



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

January 27, 2012

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

SUBJECT:               VOGTLE ELECTRIC GENERATING PLANT - NRC INTEGRATED  
                             INSPECTION REPORT 05000424/2011005 AND 05000425/2011005

Dear Mr. Tynan:

On December 31, 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 results, which were discussed on January 24, 2012, with Mr. Steve Swanson and other 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.

One NRC identified finding and one self-revealing finding of very low safety significance (Green) were identified during this inspection.

These findings were determined to involve a violation of NRC requirements. Further, one licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. The NRC is treating these violations as non-cited violations consistent with Section 2.3.2 of the Enforcement Policy.

If you contest these non-cited violations, 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.

If you disagree with the cross-cutting aspect assigned 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 Resident Inspector at the Vogtle Electric Generating Plant. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

In accordance with the 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response 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 Agencywide Document Access and Management 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/**

James A. Hickey, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Docket Nos.: 05000424, 05000425  
License Nos.: NPF-68 and NPF-81

Enclosure: Inspection Report 05000424/2011005 and 05000425/2011005  
w/Attachment: Supplemental Information

cc w/encl: (See next page)

SNC

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Sincerely,

/RA/

James A. Hickey, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Docket Nos.: 05000424, 05000425  
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Letter to Tom E. Tynan from James A. Hickey dated January 27, 2012

SUBJECT: VOGTLE - NRC INTEGRATED INSPECTION REPORT  
05000424/2011005 AND 05000425/2011005

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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.: 05000424/2011005 and 05000425/2011005

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

Facility: Vogtle Electric Generating Plant, Units 1 and 2

Location: Waynesboro, GA 30830

Dates: October 1, 2011 through December 31, 2011

Inspectors: M. Cain, senior resident inspector  
T. Chandler, resident inspector  
T. Lighty, project engineer  
B. Caballero, senior operations engineer (1R11.2)  
M. Bates, senior operations engineer (1R11.3, 4OA2.4)  
R. Baldwin, senior operations engineer (1R11.3, 4OA2.4)  
F. Ehrhardt, senior reactor inspector (4OA5.2)

Approved by: Jim Hickey, Branch Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000424/2011-005, 05000425/2011-005; 10/01/2011 - 12/31/2011; Vogtle Electric Generating Plant, Units 1 and 2; Surveillance Testing, and Other Activities.

The report covered a three-month period of inspection by the resident inspectors, three senior operations engineers, a senior reactor engineer, and a project engineer. Two non-cited violations (NCV) with very low safety significance (Green) were identified. The significance of most findings is indicated by their color (greater 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 Green self-revealing non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified. Specifically, the licensee inadvertently operated the Unit 2 turbine driven auxiliary feedwater (TDAFW) pump with the suction source isolated. As a result, the TDAFW pump operated with no suction source for a period of 1 minute 20 seconds and was rendered inoperable for a period of approximately 22 hours. The licensee immediately secured the pump when suction and discharge pressures became erratic and unstable. The licensee performed an engineering evaluation and assessment to ensure the pump was not damaged as a result of running the pump with the suction valves closed. The licensee entered this issue into their corrective action program (CAP) as CR 358773.

This issue was more than minor because it adversely affected an objective of the Mitigating Systems cornerstone. Specifically, the performance deficiency affected the availability, reliability, and capability of the Unit 2 TDAFW pump to provide secondary decay heat removal. The finding was determined to be Green because the event did not represent an actual loss of safety function of a single train for greater than its technical specification (TS) allowed outage time. The inspectors determined that the cause of this finding was related to the Work Practices component of the Human Performance cross-cutting area due to less-than-adequate human error prevention techniques [H.4(a)]. Specifically, procedural place keeping techniques were less than adequate. (Section 1R22)

- Green: A Green NRC identified NCV of Unit 1 Operating License Condition 2.G and Unit 2 Operating License Condition 2.G for failure to implement and maintain in effect all provisions of the approved Fire Protection Program (FPP) as described in the FSAR for the facility. Specifically, the licensee failed to ensure that, during post-fire safe shutdown, Unit 1 and Unit 2 reactor coolant process variables would be maintained within those predicted for a loss of normal ac power. The licensee entered this issue into their corrective action program (CAP) as Condition Report (CR) 2010112114.



The finding was determined to be more than minor because it was associated with the Reactor Safety Mitigating Systems cornerstone attribute of protection against external factors (i.e. fire) and it affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The inspectors determined that this performance deficiency did not have a cross-cutting aspect because it did not represent current licensee performance. (Section 4OA5.2)

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.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 operated at essentially full rated thermal power (RTP) for the entire inspection period.

Unit 2 started the report period shutdown for a planned refueling outage. The unit was restarted on October 12 and attained full RTP power on October 16. Unit 2 operated at essentially full RTP for the remainder of the inspection period.

### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R01 Adverse Weather Protection

##### a. Inspection Scope

Seasonal Readiness Review: The inspectors performed a walkdown of the following two systems to verify they would remain functional during low temperature conditions. The inspectors reviewed preventive maintenance activities associated with heat tracing and freeze protection systems to verify they were appropriately scheduled and completed prior to the onset of cold weather. The inspectors reviewed compensatory actions to verify they were implemented for degraded or inoperable heat trace and freeze protection equipment. Additionally, the inspectors reviewed the condition report (CR) database to verify that adverse weather related items were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

- Unit 1 turbine driven auxiliary feedwater (TDAFW) system
- Unit 2 TDAFW system

Impending Adverse Weather Condition Review: On November 7 the inspectors reviewed licensee Procedure 11877-1 and 11877-2, Cold Weather Checklist, to verify the licensee had implemented actions to prepare the plant site for predicted severe weather conditions of sub-freezing temperatures. The inspectors walked down various safety-significant areas of the plant to verify the licensee's ability to respond to the predicted adverse weather conditions.

##### b. Findings

No findings were identified.

#### 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 emergency diesel generator (EDG) and fuel oil transfer system while Train B EDG was out of service for monthly slow-start surveillance operability test
- Unit 2 Train B nuclear service cooling water (NSCW) system while the train A NSCW system was out of service for a cooling tower fan #2 gear box replacement
- Unit 1 Train A containment spray (CS) system while the train B CS system was out of service due to a planned maintenance outage

Complete System Walkdown: The inspectors performed a complete walkdown of the accessible portions of the Unit 1 125 VDC 1E electrical distribution system. The inspectors verified switch and breaker alignment, electrical power availability, labeling, and material condition of the distribution system. The inspectors also reviewed system health reports, maintenance rule monthly reports, condition reports, and outstanding maintenance work orders to verify that equipment discrepancies were being identified and properly resolved. The documents reviewed are listed in the Attachment.

##### 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 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 Section 9.5.1, "Fire Protection Program," and Appendix 9A, "Fire Hazards Analysis," were met. Documents reviewed are listed in the Attachment.

- Unit 1 centrifugal charging pump rooms and the level C pipe penetration area in the Unit 1 auxiliary building
- Unit 1 control building level A east and west penetration rooms
- Unit 1 auxiliary component cooling water (ACCW) pump rooms, the safety injection (SI) pump rooms and the Unit 1 auxiliary building level B penetration area rooms
- Unit 2 train A and B nuclear service cooling water (NSCW) pump rooms
- Unit 2 north and south main steam valve houses

b. Findings

No findings were identified.

1R06 Flood Protection Measures

a. Inspection Scope

Internal Flood Review: The inspectors walked down the following area 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 centrifugal charging pump rooms

Underground Bunker/Manhole Cable Review: The inspectors verified the following four underground cable bunkers/manholes installed cables were not submerged in water or qualified for existing environmental conditions. Inspectors also verified splices and cable support systems were intact. Inspectors verified installed dewatering devices were operational and level alarm circuits set appropriately. In cases where no dewatering device was installed, inspectors determined if drainage was provided and functional.

- Pull boxes 1NE9KAKAM48, 1NE9KAKAM49, 1NE9KAKAM50, 1NE9HAKEM07

b. Findings

No findings were identified.

1R07 Heat Sink Performance

a. Inspection Scope

Annual Review: The inspectors reviewed the licensee's records of the performance tests conducted on the Unit 2 B train component cooling water (CCW) heat exchanger, the Unit 2 B train ESF chiller condenser, and Unit 2 containment coolers #3, #4, #7, and #8. The inspectors reviewed EPRI NP-7552, "Heat Exchanger Performance Monitoring Guidelines" to ensure that the licensee's testing procedures were appropriate.

Additionally, the inspectors reviewed the licensee's corrective action program (CAP) for heat exchanger performance issues to ensure that discrepancies were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification

.1 Resident Quarterly Observation

a. Inspection Scope

The inspectors observed operator performance during the week of October 31, during licensed operator simulator training described in Simulator Scenario V-RQ-SE-11501. The scenario begins at 75% RTP, a solid state protection system (SSPS) processor failed, followed by a seismic event which caused a circulating water pump to trip, a turbine plant cooling water pump to trip and subsequent loss of condenser vacuum. While responding to the loss of condenser vacuum, a large aftershock (6.7 in magnitude) caused a main turbine to trip with a failure of the reactor to trip followed by a loss of all AC. 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

b. Findings

No findings were identified.

.2 Annual Review of Licensee Regualification Examination Results

a. Inspection Scope

On December 20, the licensee completed administering the annual regualification operating tests, which are required to be administered to all licensed operators in accordance with 10 CFR 55.59(a)(2). The inspectors performed an in-office review of the overall pass/fail results of the individual operating tests, and the crew simulator

operating tests. These results were compared to the thresholds established in Manual Chapter 609 Appendix I, Operator Requalification Human Performance Significance Determination Process.

b. Findings

No findings were identified.

.3 Biennial Review of Licensee Requalification Program

a. Inspection Scope

During the week of October 24, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of simulator operating tests associated with the licensee's operator requalification program. Each of the activities performed by the inspectors was done to assess the effectiveness of the licensee in implementing requalification requirements identified in 10 CFR 55, "Operators' Licenses." The evaluations were performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and Inspection Procedure 71111.11, "Licensed Operator Requalification Program." The inspectors reviewed and evaluated the licensee's simulation facility for adequacy for use in operator licensing examinations. The inspectors observed three crews during the performance of simulator operating tests. Documentation reviewed included written examinations, Job Performance Measures, simulator scenarios, licensee procedures, on-shift records, licensed operator qualification records, selected watchstanding and medical records, feedback forms, and remediation plans. The inspectors also reviewed a sample of simulator performance test records (transient tests, malfunction tests, steady state test, and procedure tests), simulator modification request records, and the process for ensuring continued assurance of simulator fidelity to ensure compliance with 10 CFR 55.46 Simulation Facilities. Licensee documents reviewed during the inspection are listed in the Attachment.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors evaluated the equipment issue described in the CR listed below to verify the licensee's effectiveness with the corresponding preventive or corrective maintenance associated with structures, systems, and components (SSCs) to evaluate the effectiveness of the licensee's handling of equipment performance problems and to verify 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 inspectors also reviewed the safety-significant system 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 these inspections included control room logs, system health reports, the maintenance rule database, and maintenance work orders. Also, the inspectors interviewed system engineers and the maintenance rule coordinator to assess the accuracy of identified performance deficiencies and extent of condition.

- 366415, system 1821-2, Safety Features Sequencer System return to (a)(2)

The inspectors also reviewed the maintenance rule (a)(3) periodic evaluation. The inspectors verified that the periodic evaluation had been completed within the time constraints of the maintenance rule, and verified that the licensee had reviewed its (a)(1) goals, (a)(2) performance criteria, performance monitoring, preventive maintenance activities, and the effectiveness of corrective actions. The inspectors also verified that the licensee had taken industry operating experience into account where practicable. The inspectors verified that the periodic evaluation reviewed system performance to determine if the balance between system availability and reliability was being optimized. The inspectors followed up with the Vogtle Maintenance Rule Coordinator to verify that the various recommendations from the periodic evaluation were fully implemented at the site. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

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.

- Week of 10/29: Unit 2B motor driven AFW mini-flow troubleshooting concurrent with high-risk work being performed in the high voltage switchyard
- Week of 11/21: Operability testing on the 1A EDG concurrent with high-risk work being performed in the high voltage switchyard
- Week of 11/28: Maintenance outage on the Unit 2 train A NSCW tower fan #2 concurrent with high-risk work being performed in the high voltage switchyard
- Week of 12/3: Unit 1B CS system surveillance testing concurrent with high-risk work being performed in the high voltage switchyard

- Unit 2 NSCW maintenance outage concurrent with 2B EDG out of service (OOS) due to load failure

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 these inspections included a review of the technical adequacy of the evaluations, the adequacy of compensatory measures, and the impact on continued plant operation.

- CR 357080 and TE 289962, Unit 2B residual heat removal (RHR) pump vibrations in the 'alert' range during full flow testing
- CR 358773 and TE 291694, 21208U6-037, loop 4 reactor coolant system (RCS) alternate charging inlet check valve leaking
- CR 358926 and TE 292102, TDAFW pump manually tripped during IST run
- CR 380622 and IDO for CR 2011107700, Gas void discovered at common suction line of the Unit 2 centrifugal charging pumps (CCPs)
- CR 383267 and TE 308467, Unit 2B EDG load increase with no operator demand

b. Findings

No findings were identified.

1R18 Plant Modifications

a. Inspection Scope

Temporary Modification (TM): The inspectors reviewed temporary procedure Change 23984R-2 which allowed the temporary removal of the dry leg for RCS level Transmitters 2LT-10405 and 2LT-10403 associated with the vacuum fill equipment as well as the associated 10CFR50.59 screening criteria against the system design bases documentation and Procedure 00307-C, Temporary Modifications. The inspectors reviewed implementation, configuration control, post-installation test activities, drawing and procedure updates, and operator awareness for this TM.

Permanent Modification: The inspectors reviewed design change Package (DCP) 129930, 2HV-0943A safety injection accumulator nitrogen header vent valve modification, against the system design bases documentation. This DCP replaces the original modulating target rock valve with on-off target rock valve. The original valve had a history of leaking and erratic system operation. The inspectors reviewed the design change package to verify that the modification did not degrade the system design bases, licensing bases, or equipment performance capability. Additionally, the inspectors



verified that plant risk was not increased unnecessarily during implementation of the modification.

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 six 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.

- MWO SNC125170, clean/inspect/lube 1HV12130 motor operator – return inlet, and MWO SNC125172, clean/inspect/lube 1HV12128 motor operator – exhaust. PMT consisted of performing applicable portions of procedure 13301-C Rev. 28.4, CBCR Normal HVAC and Emergency Filtration System
- MWO SNC 137306, replace fan gearbox on 2A NSCW fan #2. PMT consisted of performing the applicable portions of procedure 14430-2 Rev. 8.1, NSCW Cooling Tower Fans Monthly Test
- MWO SNC126300, Unit 1B containment spray suction MOV stem lubrication. PMT consisted of performing applicable portions of procedure 14825-1 Rev. 94, Quarterly Inservice Valve Test
- MWO SNC 330121, feedback potentiometer replacement for 1FV0520
- MWO SNC 131625, Unit 2A NSCW pump #5 refurbishment
- MWO SNC 338761, Unit 2 TDAFW valve 2HV5113, alternate suction to condensate storage Tank #2 will not close from MCR handswitch

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities

a. Inspection Scope

The inspectors performed the inspection activities described below for the 2R15 refueling outage that ended on October 12. The inspectors confirmed that, when the licensee removed equipment from service, the licensee maintained defense-in-depth commensurate with the outage risk control plan for key safety functions and applicable technical specifications 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 refueling activities for compliance with TS, to verify proper tracking of fuel assemblies from the spent fuel pool to the core, and to verify foreign material exclusion was maintained
- Performed containment closure activities, including a detailed containment walkdown prior to startup, to verify no evidence of leakage and that debris had not been left which could affect the performance of the containment sump
- Observed heat up and startup activities to verify that 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 and containment integrity was verified by reviewing the status of containment penetrations and containment isolation valves

## 1R22 Surveillance Testing

### a. Inspection Scope

The inspectors reviewed the following six 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. 22.4, Diesel Generator 2B Operability Test
- 28820-C Rev. 17.1, Battery Charger Load Test
- 24812-1 Rev. 42, Delta T/Tavg Loop 3 Protection Channel III 1T 431 Channel Operational Test and Channel Calibration
- 14980B-1 Rev. 23.4, Diesel Generator 1B Operability Test

#### In-Service Tests (IST)

- 14810-2 Rev. 40, TDAFW Pump Operability, Response Time and Check Valve IST

#### RCS Leak Detection

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

### b. Findings

Introduction: A Green self-revealing NCV of 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified. Specifically, the licensee inadvertently operated the Unit 2 turbine driven auxiliary feedwater (TDAFW) pump with the suction source isolated. As a result, the TDAFW pump operated with no suction source for a period of 1 minute 20 seconds and was rendered inoperable for a period of approximately 22 hours. The licensee immediately secured the pump when suction and discharge pressures became erratic and unstable. The licensee performed an

engineering evaluation and assessment to ensure the pump was not damaged as a result of running the pump with the suction valves closed. The licensee entered this issue into their corrective action program (CAP) as CR 358773.

Description: On October 11, while performing surveillance Procedure 14810-2, TDAFW Pump Operability, Response Time and Check Valve IST, the unit operator inadvertently started and ran the TDAFW pump with the pump suction valves closed. Procedure 14810-2, step 5.3.1.a directed the unit operator to align the suction of the pump to condensate storage tank Number 2 (CST-2) prior to isolating CST-1 supply valve. The operator became distracted due to conditions in the control room and failed to perform Step 5.3.1.a prior to continuing on in the procedure. Step 5.3.1.b directed the operator to isolate CST-1 suction source, which was completed by a station operator outside of the control room. This effectively isolated all suction sources to the TDAFW pump. The control room operators started the TDAFW pump and then manually tripped the pump 1 minute 20 seconds into the run when they noted erratic pump suction and discharge pressures. Operators quickly determined that Step 5.3.1.a had not been performed.

Analysis: Operation of the Unit 2 TDAFW pump with the pump suction valves closed is a performance deficiency because the operator did not follow the written instructions in the procedure. The inspectors determined the finding represents a violation of regulatory requirements because it involved improper implementation of procedures which resulted in the inoperability of a safety-related piece of equipment. This issue is more than minor because it adversely affected the objective of a Mitigating Systems cornerstone. Specifically, the performance deficiency affected the availability, reliability, and capability of the Unit 2 TDAFW pump to provide secondary decay heat removal. The finding was determined to be of very low safety significance (Green) because the event did not represent an actual loss of 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 Work Practices component of the Human Performance cross-cutting area due to less-than-adequate human error prevention techniques [H.4(a)]. Specifically, procedural place keeping techniques were less than adequate.

Enforcement: 10 CFR Part 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, requires, in part, that "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." Contrary to the above, on October 11, operations personnel failed to follow written procedure 14810-2, TDAFW Pump Operability, Response Time and Check Valve IST. As a result of the violation, the TDAFW pump was run without a suction source for 1 minute 20 seconds and rendered the pump inoperable for approximately 22 hours. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as CR 358773, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy. This finding will be tracked as NCV 05000425/2011005-01, Human Performance Error Results in Inoperability of TDAFW Pump.

#### 4. OTHER ACTIVITIES

##### 4OA1 Performance Indicator (PI) Verification

###### a. Inspection Scope

The inspectors sampled licensee submittals for the listed PIs during the period from October 1, 2010 through September 30, 2011, for 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, NRC Performance Indicator and Monthly Operating Report Preparation and Submittal, and Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Indicator Guideline.

###### Mitigating Systems Cornerstone

- Emergency AC Power Systems
- Cooling Water Systems
- Safety System Functional Failures

The inspectors reviewed Unit 1 and Unit 2 operator log entries, the CR data base, the Vogtle MSPI basis document, the monthly operating reports and monthly PI summary reports to verify that the licensee had accurately submitted the PI data.

###### 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. The inspectors accomplished these reviews by either attending daily screening meetings that briefly discussed major CRs, or accessing the licensee's computerized corrective action database and reviewing each.

###### .2 Focused Review

###### a. Inspection Scope

The inspectors performed a detailed review of the following CR which addressed the missing hold down stud and nut from the packing gland follower on 1-1208-U4-A11, the Unit 1 pressurizer auxiliary spray manual isolation valve. The goal of the review was to verify that the full extent of the issue was identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized. The inspectors evaluated the CR against the licensee's corrective action program as delineated in licensee Procedure NMP-GM-002, Corrective Action Program, and 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Documents reviewed are listed in the Attachment.

- CR 385878 Packing gland hold down stud/nut missing on one side of packing gland on 1-1208-U4-A11

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 April 2011 through September 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.

.4 Annual Sample Review

a. Inspection Scope

The inspectors selected Condition Report (CR) 2011105555 for review. The CR was initiated due to pass rate expectations for the previous initial license examination not being achieved. Issues affecting the Initial License Training Program were reviewed for potential impact on the Licensed Operator Continuing Training Program.

b. Findings

No findings were identified.

#### 4OA3 Event Follow-up

##### .1 (Closed) Licensee Event Report 05000424/2011-002-00: Reactor Trip due to Main Feedwater Regulating Valve Maintenance

On August 31, 2011 with Unit 1 operating in Mode 1 at 100 percent RTP at approximately 0906 hours Eastern Daylight Time, the Unit 1 reactor automatically tripped. In preparation for maintenance on the controls for the main feedwater regulating valve (MFRV) on steam generator (S/G) 2, the valve was placed on an air gag. The air gag maintains the MFRV in position and allows minor changes in steam generator water level to be controlled by the bypass feedwater regulating valve (BFRV). However, shortly after the air gag was installed, feedwater flow to S/G 2 increased beyond the capability of the BFRV to control. The increase in feedwater flow to S/G 2 resulted in water level on S/G 2 exceeding the Hi-Hi nominal trip setpoint (NTS). This caused a main feedwater isolation, turbine trip and subsequent reactor trip in accordance with plant design. The cause of the event was due to increased air pressure being supplied to the MFRV when the valve was placed on the air gag. The inspectors reviewed the LER, the associated condition report and root cause determination, and subsequent action items. 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 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.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

###### b. Findings and Observations

No findings were identified.

##### .2 (Closed) Unresolved Item (URI) 05000424, 425/2010006-01, Control Room Fire Alternate Shutdown Evaluation (X4C2301S035) Does Not Reflect Integrated Plant Response.

###### a. Inspection Scope

The inspectors reviewed the facts of the subject URI as well as evaluations performed and corrective actions taken by the licensee.

b. Findings

Introduction: The inspectors identified a finding of very low safety significance (Green) involving a NCV of Vogtle Unit 1 Operating License Condition 2.G and Unit 2 Operating License Condition 2.G to implement and maintain all aspects of the approved fire protection program (FPP). Specifically, the licensee failed to ensure that, during post-fire safe shutdown involving a large fire in the main control room (MCR), Unit 1 and Unit 2 RCS process variables would be maintained within those predicted for a loss of normal ac power. This finding is applicable to fires in Fire Area (FA) 1-CB-L1-A/ Fire Zones (FZ) 105-1, Unit 1 MCR and FZ 105-2, Unit 2 MCR. A fire in this area would involve evacuation of the MCR and shutdown of both units using the remote shutdown panels (RSPs).

Description: This issue was identified by the inspectors in NRC inspection report (IR) 05000424, 425/2010006. As described in this IR, inspectors reviewed the Control Room Fire Alternate Shutdown Evaluation (CRFASE), calculation number X4C2301S035, and procedure 18038-1, Operation from Remote Shutdown Panels (RSPs). The CRFASE evaluates discrete spurious operation concerns and provides time constraints and operator actions to mitigate these events. The inspectors subsequently questioned whether certain steps in procedure 18038-1, in the event of a large fire in FA 1-CB-L1-A that would require evacuation of the Unit 1 and Unit 2 MCRs, would be able to be performed from the RSPs within the time constraints specified in the CRFASE in order to prevent or mitigate the adverse effects of certain spurious actuations. One of the steps in question, step 30, was intended to prevent depressurization of the RCS to the safety injection (SI) actuation set point, in the event one pressurizer spray valve spuriously opened.

After the on-site inspection the licensee developed a simulator exercise guide for the purpose of validating the time necessary for an operating crew to perform the steps of procedure 18038-1 in question. When validating the simulator exercise guide, the licensee found that the CRFASE does not reflect integrated plant response for a control room fire, requiring shutdown from the RSPs, as predicted through simulation. Simulated plant response was different from the response described in the CRFASE in that an automatic SI actuation occurred approximately 6 minutes after plant trip due to decreasing RCS pressure arising from an uncontrolled RCS cooldown caused by high auxiliary feedwater (AFW) flow. As discussed in the CRFASE, steam generator level control is necessary to preclude uncontrolled RCS cooldown and depressurization. Inspectors noted that an automatic SI actuation would occur in approximately 6 minutes; however, it would take operators approximately 15 minutes to transfer control of the plant from the MCR to the RSP, as documented in the CRFASE. Additionally, inspectors determined that a decrease in RCS pressure to the SI setpoint, approximately 6 minutes after the reactor was tripped, would not be expected to occur during a normal loss of ac power. The licensee entered this issue into their corrective action program (CAP) as Condition Report (CR) 2010112114.

Inspectors reviewed NUREG-1137, Supplement No. 4, Safety Evaluation Report related to the operation of Vogtle Electric Generating Plant Units 1 and 2 (Vogtle SSER 4) and

determined that the NRC staff evaluated and approved the licensee's post-fire safe shutdown methodology, including the following actions that are to be performed before the control room is evacuated: 1) tripping the RCPs, 2) closing the PORV block valves, 3) isolating the steam generators, and 4) aligning the charging pump suction to the RWST. The inspectors noted that the list of actions contained in Vogtle SSER 4 did not include throttling AFW before evacuating the control room.

**Analysis:** The inspectors determined that the failure to maintain RCS process variables within those predicted for a loss of normal ac power, with alternative shutdown capability, as required by the FPP, is a performance deficiency. Specifically, in FSAR Appendix 9B, Section C.5.c, the licensee states, in part, that with alternative or dedicated shutdown capability, the RCS process variables can be maintained within those limits predicted for a loss of normal ac power. The licensee failed to ensure that, during post-fire safe shutdown involving a large fire in the MCR, Unit 1 and Unit 2 RCS process variables would be maintained within those predicted for a loss of normal ac power.

The finding is considered to be more than minor because it is associated with the protection against external factors (i.e. fire) attribute and degraded the reactor safety Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors assessed the noncompliance using NRC Inspection Manual Chapter 0609, Appendix F (IMC 0609 App F). Because IMC 0609 App F does not include treatment of fires in the MCR or fires leading to MCR abandonment, a Region II Senior Reactor Analyst (SRA) conducted a Phase 3 risk evaluation. The Significance Determination Process (SDP) phase 3 evaluation was performed using the guidance of NRC IMC 0609 Appendix F, NUREG/CR 6850 revision 0 and supplement 1 with the use of the NRC Vogtle SPAR model. The major analysis assumptions included: (1) Only main control room (MCR) fires would require the use of procedure 18038-1, (2) Only large MCR fires would require MCR room abandonment without ability to secure AFW pumps and throttle flow prior to abandonment (3) Failure to promptly throttle AFW flow during alternate safe shutdown could result in safety injection actuation and steam generator overfill. The dominant sequence would be a large MCR fire causing a reactor trip and a rapid abandonment, failure to throttle AFW flow resulting in safety injection initiation and steam generator overfill and loss of the TDAFW pump, and failure of motor driven AFW and failure of feed and bleed leading to loss of core heat removal and core damage. The low probability of MCR abandonment mitigates the risk. The result of the phase 3 SDP evaluation was a core damage frequency increase due to the performance deficiency of less than  $1 \times 10^{-6}$ , a Green finding of very low safety significance.

The inspectors determined that this performance deficiency did not have a cross-cutting aspect because it did not represent current licensee performance.

**Enforcement:** Vogtle Unit 1 Operating License Condition 2.G requires the licensee to implement and maintain in effect all provisions of the approved FPP as described in the FSAR for the facility, and submittals dated July 2, August 4 and 13, October 10 and 24, November 5, and December 19, 1986, and January 2, 1987, as approved in the SER (NUREG-1137) through Supplement 5. The Vogtle Unit 2 Operating License Condition 2.G requires the licensee to implement and maintain in effect all provisions of the



approved FPP, as described in the FSAR for the facility, as approved in the SER (NUREG-1137) through Supplement 9. The approved FPP is documented in FSAR Section 9.5.1 and associated Appendices 9A and 9B.

In FSAR Appendix 9B, Section C.5.c, the licensee states, in part, that with alternative or dedicated shutdown capability, the RCS process variables can be maintained within those limits predicted for a loss of normal ac power. Contrary to the above, on October, 27, 2011, the NRC identified that the licensee failed to ensure that, during post-fire safe shutdown, Unit 1 and Unit 2 reactor coolant process variables would be maintained within those predicted for a loss of normal ac power. Specifically, following a fire in Fire Area 1-CB-L1-A, requiring evacuation of the Unit 1 and Unit 2 MCRs, high AFW flow could cause an uncontrolled cooldown of the RCS, which could cause RCS pressure to decrease to the SI setpoint, a condition which is not expected to occur due to a loss of normal ac power. This condition has existed since original plant construction and is applicable to Unit 1 and Unit 2.

Because this finding was of very low safety significance (Green) and was entered into the licensee's corrective action program (CR 2010112114), this violation is being treated as a non-cited violation (NCV), consistent with the NRC's Enforcement Policy: NCV 05000424, 425/2011005-02, Failure to ensure Unit 1 and Unit 2 reactor coolant process variables can be maintained within those predicted for a loss of normal ac power for a large main control room fire. This unresolved item is now closed.

#### 4OA6 Meetings, Including Exit

##### .1 Exit Meeting

On January 24, 2012 the resident inspectors presented the inspection results to Mr. Steve Swanson 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 Inoperable Core Exit Thermocouple Indicator on the B train Remote Shutdown Panel

Technical Specification (TS) 3.0.4, Limiting Condition for Operation (LCO) Applicability states in-part, "When an LCO is not met, entry into a Mode or other specified condition in the Applicability shall only be made; a) When the associated ACTIONS to be entered permit continued operation in the Mode or other specified condition in the Applicability for an unlimited period of time; or b) After performance of a risk assessment addressing inoperable systems and components or c) When an allowance is stated in the individual value, parameter or other Specification. Contrary to this requirement on October 27, 2011 it was discovered by the licensee that Mode changes had been made contrary to TS LCO 3.0.4.

Technical Specification (TS) 3.3.4, Remote Shutdown System, Limiting Condition for Operation (LCO) is applicable in Modes 1, 2, and 3 and requires two channels of Core Exit Thermocouples (CETC) to be operable. During startup from the refueling outage 2R15, one of the CETC channels credited for satisfying this requirement was inoperable but was not recognized as being inoperable until the unit was in Mode 1. Since mode changes were made with only one of the two required CETC channels operable, the unit was operated in a condition contrary to TS LCO 3.0.4. The inspectors used Inspection Manual Chapter 601, Phase 1 worksheets, mitigating systems cornerstone, to conduct an initial screening and characterization of this violation. The inspectors concluded, from this screening, that this violation was of very low significance (Green). The licensee has entered this issue into their corrective action program as CR 374623, completed an enhanced apparent cause determination, drafted LER 05000425/2011-001, and implemented a temporary modification to restore the channel to operable status. This licensee-identified violation is closed.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee personnel:**

J. Acree, Nuclear Operations Plant Instructor Lead  
R. Brigdon, Training and Emergency Preparedness Manager  
R. Collins, Chemistry  
R. Dedrickson, Plant Manager  
K. Dyar, Security Manager  
C. Dykes, Medical Services Staff  
M. Gibson, Simulator Coordinator  
G. Gunn, Nuclear Operations Training Supervisor  
M. Hickox, Licensing  
L. Hughes, Senior Fire Protection Engineer  
I. Kochery, Health Physics Manager  
J. Lattner, Principal Fire Protection Engineer  
D. McCary, Operations Manager  
K. Molina, Heat Exchanger Engineer  
T. Parton, Operations Support Superintendent  
D. Puckett, Performance Analysis Supervisor  
J. Robinson, Engineering Programs Manager  
S. Swanson, Site Support Manager  
T. Tynan, Site Vice-President

#### **NRC personnel:**

J. Hickey, Chief, Region II Reactor Projects Branch 2  
M. Cain, Senior Resident Inspector  
T. Chandler, Resident Inspector  
T. Lighty, Project Engineer

### LIST OF ITEMS OPENED AND CLOSED

#### OPENED AND CLOSED

05000424,425/2011005-01	NCV	Human Performance Error Results in Inoperability of TDAFW Pump. (Section 1R22)
05000424,425/2011005-02	NCV	Failure to ensure Unit 1 and Unit 2 reactor coolant process variables can be maintained within those predicted for a loss of normal ac power for a large main control room fire. (Section 4OA5)

#### CLOSED

05000424/2011-002-00	LER	Reactor Trip Due to Main Feedwater Regulating Valve Maintenance (Section 4OA3)
05000424,425/2010006-01	URI	Control Room Fire Alternate Shutdown Evaluation (X4C2301S035) Does Not Reflect Integrated Plant Response (Section 4OA5)

### LIST OF DOCUMENTS REVIEWED

#### **Section 1R01: Adverse Weather Protection**

##### Procedures

11877-1 Rev. 22.1, Cold Weather Checklist, Unit 1  
 11877-2 Rev. 20.1, Cold Weather Checklist, Unit 2  
 11901-1 Rev. 17.2, Heat Tracing System Alignment, Unit 1  
 11901-2 Rev. 12.3, Heat Tracing System Alignment, Unit 2

#### **Section 1R04: Equipment Alignment**

##### Procedures

14980B-2 Rev. 22.4, Diesel Generator 2B Operability Test  
 11146-2 Rev. 7.1, Diesel Generator Fuel Oil Transfer System Alignment  
 11145-2 Rev. 12.2, Diesel Generator Alignment  
 11150-2 Rev. 23.3, Nuclear Service Cooling Water System Alignment  
 11015-1 Rev. 10.2, Containment Spray System Alignment  
 11405-1 Rev. 8.1, 125V DC 1E Electrical Distribution System Alignment  
 13405-1 Rev. 42, 125V DC 1E Electrical Distribution System

##### Drawings

2X4DB170-1 Rev. 39, Diesel Generator System Train A System No. 2403  
 2X5DN107-1 Rev. 6, Control Logic Diagram Diesel Generator Fuel Oil System  
 2X4DB170-2 Rev. 41, P&I Diagram Diesel Generator System, Train B System No. 2403  
 2X4DB133-1 Rev. 53, P&I Diagram Nuclear Service Cooling Water System, System No. 1202

2X4DB133-2 Rev. 51, P&I Diagram Nuclear Service Cooling Water System, System No. 1202  
 2X4DB134 Rev. 31, P&I Diagram Nuclear Service Cooling Water System, System No. 1202  
 2X4DB135-1 Rev. 29, P&I Diagram Nuclear Service Cooling Water System, System No. 1202  
 2X4DB135-2 Rev. 28, P&I Diagram Nuclear Service Cooling Water System, System No. 1202  
 1X4DB121-1 Rev. 42, P&I Diagram Safety Injection System, System No. 1204  
 1X4DB131 Rev. 35, P&I Diagram Containment Spray System, System No. 1206  
 1X3D-AA-G01A Rev. 10, Main One Line Class 1E 125V DC and 120V Vital AC Systems

#### System Health Reports

Containment Spray System 1206 system health report 3<sup>rd</sup> Quarter 2011  
 Vogtle 125 Volt Direct Current System 1806 system health report 2<sup>nd</sup> QTR 2011

#### **Section 1R05: Fire Protection**

##### Procedures

92714B-1 Rev. 2.2, Zone 14B – Auxiliary Building – Level C Fire Fighting Preplan  
 92719-1 Rev. 4.1, Zone 19 – Auxiliary Building – CVCS Centrifugal Charging Pump Rooms Fire Fighting Preplan  
 92720-1 Rev. 4.1, Zone 20 – Auxiliary Building – CVCS Pump Room Train A Fire Fighting Preplan  
 92721-1 Rev. 5.1, Zone 21 – Auxiliary Building – CVCS NCP Room Fire Fighting Preplan

92789-1 Rev. 2.1, Zone 89 – Control Building – Level A Fire Fighting Preplan  
 92790-1 Rev. 2.2, Zone 90 – Control Building – Level A Fire Fighting Preplan  
 92859-1 Rev. 2.2, Zone 159 – Control Building – Level A Fire Fighting Preplan  
 92787-1 Rev. 2.2, Zone 87 – Control Building – Level A Fire Fighting Preplan  
 92788-1 Rev. 2.2, Zone 88 – Control Building – Level A Fire Fighting Preplan  
 92793-1 Rev. 3.2, Zone 93 – Control Building – Level A Fire Fighting Preplan  
 92802-1 Rev. 1.2, Zone 102 – Control Building – Level A Fire Fighting Preplan  
 92858-1 Rev. 2.2, Zone 158 – Control Building – Level A Fire Fighting Preplan  
 92730-1 Rev. 1.2, Zone 30 – Auxiliary Building – Level B Fire Fighting Preplan  
 92731-1 Rev. 3.1, Zone 31 – Auxiliary Building – Level B Fire Fighting Preplan  
 92732-1 Rev. 2.0, Zone 32 – Auxiliary Building – Level B Fire Fighting Preplan  
 92733-1 Rev. 4.0, Zone 33 – Auxiliary Building – Level B Fire Fighting Preplan  
 92726B-1 Rev. 3.2, Zone 26B – Auxiliary Building – Levels A&B Fire Fighting Preplan  
 92745-2, Rev. 1.2, Zone 45 – Auxiliary Building – Level 1 & 2 Fire Fighting Preplan  
 92799-2, Rev. 4.1, Zone 99 – Control Building – Level A Fire Fighting Preplan  
 92804-2, Rev. 3.1, Zone 104 – MSIV Room North - Level 1 Fire Fighting Preplan  
 92860A-2, Rev. 1.2, Zone 160A – NSCW Pumphouse- Train A Fire Fighting Preplan  
 92860B-2, Rev. 1.2, Zone 160B – NSCW Pumphouse- Train B Fire Fighting Preplan

#### **Section 1R06: Internal Flooding**

##### Calculations

X6CXC-26 Rev.9, Flooding Analysis Auxiliary Building Level C

##### Procedures

MWO SNC332765 Check Cable Pull Boxes for Water Intrusion

##### Drawings

AX4DJ8011 Rev. 6.0, Fire Areas Auxiliary Building Floor Plan El. 143 ft 6 in Level C

**Section 1R07: Heat Sink Performance**Procedures

83309-C Rev. 6.4, Safety-Related Heat Exchanger Inspection

Other

W11-09-022-148, Report of Eddy Current Inspection (Unit 2 ESF Chiller Condenser)  
EPRI NP-7552, Heat Exchanger Performance Monitoring Guidelines

**Section 1R11: Licensed Operator Requalification**Condition Reports

2011105555/CAR 190969

Procedures

NMP-TR-406, License Administration, Version 3.0, 05/04/2011  
NMP-TR-406-F03, License Reactivation Documentation, Version 2, (Reviewed 4 operators who Reactivated during the Requalification Inspection Time frame.)  
Simulator Maintenance Procedure, 60200-C, Revision 13.1, 09/24/2010  
10010-C, Operator Qualification Program, Revision 39, 08/1/2011  
00715-C, Licensed Operator Requalification Program, Revision 22.2, 08/06/2009  
60007-C, Licensed Operator Requalification Examination Guidelines, 08/25/2010  
Instructor Aid, V-IA-60007-001, Development and Validation of Annual Operating Exam Scenarios for Licensed Operator Requalification, 03/27/2008  
Instructor Aid, V-IA-60007-002, Dynamic Examination Evaluation, 10/31/2008

Written Examinations Reviewed

RO 2010 Biennial Written Exam Week 1, Exam Date 11/17/2010  
RO 2010 Biennial Written Exam Week 3, Exam Date 11/17/2010  
SRO 2010 Biennial Written Exam Week 1, Exam Date 11/17/2010

Simulator Scenarios

Scenario Number DS #27, Revision 16, Approved 10/09/2006  
Scenario Number DS #11, Revision 19, Approved 03/07/2007  
Scenario Number DS #4, Revision 17, Approved 10/04/2006  
Scenario Number DS #7, Revision 21, Approved 08/29/2011  
Scenario Number DS #31, Revision 1, Approved 09/01/2011

Simulator Testing Reviewed

0701 - Manual Reactor Trip, 09/09/2010  
0703 – Closure of All MSIVs, 3/09/2011.  
0707 – Maximum Rate Power Ramp  
Cycle 17 Core Test.  
Transient Test Number 07-05, Single Reactor Coolant Pump Trip, 03/09/2010  
Transient Test Number 07-09, Unisolable Main Steam Line Rupture Inside Containment, 3/10/2010  
Transient Test Number 07-06, Main Turbine trip without Reactor Trip, 03/09/2011

Simulator Modifications

2010-01-011, Fire Computer Alarm  
 2010-08-005, Turbine Control Valve # 4  
 2011-02-006, RHR Isolation Valves  
 2011-02-007, Accumulator Vent Valves  
 2011-05-005, Annunciators  
 2011-05-008, CSFST Trouble Alarm  
 2011-06-007, Radiation Alarm RE 0724 indication during lower power operations  
 2011-08-004, Saturation Curve unacceptable Region  
 2011-08-011, Steam Generator Water Level Wide Range Recorder Replacement  
 2011-08-015, Podium in Control Room has a Gaitronics extension  
 2011-08-016, Barton RVLIS transmitter to Rosemont Transmitter replacement  
 2011-08-017, Unit 1 reactor trip data evaluation from 8/31/2011 trip  
 2011-09-009, CCW tag missing  
 2011-09-015, Heater Drain Tank level issue  
 2011-09-019, THOR computer abort during cooldown, TDAFW  
 2011-10-004, Accumulators operating band changes for red and green band  
 2011-10-005, Annunciator ALB-34-E01, does not flash properly  
 2011-10-006, SRDC 2 lights not working properly

#### Miscellaneous

21 Medical Records  
 3 Remedial Training Packages  
 Comprehensive Accredited Program Team Self-Assessment, 11/13/2009

### **Section 1R12: Maintenance Effectiveness**

#### Condition Reports

366415

#### Procedures

50028-C Rev. 18.1, Engineering Maintenance Rule Implementation

#### Other

System 1821-2, Safety Features Sequencer System 2011 health reports  
 Maintenance Rule Expert Panel meeting minutes dtd. 26 October, 2011  
 Southern Nuclear Fleet Maintenance Rule A3 Assessment, performed May 3-6, 2010 at Plant Vogtle

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

#### Condition Reports

358926	357080	358773	380622	383267
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#### Work Orders

SNC 338583  
 SNC 355369

#### Drawings

8373D65 Rev. 5, Swing Check Valve

Other

TE 308467, Unit 2B EDG load increase with no operator demand  
 TE 289962, Unit 2B RHR pump vibrations in 'Alert' range

**Section 1R18: Plant Modifications**Work Orders

SNC 129933

Procedures

23984R-2 Rev. 3, RCS Midloop Level Vacuum Refill  
 12009-C Rev. 26, RCS Vacuum Refill  
 12008-C Rev. 31, Mid-Loop Operations

Other

DCP SNC 129930  
 Specification X5AC07A Rev. 2.0, Safety Grade Accumulator Vent Valve Upgrade for VEGP

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

13301-C Rev. 28.4, CBCR Normal HVAC and Emergency Filtration System  
 14430-2 Rev. 8.1, NSCW Cooling Tower Fans Monthly Test  
 14825-1 Rev. 94, Quarterly Inservice Valve Test

Work Orders

MWO SNC125170 – clean/inspect/lube 1HV12130 motor operator – return inlet  
 MWO SNC125172 – clean/inspect/lube 1HV12128 motor operator – exhaust  
 Unit 1 operator logs for 11/30/11  
 MWO SNC 137306, Replace Fan Gearbox  
 Unit 2 operator logs for 12/02/11  
 MWO SNC126300 – B-Cnmt Spray Suction MOV Stem Lubrication  
 Unit 1 operator logs for 12/13/11  
 MWO SNC 330121, feedback potentiometer replacement for 1FV0520  
 MWO SNC 131625, Unit 2A NSCW pump #5 refurbishment  
 MWO SNC 338761, Unit 2 TDAFW valve 2HV5113, alternate suction to condensate storage tank #2 will not close from MCR handswitch

**Section 1R22: Surveillance Testing**Procedures

14980B-2 Rev. 22.4, Diesel Generator 2B Operability Test  
 14905-1 Rev. 66.1, RCS Leakage Calculation (Inventory Balance)  
 28820-C Rev. 17.1, Battery Charger Load Test  
 24812-1 Rev. 42, Delta T/Tavg Loop 3 Protection Channel III 1T 431 Channel Operational Test and Channel Calibration  
 14980B-1 Rev. 23.4, Diesel Generator 1B Operability Test  
 14810-2 Rev. 40, TDAFW Pump Operability, Response Time and Check Valve IST



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

MSPI Deviation Report, Unit 1, MSPI Emergency AC Power System Unavailability Index, period September 2011  
 MSPI Deviation Report, Unit 1, MSPI Emergency AC Power Unreliability Index, period September 2011  
 MSPI Deviation Report, Unit 2, MSPI Emergency AC Power Unavailability Index, period September 2011  
 MSPI Deviation Report, Unit 2, MSPI Emergency AC Power Unreliability Index, period September 2011  
 MSPI Deviation Report, Unit 1, MSPI Cooling Water System Unavailability Index, period September 2011  
 MSPI Deviation Report, Unit 1, MSPI Cooling Water System Unreliability Index, period September 2011  
 MSPI Deviation Report, Unit 2, MSPI Cooling Water System Unavailability Index, period September 2011  
 MSPI Deviation Report, Unit 2, MSPI Cooling Water System Unreliability Index, period September 2011  
 MSPI Deviation Report, Unit 1, MSPI Safety System Functional Failures, period September 2011  
 MSPI Deviation Report, Unit 2, MSPI Safety System Functional Failures, period September 2011

**Other**

MSPI Basis Document Vogtle Generating Plant Unit 1 and 2, version 4 dated 06/16/2011  
 NEI 99-02, regulatory Assessment Performance indicator Guideline, Revision 6, October 2009:

**Section 40A2: Identification and Resolution of Problems****Condition Reports**

385878	386925	386931	386949
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**Procedures/Calculations/Engineering Documents**

NMP-GM-002-001, Corrective Action Program Instructions, Version 21.0  
 NMP-GM-002, Corrective Action Program, Version 11.0  
 NMP-GM-002-007, Apparent Cause Determination Instructions, Version 4.0  
 IDO for CR 385878  
 WO SNC 357635

**Section 40A3: Event Followup****Procedures**

16612-1 Rev. 9.1, MFIV and MFRV Operation for Maintenance

**Section 40A5: Other Activities****Condition Reports (CRs)**

2010112114

**Other**

NUREG-1137, Supplement No. 4, Safety Evaluation Report related to the operation of Vogtle

Electric Generating Plant Units 1 and 2

X4C2301S035, Control Room Fire Alternate Shutdown Evaluation, Version 12.0, 8/26/09

VEGP-FSAR-9.5.1, Fire Protection Program, Rev. 16

VEGP-FSAR-9.5.1, Appendix 9B, Comparison of VEGP Units 1 and 2 with Requirements of the  
BTP CMEB 9.5-1, Rev. 13