



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

July 29, 2011

Mr. Tom E. Tynan  
Vice President - Vogtle  
Southern Nuclear Operating Company, Inc.  
Vogtle Electric Generating Plant  
7821 River Road  
Waynesboro, GA 30830

**SUBJECT: VOGTLE ELECTRIC GENERATING PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000424/2011003 AND 05000425/2011003**

Dear Mr. Tynan:

On June 30, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Vogtle Electric Generating Plant, Units 1 and 2. The enclosed integrated inspection report documents the inspection findings, which were discussed on July 21, 2011, with members of your staff.

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

This report documents one self-revealing finding of very low safety significance (Green) which was determined to be a violation of regulatory requirements. In addition, one licensee-identified violation, which was determined to be of very low safety significance, is listed in the enclosed inspection report. However, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCV) consistent with the NRC Enforcement Policy. If you contest any NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Vogtle Electric Generating Plant. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II, and the NRC Senior Resident Inspector at the Vogtle facility. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

SNC

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In accordance with the Code of Federal Regulations 10 CFR 2.390 of the NRC's Rules of Practice, a copy of this letter, its enclosures, 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 the 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/***

Scott M. Shaeffer, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Docket Nos.: 50-424, 50-425  
License Nos.: NPF-68 and NPF-81

Enclosures: Inspection Report 05000424/2011003 and 05000425/2011003  
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

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Sincerely,

**/RA/**

Scott M. Shaeffer, Chief  
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SNC

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Letter to Tom E. Tynan from Scott M. Shaeffer dated July 29, 2011

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000424/2011003 AND 05000425/2011003

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**U. S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos.: 50-424, 50-425

License Nos.: NPF-68, NPF-81

Report Nos.: 05000424/2011003 and 05000425/2011003

Licensee: Southern Nuclear Operating Company, Inc. (SNC)

Facility: Vogtle Electric Generating Plant, Units 1 and 2

Location: Waynesboro, GA 30830

Dates: April 01, 2011 through June 30, 2011

Inspectors: M. Cain, Senior Resident Inspector  
T. Chandler, Resident Inspector  
M. Speck, Senior Emergency Preparedness Inspector  
R. Patterson, Reactor Inspector (1R17)  
R. Williams, Reactor Inspector (1R17)  
C. Smith-Standberry, Reactor Inspector (Training) (1R17)  
T.C. Su, Reactor Inspector (Training) (1R17)

Approved by: Scott Shaeffer, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000424/2011-003, 05000425/2011-003; 04/01/2011 - 06/30/2011; Vogtle Electric Generating Plant, Units 1 and 2; Post-Maintenance Testing

The report covered a three-month period of inspection by two resident inspectors, a senior emergency preparedness inspector, two reactor inspectors, and two reactor inspectors in training. One non-cited violation (NCV) with very low safety significance (Green) was identified. The significance of most findings is indicated by their color (great than Green, or Green, White, Yellow, Red); the significance was determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP); the cross-cutting aspect was determined using IMC 0310, "Components Within The Cross-Cutting Areas;" and that findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review.

### Cornerstone: Mitigating Systems

- Green. A self-revealing, non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified for failure to specify and implement adequate post maintenance testing to ensure important maintenance activities have been satisfactorily accomplished. Specifically, inadequate post maintenance testing (PMT) resulted in the depressurization of all four safety injection (SI) accumulators below minimum technical specification (TS) allowed values. Upon recognizing that the accumulators were below TS allowed pressure setpoint of 626 psig, the licensee immediately restored accumulator pressures to within TS allowed pressure band of 626 to 678 psig. The licensee has entered the issue into their corrective action program (CR 2011105621) and is in the process of enhancing the work control process to require a peer review of all post maintenance testing prior to work order release.

This issue is more than minor because it is associated with a cornerstone attribute and adversely affects the objective of the Mitigating Systems cornerstone. Specifically, the performance deficiency of failing to specify adequate PMT resulted in the depressurization of all four SI accumulators. The finding was determined to be of very low safety significance (Green) because the event did not result in the actual loss of system safety function or the safety function of a single train for greater than its TS allowed outage time. The inspectors determined that the cause of this finding was related to the Resources component of the Human Performance cross-cutting area. Specifically, the licensee did not ensure complete and accurate work packages associated with the repair of 1HV-0943B, SI Accumulator Nitrogen Vent valve. [H.2(c)] (Section 1R19)

Violations of very low safety significance that were identified by the licensee have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and the corrective action tracking numbers are listed in Section 4OA7 of this report.

Enclosure



## REPORT DETAILS

### Summary of Plant Status

Unit 1 started the report period shutdown for a planned refueling outage. The unit was restarted on April 1 and attained full rated thermal power (RTP) power on April 6. Unit 1 tripped from 100% power on April 20 due to a suspected faulty reactor trip breaker. The unit was restarted on April 24 and attained full RTP power on April 26. Unit 1 operated at essentially full RTP for the remainder of the inspection period.

Unit 2 operated at essentially full RTP for the entire inspection period.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R01 Adverse Weather Protection

##### a. Inspection Scope

Grid Reliability The inspectors reviewed the licensee's procedures to verify that communication protocols exist between the transmission system operator and the control room to promptly identify issues that could impact the offsite power system. The inspectors also verified the adequacy of these procedures to address measures to monitor and maintain availability and reliability of both the offsite alternating current (AC) power system and the alternate AC power system. The inspectors also conducted walkdowns to verify material condition of offsite AC power systems and onsite alternate AC power systems to the plant including 500 KV and 230 KV switchyards and transformers. Documents reviewed are listed in the Attachment.

Seasonal Readiness Review The inspectors performed a walkdown of the following two systems to verify they would remain functional during high temperature conditions. The inspectors walked down the systems to determine component temperatures and interviewed engineers to ensure that the systems would be operable at the observed temperature. Additionally, the inspectors reviewed the CR database to verify that adverse weather related items were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

- North and south fire pump houses
- Unit 1 and Unit 2 refueling water storage tanks (RWST)

##### b. Findings

No findings were identified.

Enclosure

#### 1R04 Equipment Alignment

##### a. Inspection Scope

Partial System Walkdown The inspectors performed partial walkdowns of the following three systems to verify correct system alignment. The inspectors checked for correct valve and electrical power alignments by comparing positions of valves, switches, and breakers to the documents listed in the Attachment. Additionally, the inspectors reviewed the condition report database to verify that equipment alignment problems were being identified and appropriately resolved.

- Unit 2 train A containment spray (CS) system while the train B CS system was out of service due to a planned maintenance outage
- Unit 1 train A auxiliary component cooling water (ACCW) system during the train B ACCW system maintenance outage
- Unit 1 train B CS system during Unit 1 train A CS system maintenance outage

##### b. Findings

No findings were identified.

#### 1R05 Fire Protection

##### a. Inspection Scope

Fire Area Tours. The inspectors walked down the following five plant areas to verify the licensee was controlling combustible materials and ignition sources as required by procedures 92015-C, Use, Control, and Storage of Flammable/Combustible Materials, and 92020-C, Control of Ignition Sources. The inspectors assessed the observable condition of fire detection, suppression, and protection systems and reviewed the licensee's fire protection Limiting Condition for Operation (LCO) log and condition report (CR) database to verify that the corrective actions for degraded equipment were identified and appropriately prioritized. The inspectors also reviewed the licensee's fire protection program to verify the requirements of Updated Final Safety Analysis Report (UFSAR) section 9.5.1, Fire Protection Program, and Appendix 9A, Fire Hazards Analysis, were met. Documents reviewed are listed in the Attachment.

- North firewater pumphouse and the south firewater pumphouse
- Unit 1 engineered safety features (ESF) chiller and normal air conditioning rooms
- Unit 1 and 2 rod control switchgear rooms
- Unit 1 and 2 main control rooms and the Technical Support Center
- Unit 1 control building level A east and west penetration rooms

##### b. Findings

No findings were identified.

1R06 Flood Protection Measuresa. Inspection Scope

Internal Flood Review The inspectors walked down the following areas which contained risk-significant structures, systems and components below flood level to verify flood barriers were in place. Motor controllers and terminal boxes that could become potentially submerged were inspected to ensure that the sealing gasket material was intact and undamaged. The inspectors reviewed selected licensee alarm response procedures to verify alarm setpoints and setpoints for sump pump operation were consistent with the UFSAR, the setpoint index, and Technical Specifications (TSs).

- Unit 2 component cooling water (CCW) and ACCW pump rooms (both trains)

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program

Operating Experience Smart Sample (OpESS) FY 2010-02 "Sample Selections for Reviewing Licensed Operator Examinations and Training Conducted on the Plant-Referenced Simulator."

a. Inspection Scope:

The inspectors conducted interviews with operations management, training department staff and licensed operators to determine the type and content of training performed related to complex transients and trips. The inspectors also discussed the inclusion of operating experience related to fires in electrical equipment similar to an event occurring at the H. B. Robinson Plant on March 28, 2010. The inspectors attended plant meetings and observed the presentation of operating experience, which included the H. B. Robinson Plant event. The inspectors obtained and reviewed a copy of the licensee's operator requalification training scenario, designed to mimic the H.B. Robinson Plant electrical fire event. The licensee conducted this scenario for all operations department crews during cycle four (4) training in 2010.

- b. Resident Quarterly Observation. The inspectors observed operator performance on May 2, during licensed operator simulator training described on simulator exercise guide V-RQ-SE-11201-1.0. The scenario observed consisted of a small break loss of coolant accident (LOCA) followed by a large break LOCA from the reactor head. Documents reviewed are listed in the Attachment. The inspectors specifically assessed the following areas:

- Correct use of the abnormal and emergency operating procedures
- Ability to identify and implement appropriate actions in accordance with the requirements of the TSs

- Clarity and formality of communications in accordance with procedure 10000-C, Conduct of Operations
- Proper control board manipulations including critical operator actions
- Quality of supervisory command and control
- Effectiveness of the post-evaluation critique

c. Findings

No findings were identified.

1R12 Maintenance Rule Effectiveness

OpESS FY2010-01 "Recent Inspection Experience for Components Installed Beyond Vendor-Recommended Service Life"

a. Inspection Scope

The inspectors conducted interviews with operations, maintenance and engineering staff to determine the licensee's method of monitoring the service life of plant-installed components. The inspectors reviewed the licensee's procedure NMP-ES-003, Life Cycle Management, Version 11.0, to evaluate how the licensee implemented vendor-recommended service life for station components. The inspectors also conducted interviews with the licensee's design modification department staff to identify their process for new equipment used in plant modifications.

- b. The inspectors reviewed the following two safety-significant systems to verify that the licensee's maintenance efforts met the requirements of 10 CFR 50.65 (the maintenance rule) and licensee procedure 50028-C, Engineering Maintenance Rule Implementation. The reviews included adequacy of the licensee's failure characterization, establishment of performance criteria or 50.65(a)(1) performance goals, and adequacy of corrective actions. Other documents reviewed during this inspection included control room logs, system health reports, the maintenance rule database, and maintenance work orders. Documents reviewed are listed in the Attachment. Also, the inspectors interviewed system engineers and the maintenance rule coordinator to assess the accuracy of identified deficiencies and extent of condition.
- Unit 1 stand-by power safety features sequencer system 1821 return to (a)2
  - Unit 1 ESF safety-related room cooler #6 failure to start

c. Findings

No findings were identified.

### 1R13 Maintenance Risk Assessments and Emergent Work Control

#### a. Inspection Scope

The inspectors reviewed the following five work activities to verify plant risk was properly assessed by the licensee prior to conducting the activities. The inspectors reviewed risk assessments and risk management controls implemented for these activities to verify they were completed in accordance with procedure 00354-C, Maintenance Scheduling, and 10 CFR 50.65(a)(4). The inspectors also reviewed the CR database to verify that maintenance risk assessment problems were being identified at the appropriate level, entered into the corrective action program, and appropriately resolved.

- Operability testing on the 1A emergency diesel generator (EDG) concurrent with high-risk work being performed in the high voltage switchyard
- Maintenance outages on multiple Unit 1 train B nuclear service cooling water (NSCW) tower fans
- Operability testing on the 1B EDG concurrent with high-risk work being performed in the high voltage switchyard
- Maintenance outages on multiple Unit 2 train A NSCW tower fans
- Operability testing on the 2B EDG concurrent with high-risk work being performed in the high voltage switchyard

#### b. Findings

No findings were identified.

### 1R15 Operability Evaluations

#### a. Inspection Scope

The inspectors reviewed the following five evaluations to verify they met the requirements of procedure NMP-GM-002, Corrective Action Program, and NMP-GM-002-001, Corrective Action Program Instructions. The scope of this inspection included a review of the technical adequacy of the evaluations, the adequacy of compensatory measures, and the impact on continued plant operation.

- CR 2011105432, 1HV-8701B motor-operator thrust values exceeded the design maximum allowable value
- CR 2011107622, While performing 14421-2, Solid State Protection System (SSPS) Train B Operability Test, at step 5.3.4 the amber testing lamp did not light as required.
- CR 2011108202, Motor operated valve (MOV) will not operate without physically holding down the de-clutch lever while turning the hand wheel
- CR 2011107700, Gas voiding discovered in the common suction line of the Unit 2 centrifugal charging pumps
- CR 2011107034, Gas voiding discovered in the common suction line of the Unit 1 centrifugal charging pumps

b. Findings

No findings were identified.

1R17 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed three evaluations to confirm that the licensee had appropriately considered the conditions under which changes to the facility, UFSAR, or procedures may be made, and tests conducted, without prior NRC approval. The inspectors reviewed drawings, calculations, supporting analyses, the UFSAR, and TS associated with the evaluations to confirm that the licensee appropriately concluded that the changes could be accomplished without obtaining a license amendment. The three evaluations are included in the List of Documents.

The inspectors reviewed documentation for 19 modifications to confirm that the licensee's conclusions to "screen out" these changes were correct and consistent with 10CFR50.59. The 19 changes that were screened out are included in the List of Documents.

The inspectors reviewed engineering design change packages for nine material, component, and design based modifications to evaluate the modifications for adverse effects on system availability, reliability, and functional capability. The nine modifications and the affected cornerstones are as follows:

- MDC 2091975201, New Termination Unit Installation on 2A/2B Sequencer, Ver. 1
- DCP 2062080901, Install residual heat removal (RHR) bypass line on Unit 2 Loop 1, Rev. 2
- MDC 1090006501, Letdown Flow Orifice Replacement, Rev. 1
- 00-VAM048, Remote Control Panel for Hydrogen Monitors, Rev. 0
- DCP 2049001701, NSCW Support Upgrades for WH Analyses, 4/13/2007
- MDC 2081329401, Replacement of 1E/non-1E Isolation HFB molded case circuit breakers (MCCBs), 8/12/2008
- DCP 1009003201, Inverter Replacement, Ver. 7
- DCP 1071817701, Unit 1 Solid State Protection System (SSPS) Modifications, Ver. 1
- MDC 1091636601, Vent Valve Line Reconfiguration, Ver. 1

Documents reviewed included procedures, engineering calculations, modification design and implementation packages, work orders, site drawings, corrective action documents, applicable sections of the living UFSAR, supporting analyses, TS, and design basis information. The inspectors additionally reviewed test documentation to ensure adequacy in scope and conclusion. The inspectors review was also intended to verify that all appropriate details were incorporated in licensing and design basis documents and associated plant procedures.

The inspectors also reviewed selected Condition Report (CR) and the licensee's recent self-assessment associated with modifications and screening/evaluation issues to confirm that problems were identified at an appropriate threshold, were entered into the corrective action process, and appropriate corrective actions had been initiated and tracked to completion.

b. Findings

No findings were identified.

1R18 Plant Modifications

a. Inspection Scope

Temporary Modifications Reviewed temporary modification (TM) 2101897701 and associated 10CFR50.59 screening criteria against the system design bases documentation and procedure 00307-C, Temporary Modifications. Currently no permanent vibration sensing equipment is mounted on the NSCW fan motors or gear boxes. This TM provides vibration probes on all NSCW fan motors or gear boxes to allow on-line trending of vibration data. The inspectors reviewed the implementation, engineering justification, and operator awareness for this TM.

Reviewed TM 1110607501, Installation of Data Recorders to Unit 1 Solid State Protection System (SSPS) & Reactor Trip Switchgear, and the associated 10CFR50.59 screening criteria against the system design bases documentation and procedure 00307-C. This TM provides for the installation of a data recorder on A Train SSPS panel and A Train Reactor Trip Switchgear to allow on-line monitoring of instrument signals to help identify why the A Train Reactor Trip Breaker (RTA) under-voltage (UV) trip coil inadvertently actuated causing an automatic reactor trip. The inspectors reviewed the implementation, engineering justification, and operator awareness for this TM.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors either observed post-maintenance testing or reviewed the test results for the following seven maintenance activities to verify that the testing met the requirements of procedure 29401-C, Work Order Functional Tests, for ensuring equipment operability and functional capability was restored. The inspectors also reviewed the test procedures to verify the acceptance criteria were sufficient to meet the TS operability requirements.

- Repair of the #1 diesel-driven firewater pump
- Replacement of the motor on the Unit 1 A train NSCW fan #2
- Repair of the start logic for supply fan #4 on the Unit 1 train B EDG
- Maintenance outage on the Unit 1 ACCW pump #2
- Replacement of Agastat timing relay on Unit 2 NSCW pump #1
- Maintenance outage on the Unit 1 CS Pump A
- Repair of 1HV-0943B, Unit 1 SI Accumulator Nitrogen Vent Valve

b. Findings

Introduction: A self-revealing, non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified for failure to specify and implement adequate post maintenance testing (PMT) to ensure important maintenance activities have been satisfactorily accomplished. Specifically, inadequate PMT resulted in the depressurization of all four safety injection (SI) accumulators below minimum technical specification (TS) allowed values.

Description: On March 30, 2011, during a plant startup from refueling outage 1R16, Unit 1 operators discovered all four SI accumulator pressures less than both the minimum operating administrative pressure of 626 psig and below the TS minimum setpoint of 617 psig. The licensee immediately restored accumulator pressures to within TS allowed pressure band of 626 to 678 psig. In August of 2010, during surveillance testing of 1HV-0943B, SI Accumulator Nitrogen Vent valve, the valve failed to fully close and subsequently began depressurizing the accumulators. The licensee capped the line downstream of the valve via a temporary modification, TM 1101867901, to stop the depressurization and left the line capped for the duration of the operating cycle. During the subsequent refueling outage 1R16, 1HV-0943B was rebuilt under work order WO 1101867701 which listed as PMT the performance of I & C procedure 24819-1, Accumulator Gas Vent 1HC-943B Channel Calibration, and operations procedure 14825-1, Quarterly Inservice Valve Test. The I&C procedure was never completed due to existing plant conditions at the time of performance (i.e. no nitrogen pressure available) and the operations PMT had been signed off as 'satisfactory' based on a previous cycling of the valve by I&C and a main control board indication check performed earlier that day. Plant procedure 29401-C, Work Order Functional Tests, specifically states that solenoid operated valves which have been rebuilt shall be "verified by inspection that there are no leaks at any process connections at normal operating conditions." This was not listed as a PMT in either the work order to repair/rebuild the valve or the work order for TM removal, which removed the cap from the vent line. SI accumulators are required to be operable in Mode 3 when RCS pressure is above 1000 psig. During the subsequent plant startup from the refueling outage, operators raised SI accumulator pressures to above the administrative limit of 626 psig in preparation for entry into Mode 3. Of note: operators did not raise accumulator pressures high enough to clear the low pressure annunciator in the main control room, a contributing factor to the event. Therefore, when SI accumulator pressure slowly decreased due to the leaking by of 1HV-0943B valve, there was no annunciator to alert the operators. Accumulator pressure decreased to as low as 612 psig in one accumulator before operators identified the discrepancy and immediately



took steps to re-pressurize the accumulators and recap the vent line downstream of 1HV-0943B.

Analysis: The failure to establish and implement adequate PMT to ensure important maintenance activities have been satisfactorily accomplished is a performance deficiency. Specifically, inadequate PMT resulted in the depressurization of all four SI accumulators below minimum TS allowed values. This finding is more than minor because it is associated with a cornerstone attribute and adversely affects the objective of the Mitigating Systems cornerstone. The finding was determined to be of very low safety significance (Green) because the event did not result in the actual loss of system safety function or the safety function of a single train for greater than its TS allowed outage time. The significance was determined using Inspection Manual Chapter (IMC) 0609, Significance Determination Process. Phase 1 evaluation for Mitigating Systems cornerstone resulted in a Phase 2 evaluation based upon an initial 'yes' answer to the question, "Does the finding represent a loss of system safety function?;" however, a subsequent evaluation by Westinghouse, GP-18773 dated April 26, 2011, Assessment of Vogtle Units 1 and 2 with the accumulator pressure below the Technical Specification value, determined that the accumulators would have been able to perform their safety related functions if called upon. Resident inspectors, as well as NRC HQ NRR technical staff, have reviewed the evaluation and determined that no loss of safety function occurred; therefore, a Phase 2 evaluation was not required. The inspectors determined that the cause of this finding was related to the Resources component of the Human Performance cross-cutting area. Specifically, the licensee did not ensure complete and accurate work packages associated with the repair of 1HV-0943B, SI Accumulator Nitrogen Vent valve. [H.2(c)]

Enforcement: 10 CFR 50 Appendix B, Criterion V, Instructions, Procedures and Drawings, requires that all activities affecting quality shall be prescribed by documented instructions, procedures or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Criterion V requires that instructions, procedures or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. Contrary to the above, the licensee failed to appropriately specify and implement adequate PMT to ensure important maintenance activities were satisfactorily accomplished. Specifically, inadequate PMT resulted in the depressurization of all four SI accumulators below minimum TS allowed values. Because this issue was determined to be of very low safety significance (Green) and the licensee has entered this issue into their corrective action program as CR 2011105621, this violation is being treated as a non-cited violation (NCV), consistent with Section VI.A of the NRC's Enforcement Policy: NCV 05000424/2011003-01, Failure to Establish and Implement Adequate Post Maintenance Testing for 1HV-0943B.

## 1R20 Refueling and Other Outage Activities

### a. Inspection Scope

The inspectors performed the inspection activities described below for the 1R16 refueling outage that ended on April 2, 2011. The inspectors confirmed that, when the

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licensee removed equipment from service, the licensee maintained defense-in-depth commensurate with the outage risk control plan for key safety functions and applicable TS and that configuration changes due to emergent work and unexpected conditions were controlled in accordance with the outage risk control plan. Documents reviewed are listed in the Attachment. Inspection activities included:

- Observed heat up and startup activities to verify TS, license conditions, and other requirements, commitments, and administrative procedure prerequisites for mode changes were met prior to changing modes or plant conditions. Reactor coolant system (RCS) integrity was verified by reviewing RCS leakage calculations.

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors reviewed the following five surveillance test procedures and either observed the testing or reviewed test results to verify that testing was conducted in accordance with the procedures and that the acceptance criteria adequately demonstrated that the equipment was operable. Additionally, the inspectors reviewed the CR database to verify that the licensee had adequately identified and implemented appropriate corrective actions for surveillance test problems.

Surveillance Tests

- 14980B-2, Rev 22.3, Diesel Generator 2B Operability Test (fast start)
- 24810-1, Rev 43.1, Delta T/Tavg Loop 1 Protection Channel I 1T-411 Channel Operational Test and Channel Calibration
- 24756-2, Rev 21, Steam Generator Level (narrow range) Protection Channel II 2L-553 Channel Operational Test and Channel Calibration
- 24265-1, Rev. 11.1, NSCW Cooling Tower #02 Fans Temperature Control 1T-116447, 1T-11648, 1T-11649 Channel Calibration

In-Service Tests (IST)

- 14808B-1, Rev. 2.1, Train B Centrifugal Charging Pump and Check Valve IST and Response Time Test

RCS Leakage Detection

- 14905-1, Rev. 66.1 and 14905-2 Rev. 50.1, RCS Leakage Calculation (Inventory Balance)

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness (EP)

1EP2 Alert and Notification System Testing

a. Inspection Scope

The inspector evaluated the adequacy of the licensee's methods for testing the Alert and Notification System (ANS) in accordance with NRC Inspection Procedure IP 71114, Attachment 02, Alert and Notification System Evaluation. The applicable planning standard, 10 CFR Part 50.47(b)(5), and its related requirements, 10 CFR Part 50, Appendix E, Section IV.D, were used as reference criteria. The criteria contained in NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Revision 1, was also used as a reference.

The inspector reviewed various documents that are listed in the Attachment. This inspection activity satisfied one inspection sample for the ANS on a biennial basis.

b. Findings

No findings were identified.

1EP3 Emergency Preparedness Organization Staffing and Augmentation System

a. Inspection Scope

The inspector reviewed the licensee's Emergency Response Organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection were reviewed to assess the effectiveness of corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure IP 71114, Attachment 03, Emergency Response Organization Staffing and Augmentation System. The applicable planning standard, 10 CFR 50.47(b)(2), and its related requirements, 10 CFR 50, Appendix E, were used as reference criteria.

The inspector reviewed various documents that are listed in the Attachment. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

b. Findings

No findings were identified.

#### 1EP4 Emergency Action Level and Emergency Plan Changes

##### a. Inspection Scope

Since the last NRC inspection of this program area, revision 56 of the Emergency Plan was implemented. The licensee determined that in accordance with 10 CFR 50.54(q), the changes resulted in no decrease in the effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The inspector conducted a review of the Emergency Action Level changes and a sampling of the implementing procedure changes made between May 1, 2010, and March 31, 2011, to evaluate for potential decreases in effectiveness of the Plan. However, this review was not documented in a Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

The inspection was conducted in accordance with NRC Inspection Procedure IP 71114, Attachment 04, Emergency Action Level and Emergency Plan Changes. The applicable planning standard, 10 CFR 50.47(b)(4), and its related requirements, 10 CFR 50, Appendix E, were used as reference criteria.

The inspector reviewed various documents that are listed in the Attachment. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis.

##### b. Findings

No findings were identified.

#### 1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

##### a. Inspection Scope

The inspector reviewed the corrective actions identified through the Emergency Preparedness program to determine the significance of the issues and to determine if repeat problems were occurring. The facility's self-assessments and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. In addition, the inspector reviewed licensee self-assessments and audits to assess the completeness and effectiveness of all emergency preparedness related corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure IP 71114, Attachment 05, Correction of Emergency Preparedness Weaknesses. The applicable planning standard, 10 CFR 50.47(b)(14) and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspector reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the correction of emergency preparedness weaknesses on a biennial basis.

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b. Findings

No findings were identified.

1EP6 Drill Evaluationa. Inspection Scope

The inspectors reviewed the facility activation exercise guide and observed the following emergency response activity to verify the licensee was properly classifying emergency events, making the required notifications, and making appropriate protective action recommendations in accordance with procedures 91001-C, Emergency Classifications, and 91305-C, Protective Action Guidelines.

- On May 4, the licensee conducted an emergency preparedness drill which evolved actuation of the TSC, the OSC, and the EOF. The drill scenario began with a radiological event due to a failed radiography device, followed by a failure and subsequent rupture of the loop 4 steam generator, followed by containment failure due to a failed containment penetration.

b. Findings

No findings were identified.

## 4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verificationa. Inspection Scope

The inspectors sampled licensee submittals for the listed PIs during the period from April 1, 2010, through March 31, 2011, for both Unit 1 and Unit 2. The inspectors verified the licensee's basis in reporting each data element using the PI definitions and guidance contained in procedure 00163-C, Rev. 14.0, NRC Performance Indicator and Monthly Operating Report Preparation and Submittal.

Barrier Integrity Cornerstone

- Reactor Coolant System Specific Activity
- Reactor Coolant System Leakage

The inspectors reviewed Unit 1 and Unit 2 chemistry and operator log entries, the monthly operating reports, and monthly PI summary reports to verify that the licensee had accurately submitted the PI data.

Emergency Preparedness Cornerstone

The inspector sampled licensee submittals relative to the PIs listed below for the period April 1, 2010, and December 31, 2010. To verify the accuracy of the PI data reported

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during that period, PI definitions and guidance contained in NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6, was used to confirm the reporting basis for each data element.

- Emergency Response Organization Drill/Exercise Performance (DEP)
- Emergency Response Organization Readiness (ERO)
- Alert and Notification System Reliability (ANS)

The inspection was conducted in accordance with NRC IP 71151, Performance Indicator Verification. For the specified review period, the inspector examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences. The inspector verified the accuracy of the PI for ERO drill and exercise performance through review of a sample of drill and event records. The inspector reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. The inspector verified the accuracy of the PI for alert and notification system reliability through review of a sample of the licensee's records of periodic system tests. The inspector also interviewed the licensee personnel who were responsible for collecting and evaluating the PI data. Licensee procedures, records, and other documents reviewed within this inspection area are listed in the Attachment.

This inspection activity satisfied one inspection sample each for the Drill/Exercise Performance, ERO Drill Participation, and Alert and Notification System as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems

.1 Daily Condition Report Review. 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 Focused Review

a. Inspection Scope

The inspectors performed a detailed review of the operator work-arounds, operator burdens, and control room deficiencies for Unit 1 and 2 that were in effect on May 30, 2011. The inspectors reviewed the licensee's lists to determine whether any items would adversely affect the operators' ability to implement abnormal or emergency

operating procedures. The inspectors reviewed proposed corrective actions and schedule for each item on the operator work-arounds, operator burdens, and control room deficiencies lists. The inspectors reviewed the compensatory actions and cumulative effects on plant operation. The inspectors verified each item was being dispositioned in accordance with plant procedure 10025-C, Work-Around Program. Documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's Corrective Action Program and associated documents to identify trends which could indicate the existence of a more significant safety issue. The review was focused on repetitive equipment issues, but also considered the results of inspector daily CR screening and the licensee's trending efforts. The review nominally considered the six month period of October 2010 through March 2011 although some examples extended beyond those dates when the scope of the trend warranted. The inspectors also reviewed several CRs associated with operability determinations which occurred during the period. The inspectors compared and contrasted their results with the results contained in the licensee's latest Integrated Performance Assessment (IPA). Corrective actions associated with a sample of the issues identified in the licensee's trend reports were reviewed for adequacy. The inspectors also evaluated the trend reports against the requirements of the licensee's corrective action program as specified in licensee procedure NMP-GM-002, Corrective Action Program, and 10 CFR 50, Appendix B.

b. Findings and Observations

No findings were identified. The inspectors compared the licensee IPA with the results of the inspectors' daily screening and did not identify any discrepancies or potential trends in the data that the licensee had failed to identify.

4OA3 Event Follow-up

.1 (Closed) Licensee Event Report 05000425/2010-002: High Head Safety Injection Rendered Inoperable Due to an Inadequate Review of Scheduled Work

At 0400 on January 27, 2010, the 2A HHSI pump was tagged out of service for planned maintenance with the unit in Mode 1. This maintenance activity was a hold-over from the previous A train work week and was now a protected train exception. At 0921 on January 28, 2010, the automatic start capability of the 2B HHSI pump (in response to an safety injection (SI) signal) was defeated when the B train solid state protection system (SSPS) mode switch was placed in TEST to allow surveillance testing of the 2B reactor trip breaker. Since the 2A HHSI pump was tagged out of service for maintenance and

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the 2B HHSI pump would not have automatically started on an SI signal, both trains of ECCS were rendered inoperable. The inspectors reviewed the LER, the associated condition report and apparent cause determination, and subsequent action items. The enforcement aspects associated with this event are documented in Section 4OA7. No other findings were identified. This LER is closed.

#### 4OA5 Other Activities

##### .1 Quarterly Resident Inspector Observations of Security Personnel and Activities

###### a. Inspection Scope

During the inspection period, the inspectors conducted the following observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

###### b. Findings and Observations

No findings were identified.

##### .2 (Closed) NRC Temporary Instruction 2515/183, "Follow-up to the Fukushima Daiichi Nuclear Station Fuel Damage Event"

###### a. Inspection Scope

The inspectors assessed the activities and actions taken by the licensee to assess its readiness to respond to an event similar to the Fukushima Daiichi nuclear plant fuel damage event. This included (1) an assessment of the licensee's capability to mitigate conditions that may result from beyond design basis events, with a particular emphasis on strategies related to the spent fuel pool, as required by NRC Security Order Section B.5.b issued February 25, 2002, as committed to in severe accident management guidelines, and as required by 10 CFR 50.54(hh); (2) an assessment of the licensee's capability to mitigate station blackout (SBO) conditions, as required by 10 CFR 50.63 and station design bases; (3) an assessment of the licensee's capability to mitigate internal and external flooding events, as required by station design bases; and (4) an assessment of the thoroughness of the walkdowns and inspections of important equipment needed to mitigate fire and flood events, which were performed by the licensee to identify any potential loss of function of this equipment during seismic events possible for the site.

###### b. Findings and Observations

Inspection Report 05000424,425/2011009 (ML111330123) documented detailed results of this inspection activity. Following issuance of the report, the inspectors conducted detailed follow-up on selected issues. No findings were identified during this follow-up inspection.

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.3 (Closed) NRC Temporary Instruction 2515/184, "Availability and Readiness Inspection of Severe Accident Management Guidelines (SAMGs)"

a. Inspection Scope

On May 27, 2011, the inspectors completed a review of the licensee's severe accident management guidelines (SAMGs), implemented as a voluntary industry initiative in the 1990's, to determine (1) whether the SAMGs were available and updated, (2) whether the licensee had procedures and processes in place to control and update its SAMGs, (3) the nature and extent of the licensee's training of personnel on the use of SAMGs, and (4) licensee personnel's familiarity with SAMG implementation.

The results of this review were provided to the NRC task force chartered by the Executive Director for Operations to conduct a near-term evaluation of the need for agency actions following the Fukushima Daiichi fuel damage event in Japan. Plant-specific results for Vogtle Electric Generating Plant were provided as an Enclosure to a memorandum to the Chief, Reactor Inspection Branch, Division of Inspection and Regional Support, dated June 02, 2011 (ML111530328).

b. Findings and Observations

No findings were identified.

4OA6 Meetings, Including Exit

.1 Exit Meeting

On July 21, 2011, the resident inspectors presented the inspection results to Mr. R. Dedrickson and other members of your staff, who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

4OA7 Licensee-Identified Violations

The following violations of very low significance (Green) or Severity Level IV were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy, for being dispositioned as a Non-cited Violation.

.1 Loss of Both Trains of High-Head Safety Injection Pumps in Mode 1

Technical Specification (TS) 3.0, Limiting Condition for Operation (LCO) Applicability, LCO 3.0.3 requires that when a TS LCO is not met and an associated ACTION is not provided, the licensee shall initiate actions within 1 hour to place the unit in a MODE or other specified condition in which the LCO is not applicable. Contrary to the above, the licensee unknowingly operated Unit 2 in a condition where both trains of high head safety injection (HHSI) were inoperable and thus outside the conditions stated in TS 3.5.2, ECCS – Operating, LCO 3.5.2 for a period of 2.5 hours without entering the required actions of LCO 3.0.3. At 0400 on January 27, 2010 the 2A HHSI pump was

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tagged out of service for planned maintenance with the unit in Mode 1. This maintenance activity was a hold-over from the previous A train work week and was now a protected train exception. At 0921 on January 28, 2010 the automatic start capability of the 2B HHSI pump (in response to an safety injection (SI) signal) was defeated when the B train solid state protection system (SSPS) mode switch was placed in TEST to allow surveillance testing of the 2B reactor trip breaker. Since the 2A HHSI pump was tagged out of service for maintenance and the 2B HHSI pump would not have automatically started on an SI signal, both trains of ECCS were rendered inoperable. The SSPS mode switch remained in the TEST position until it was returned to NORMAL at 1150 following successful completion of the reactor trip breaker surveillance. Thus for a period of 2 hours and 29 minutes, Unit 2 was operated in a condition prohibited by TS 3.5.2, which is applicable in Modes 1, 2, and 3. Since the unit was operating outside the conditions specified in the TS, the licensee should have entered into TS LCO 3.0.3, and initiated actions to shutdown and cool down the reactor within 1 hour. This finding initially screened greater than green using the IMC 609 Phase 1 worksheet due to the total loss of system safety function. Subsequently, a Phase 2 screening of the finding was conducted using the risk-informed inspection notebook. The Phase 2 screening showed the finding to be green due to the possibility of rapid operator action to recover the B train ECCS equipment and the short duration of the event. The licensee has entered this issue into their corrective action program as CR 2010110738, completed an apparent cause determination, issued LER 05000425/2010-002, and completed all applicable corrective actions.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee personnel:**

A. Askew, Emergency Preparedness Specialist  
R. Brigdon, Training and Emergency Preparedness Manager  
M. Brett, Emergency Planning Specialist  
C. Buck, Chemistry Manager  
J. Churchwell, ISI Planning  
W. Copeland, Performance Analysis Supervisor  
D. Cordes, Southern Nuclear  
R. Dedrickson, Plant Manager  
K. Dyar, Security Manager  
W. Garrett, Containment Exams – Appendix J  
E. Groves, BACCP/Snubbers & Supports  
J. Hall, Emergency Preparedness Supervisor (Units 3 and 4)  
S. Hart, Mechanical/Civil Supervisor  
M. Hickox, Licensing  
J. Jeselnik, Emergency Preparedness Technician  
I. Kochery, Health Physics Manager  
S. LeBlanc, Steam Generator Engineer  
L. Mansfield, Engineering Director  
L. Mayo, Emergency Preparedness Supervisor  
D. McCary, Operations Manager  
C. Paitsell, Site Welding Engineer  
J. Robinson, Technical Services Manager  
M. Sharma, Licensing  
R. Sharpe, Senior Engineer  
T. Smith, Eddy Current Level III  
S. Swanson, Site Support Manager  
T. Tynan, Site Vice-President  
J. Wade, Design Manager

#### **NRC personnel:**

S. Shaeffer, Chief, Region II Reactor Projects Branch 2

### **LIST OF ITEMS OPENED AND CLOSED**

#### **OPEN AND CLOSED**

05000424/2011003-01	NCV	Failure to Establish and Implement Adequate Post Maintenance Testing for 1HV-0943B (Section 1R19)
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CLOSED

2515/183	TI	Follow-up to the Fukushima Daiichi Nuclear Station Fuel Damage Event. (Section 4OA5.2)
2515/184	TI	Availability and Readiness Inspection of Severe Accident Management Guidelines (SAMGs). (Section 4OA5.3)
05000425/2010-002	LER	High Head Safety Injection Rendered Inoperable Due to an Inadequate Review of Scheduled Work (Section 4OA3)

**LIST OF DOCUMENTS REVIEWED****Section 1R01: Adverse Weather Protection**Procedures

14230-1, Rev. 19.3, Offsite AC Circuit Verification and Capacity/Capability Evaluation  
 14230-2, Rev. 18.3, Offsite AC Circuit Verification and Capacity/Capability Evaluation  
 18017-C, Rev. 8.0, Abnormal Grid Disturbances/Loss of Grid  
 13830-1, Rev. 63.0, Main Generator Operation  
 13830-2, Rev. 49.1, Main Generator Operation

**Section 1R04: Equipment Alignment**Procedures

11115-2, Rev. 9.2, Containment Spray System Alignment  
 11716-1, Rev. 26.3, Auxiliary Component Cooling Water System Alignment  
 11115-1, Rev. 10.2, Containment Spray System Alignment  
 11315-1, Rev. 18.5, Containment Spray System

Drawings

2X4DB121-1, Rev. 50, P&I Diagram Safety Injection System, System No. 1204  
 2X4DB131, Rev. 32, P&I Diagram Containment Spray System, System No. 1206  
 1X4DB138-1, Rev. 30.0, P&I Diagram Auxiliary Component Cooling Water System, System No. 1217  
 1X4DB138-2, Rev. 19.0, P&I Diagram Auxiliary Component Cooling Water System, System No. 1217  
 1X4DB139, Rev. 29.0, P&I Diagram Auxiliary Component Cooling Water System, System No. 1217  
 1X4DB131, Rev. 34, P&I Diagram Containment Spray System No. 1206  
 1X4DR003, Rev. 0, Fill and Vent Diagram Containment Spray System No. 1206

Other

Containment Spray System 1206 system health report 4<sup>th</sup> Quarter 2010  
 Auxiliary Component Cooling Water System 1217 system health report 4<sup>th</sup> Quarter 2010

**Section 1R05: Fire Protection**Procedures

92930F-1, Rev. 3.2, Zone 530 – North Firewater Pumphouse Fire Fighting Preplan  
 92931B-1, Rev. 3.2, Zone 531 – South Firewater Pumphouse Fire Fighting Preplan  
 92825A-1, Rev. 4.1, Zone 125A – Control Building – Level 3 Fire Fighting Preplan  
 92826A-1, Rev. 3.1, Zone 126A – Control Building – Level 3 Fire Fighting Preplan  
 92853-1, Rev. 2.0, Zone 153 – Control Building – Level B Fire Fighting Preplan  
 92878-1, Rev. 2.2, Zone 178 – Control Building – Level 3 Fire Fighting Preplan  
 92879-1, Rev. 4.1, Zone 179 – Control Building – Level 3 Fire Fighting Preplan  
 92880-1, Rev. 2.2, Zone 180 – Control Building – Level 3 Fire Fighting Preplan  
 92759-1, Rev. 1.2, Zone 59 – Control Building – Level B Fire Fighting Preplan  
 92759-2, Rev. 0.2, Zone 59 – Control Building – Level B Fire Fighting Preplan  
 92768-1, Rev. 1.2, Zone 68 – Control Building – Level B Fire Fighting Preplan  
 92768-2, Rev. 0.2, Zone 68 – Control Building – Level B Fire Fighting Preplan  
 92769-1 Rev. 1.2, Zone 69 – Control Building – Level B Fire Fighting Preplan  
 92769-2, Rev. 0.2, Zone 69 – Control Building – Level B Fire Fighting Preplan  
 92775-1, Rev. 4.1, Zone 75 – Control Building – Level B Fire Fighting Preplan  
 92775-2, Rev. 0.2, Zone 75 – Control Building – Level B Fire Fighting Preplan  
 92805-1, Rev. 4.1, Zone 105 – Control Building – Level 1 Fire Fighting Preplan  
 92805-2, Rev. 4.0, Zone 105 – Control Building – Level 1 Fire Fighting Preplan  
 92806-1, Rev. 2.2, Zone 106 – Control Building – Level 1 Fire Fighting Preplan  
 92883A-1, Rev. 1.2, Zone 183A – Control Building – Level 1 Fire Fighting Preplan  
 92883B-1, Rev. 1.2, Zone 183B – Control Building – Level 1 Fire Fighting Preplan  
 92921-1, Rev. 2.2, Zone 601 – Technical Support Center Fire Fighting Preplan  
 92922-1, Rev. 3.1, Zone 602 – Technical Support Center Fire Fighting Preplan  
 92923-1, Rev. 1.2, Zone 603 – Technical Support Center Electrical Equipment Room Fire Fighting Preplan  
 92924-1, Rev. 2.2, Zone 604 – Technical Support Center Battery Room Fire Fighting Preplan  
 92925-1, Rev. 2.2, Zone 605 – TSC – Control Building – Level 1 Fire Fighting Preplan  
 92789-1, Rev. 2.1, Zone 89 – Control Building – Level A Fire Fighting Preplan  
 92802-1, Rev. 1.2, Zone 102 – Control Building – Level A Fire Fighting Preplan  
 92788-1, Rev. 2.2, Zone 88 – Control Building – Level A Fire Fighting Preplan

**Section 1R11: Licensed Operator Requalification**Procedures

V-RQ-SE-11201-1.0

**Section 1R12: Maintenance Effectiveness**Condition Reports

2011107100, 2009107317, AI2008202995, AI2008206406, AI2009202192, AI2009204581, AI2007206325, 2011105728, 2011107103

Procedures

50028-C, Rev. 18.1, Engineering Maintenance Rule Implementation

Other Records

Stand-by Power System 1821 system health report 1st Quarter 2011  
 Major Design Change (MDC) 2091975201 Termination Unit Replacements

Maintenance Rule Expert Panel Meeting Minutes dated 4/25/2011  
 Auxiliary Building Engineered Safety Features Room Coolers, system #1555, system health  
 report 1<sup>st</sup> Quarter 2011  
 Maintenance Rule Expert Panel Meeting Minutes dated 5/25/2011

### **Section 1R15: Operability Evaluations**

#### Condition Reports

2011105432, 2011107622, 2011108202, 2011107700, 2011107034, 2011102723

#### Drawings

1K3-1208-139-01, Rev. 29, CVCS System Fabrication Isometric, System No. 1208

#### Procedures

14460-1, Rev. 34, Emergency Core Cooling System (ECCS) Flow Path Verification

### **Section 1R17: Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications**

#### Full Evaluations

MDC 2080418001, Low-level On-site Storage Facility, Ver. 1  
 DCP 1060178401, Containment Sump Screen Downstream Orifice, 4/15/2009  
 DCP 2060523401, Removal of RHR Bypass Lines, Rev. 1

#### Screened Out Items

MDC 2102110001, Essential Chilled Water Chemical Tank Valve Replacement, Rev. 1  
 MDC 2100701501, Add DC Filter to 125 VDC source for valve 2HV0442A Controller, Ver. 1  
 MDC 2100563601, Battery Charger 2AD1CA Current Limit Board Replacement, Ver. 1  
 MDC 2091975201, New Termination Unit Installation on 2A/2B Sequencer, Ver. 1  
 MDC 2081944901, Unit 2 CCP Suction Header Vent Valve, Ver. 1  
 MDC 2081329401, Replacement of 1E/non-1E Isolation HFB MCCBs, 8/12/2008  
 MDC 2080418001, Low-level on-site storage facility, Ver. 1  
 MDC 2071255801, Unit 2 NCP Material and Dimensional Upgrades, Rev. 1  
 MDC 1091636601, Vent Valve Line Reconfiguration, Ver. 1  
 MDC 1090009001, CCP Suction High Point Vents, Rev. 1  
 DCP 2081982201, Unit 2 Trains 'A' and 'B' NSCW Fans Electrical Restoration, Rev. 4  
 DCP 2071073601, Installation of Manual Valves on the SIS Test Header System, Rev. 1  
 DCP 2049001701, NSCW Support Upgrades for WH Analyses, 4/13/2007  
 DCP 1101017401, Reduce Unit 1 RCS Full Load Average Tavg, Ver. 1  
 DCP 1081173801, Class 1E Battery Chargers Replacement, Ver. 2  
 DCP 1071817701, Unit 1 Solid State Protection System (SSPS) Modifications, Ver. 1  
 DCP 1071073501, Installation of Manual Valves on the SIS Test Header, Rev. 2  
 DCP 1009003201, Inverter Replacement, Ver. 7  
 00-VAM048, Remote Control Panel for Hydrogen Monitors, Rev. 0

#### Commercial Grade Dedication

090062, Transformer Regulating, 2/3/2009  
 081064, Power Supply 125 VDC to 24 VDC Phoenix, 11/6/2008

Basis Documents

Updated Final Safety Analysis, Current  
 Technical Specifications, Current  
 Recycle System, Rev. 17  
 Piping Class Sheet CLASS LL2-2 for Job 9510, Rev. 25  
 Mater Valve List for Job 9510 sheet of 62, Rev. 33  
 GDC Document No. DC-1000-C, General Design Criteria (Civil/Standard), Rev. 10  
 Environmental Protection Plan (Non-radiological), Appendix B to VEGP Units 1 & 2 Facility  
 Operating License No. NPF-68 and NPF-81, Amendment No. 97, 75  
 DBD-202, Plant Electrical Distribution System, Rev. 9  
 DBD-103, Chemical & Volume Control System, Boron Thermal Regeneration System, Boron

Action Request Documents Reviewed

CR 2009109621, Termination Unit #2 and #7 failed Logic Test  
 CR 2008106194, Walk-down of Increased Discovery Leakage Upstream of 1HV8149A  
 CR 2009110596, Functional test for MDC 1090006501  
 CR 2008107490, 4000psi Used Instead of 5000psi at 28 Days on Storage Pad  
 CR 2006109989, Damaged Door Hinge Pin on 11821U3001 Sequencer Panel Train A  
 CR 2008105003, WO Misplaced VAM-0048  
 CR 2007201406, Orifice Plate Installation DCP

Procedures

SN9604-002, EMI Qualification Requirements for Plant Equipment, Ver. 2  
 SCM-ENG-006, Accepting Commercial Grade items for Use as Basic Components, Ver. 70  
 SCM-CGDP-218.02, CGD Plan, Phoenix Contact Power Supply, Ver. 3  
 SCM-CGDP-218, Commercial Grade Dedication Plan, Power Supply, Ver. 2  
 NMP-ES-044, Preparation of Design Change Packages, Rev. 8  
 NMP-ES-042, Design Input and Verification Process, Rev. 4  
 NMP-ES-038-002, Preparation of Failure Modes and Effects Analysis (FMEA), Rev. 3  
 NMP-ES-022, DCP Site Approval, Implementation and Closure, Rev. 8  
 NMP-AD-010, 10 CFR 50.59 Screenings and Evaluations, Rev. 9  
 NMP-AD-008, Applicability for 50.59 Determinations, Rev. 11  
 17062-2, Annunciator Response Procedures for ALB 62, Rev. 14.1  
 17062-1, Annunciator Response Procedures for ALB 62, Rev. 22

Work Orders

2110327801, CVCS Centrifugal Charging Pump-Train B, 5/04/2011  
 2102549801, CVCS Centrifugal Charging Pump-Train B, 2/09/2011  
 2081874101, Safety Features Sequencer System, B, 3/21/10  
 2081874001, SF Sequencer Board Train A, 3/8/10  
 2061443901, Pipe Support Installation, 3/04/2007  
 1081173809 Work Instructions (DCP 1081173801) Remove Battery Charger  
 2081329404, Replacement of HFB Breaker with HFD Breaker Implementation, 3/14/2010  
 2081329402, Replacement of HFB Breaker with HFD Breaker Implementation, 3/19/2010

Calculations

X6CDD.46, Dose Rate v/s Distance from filter storage HICs, Rev. 0  
 X4CPS.075.569, Accumulation Weight Changes for Safety Sequencer Boards, Rev. 1

X4C1202V57, NSCW System Loop B Water Hammer Analysis, Rev. 2  
 X3CF08, Fire Event Safe Shutdown Circuit Analysis, Rev. 17  
 X3CF07, DC Breaker Sizing, Rev. 12  
 X3CF01, Battery Sizing (Normal DC System), Rev. 12  
 X2CK2. 7.5.1, Control Building Cat. 1 Equipment, 4/12/1985  
 X2CA52, Concrete Storage Pad for Low Level Radwaste, Rev. 1  
 EQDP X3AE03, Vogtle Electric Generating Plant Equipment Qualification, Rev. 17  
 AX3AC03-10039, Seismic Qualification Test Report for HFD MCCBs

### Drawings

V2-1202-231-H030, Pipe Support Diagrams, Rev. 4  
 V2-1201-249-H601, Pipe Support Assembly, Rev. 1  
 V2-1201-238-H001, Pipe Support Assembly, Rev. 2  
 V1-1208-255-H001, Pipe Support Assembly, Rev. 4  
 SK-SNCV008-011, 2" Conduit Routing NSCW Cooling Towers Unit 2A Motor Space Heater Cables, Rev. 0  
 AX3DH9K4, Conduit, Grounding & Lighting Plan Low-Level Radwaste Storage, Ver. 1  
 AX2D94V066, NSCW Cooling Tower Steel Missile Protection Shield, Rev. 1  
 AX2D47A469, Low-Level Concrete Storage Pad, Worksheet 1090418001-W002, Ver. 1  
 AX2D11G014, Control Building Misc., Rev. 9  
 2X4DB221, P&I Diagram Safety Related (Essential) Chillers Unit 2 Trains A & B System 1592, Rev. 23  
 2X4DB122, P&I Diagram Residual Heat Removal System No. 1205, Rev. 49  
 2X4DB122, P&I Diagram Residual Heat Removal System No. 1205, Rev. 52  
 2X3AC03-00136, Connection Diagram MCC 2ABA, 2ABC, 2BBC & 2BBE, Rev. 12  
 2K4-1204-049-02, Safety Injection System Fabrication Isometric CTMT BLDG Area 4D, LVL B, Rev. 3  
 2K4-1201-049-02, Reactor Coolant System Fabrication Isometric CTMT BLDG Area 4D, LVL C, Rev. 16  
 2J4-1204-136-03, Safety Injection System Fabrication Isometric Containment BLDG Areas 4A, 4D Level C, Rev. 4  
 2J2-1592-055-01, Essential Chilled Water System Fabrication Isometric, Rev. 4  
 2091975201E036, Diesel Generator SFS Cab Configuration, Ver. 1  
 2091975201E034, Diesel Generator SFS Cab Configuration, Ver. 1  
 2091975201E032, Diesel Generator Safety Features Sequencer General Cabinet Assembly, Ver. 1  
 2091975201E022, Standard Safety System 2-out-of-3 Voter Termination Unit with Timeout Card Assembly, Ver. 1  
 2091975201E021, Standard Safety System 2-out-of-3 Voter Termination Unit with Timeout Card Assembly, Ver. 1  
 2091975201E020, Standard Safety System 2-out-of-3 Voter Termination Unit with Timeout Card Assembly, Ver. 1  
 2091975201E019, Standard Safety System 2-out-of-3 Voter Termination Unit with Timeout Card Assembly, Ver. 1  
 2091975201E015, Standard Safety System 2-out-of-3 Voter Termination Unit with Timeout Card Assembly, Ver. 1  
 2091975201E014, Standard Safety System 2-out-of-3 Voter Termination Unit with Timeout Card Assembly, Ver. 1



2091975201E013, Standard Safety System 2-out-of-3 Voter Termination Unit with Timeout Card Assembly, Ver. 1  
 2091975201E012, Standard Safety System 2-out-of-3 Voter Termination Unit with Timeout Card Assembly, Ver. 1  
 2091975201E011, Standard Safety System 2-out-of-3 Voter Termination Unit with Timeout Card Assembly, Ver. 1  
 2091975201E009, Standard Safety System 2-out-of-3 Voter Termination Unit with Timeout Card Assembly, Ver. 1

2091975201E004, Standard Safety System 2-out-of-3 Voter Termination Unit with Timeout Assembly, Ver. 1  
 209197201E024, Standard Safety System 2-out-of-3 vote with Time Termination Unit, Ver. 1  
 1X6AH08-00020, 1700 PSID Letdown Orifice, Rev. 1  
 1X5DZ000412-A Rod Speed and Detection 1S-412 Scaling Documentation, Ver. 2  
 1X4DR004, Fill and Vent Diagram for the Chemical & Volume Control System System No. 1208, Rev. 1  
 1X4DR001-006, Fill and Vent Diagram for the Safety Injection System No. 1204, Rev. 0  
 1X4DB221, Safety Related Chiller System No. 1592, Ver. 25  
 1X4DB121, SI Injection System, Rev. 42  
 1X4DB119, SI Injection System, Rev. 31  
 1X4DB119, P&I Diagram Chemical & Volume Control System System No. 1204, Rev. 28  
 1x4DB116-2, SI Injection System, Rev. 34  
 1X4DB116, P&I Diagram Chemical & Volume Control System System No. 1208, Rev. 33  
 1X4DB114, P&I Diagram Chemical & Volume Control System System No. 1208, Rev. 41  
 1K4-1208-005-02, Chemical and Volume Control Sys Fabrication Isometric Containment BLDG Area 4A LVL B, Rev. 17  
 1J2-1592-319-01, Essential Chilled Water system Isometric, Rev. 8

#### Other Documents

WNA-DS-01299-GEN, Standard Safety System 2-out-of-3 Voter Termination Unit w/ Timeout Assembly, Hardware Design Specification, Rev. 0  
 WNA-DS-00366-GEN, Standard Safety System 2-out-of-3 Voter Termination Unit w/ Timeout Assembly, Hardware Requirements Specification, Rev. 1  
 WNA-DS-00307-GAE, Safety Features Sequencer System Design Specification, Rev. 8  
 WNA-CN-00138-GAE, Standard Safety System 2-out-of-3 Voter w/ Timeout Termination Unit Assembly Equivalency Analysis, Rev. 0  
 WNA-CN-00036-GAE, Safety Features Sequencer Failure Modes and Effects Analysis, Rev. 4  
 Westinghouse Letter GP-17901 and attached EVAL-06-20 Rev. 1  
 WCAP-16113-P, Vogtle Units 1 /2 Specific Equipment Qualification Report for Safety Features Sequencer Cabinets, Rev. 3  
 RER 2003-0124 (PS-04-2700), Inadequate Pipe Support Documentation, 12/01/2004  
 NL-07-2332, GL 96-06 Letter of Completion for Modifications, 12/20/2007  
 NL-05-0056, GL 96-06 Response Letter, 1/26/2005  
 LDCR 2005004 Revise UFSAR to reflect Battery load profile change, 2/18/2005  
 LDCR 2005003 Revise UFSAR to reflect Battery load profile change, 2/18/2005  
 I.L. 29C101G, Eaton Cutler Hammer HFD MCCB, 5/01/2009  
 EPRI NCIG-05, Guidelines for Piping System Reconciliation, Rev. 1  
 DC-1592, Essential Chilled Water System, Rev. 5

AX3AE13-00109, Configuration Logic Device Design, Verification and Validation Process for Safety Systems

AX3AD01-10004, Engineered Replacement Component Evaluation of Circuit Board, Ver.1

ACI-318-08, Building Code Requirements for Structural Concrete and Commentary

1LN 1159L4003, Component Design Information Sheet, Rev. 0

090062, Material lab test report for Transformer Regulating, 2/3/2009

081064, Material lab test report for Power supply 125 VDC to 24 VDC Phoenix, 11/6/2008

01-VAD049, Equivalency Determination use of MDC05659/MDC19701E, Rev. 1

Action Requests Written as a Result of the Inspection

CR 328210, The Simulator and Control Room Panels Labeling Discrepancies

CR 328138, Steps to close out missing WO 2020259701

CR 328029, Update AX2D11G014 to Show Separate Detail at Elev. 273

CR 327924, Document did not Include the AD, LDCR and 50.55a

CR 2011108235, FSAR Table 9.3.4-2 Update to Correct Units

CR 2011107886, Trending CVCS Letdown flow to Evaluate Long-term Degradation

**Section 1R18: Plant Modifications**

Procedures

00307-C, Rev. 28.3, Temporary Modifications

Other Records

TM 2101897701 package approved on 12/21/10

**Section 1R19: Post-Maintenance Testing**

Procedures

13903-C, Rev. 43.1, Fire Protection System Operation

14430-1, Rev. 10.0, NSCW Cooling Tower Fans Monthly Test

13145B-1, Rev. 3.2, Diesel Generator Train B

13716-1, Rev. 16, Auxiliary Component Cooling Water System

14802A-2, Rev. 3, Train B NSCW Pump / Check Valve IST and Response Time Test

14806A-1, Rev. 2, Train A CS Pump IST and Response Time Test

29401-C, Rev. 29.2, Work Order Functional Tests

Work Orders

C110574801, #1 Diesel Firewater Pump Failure

1091816201, Replace motor on 1A NSCW cooling tower fan #2

1110628301, Replace B channel speed switch on 1B EDG

1071815001, 02 Disassemble/Clean/Inspect/Reassemble Motor Heat Exchanger

2100271101, 4160V FDR BKR to NSCW pump #1 motor timer relay calibration

1110270101, Containment Spray Pump A Outboard Bearing Oil Change

1101867701, 1HV-0943B Repair

Condition Reports

2011105803, 2011108218, 2011105063, AI2010205671, AI2010205667, AI2010205666,

AI2010205668, AI2010205669, AI2010205670

Other Records

GP-18773 letter dated April 26, 2011, Westinghouse Assessment of Vogtle Units 1 and 2 Accumulator Pressure Lower than the Technical Specification Value  
 1X5DZ000960, Rev. 1.0, Vogtle Unit 1 Accumulator Tank #1 Pressure 1P-960 Scaling Document

**Section 1R22: Surveillance Testing**Procedures

14980B-2, Rev 22.3, Diesel Generator 2B Operability Test  
 24810-1, Rev 43.1, Delta T/Tavg Loop 1 Protection Channel I 1T-411 Channel Operational Test and Channel Calibration  
 24756-2, Rev 21, Steam Generator Level (narrow range) Protection Channel II 2L-553 Channel Operational Test and Channel Calibration  
 14808B-1, Rev. 2.1, Train B Centrifugal Charging Pump and Check Valve IST and Response Time Test  
 24265-1, Rev. 11.1, NSCW Cooling Tower #02 Fans Temperature Control 1T-116447, 1T-11648, 1T-11649 Channel Calibration  
 14905-1, Rev. 66.1, RCS Leakage Calculation (Inventory Balance)  
 14905-2, Rev. 50.1, RCS Leakage Calculation (Inventory Balance)

**Section 1EP2: Alert and Notification System Testing**Procedures and Manual

91706-C, Alert Notification System, Rev. 14  
 25722-C, Emergency Alert Siren Performance Test, Rev. 15  
 2010 Emergency Information Calendar  
 Plant Vogtle Emergency Information for Visitors to the Area brochure

Records and Data

2010 Annual Tone Alert Radio/Siren Survey dated 2/24/2011  
 Selected records of daily, weekly, quarterly and annual maintenance and testing -2009 to 2010  
 Selected documentation of ANS repair and annual preventative maintenance – 2009 and 2010

**Section 1EP3: Emergency Response Organization (ERO) Augmentation**Procedures

60201-C, Simulator Training and Documentation, Rev. 21.1  
 91201-C, Activation of the Technical Support Center, Rev. 16.4  
 91601-C, Emergency Preparedness Training, Ver. 22  
 NMP-EP-101, Emergency Operations Facility (EOF) Activation, Ver. 3.0  
 NMP-EP-303, Drill and Exercise Standards, Ver. 5.0

Records and Data

Emergency Response Organization current list  
 Results of Emergency After-hours Recall System Testing: September 2009, December 2009, March 2010  
 ERO Condition Report/Action Item listing  
 Critique report of September 23, 2010 Unannounced After-Hours Facility Activation Drill

#### **Section 1EP4: Emergency Action Level (EAL) and Emergency Plan Changes**

Vogtle Electric Generating Plant Emergency Plan, Rev. 56  
 NMP-AD-008, 10 CFR 50.54(q) Evaluation Emergency Plan Review, Version 3  
 NMP-AP-001-F02, Nuclear Management Procedure Impact Statement, Version 3

##### Change packages for Plans and Procedures

Licensing Document Change Request 2009084, Emergency Plan, Revision 56  
 NMP-EP-003, Web EOC Set Up and Use, Ver. 3.0  
 NMP-EP-110, Emergency Classification Determination and Initial Action, Ver. 1.0  
 NMP-EP-110-GL03, VEGP EALs-ICs, Threshold Values and Basis, Ver. 2.0  
 NMP-EP-111-003, Emergency Notifications Communicator Instructions-Vogtle, Ver. 2.0  
 NMP-EP-111-003, Emergency Notifications Communicator Instructions-Vogtle, Ver. 3.0  
 NMP-EP-112, Protective Action Recommendations, Ver. 1.0  
 NMP-EP-301, EOF Emergency Response Organization and EP Staff Training, Ver. 4.0  
 NMP-EP-302, MIDAS Computer Software Control, Ver. 4.0  
 NMP-EP-303, Drill and Exercise Standards, Ver. 5.0  
 91601-C, Emergency Preparedness Training, Ver. 22  
 91104-C, Duties of the OSC Manager, Rev. 24  
 91108-C, Duties of the Maintenance Supervisor (TSC)  
 91109-C, Duties of the Operations Supervisor (TSC), Rev. 11  
 91202-C, Activation and Operation of the Operations Support Center, Rev. 21  
 91304-C, Estimating Offsite Dose, Rev. 25  
 91502-C, Core Damage Assessment, Rev. 18  
 91706-C, Alert Notification System, Rev. 14  
 91707-C, MIDAS Software Change Instructions, Rev. 2

#### **Section 1EP5: Correction of Emergency Preparedness Weaknesses and Deficiencies**

NMP-EP-111, Emergency Notifications, Ver. 3.0  
 NMP-GM-002, Corrective Action Program, Ver. 11.0  
 NMP-GM-003, Self-Assessment Procedure, Ver. 17.0  
 91303-C, Field Sampling and Surveys, Rev. 26.5

##### Audits and Self-Assessments

2010 Results of Vogtle Emergency Preparedness Oversight Audit, V-EP-2010  
 2011 Results of Vogtle Emergency Preparedness Oversight Audit, V-EP-2011  
 2010 Fleet Oversight Audit of Offsite Emergency Preparedness Support, C-EP-2010  
 2011 Fleet Oversight Audit of Offsite Emergency Preparedness Support, C-EP-2011

##### Records and Data

Drill package documentation (Logs, timeline, notification forms, critique report, corrective actions) of ERO drills June 2009, July 2009, November 2009, February 2010, May 2010, September 2010, November 2010, and February 2011  
 Critique of December 20, 2010 Notice of Unusual Event

##### Condition Reports

2010-106027, Evaluate Operability of Siren B24  
 2010-106802, Declaration and Notification Accuracy Issues in Graded Exercise

2010-115719, Fire Alarm and Response  
 2011100799, TSC Desktop Computer Failure  
 WO 1110160401, Replace TSC Computer  
 2010-102355, Reword EAL SA5  
 2010-202114, Field Teams Asked to Traverse Plume

### **Section 40A1: Performance Indicator (PI) Verification**

#### Procedures

00163-C, NRC Performance Indicator and Monthly Operating Report Preparation and Submittal  
 Rev. 14  
 25722-C, Emergency Alert Siren Performance Test, Rev. 15

#### Records and Data

Siren System Availability Test Records, Apr 1, 2010, through December 31, 2010  
 ERO Personnel Participation, April 1, 2010, through December 31, 2010  
 DEP Opportunities, April 1, 2010, through December 31, 2010

#### Condition Reports Resulting From Inspection

2011-105965, Consider adding folding cover to "Special Needs" cards  
 2011-105967, Review FEMA Rep-10 for current differences and submit for approval  
 2011-105968, Add SER version of EALs and E-Plan for comparison purposes  
 2011-105970, Change E-Plan program periodicity to every 365 days vice 15 month maximum  
 2011-105969, Review evacuation time estimate of record for accuracy  
 2011-105971, Evaluate Procedure 91706-C against FEMA REP-10 for siren operability criteria  
 2011-105972, Evaluate drill participation for non-essential ERO personnel  
 2011-105973, Control Room not drilled on use of recall back-up system  
 2011-105974, TSC Workstation 4 still out of service since January, 2011  
 2011-105975, Snapshot of high-stress event DEP is 8 of 12

### **Section 40A2: Identification and Resolution of Problems**

#### Procedures/Calculations/Engineering Documents

10025-C, Rev. 3.0, Work Around Program  
 10030-C, Rev. 1, Aggregate Operator Impact Review Guideline

#### Other Records

AI 2007205091, Operations Superintendent OWA Review Logs  
 Operations Monitoring for Work-Arounds, Burdens and Distractions  
 Vogtle Quarterly Integrated Performance Assessment April 28, 2011

### **Section 40A7: Licensee-Identified Violations**

#### Condition Reports

201010738

#### Procedures

10008-C Recording Limiting Conditions for Operation

#### Action Items

2010205617, 2010205618, 2010205619, 2010205620, 2010205630, 2010205631, 2010205632,  
 2010205633, 2010205634

Other Records

Apparent Cause Determination Report for CR 201010738

Licensee Event Report 2-2010-002 High Head Safety Injection Rendered Inoperable due to an  
Inadequate Review of Scheduled Work

Vogtle Units 1 and 2 Technical Specifications