay and terminal panel wetted by six inch design flood;

LIST OF ACRONYMS

AB	Auxiliary Building
CAP	Corrective Action Program
CCW	Component Cooling Water
CR	Condition Report
CFR	Code of Federal Regulations
DG	Diesel Generator
ECR	Engineering Change Request
EDG	Emergency Diesel Generator
EFW	Emergency Feedwater
EPP	Emergency Plan Procedure
ES	Engineering Service
FSAR	Final Safety Analysis Report
GTP	General Test Procedure
HVAC	Heating Ventilation and Air Conditioning

HX	Heat Exchanger
IB	Intermediate Building
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
IP	Inspection Procedure
IR	Inspection Report
LER	Licensee Event Report
LCO	Limiting Condition for Operation
MPFF	Maintenance Preventable Functional Failures
MPP	Mechanical Maintenance Procedure
MR	Maintenance Rule
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OAP	Operations Administrative Procedure
OOS	Out of Service
PI	Performance Indicator
PMT	Post-Maintenance Testing
PORV	Power Operated Relief Valve
PRA	Probabilistic Risk Assessment
RB	Reactor Building
RBCU	Reactor Building Coolant System
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RTP	Rated Thermal Power
RWST	Refueling Water Storage Pit
SAP	Station Administrative Procedure
SCE&G	South Carolina Electric and Gas
SDP	Significance Determination Process
SG	Steam Generator
SOP	System Operating Procedure
SSC	Structures, Systems, or Components
SSPS	Solid State Protection System
STP	Surveillance Test Procedure
SW	Service Water
SWBP	Service Water Booster Pump
SWPH	Service Water Pumphouse
TDEFW	Turbine Driven Emergency Feedwater
TS	Technical Specification
URI	Unresolved Item
WO	Work Order