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

October 30, 2007

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 05000395/2007004

Dear Mr. Archie:

On September 30, 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 October 11 and October 26, 2007.

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 one NRC-identified finding of very low safety significance (Green) which was determined to be a violation of NRC requirements. However, because of the very low safety significance of the issue and because it was entered into your corrective action program, the NRC is treating this violation as a non-cited violation (NCV) consistent with Section VI.A. of the NRC's Enforcement Policy. If you contest the 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 05000395/2007004
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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Letter to Jeffrey B. Archie from Eugene F. Guthrie dated October 30, 2007

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 05000395/2007004

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	50-395
License No.:	NPF-12
Report No.:	05000395/2007004
Licensee:	South Carolina Electric & Gas (SCE&G) Company
Facility:	Virgil C. Summer Nuclear Station
Location:	P. O. Box 88 Jenkinsville, SC 29065
Dates:	July 1, 2007 - September 30, 2007
Inspectors:	J. Zeiler, Senior Resident Inspector J. Policikoski, Resident Inspector A. Rogers, Reactor Inspector (Section 1R07)
Approved by:	Eugene F. Guthrie, Chief Reactor Projects Branch 5 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000395/2007-04; 07/01/2007 - 09/30/2007; Virgil C. Summer Nuclear Station; Surveillance Testing.

The report covered a three-month period of inspection by two resident inspectors and a Region II reactor inspector. One Green finding, which was a non-cited violation (NCV), was 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 and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. A Green non-cited violation (NCV) of 10 CFR 50.65(a)(4) was identified by the inspectors for the licensee's failure to manage the increase in plant risk during the conduct of "A" emergency diesel generator (EDG) routine surveillance testing. Specifically, the licensee failed to adequately implement the dedicated manual operator risk management compensatory actions for promptly restoring the EDG in the event of an emergency start demand. This resulted in the unplanned and unnecessary unavailability of the EDG during portions of the surveillance activity that relied on these dedicated manual operator actions. The licensee documented this issue in their corrective action program and conducted operator coaching on performing thorough pre-job briefings and the responsibilities of dedicated operators performing risk management actions.

  This finding was more than minor because it was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance because the Risk Deficit for the finding was calculated (using Appendix K of Inspection Manual Chapter 0609, "Maintenance Risk Assessment and Risk Significance Determination Process") to have been significantly less than 1×10^{-6}. The cause of the finding directly involved the "Supervisory and Management Oversight" aspect of the "Work Practices" component of the cross-cutting area of Human Performance, in that, operator supervisory personnel failed to provide the appropriate level of supervisory oversight, especially during the activity pre-job brief, to ensure the proper implementation of dedicated manual operator risk management actions (H.4(c)). (Section 1R22)

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 during the onset of actual extreme hot weather conditions that existed during the week of August 6-10, 2007. The inspectors verified the licensee had implemented applicable sections of operations administrative procedure (OAP)-109.1, "Guidelines for Severe Weather." The inspectors walked down accessible areas of risk-significant equipment, including the emergency diesel generator (EDG) rooms and the turbine building closed cycle cooling tower equipment. Also, the inspectors reviewed the licensee's corrective action program (CAP) database to verify that high temperature weather related problems were being identified at the appropriate level, entered into the CAP, and appropriately resolved.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

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), final safety analysis report (FSAR), and technical specifications (TS). The inspections included review of outstanding maintenance work orders (WOs) and related condition reports (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.

- "A" and "B" motor driven emergency feedwater pumps (MDEFW) (while the turbine driven emergency feedwater pump (TDEFW) was OOS for scheduled maintenance);
- "B" residual heat removal (RHR) pump (while "A" RHR pump was OOS for scheduled maintenance); and,
- "A" control room normal and emergency ventilation (while "B" control room normal and emergency ventilation was OOS for corrective maintenance on XVB-3B-AH).

b. Findings

No findings of significance were identified.

1R05 Fire Protection

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);
- Solid state protection and relay instrumentation room (fire zones CB-6, CB-10, and CB-12);
- Service water pump house (fire zones SWPH-1, SWPH-3, SWPH-4, and SWPH-5.1/5.2);
- EDG rooms "A" and "B" (fire zones DG-1.1/1.2, DG 2.1/2.2);
- TDEFW room (fire zone IB-25.2);
- Charging pump rooms "A," "B," and "C" (fire zones AB-1.5, AB-1.6, and AB-1.7);
- Auxiliary building 397'/388' elevation (fire zone AB-1.4);
- Auxiliary building 374' elevation (fire zones AB-1.1, AB-1.2, and AB-1.3); and,
- Control building 482' elevation (fire zones CB-2.2 and CB-2.3).

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors reviewed the licensee's external flood mitigation plans to determine consistency with design requirements, FSAR Sections 2.4.2 through 2.4.10, flood analysis documents, and Emergency Plan Procedure (EPP)-015, "Natural Emergency (Earthquake, Tornado, Hurricane)." The inspectors performed walkdowns of the station

to verify features remained as described in the FSAR. The inspectors performed visual examination of the storm drain system inside and outside the protected area to verify that drains were not blocked and the ground was properly graded to channel water into the system. The inspectors also conducted walkdowns of the interior and/or exterior walls of the service water pump house and diesel generator building to assess seasonal susceptibilities to flooding.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

Biennial Inspection

a. Inspection Scope

The inspectors reviewed inspection records, test results, maintenance work orders, and other documentation to ensure that heat exchanger (HX) deficiencies that could mask or degrade performance were identified and corrected. Risk significant heat exchangers reviewed included the component cooling water (CCW) HXs along with the EDG intercooler, jacket water, and lube oil HXs.

The inspectors reviewed HX inspection and cleaning completed procedures, inspection frequency, and tube plugging maps. In addition, the inspectors reviewed eddy current test reports for the EDG intercooler HX. The inspectors reviewed the documents to determine that: selected heat exchanger test methodology was consistent with commitments (NRC Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment); test conditions were appropriately considered; test or inspection criteria were appropriate and met; test frequency was appropriate; as-found results were appropriately dispositioned such that the final condition was acceptable; and, test results considered test instrument inaccuracies and differences.

The inspectors also reviewed general health of the service water (SW) system via review of design basis documents, system health reports, and discussions with the SW system engineer. These documents were reviewed to verify the design basis was being maintained and to verify adequate SW system performance under current preventive maintenance, inspections and frequencies.

CRs were reviewed for potential common cause problems and problems which could affect system performance to confirm that the licensee was entering problems into the corrective action program and initiating appropriate corrective actions. In addition, the inspectors conducted a walk down of all selected HXs and major components for the SW system to assess general material condition and to identify any degraded conditions of selected components.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

a. Inspection Scope

On September 17, 2007, the inspectors observed performance of senior reactor operators and reactor operators on the plant simulator during licensed operator requalification training. The scenario (LOR-SA-006) involved a dropped rod from 25 percent RTP followed by a rod ejection loss of coolant accident. The inspectors assessed overall crew performance, communications, oversight of supervision, and the evaluators' critique. The inspectors verified that any significant training issues were appropriately captured in the licensee's CAP.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors evaluated two equipment issues described in the CRs listed below to verify the licensee's effectiveness of the corresponding preventive or corrective maintenance associated with structures, systems or components (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-07-00469, Reactor coolant system loop #2 resistance temperature detector drifting high and becoming erratic; and,
- CR-07-01229, "A" CCW pump motor breaker arc chute found misaligned.

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 2007-27, risk assessment for emergent troubleshooting of hard ground on the cross-train DC electrical bus (1HX);
- Work Week 2007-29, risk assessment for scheduled maintenance and/or testing on TDEFW pump and service water system;
- Work Week 2007-31, risk assessment for scheduled maintenance and/or testing on "A" EDG, "A" RHR pump, and "A" solid state protection system;
- Work Week 2007-34, risk assessment for planned and corrective maintenance of "B" safety related chill water system; and,
- Work Week 2007-39, risk assessment for emergent troubleshooting of speed control instrument failure on the "A" EDG.

b. Findings

No findings of significance were identified. However, associated with the plant risk assessment review for testing the "A" EDG (Work Week 2007-31) in accordance with surveillance test procedure (STP)-125.002A, "Diesel Generator Operability Test," the inspectors noted that dedicated manual operator risk management compensatory actions were being relied upon to allow the "A" EDG to remain available. The dedicated operators were required to be stationed in the EDG room area in order to reposition critical components manipulated during testing in the event of an EDG emergency start demand. Establishing prescribed compensatory measures to restore the EDG to service, if needed, allows the plant maintenance risk assessment to remain at Normal Risk versus Elevated Risk for a non-functional EDG. Further details related to the conduct of this surveillance test are discussed in Section 1R22 of this report. At the time of the inspection, the licensee could not provide complete information to support that these actions could be taken within the time necessary for the EDG to satisfy its safety function as assumed in the Probabilistic Risk Assessment (PRA) success criteria. Pending further NRC review of this issue and additional information from the licensee, this issue is identified as unresolved item (URI) 05000395/2007004-01, Review Risk Assessment Credit for Dedicated Manual Operator Actions During EDG Surveillance Testing.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed five 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-07-02108, decreasing total developed head and differential pressure trend noted during monthly testing of TDEFW pump;
- CR-07-02119, unexpected low starting air pressure alarm response during "B" EDG start;
- CR-07-02243, circumferential crack in "A" EDG air compressor XAC0008B discharge relief valve piping;
- CR-07-02304, "A" EDG room temperatures greater than 102 degrees Fahrenheit; and,
- CR-07-02664, control building equipment room relief air dampers (XDP-234A/XDP-133A) inoperable during control room ventilation purge operations.

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 TDEFW pump following scheduled preventive maintenance (WOs 0700865 and 0702574);
- PMT for "C" charging pump following scheduled preventive maintenance (WOs 0708617, 0709299, and 0709300);
- PMT for "A" EDG fuel oil transfer pump XPP0141A following scheduled maintenance (WOs 0708737 and 0711121);
- PMT for "A" RHR pump following scheduled preventive maintenance (WOs 0610520 and 0709423);
- PMT for "A" EDG following emergent repair of speed control instrument failure (WO 0714881); and,
- PMT for XVB0003B, control room ventilation outer intake valve and "B" train control room emergency ventilation (WOs 0712802 and 0713705).

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed and/or reviewed the five surveillance tests 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-222.022, "Component Cooling Water Pump Inservice Test," (for "B" CCW Pump, Group A, Slow Speed Test);

Other Surveillance Tests:

- STP-125.002A, "Diesel Generator A Operability Test;"
- STP-220.022, "Turbine Driven Emergency Feedwater Pump and Valve Test;"
- STP-204.005, "Boric Acid Transfer Pump Test;" and,
- STP-125.002B, "Diesel Generator B Operability Test."

b. Findings

Introduction: A Green non-cited violation (NCV) of 10 CFR 50.65(a)(4) was identified by the inspectors for the licensee's failure to manage the increase in plant risk during the conduct of "A" EDG routine surveillance testing. Specifically, the licensee failed to properly implement the required dedicated manual operator risk management compensatory actions contained in the surveillance test procedure that were necessary to maintain the EDG availability when EDG components were removed from their normal standby alignment.

Description: On July 31, 2007, during observation of routine TS surveillance testing of the "A" EDG in accordance with STP-125.002A, "Diesel Generator Operability Test," Revision 1, the inspectors identified that only one dedicated auxiliary operator was in the vicinity of the EDG area when the engine was air rolled in order to verify the cylinders were free of fluid. To conduct the air roll, the EDG mode selector switch was placed in "Maintenance," the fuel oil stop lever was blocked, and all twelve cylinder petcock valves were opened. In addition, at a later time when only the EDG mode selector switch was in the "Maintenance" position, the assigned auxiliary operator left the area to take fuel oil storage tank level readings. During both of these instances, two shift test specialists, who were performing engine support system testing in conjunction with the operability test, remained in the EDG area. However, based on review of STP-125.002A, Enclosure A, "Tech Spec/EOOS/Functionality Review," the inspectors noted that two dedicated operators were required to be stationed in the EDG room area in order to close the twelve cylinder petcock valves and return the fuel oil stop lever and mode selector switch back to their normal standby positions. Only one operator was required to be stationed when just the mode selector switch was in "Maintenance." These compensatory measures allowed the plant maintenance risk to remain at Normal Risk versus Elevated Risk for an unavailable EDG. While it was emphasized by the operations supervisor at the pre-job test briefing that the auxiliary operator was being relied upon for taking restoration actions to maintain EDG availability, it was not discussed that two operators were needed and there was no discussion or expectation that the shift test specialists would have any responsibility for these actions. The licensee documented this issue in their corrective action program and conducted operator coaching on performing thorough pre-job briefings and the responsibilities of dedicated operators performing risk management actions.

Analysis: The licensee's failure to implement prescribed risk management actions to restore EDG functionality during surveillance testing constituted a performance deficiency and a finding. This finding was similar to Example 7.g. of Inspection Manual Chapter 0612, Appendix E, "Examples of Minor Issues," for being greater than minor and was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors completed a significance determination of the finding using Appendix K of Inspection Manual Chapter 0609, "Maintenance Risk Assessment and Risk Significance Determination Process." Using data from the licensee's PRA and data supplied by the licensee's PRA experts, the actual Incremental Core Damage Probability (ICDP) for the finding was conservatively calculated assuming the "A" EDG to have been unavailable during the entire surveillance testing. This value was then compared to the licensee's assumed ICDP for the planned surveillance activity and a Risk Deficit was obtained for the finding. Based on the magnitude of the actual Risk Deficit being significantly less than 1×10^{-6}, the inspectors concluded that the finding was of very low safety significance (Green).

The finding directly involved the cross-cutting area of Human Performance under the "Supervisory and Management Oversight" aspect of the "Work Practices" component, in that, the pre-job brief supervisor failed to provide appropriate oversight to ensure the proper implementation of required dedicated manual operator risk management actions (H.4(c)).

Enforcement: 10 CFR 50.65(a)(4), "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," requires in part, that prior to performing maintenance activities (including surveillance testing), the licensee shall assess and manage the increase in risk that may result from the proposed activities. STP-125.002A Enclosure A implements the risk management action requirements set forth in 10 CFR 50.65(a)(4). Enclosure A required dedicated operators to be stationed in the EDG room area to reposition critical components with the EDG in specified conditions. Contrary to the above, on July 31, 2007, the licensee failed to manage the increase in risk during EDG surveillance testing, in that, risk management actions to have dedicated operators in the EDG room area to perform compensatory measures were not implemented. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as CR-07-02453, this violation is being treated as an NCV consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000395/2007004-02, Inadequate Implementation of Dedicated Manual Operator Risk Management Actions During EDG Surveillance Testing.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the following two equipment changes that were considered temporary modifications. The inspectors evaluated the change documents and the associated 10 CFR 50.59 screenings against the system design basis documentation and FSAR to verify that the changes did not adversely affect the safety function of safety systems. As part of this review, the inspectors verified that the changes were developed and implemented in accordance with procedures ES-526, "Engineering Controls of On-Line Sealant Repairs," SAP-300, "Conduct of Maintenance," and GTP-215, "Troubleshooting Plan Development."

- Install steam leak repair enclosure over high pressure feedwater heater 1B vent line orifice XPS0001B per WO 0713596 including 10 CFR 50.59 screening evaluation (CR 07-02601); and,
- Install stiffening rods to main generator exciter housing to reduce vibrations on the #9 main turbine bearing per WO 0714720 including 10 CFR 50.59 screening evaluation (CR 06-04268).

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

a. Inspection Scope

On September 17, 2007, the inspectors reviewed and observed performance during a licensed operator requalification simulator scenario that involved a dropped rod from 25 percent RTP followed by a rod ejection loss of coolant accident which required a Site

Area Emergency to be declared (LOR-SA-006). The inspectors assessed emergency procedure usage and verified the operators were properly classifying the emergency in accordance with EPP-001, "Activation and Implementation of Emergency Plan." The inspectors evaluated the adequacy of the licensee's conduct of the simulator critique performance and verified that any significant simulator performance issues associated with emergency plan usage were captured by the licensee in their CAP.

b. Findings

No findings of significance were identified.

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 June 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 AC Power System;
- MSPI - High Pressure Injection System; and,
- MSPI - Residual Heat Removal System.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Daily Screening of Corrective Action Items

a. Inspection Scope

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.

b. Findings

No findings of significance were identified.

.2 Annual Sample Review

a. Inspection Scope

The inspectors reviewed one issue in detail to evaluate the effectiveness of the licensee's corrective actions for important safety issues documented in CR-06-04275 and LER 05000395/2006004-00, "Turbine Trip Due to High Steam Generator Level P-14." This CR was associated with the turbine trip that occurred November 22, 2006, due to an operator failure to adequately control steam generator water level during secondary plant startup from the last refueling outage. The inspectors assessed whether the issue was 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," and SAP-1356, "Cause Determination."

b. Findings and Observations

No findings of significance were identified.

4OA3 Event Followup

(Closed) LER 05000395/2007001-01: Manual Reactor Shutdown Due to Steam Leak at Feedwater Booster Pump Recirculation Header.

The inspectors reviewed the subject LER to verify its accuracy and the appropriateness of the specified corrective actions. The supplement to this LER provided additional details of the root cause evaluation and corrective actions as approved by the Corrective Action Review Board. A detailed review of the applicable condition report (CR-07-00411), failure mode analysis, and root cause analysis (RCA 07-0411) was documented under Section 4OA2.2 of NRC Inspection Report 05000395/2007003. No new findings of significance were identified. This LER is closed.

4OA5 Other

Institute of Nuclear Power Operations (INPO) Biennial Plant Evaluation - Interim/Final Report Review

The inspectors reviewed the interim and final report of the INPO biennial evaluation of site activities conducted February - March 2007. The inspectors reviewed the reports to ensure that issues identified were consistent with the NRC perspectives of licensee

performance and if any significant safety issues were identified that needed further NRC followup. No findings of significance were identified.

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 October 11 and October 26, 2007. The licensee acknowledged the results. 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
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
G. Moffatt, Manager, Nuclear Training
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

05000395/2007004-01	URI	Review Risk Assessment Credit for Dedicated Manual Operator Actions During EDG Surveillance Testing (1R13)

Opened and Closed

05000395/2007004-02	NCV	Inadequate Implementation of Dedicated Manual Operator Risk Management Actions During EDG Surveillance Testing (Section 1R22)

Closed

05000395/2007001-01	LER	Manual Reactor Shutdown Due to Steam Leak at Feedwater Booster Pump Recirculation Header (Section 4OA3)

Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Procedures and Drawings

SOP-211, Emergency Feedwater System, Revision 13A
SOP-115, Residual Heat Removal, Revision 19K
D-912-140, Control Room Normal and Emergency Air Handling System

Section 1R07: Heat Sink Performance

Procedures and Completed Testing Data

Service Water HX Performance For 110% Run (Lube Oil HX), October/November 2006
Service Water HX Performance For 110% Run (Jacket Water HX), October/November 2006
Service Water HX Performance For 110% Run (Intercooler HX), October/November 2006
Component Cooling Water HX Performance for 110% Run (HX A), October/November 2006
Work Orders Associated With Service Water Pumps
ES-560.211, Service Water System Heat Exchanger Performance, Revision 8
ES-505, Service Water System Corrosion Monitoring and Control Program, Revision 1
SAP-1255, Service Water System Reliability Optimization Program, Revision 0
PTP-213.002, Service Water System Heat Exchanger Data Collection, Revision 1
Diesel Generator HX Performance Testing Trends
SW Pump Discharge Monthly Maximum Temperatures Summary

Condition Reports

CR-03-01155, The Service Water Pump House Cooling Coils leaked during system startup
CR-03-01998, “A” SW screen running too frequently, and causing spurious trouble alarm each time it runs
CR-05-03882, XVB03126B-SW Failed Stroke test
CR-03-01125, "B" CCW pump has a small outboard seal leak.
CR-03-04469, “C” CCW Pump Switch on B Train does not operate properly. Will not go to Pull-to-Lock Position.

Condition Reports for NRC Identified Issues

CR-07-01963, Response to NRC inspector identification of packing leakage from level switch instrument valve 1LS2203;
CR-07-02167, Response to NRC inspector identification of concern over reliability of reactor building cooling unit drain flow alarm system due to testing shortcomings;
CR-07-02338, Response to NRC inspector identification of deficiencies noted during July 30, 2007, fire brigade drill and critique;
CR-07-02453, Response to NRC inspector identification of improper control of dedicated operators used for EDG functionality during testing;
CR-07-02525, Response to NRC inspector identification of improper switchyard electrical manway inspections;
CR-07-02616, Response to NRC inspector identification that fire hose in outside fire hydrant had significant damage; and,
CR-07-02664, Response to NRC inspector identification of control room ventilation damper had degraded louver seals.

LIST OF ACRONYMS

AB	Auxiliary Building
CAP	Corrective Action Program
CB	Control Building
CCW	Component Cooling Water
CR	Condition Report
CFR	Code of Federal Regulations
DG	Diesel Generator
EDG	Emergency Diesel Generator
EOOS	Equipment Out Of Service
EPP	Emergency Plan Procedure
ES	Engineering Service
FSAR	Final Safety Analysis Report
GTP	General Test Procedure
HX	Heat Exchanger
IB	Intermediate Building
ICDP	Incremental Core Damage Probability
IMC	Inspection Manual Chapter
INPO	Institute of Nuclear Power Operations
IP	Inspection Procedure
IR	Inspection Report
LER	Licensee Event Report
MDEFW	Motor Driven Emergency Feedwater
MPFF	Maintenance Preventable Functional Failures
MR	Maintenance Rule
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OAP	Operations Administrative Procedure
OOS	Out-of-Service
PI	Performance Indicator
PMT	Post-Maintenance Testing
PRA	Probabilistic Risk Assessment
RHR	Residual Heat Removal
RTP	Rated Thermal Power
SAP	Station Administrative Procedure
SCE&G	South Carolina Electric and Gas
SDP	Significance Determination Process
SOP	System Operating Procedure
SSC	Structures, Systems, or Components
STP	Surveillance Test Procedure
SW	Service Water
SWPH	Service Water Pumphouse
TDEFW	Turbine Driven Emergency Feedwater
TS	Technical Specification
URI	Unresolved Item
WO	Work Order