



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

October 31, 2014

Mr. Brian K. Taber  
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 05000424/2014004 AND 05000425/2014004

Dear Mr. Taber:

On September 30, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Vogtle Electric Generating Plant, Units 1 and 2. On October 31, 2014, the NRC inspectors discussed the results of this inspection with G. Saxon and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented four findings of very low safety significance (Green) in this report. These findings involved violations of NRC requirements. Further, inspectors documented a licensed-identified violation which was determined to be of very low safety significance in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at the Vogtle Electric Generating Plant.

If you disagree with a cross-cutting aspect assignment 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.

B. Taber

2

In accordance with Title 10 of the Code of Federal Regulations 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of 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/*

Mark Franke, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

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

Enclosures: Inspection Report 05000424/2014004 and 05000425/2014004  
w/Attachment: Supplemental Information

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B. Taber

2

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**/RA/**

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3

Letter to Brian K. Taber from Mark Franke dated October 31, 2014.

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000424/2014004 AND 05000425/2014004

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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.: 05000424/2014004 and 05000425/2014004

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

Facility: Vogtle Electric Generating Plant, Units 1 and 2

Location: Waynesboro, GA 30830

Dates: July 1, 2014, through September 30, 2014

Inspectors: M. Cain, Senior Resident Inspector  
A. Alen, Resident Inspector  
W. Pursley, Health Physics Inspector  
A. Sengupta, Reactor Inspector (Section 1R07)

Approved by: Mark Franke, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000424/2014004, 05000425/2014004; 07/01/2014 – 09/30/2014; Vogtle Electric Generating Plant, Units 1 and 2; Licensed Operator Requalification Program and Licensed Operator Performance, Refueling and Other Outage Activities, Identification and Resolution of Problems, Radioactive Gaseous and Liquid Effluent Treatment

The report covered a three-month period of inspection by resident inspectors and regional inspectors. There were four self-revealing violations identified and documented in this report. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP) dated June 2, 2011. The cross-cutting aspects are determined using IMC 0310, "Aspects within the Cross-Cutting Areas" dated December 19, 2013. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated January 28, 2013 and revised July 9, 2013. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

### Cornerstone: Initiating Events

- **Green:** A self-revealing non-cited violation (NCV) of Technical Specification (TS) 5.4.1.a, "Procedures," was identified for the licensee's failure to implement system operating procedure (SOP) 13615-1, "Condensate and Feedwater Systems," Version 84. Specifically, on July 30, 2014, the licensee conducted a power increase from Mode 2 (approximately 3 percent reactor power) to Mode 1 (approximately 8 percent reactor power) with main condenser hotwell level control in "manual" versus "automatic" as directed by procedure. This resulted in a main feedwater transient and a subsequent reactor shutdown. The licensee initiated an incident response team and entered this event into their corrective action program as condition report (CR) 847734. Additional corrective actions included revising the SOP to include specific instructions for the control of main condenser hotwell level with corresponding number of operating condensate pumps.

The performance deficiency was more than minor because it was associated with the human performance attribute of the initiating events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. Specifically, the performance deficiency was associated with a human error during implementation of SOP 13615-1, resulting in a main feedwater transient event (i.e. loss of condensate pump net positive suction head (NPSH) in the condenser hotwell resulting in lowering steam generator water levels), that subsequently upset plant stability. The inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012. The finding screened as Green because it did not cause a reactor trip. The inspectors determined the finding had a cross-cutting aspect of "procedure adherence" in the human performance area because the unit operator did not implement SOP 13615-1 procedure Step 4.1.1.5, which required the UO to 'verify' condenser hotwell control, 1LIC-4415, is in 'auto' maintaining normal level. [H.8] (Section 1R11)

- Green: A self-revealing NCV of TS 5.4.1.a, "Procedures," was identified for the licensee's failure to implement SOP 13009-1, "CVCS Reactor Makeup Control System," Version 50.1. Specifically, on July 9, 2014, the licensee conducted a blended makeup to the volume control tank (VCT) at a boric acid concentration lower than what the procedure required, which resulted in an inadvertent boron dilution of the reactor coolant system (RCS), and caused a subsequent power excursion. Upon recognition, the unit operator took immediate actions to reduce power to an acceptable level. The licensee entered this issue into their corrective action program as 837899.

The performance deficiency was more than minor because it was associated with the human performance attribute of the initiating events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. Specifically, the performance deficiency was associated with a human error during implementation of SOP 13009-1, resulting in a reactivity event (i.e. inadvertent boron dilution), that subsequently upset plant stability. The inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012. The finding screened as Green because it did not cause a reactor trip. The inspectors determined the finding had a cross-cutting aspect of "avoid complacency" in the human performance area because the reactor operator did not implement error reduction tools, such as 'STAR' (Stop, Think, Act, Review), as self-check to ensure that work activities were performed safely. [H.12] (Section 4OA2)

#### Cornerstone: Barrier Integrity

- Green: A self-revealing NCV of TS 5.4.1.a, "Procedures," was identified for the licensee's failure to specify and verify the correct unit designation in clearance and tagout instructions for removing the Unit 2 nuclear service cooling water (NSCW) system "B" train from service, as required by Administrative Procedure NMP-AD-003, "Equipment Clearance and Tagging," Ver. 17.4. As a result, on September 23, 2014, operators isolated the NSCW supply valve to the "B" train containment coolers on the wrong unit (i.e. Unit 1), rendering it inoperable. Following closure of the valve, operators in the Unit 1 control room received containment coolers low flow alarms and took actions to reposition the valve and restored NSCW flow. The licensee entered this issue into their corrective action program as CR 870005.

The performance deficiency was more than minor because it was associated with the SSC and barrier performance attribute of the barrier integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that the containment barrier to protects the public from radionuclide releases caused by accidents or events. Specifically, the performance deficiency affected the availability of the "B" train of the emergency containment coolers which support the capability of the containment barrier to protect the public from radionuclide releases caused by accidents or events. The inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012. The finding screened as Green because it did not represent an actual open pathway in the physical integrity of reactor containment, containment isolation system, or heat removal components, and it did not involve a reduction in function of hydrogen igniters in the reactor containment. The inspectors determined the finding had a cross-cutting aspect of "challenge the unknown" in the human performance

area because neither of the individuals that reviewed the tagout documentation stopped, after questioning appropriateness of manipulating 1HV-11689, and evaluated the situation before proceeding. [H.11] (Section 1R20)

#### Cornerstone: Public Radiation Safety

- Green: A self-revealing NCV of TS 5.5.4, "Radioactive Effluent Controls Program," occurred when the licensee failed to maintain continuous, representative monitoring of the Unit 2 plant vent gaseous effluents as required by the offsite dose calculation manual (ODCM) for approximately ten days, between March 16 and March 26, 2014. The licensee entered the event in the corrective action program as CR 8284999, and took immediate corrective actions to establish continuous monitoring of the Unit 2 plant vent gaseous effluents. Corrective actions planned, completed, or under evaluation include, changes to the vent sampling procedure, impact assessment on ODCM requirements, departmental stand downs to share lessons learned, work control process changes for equipment tagouts, and training.

The performance deficiency was more than minor because it was associated with the public radiation safety cornerstone attribute of plant facilities, equipment and instrumentation availability and adversely impacted the cornerstone objective of ensuring adequate protection of public health and safety from exposure to radioactive materials released into the public domain. This finding was assessed for significance using IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process," issued February 12, 2008, and determined it to be of very low safety significance because the licensee was able to assess the dose to the public by correlating other plant radiation monitoring equipment and programs to demonstrate this dose was less than the values in Appendix I to 10 CFR Part 50 and/or 10 CFR 201301(e). This finding had a cross-cutting aspect of "identification" in the problem identification and resolution area because the licensee failed to recognize the impact a loss of vacuum indication had on the operability of 2RE12444 (the continuous monitoring equipment) completely, accurately, and in a timely manner [P1]. (Section 2RS6)

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



## REPORT DETAILS

### Summary of Plant Status

Unit 1 started the report period at full (100 percent) reactor thermal power (RTP). The unit was manually tripped on July 27, 2014 from full RTP due to lowering water levels in all four steam generators caused by a trip of the "1A" steam generator main feedwater pump (SGMFP). The unit was restarted on July 29, 2014 and on July 30, 2014, at approximately eight percent RTP, the unit was shut down (brought to Mode 3) due to lowering water levels in all four steam generators caused by insufficient water level in the main condenser. The unit was restarted on August 2, 2014 and attained full power on August 5, 2014. Unit 1 reduced reactor power to 30 percent on August 29, 2014 due to the failure of "1A" main turbine stator cooling water pump and subsequently returned to 100 percent reactor power on September 6, 2014 after repairs.

Unit 2 started the report period at full rated thermal power (RTP) and was shut down for a planned refueling outage on September 14, 2014. The unit remained shut down for the remainder of the report period.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R04 Equipment Alignment (71111.04)

##### a. Inspection Scope

##### Partial Walkdown

The inspectors verified that critical portions of the selected systems were correctly aligned by performing partial walkdowns. The inspectors selected systems for assessment because they were a redundant or backup system or train, were important for mitigating risk for the current plant conditions, had been recently realigned, or were a single-train system. The inspectors determined the correct system lineup by reviewing plant procedures and drawings. Documents reviewed are listed in the Attachment.

The inspectors selected the following four systems or trains to inspect:

- Unit 2 train "A" emergency diesel generator (EDG) while the train "B" EDG was out of service due to a monthly surveillance
- Unit 2 train "A" NSCW system while the train "B" NSCW cooling tower was out of service for a planned maintenance outage on NSCW pump no. 2
- Unit 1 train "A" NSCW system while the train "B" NSCW fan # 1 was out of service for a planned maintenance outage
- Unit 2 train "A" containment spray (CS) system while the Unit 2 train "B" CS system was out of service due to a planned maintenance outage.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05AQ)

a. Inspection Scope

Quarterly Inspection

The inspectors evaluated the adequacy of selected fire plans by comparing the fire plans to the defined hazards and defense-in-depth features specified in the fire protection program. In evaluating the fire plans, the inspectors assessed the following items:

- control of transient combustibles and ignition sources
- fire detection systems
- water-based fire suppression systems
- gaseous fire suppression systems
- manual firefighting equipment and capability
- passive fire protection features
- compensatory measures and fire watches
- issues related to fire protection contained in the licensee's corrective action program

The inspectors toured the following five fire areas to assess material condition and operational status of fire protection equipment. Documents reviewed are listed in the Attachment.

- Unit 1, level "B" east and west penetration areas, fire zones 60, 61, 64, 62, 63 and 82
- Unit 1, "A", "B", "C" and "D" battery and switchgear rooms, fire zones 76, 77A, 77B, 78A, 78B, 71, 56A, 56B, 79A, 79B, 83 and 152
- Unit 1, EDG fuel oil storage tank rooms, fire zones 165 and 166
- Unit 2, trains "A" and "B" auxiliary component cooling water (ACCW) heat exchanger rooms, fire zones 49, and 52
- Unit 2, trains "A" and "B" component cooling water (CCW) pump rooms, fire zones 36, and 37

b. Findings

No findings were identified.

## 1R06 Flood Protection Measures (71111.06)

### a. Inspection Scope

#### .1 Underground Cables

The inspectors reviewed related flood analysis documents and inspected the areas listed below containing cables whose failure could disable risk-significant equipment. The inspector directly observed the condition of cables and cable support structures and, as applicable, verified that dewatering devices and drainage systems were functioning properly. In addition, the inspectors verified the licensee was identifying and properly addressing issues using the corrective action program. Documents reviewed are listed in the attachment.

- Cable Pull Boxes: 1NE7ADKEM40, 1NE7ADKEM39, 1NE9GHKEPB01

### b. Findings

No findings were identified.

## 1R07 Heat Sink Performance (71111.07T)

#### .1 Triennial Review of Heat Sink Performance

### a. Inspection Scope

The inspectors reviewed operability determinations, completed surveillances, vendor manual information, associated calculations, performance test results, and cooler inspection results associated with the heat exchangers listed below. These heat exchangers/coolers were chosen based on their risk significance in the licensee's probabilistic risk analysis, their important safety-related mitigating system support functions, and their relatively low margin.

- Unit 1 component cooling water (CCW) heat exchanger "1B"
- Unit 1 residual heat exchanger "1A"
- Unit 1 EDG jacket water cooler heat exchanger "1B"
- Unit 1 EDG lube oil cooler heat exchanger "1A"

For these four heat exchangers, the inspectors determined whether testing, inspection, maintenance, and monitoring of biotic fouling and macrofouling programs were adequate to ensure proper heat transfer. This was accomplished by determining whether the test method used was consistent with accepted industry practices, or equivalent, the test conditions were consistent with the selected methodology, the test acceptance criteria were consistent with the design basis values, and reviewing results of heat exchanger performance testing. The inspectors also determined whether the test results appropriately considered differences between testing conditions and design conditions,

the frequency of testing based on trending of test results was sufficient to detect degradation prior to loss of heat removal capabilities below design basis values, and test results considered test instrument inaccuracies and differences.

For these four heat exchangers, the inspectors also reviewed the methods and results of heat exchanger performance inspections. The inspectors determined whether the methods used to inspect and clean heat exchangers were consistent with as-found conditions identified and expected degradation trends and industry standards, the licensee's inspection and cleaning activities had established acceptance criteria consistent with industry standards, and the as-found results were recorded, evaluated, and appropriately dispositioned so that the as-left condition was acceptable.

In addition, the inspectors determined whether the condition and operation of these four heat exchangers were consistent with design assumptions in heat transfer calculations, and as described in the final safety analysis report. This included determining whether the number of plugged tubes were within pre-established limits based on capacity and heat transfer assumptions. The inspectors determined whether the licensee evaluated the potential for water hammer, and established adequate controls and operational limits to prevent heat exchanger degradation, due to excessive flow induced vibration during operation. The inspectors also reviewed eddy current test (ECT) reports and visual inspection records to determine the structural integrity of the heat exchangers.

The inspectors determined whether the performance of ultimate heat sinks (UHS) and their subcomponents, such as piping, pumps, valves, etc., was appropriately evaluated by tests or other equivalent methods, to ensure availability and accessibility to the in-plant cooling water systems. The inspectors determined whether the licensee ensured sufficient reservoir capacity by trending and removing debris in the UHS.

The inspectors performed a system walkdown of the service water (SW) structure to determine whether the licensee's assessment on structural integrity and component functionality was adequate.

In addition, the inspectors reviewed condition reports (CRs) related to the heat exchangers/coolers and heat sink (HS) performance issues to determine whether the licensee had an appropriate threshold for identifying issues and to evaluate the effectiveness of the corrective actions. The documents that were reviewed are included in the Attachment to this report.

These inspection activities constituted four heat sink inspection samples as defined in inspection procedure (IP) 71111.07-05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)

a. Inspection Scope

.1 Resident Inspector Quarterly Review of Licensed Operator Requalification

The inspectors observed an evaluated simulator scenario administered to an operating crew as part of the annual requalification operating test required by 10 CFR 55.59, "Requalification."

The inspectors assessed the following:

- licensed operator performance
- the ability of the licensee to administer the scenario and evaluate the operators
- the quality of the post-scenario critique
- simulator performance

Documents reviewed are listed in the Attachment.

.2 Resident Inspector Quarterly Review of Licensed Operator Performance

The inspectors observed licensed operator performance in the main control room on July 30, 2014, while a reactor startup and subsequent shutdown was being performed on Unit 1.

The inspectors assessed the following:

- use of plant procedures
- control board manipulations
- communications between crew members
- use and interpretation of instruments, indications, and alarms
- use of human error prevention techniques
- documentation of activities
- management and supervision

Documents reviewed are listed in the Attachment.

b. Findings

Introduction: A Green self-revealing non-cited violation of TS 5.4.1.a, "Procedures," was identified for the licensee's failure to implement SOP 13615-1, "Condensate and Feedwater Systems," Version 84. Specifically, on July 30, 2014, the licensee conducted a power increase from Mode 2 (approximately 3 percent reactor power) to Mode 1 (approximately 8 percent reactor power) with main condenser hotwell level control in "manual" versus "automatic" as directed by procedure. This resulted in a main feedwater transient and a subsequent reactor shutdown.

Description: The condensate and feedwater systems provide condensed, secondary feedwater from the main condenser hotwell to the steam generators during normal power operation. System operating procedure SOP 13615-1 provides instructions for the operation of the condensate and feedwater systems. On July 30, 2014 the Unit 1 unit operator (UO) had completed transferring from auxiliary feedwater to main feedwater and was feeding forward to the steam generators with the "1B" steam generator main feed pump (SGMFP) in support of a reactor power increase. At approximately 8 percent reactor power, operators received all four steam generator water level deviation as well as condenser hotwell low level alarms in the main control room (MCR) and observed steam generator water levels decreasing in an uncontrolled manner. The UO placed the "1B" SGMFP in "manual" and attempted to manually increase feed pump speed to increase steam generator "SG" feedwater flow. The SGMFP speed responded correctly, however, no corresponding increase in feedwater flow was observed. The shift supervisor conducting the power increase directed the operator at the controls (OATC) to insert control rods and return the plant to Mode 2. The plant was stabilized in Mode 2 and subsequently shutdown to Mode 3 to conduct the event response investigation. Manual actions included turbine load reduction, control rods insertion of 23 steps and adding boric acid.

The licensee initiated an incident response team and entered this event into their corrective action program as condition report (CR) 847734. The licensee conducted a human performance review board (HURB) and determined that the event resulted due to human error by the UO. The UO had recently lowered hotwell level to -20 inches in accordance with SOP 13615-1, however, hotwell level control 1-LIC-4415 was left in "manual" with the makeup valve shut and the reject to condensate storage tank (CST) valve open. This resulted in main condenser hotwell level dropping to approximately -27 inches, condensate pump suction pressure to lower and subsequent low SGMFP suction pressure. Steam generator water levels continued to lower until reactor power was reduced less than 5 percent (Mode 2) and auxiliary feedwater (AFW) was manually initiated. As corrective action, the licensee performed a focused "stand-down" for all operating shift crews on the feedwater transient event prior to performing plant and reactor startup. Additional corrective actions included revision of SOP 13615-1 to require clarifying precautions and condenser hotwell level limits for varying condensate pump operation (i.e. when only one condensate pump is in operation, hotwell level should be maintained greater than -20 inches, if two condensate pumps are operating, hotwell level should be maintained greater than -10 inches.)

Analysis: The licensee's failure to place the main condenser hotwell level controller to "auto" during plant startup and power ascension as required by SOP 13615-1 was a performance deficiency. The performance deficiency was more than minor because it was associated with the human performance attribute of the initiating events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. Specifically, the performance deficiency was associated with a human error during implementation of SOP 13615-1, resulting in a main feedwater transient event (i.e. loss of condensate pump net positive suction head (NPSH) in the condenser hotwell resulting in lowering steam generator water levels), that resulted in a main feedwater transient and a subsequent reactor shutdown.

The inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012. The finding screened as Green because it did not cause a reactor trip. The inspectors determined the finding had a cross-cutting aspect of "procedure adherence" in the human performance area because the unit operator did not implement SOP 13615-1 procedure Step 4.1.1.5 which required the UO to verify condenser hotwell control, 1LIC-4415, is in "auto" maintaining normal level. [H.8]

Enforcement: Technical Specification 5.4.1.a, "Procedures," requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A to Regulatory Guide 1.33, "Quality Assurance Program Requirements," of February 1978. Appendix A, Item 3.k, required procedures for startup and operation of the condensate and feedwater systems. Procedure SOP 13615-1, "Condensate and Feedwater Systems," Version 83, provides steps to place main condenser hotwell level controller, 1LIC-4415 in "auto".

Contrary to the above, on July 30, 2014, the operators failed to correctly implement procedure SOP 13615-1 to place main condenser hotwell level controller, 1LIC-4415 in "auto". As a result, condenser hotwell level decreased to the point where steam generator water levels could not be maintained during the resultant main feedwater transient. Upon the operators' recognition of the lowering steam generator water levels, the operators took immediate actions to reduce power less than 5 percent. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as CR 847734. (NCV 05000424-01, "Failure to Correctly Implement a Condensate and Feedwater Systems Procedure for Startup").

## 1R12 Maintenance Effectiveness (71111.12)

### a. Inspection Scope

The inspectors assessed the licensee's treatment of the two issues listed below in order to verify the licensee appropriately addressed equipment problems within the scope of the maintenance rule (10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"). The inspectors reviewed procedures and records to evaluate the licensee's identification, assessment, and characterization of the problems as well as their corrective actions for returning the equipment to a satisfactory condition. The inspectors also interviewed system engineers and the maintenance rule coordinator to assess the accuracy of performance deficiencies and extent of condition. Documents reviewed are listed in the Attachment.

- Unit 1, system 1301S, "Main Steam System," 1PV3010, steam generator atmospheric relief valve maintenance preventable functional failure (MPFF)
- Unit 2, system 1208, "Chemical and Volume Control System," 2HV-8147, RCS alternate charging isolation valve functional failure

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed the five maintenance activities listed below to verify that the licensee assessed and managed plant risk as required by 10 CFR 50.65(a)(4) and licensee procedures. The inspectors assessed the adequacy of the licensee's risk assessments and implementation of risk management actions. The inspectors also verified that the licensee was identifying and resolving problems with assessing and managing maintenance-related risk using the corrective action program. Additionally, for maintenance resulting from unforeseen situations, the inspectors assessed the effectiveness of the licensee's planning and control of emergent work activities. Documents reviewed are listed in the Attachment.

- Week of July 7: Unit 1 NSCW fan #2 motor replacement and subsequent 'YELLOW' equipment out of service (EOOS) risk profile
- Week of August 18: Unit 1 NSCW fan #1 motor replacement and subsequent 'YELLOW' EOOS risk profile
- Week of August 25: Unit "2A" CS, Unit "1A" residual heat removal (RHR) and Unit "2A" safety injection (SI) pump planned maintenance outages
- Week of September 15: Unit 2 'YELLOW' outage risk assessment monitor (ORAM) for reduced power availability due to planned maintenance on the "A" train sequencer and safety-related batteries.
- Week of September 15: Unit 2 'YELLOW' ORAM for core cooling and RCS inventory control safety functions due to reduced RCS water level with full spent core and time to saturation of less than 35 minutes.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors selected the six operability determinations or functionality evaluations listed below for review based on the risk-significance of the associated components and systems. The inspectors reviewed the technical adequacy of the determinations to ensure that technical specification operability was properly justified and the components or systems remained capable of performing their design functions. To verify whether components or systems were operable, the inspectors compared the operability and design criteria in the appropriate sections of the technical specification and updated final safety analysis report to the licensee's evaluations. Where compensatory measures



were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment.

- CR 842418, "2B" EDG fuel oil leak on #2 cylinder
- CR 832520, A leak is occurring at DG2A jacket water pump shaft at an estimated rate of 120 drops per minute
- CR 846545, Oil leak on atmospheric relief valve 1-1301-PV-3020
- CR 851965, "1B" emergency safeguards features (ESF) chiller oil pressure below normal operating range
- CR 853511, "2A" NSCW pump No. 1 upper guide bearing is reading 202 degrees Fahrenheit
- CR 856198, Void detected at location S-12 on the "2B" CS pump discharge piping

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors verified that the plant modification listed below did not affect the safety functions of important safety systems. The inspectors confirmed the modifications did not degrade the design bases, licensing bases, and performance capability of risk significant structures, systems, and components. The inspectors also verified modifications performed during plant configurations involving increased risk did not place the plant in an unsafe condition. Additionally, the inspectors evaluated whether system operability and availability, configuration control, post-installation test activities, and changes to documents, such as drawings, procedures, and operator training materials, complied with licensee standards and NRC requirements. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with modifications. Documents reviewed are listed in the Attachment.

- SNC591516, Temporary modification to simulate a trip signal for Unit 1 main feedwater pump (MFP) "A" within the AFW motor-driven pump start logic and also steam generator blowdown isolation logic

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)a. Inspection Scope

The inspectors either observed post-maintenance testing or reviewed the test results for the six maintenance activities listed below to verify the work performed was completed correctly and the test activities were adequate to verify system operability and functional capability.

- Maintenance Work Order (MWO) SNC586376 - Unit 1 NSCW fan #2
- MWO SNC591664 – Unit 1 PV-3000, loop 1 atmospheric relief valve
- MWO SNC591662 – Unit 1 PV-3010, loop 2 atmospheric relief valve
- MWO SNC414940 – Technical support center (TSC) HVAC preventive maintenance
- MWO SNC591666 – Unit 1 “B” steam generator feedwater pump, replace coil for 1FY5441
- MWO SNC591234 – Unit “1A”SGMFP solenoid valve (SV) 13 replacement

The inspectors evaluated these activities for the following:

- Acceptance criteria were clear and demonstrated operational readiness.
- Effects of testing on the plant were adequately addressed.
- Test instrumentation was appropriate.
- Tests were performed in accordance with approved procedures.
- Equipment was returned to its operational status following testing.
- Test documentation was properly evaluated.

Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with post-maintenance testing. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)a. Inspection Scope

For the Unit 2 refueling outage which began on September 14, 2014, through the remainder of the reporting period, the inspectors evaluated the following outage activities:

- outage planning
- shutdown, cooldown, and refueling
- reactor coolant system instrumentation and electrical power configuration
- reactivity and inventory control
- decay heat removal and spent fuel pool cooling system operation

The inspectors verified that the licensee:

- considered risk in developing the outage schedule
- controlled plant configuration in accordance with administrative risk reduction methodologies
- developed work schedules to manage fatigue
- developed mitigation strategies for loss of key safety functions
- adhered to operating license and technical specification requirements

Inspectors verified that safety-related and risk-significant structures, systems, and components not accessible during power operations were maintained in an operable condition. The inspectors also reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with outage activities. Documents reviewed are listed in the Attachment.

b. Findings

Introduction: A Green self-revealing non-cited violation of TS 5.4.1.a, "Procedures," was identified for the licensee's failure to specify and verify the correct unit designation in clearance and tagout instructions for removing the Unit 2 NSCW "B" train from service, as required by Administrative Procedure NMP-AD-003, "Equipment Clearance and Tagging," Ver. 17.4. As a result, on September 23, 2014, operators isolated the NSCW supply valve to the "B" train containment coolers on the wrong unit (i.e. Unit 1), and rendered the train inoperable.

Description: The emergency containment cooling system is designed to limit containment pressure and temperature to within design limits following postulated design bases accidents. The system consists of two 100 percent capacity trains ("A" and "B") that are cooled by the NSCW.

Administrative Procedure NMP-AD-003 establishes requirements for preparing tagouts used to control the configuration of plant equipment during operation and maintenance. Procedure Steps 6.5.1 and 6.6.1 required the tagout preparer and reviewer to use the guidance provided in NMP-AD-003-F08, "Tagout Preparation and Approval Checklist", Ver. 4.0 when preparing and reviewing a tagout. The guidance in NMP-AD-003-F08 required verification that correct unit designation was used for all components. On September 23, 2014, during the Unit 2 refueling outage, operators were hanging tagout 2-DT-14-1202-15360, Rev. 1, to remove the Unit 2 "B" train of NSCW from service for planned maintenance. The tagout incorrectly specified the closure of valve 1HV-11689, which was the train "B" NSCW supply valve to the emergency containment coolers on Unit 1 instead of Unit 2. As a result of this error, at about 8:00 a.m., the operator hanging the tagout closed 1HV-11689 and inadvertently isolated the "B" train of NSCW supply to the Unit 1 emergency containment coolers. Subsequently, operators in the Unit 1 control room received train "B" containment coolers low flow alarms and took actions to understand the cause for the loss of flow (i.e. closure of 1HV-11689) and restored the valve to its required 'locked open' position at about 8:30 a.m.

Following the event, it was reported that during review of the tagout documentation, both the authorizing individual and field operator questioned the appropriateness of manipulating a Unit 1 component in support of maintenance on a Unit 2 system. However, work proceeded under the assumption that there was a cross-tie between the units for NSCW that required closure of the valve. Although uncertain, neither of the individuals took actions to verify the appropriateness for closing the valve. The licensee entered this issue into the corrective action program as condition report (CR) 870005.

Analysis: The licensee's failure to specify and verify the correct unit designation for the clearance and tagout instructions for removing the Unit 2 NSCW "B" train from service was a performance deficiency. The performance deficiency was more than minor because it was associated with the SSC and barrier performance attribute of the barrier integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that the containment barrier to protects the public from radionuclide releases caused by accidents or events. Specifically, the performance deficiency affected the availability of the "B" train of the emergency containment coolers (i.e. the train was rendered inoperable) which supports the capability of the containment barrier, by limiting temperature and pressure, to protect the public from radionuclide releases caused by accidents or events. The inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012. The finding screened as Green because it did not represent an actual open pathway in the physical integrity of reactor containment, containment isolation system, or heat removal components, and it did not involve a reduction in function of hydrogen igniters in the reactor containment. The inspectors determined the finding had a cross-cutting aspect of "challenge the unknown" in the human performance area because neither of the individuals that reviewed the tagout documentation stopped, after questioning appropriateness of manipulating 1HV-11689, and evaluated the situation before proceeding. [H.11]

Enforcement: Technical Specification 5.4.1.a, "Procedures," requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A to Regulatory Guide 1.33, "Quality Assurance Program Requirements," of February 1978. Appendix A, Item 1.c, required administrative procedures for equipment control (e.g. locking and tagging). Procedure NMP-AD-003, "Equipment Clearance and Tagging," Ver. 17.4 provided steps to specify and verify that correct unit designation was used for all components within the scope of the tagout.

Contrary to the above, on September 23, 2014, the licensee failed to correctly implement NMP-AD-003 to specify and verify the correct unit designation (i.e. Unit 2) was being used for the NSCW supply valve to the "B" train of containment coolers (HV-11689). As a result operators inadvertently closed the NSCW valve on the wrong unit (i.e. Unit 1), and rendered the Unit 1 "B" train of containment coolers inoperable. Following closure of the valve, operators in the Unit 1 control room received containment coolers low flow alarms and took actions to reposition the valve and restored NSCW flow. This violation

is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as CR 870005. (NCV 05000424-02, "Inoperability of Unit 1 Emergency Containment Coolers due to Incorrect Tagout").

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the seven surveillance tests listed below and either observed the test or reviewed test results to verify testing adequately demonstrated equipment operability and met technical specification and licensee procedural requirements. The inspectors evaluated the test activities to assess for preconditioning of equipment, procedure adherence, and equipment alignment following completion of the surveillance. Additionally, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with surveillance testing. Documents reviewed are listed in the Attachment.

Routine Surveillance Tests

- 24995-2 Rev. 13, Nuclear instrumentation system (NIS) source/intermediate range channel 2RE-13135A(2N31/2N35) channel calibration
- 14992A-1 Rev. 3, Main feedwater pump (MFP) turbine A trip mechanism test
- 28911-C Rev 46, Safety related seven day battery maintenance
- 14701A-1, Ver. 11.4, Reactor Trip Breaker Train A Undervoltage and Shunt Trip Test

Containment Isolation Valve

- 14349-2, Ver. 9, Containment Penetration No. 49 Excess Letdown and Seal Water Leakoff Local Leak Rate Test

In-Service Tests (IST)

- 14802A-1, Ver. 5.2, Train A NSCW Pump/Check Valve IST and Response Time Test
- 14806C-2, Version 1.1, Containment Spray Pump and Check Valve Refueling Comprehensive Full Flow Inservice Test

b. Findings

No findings were identified.

## Cornerstone: Emergency Preparedness

### 1EP6 Drill Evaluation (71114.06)

#### a. Inspection Scope

The inspectors observed the emergency preparedness drill conducted on August 18, 2014. The inspectors observed licensee activities in the simulator to evaluate implementation of the emergency plan, including event classification, notification, and protective action recommendations. The inspectors evaluated the licensee's performance against criteria established in the licensee's procedures. Additionally, the inspectors attended the post-exercise critique to assess the licensee's effectiveness in identifying emergency preparedness weaknesses and verified the identified weaknesses were entered in the corrective action program. Documents reviewed are listed in the Attachment.

#### b. Findings

No findings were identified.

## 2. RADIATION SAFETY

### 2RS6 Radioactive Gaseous and Liquid Effluent Treatment

#### a. Inspection Scope

The inspectors reviewed an event involving the loss of effluent monitoring capability on Unit 2.

#### b. Findings:

Introduction: A Green self-revealing NCV of TS 5.5.4, "Radioactive Effluent Controls Program," was identified for the licensee's failure to maintain continuous monitoring of the minimum required channels on the Unit 2 plant vent radiation monitors and failure to implement the required compensatory measures as required by the ODCM between March 16 and March 26, 2014.

Description: Plant Vogtle has two radiation monitors on the Unit 2 plant vent, 2RE12442 and 2RE12444. With 2RE12442 unavailable during planned maintenance, 2RE12444 was rendered inoperable on March 16, 2014 when the sample line separated at one of the sample line fittings. The separated sample line was not visible to operators because it was obscured by thermal insulation on the sample line. The sample line separation resulted in a loss of system vacuum which was immediately apparent on the system vacuum gauge. Operators attributed the loss of system vacuum indication to a broken gauge and entered this observation into the corrective action program as CR 787610. However, 2RE12444 was not declared inoperable. On March 26, 2014, 2RE12442 was returned to service. The separated sample line on 2RE12444 was not discovered until June 18, 2014 when the sample line separation was identified during investigation and

repair of the vacuum gauge. The inspectors noted that from March 16 to March 26, 2014, with both radiation monitoring channels for the Unit 2 plant vent inoperable, no compensatory actions were taken and continuous representative sampling of the Unit 2 plant vent was not performed. With the return to service of 2RE12442 on March 26, 2014, Unit 2 plant vent effluent monitoring requirements were restored.

The licensee determined that during the period both monitors were inoperable there were no unplanned releases and all planned releases were within regulatory limits. This conclusion was based on recent operating history and plant design. Releases from the waste gas decay system and Unit 2 containment are planned, sampled, permitted, and monitored by another set of radiation monitors prior to release. In addition, radiation monitors installed throughout the auxiliary building would have provided an indication of any elevated airborne conditions indicative of an unplanned release. During the period both monitors were out of service, dose to the public was determined from two Unit 2 containment releases. During the investigation, the licensee determined that the separated fitting had not been installed correctly and suspected physical contact with personnel or equipment resulted in the separation. However, the licensee determined that potential in-leakage from the improperly installed fitting was minimal based on historical data comparisons between 2RE12442 and 2RE12444. The inspectors reviewed the licensee's data, dose projections, and source term assessment and concluded that the dose to the public was a very small fraction of the limits defined in the ODCM.

Analysis The licensee's failure to provide continuous monitoring of radiological effluents on the Unit 2 plant vent in accordance with TS 5.5.4.a. as specified in the ODCM was a performance deficiency. The performance deficiency was more than minor because it was associated with the public radiation safety cornerstone attribute of plant facilities, equipment and instrumentation availability and adversely impacted the cornerstone objective of ensuring adequate protection of public health and safety from exposure to radioactive materials released into the public domain. Specifically, the failure to maintain continuous monitoring of the Unit 2 plant vent, as required by the ODCM, impacted the licensee's ability to assess dose to the public. The finding was evaluated in accordance with IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process," issued February 12, 2008, using the public radiation safety flow chart for effluent release programs. The finding was determined to be Green because it did not involve a substantial failure to implement the radioactive effluent release program or result in an effluent release of radioactive material that exceeded the dose values in Appendix I to 10 CFR Part 50 and/or 10 CFR 20.1301. The finding had a cross-cutting aspect of "identification" in the problem identification and resolution area because the licensee failed to recognize the impact a loss of vacuum indication had on the operability of 2RE12444 completely, accurately, and in a timely manner [P1].

Enforcement: Technical Specification 5.5.4, "Radioactive Effluent Controls Program," requires that the effluent monitoring program shall be contained in the ODCM. Section 3.1.1.2 of the ODCM specifies the actions to be taken with less than the minimum number of radioactive gaseous instrumentation channels operable. Section 3.1.2.3 of the ODCM requires, in part, dose rates due to radioactive materials in areas at or beyond the site boundary due to releases of gaseous effluents shall be determined to be

within the ODCM limits by obtaining continuous representative samples. Contrary to these requirements, for the period between March 16 and March 26, 2014, with less than the minimum operable channels available as a result of planned maintenance on 2RE12442 and the sample line separation on 2RE12444, the licensee failed to take the actions required by ODCM 3.1.1.2 and failed to perform continuous representative sampling as required by ODCM 3.1.2.3. Because this finding was of very low safety significance and entered into the licensee's corrective action program as CR 828499, this finding is being treated as an NCV consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000425/2014004-03, Loss of Plant Effluent Monitoring Capability)

2RS8 Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

a. Inspection Scope

The inspectors reviewed an event involving a shipment of Type B quantities of radioactive material in a Type A container as submitted by the licensee in licensee event report, NL-14-1308, "10CFR71.95(b) Report of Radwaste Shipping Error." This inspection remained ongoing at the end of the inspection period.

b. Findings:

The results of this inspection will be provided in IR 2014009.

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors reviewed a sample of the performance indicator (PI) data, submitted by the licensee, for the Unit 1 and Unit 2 PIs listed below. The inspectors reviewed plant records compiled between July 1, 2013, and June 30, 2014 to verify the accuracy and completeness of the data reported for the station. The inspectors verified that the PI data complied with guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," and licensee procedures. The inspectors verified the accuracy of reported data that were used to calculate the value of each PI. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with PI data. Documents reviewed are listed in the Attachment.

Cornerstone: Mitigating Systems

- high pressure safety injection systems
- residual heat removal (RHR) systems
- heat removal systems (AFW)



b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review

The inspectors screened items entered into the licensee's corrective action program in order to identify repetitive equipment failures or specific human performance issues for followup. The inspectors reviewed condition reports, attended screening meetings, or accessed the licensee's computerized corrective action database.

.2 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors conducted a detailed review of the following condition reports:

- CR 837899, "Two consecutive 10-minute average total thermal power alarms," and associated apparent cause determination (ACD) documented in corrective action report (CAR) 211142.
- CR 847665, "Loop 1 atmospheric relief valve (ARV) reactivity event," and associated ACD documented in CAR 211610.

The inspectors evaluated the following attributes of the licensee's actions:

- complete and accurate identification of the problem in a timely manner
- evaluation and disposition of operability and reportability issues
- consideration of extent of condition, generic implications, common cause, and previous occurrences
- classification and prioritization of the problem
- identification of root and contributing causes of the problem
- identification of any additional condition reports
- completion of corrective actions in a timely manner

Documents reviewed are listed in the Attachment.

b. Findings

Introduction: A Green self-revealing non-cited violation of TS 5.4.1.a, "Procedures," was identified for the licensee's failure to implement SOP 13009-1, "CVCS Reactor Makeup Control System," Version 50.1. Specifically, on July 9, 2014, the licensee conducted a blended makeup to the VCT with a boric acid concentration lower than what was required by the procedure. This was a reactivity event that resulted in an unplanned power excursion.

Description: The reactor makeup control system (RMCS) is a subsystem of the chemical and volume control system (CVCS). The system is used to borate and/or dilute the RCS water in order to maintain average temperature (Tavg) on program; therefore, maintaining the desired reactor power level. The RMCS also provides automatic or manual blended makeup to the VCT. Blended makeup to the VCT is performed at same RCS boron concentration to minimize an RCS reactivity excursion.

System operating procedure SOP 13009-1 provides instructions for the operation of the RMCS. On July 9, 2014 the Unit 1 reactor operator (RO) was conducting a manual blended makeup to the VCT to raise level in accordance with Section 4.6, "Manual Makeup," of the SOP. Procedure Step 4.6.1.2 required the RO to calculate the gallons of boric acid needed for a makeup evolution, at 100 gallons per minute, based on the current RCS boron concentration. The RO correctly calculated 15.5 gallons of boric acid needed for the blended makeup; however, the RO incorrectly transferred the value to the procedure (Step 4.6.1.2.a) as 5.5 gallons and proceeded to conduct the makeup at the lower boron acid concentration. Following the makeup operators received a 10 minute average overpower control room alarm (power peaked at 100.2 percent). The RO realized the makeup concentration error and took manual actions to reduce power back to 100 percent. Manual actions included turbine load reduction, control rods insertion, and adding 11.5 gallons of boric acid.

The licensee initiated an incident response team and entered this event into their corrective action program as CR 837899. The licensee conducted an apparent cause determination (ACD) and determined that the event resulted due to human error by the RO. The RO had recently conducted several 5.5-gallon of boric acid additions (to maintain Tavg) and became complacent when transferring the calculated boric acid concentration to the procedural step. In addition, the licensee identified that the applicable boric acid calculation step in SOP 13009-1 did not require independent verification (IV), which was an expectation per the licensee's administrative procedure NMP-OS-001, "Reactivity Management Program," Version 17.1. As corrective action, the licensee performed a focused 'stand-down' for all operating shift crews on the reactivity event prior to performing any routing reactivity manipulations. Additional corrective actions included revision of SOP 13009-1 to require IV and extent of condition review of site operations procedures.

Analysis: The licensee's failure to conduct a manual blended makeup to the VCT at the boric acid concentrations required by SOP 13009-1 was a performance deficiency. The performance deficiency was more than minor because it was associated with the human performance attribute of the initiating events cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during power operations. Specifically, the performance deficiency was associated with a human error during implementation of SOP 13009-1, resulting in a reactivity event (i.e. inadvertent boron dilution), that subsequently upset plant stability. The inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012. The finding screened as Green because it did not cause a reactor trip. The inspectors determined the finding had a cross-cutting aspect of "avoid

complacency” in the human performance area because the reactor operator did not implement error reduction tools, such as ‘STAR’ (Stop, Think, Act, Review), as self-check to ensure that work activities were performed safely. [H.12]

Enforcement: Technical Specification 5.4.1.a, “Procedures,” requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A to Regulatory Guide 1.33, “Quality Assurance Program Requirements,” of February 1978. Appendix A, Item 3.n, required procedures for operation of the CVCS. Procedure SOP 13009-1, “CVCS Reactor Makeup Control System,” Version 50.1 provided steps to determine and conduct manual blended makeup to the CVCS VCT at an appropriate boric acid concentration.

Contrary to the above, on July 9, 2014, the operators failed to correctly implement procedure SOP 13009-1 to determine and conduct a manual blended makeup to the CVCS VCT at an appropriate boric acid concentration. The blended makeup was conducted at a boric acid concentration lower than what the procedure required, which resulted in an inadvertent boron dilution of the RCS, and caused a subsequent power excursion. Upon the operators’ recognition of the power excursion (peaked at 100.2 percent power), immediate actions were taken to reduce power less than 100 percent. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee’s corrective action program as CR 837899. (NCV 05000424-04, “Failure to Correctly Implement a Chemical and Volume Control System Procedure for Reactor Water Makeup”).

#### 40A3 Event Follow-up

##### .1 Review of Notice of Enforcement Discretion (NOED) 14-2-03

###### a. Inspection Scope

On August 19, 2014, at 2:00 p.m. Eastern Daylight Time (EDT), the Unit 2 train “B” (2B) CS pump was declared inoperable for routine preventive maintenance and testing activities. The licensee entered Condition A of TS 3.6.6, “Containment Spray and Cooling Systems,” which required a shutdown of Unit 2 if the pump is not restored to operable status within 72 hours. During the post-maintenance test, on August 20, 2014, operators noted overheating and slight smoke coming from the pump’s inboard mechanical seal area and immediately stopped the pump. Upon further investigation, the licensee determined that the most probable cause for overheating of the seal was an internal seal failure. Due to component repairs associated with the damage caused by the seal failure the licensee determined the “2B” CS pump could not be returned to service prior to the end of the TS 72-hour completion time requirement.

On August 21, 2014, the licensee requested enforcement discretion for an additional 60 hours of allowed outage time to complete repairs and testing of the “2B” CS pump and preclude a shutdown of Unit 2. The NRC verbally granted NOED 14-2-03 at 7:05 p.m. EDT on August 21, 2014. The licensee subsequently returned the “2B” CS pump to an operable status on August 24, 2014 at 2:00 a.m. EDT, which was within the completion time approved in the NOED. Documents reviewed are listed in the Attachment.

b. Findings

Introduction: The inspectors identified an unresolved item (URI) regarding NOED 14-2-03 granted on August 21, 2014.

Description: The inspectors reviewed NOED 14-2-03 and related documents to determine the accuracy and consistency with the licensee's assertions and implementation compensatory measures and commitments, those of which included ensuring the availability of both trains of the emergency core cooling systems, both trains of the containment cooler units, and the remaining train of the CS system. Additional inspection is required to conduct a review of the licensee event report (LER) and licensee root cause analysis to determine if the "2B" CS pump inboard mechanical seal failure was associated with a performance deficiency and violation of NRC requirements. This URI is identified as URI 05000425/2014004-05 "NOED 14-2-03 to allow mechanical seal replacement and testing of the Unit 2 "B" Containment Spray Pump."

.2 (Closed) Licensee Event Report 05000424/2014-004-00: Manual Reactor Trip due to Loss of Feedwater Flow

a. Inspection Scope

At approximately 2:09 p.m. EDT on July 27, 2014, with Unit 1 operating in Mode 1 at 100 percent rated thermal power, during surveillance testing on MFP "A" operators observed lowering steam generator water levels in all four steam generators and manually tripped the reactor. All safety-related equipment actuated as expected. The plant was stabilized in Mode 3. Troubleshooting revealed a defective lockout solenoid valve. Failure of the lockout solenoid valve caused reduced pressure on the MFP "A" trip relay, reducing the speed of the pump and reducing the total feed flow to the steam generators. The lockout solenoid valve was replaced and post maintenance testing was performed satisfactorily. The inspectors reviewed the LER, the associated condition report and root cause determination, and subsequent action items. This LER is closed.

b. Findings

No findings were identified.

.3 (Closed) Licensee Event Report 05000424/2014-003-00: Failure to Comply with Technical Specification 5.5.11

a. Inspection Scope

At approximately 11:16 p.m. EDT on May 30, 2014, with Unit 1 at 100 percent power, Unit "1A" control room emergency filtration system (CREFS) was declared inoperable on notification that "1A" CREFS sample from April 15, 2014 exceeded TS 5.5.11, "Ventilation Filter Testing Program (VFTP)," of 0.2 percent penetration (99.8 percent retention). As required by LCO 3.7.10, "Control Room Emergency Filtration System (CREFS) - Both Units Operating," the "1B" CREFS was placed in service and actions to

replace "1A" CREFS charcoal were initiated. Unit 1 remained in Mode 1 at 100 percent power with no loss of CREFS safety function or adverse effects on Unit 2. The charcoal bed was replaced and the "1A" CREFS was returned to service on June 6, 2014. The station determined that the event was reportable since the filtration train had been inoperable for longer than the 7 days allowed by TS LCO 3.7.10.

The cause of the event was a failed charcoal absorber sample with a total sampling time exceeding one unit of CREFS required action completion time. Apparent causes included inadequate work planning, coordination, and tracking. The licensee replaced the charcoal bed and implemented additional actions to ensure work orders associated with charcoal bed sampling are prioritized and classified correctly. The inspectors reviewed the LER and the associated condition report. This LER is closed.

b. Findings

No findings were identified.

40A6 Meetings, Including Exit

.1 Exit Meeting

On October 31, 2014, the resident inspectors presented the inspection results to Mr. G. Saxon, Plant Manager, and other members of the licensee's staff. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

40A7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of the NRC Enforcement Policy, for being dispositioned as a Non-Cited Violation.

- Technical Specification LCO 3.0.2 requires that "Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6." Technical Specification LCO 3.3.3 requires that two channels of containment sump water level wide range PAM instrumentation be operable. Contrary to the above, during a channel check on June 26, 2014, at approximately 07:30 a.m., the Unit 1 shift supervisor failed to enter the required action statement for TS LCO 3.3.3, Condition "B" when one Unit 1 containment sump water level wide range channel was noted to be failed high. Inoperability of the transmitter was not recognized until July 9, 2014 during a control board walk down, and the LCO was entered at 5:00 p.m. Upon investigation, it was determined that the channel was indicating incorrectly on June 23, 2014, prior to the channel check. The licensee documented this event in their corrective actions program as CRs 837302 and 837838. Using IMC 0609 "Phase 1 Initial Screening and Characterization of Findings," the finding was determined to affect the mitigation systems cornerstone because of the effect on long term core decay heat removal in the event of a LOCA. Because this was a single failure that did not represent an

actual loss of safety system or function, the operability of the additional channel, among other indications, would have been sufficient to inform operators of an accident condition, and the inspectors determined this to be a Green finding of very low safety significance.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee personnel:**

N. Carter, Heat Exchanger System Engineer  
R. Collins, Chemistry Manager  
H. Cooper, Engineering Programs Supervisor  
J. Dixon, Corporate Fleet Area Manager, Health Physics  
G. Gunn, Regulatory Affairs Manager (acting)  
M. Hayden, EP Manager  
M. Johnson, Health Physics Manager  
D. Madison, Site Vice-President (interim)  
K. Taber, Site Vice-President  
K. Morrow, Licensing  
C. Nesbitt, Training Director  
F. Pournia, Engineering Director  
J. Robinson, Engineering Programs Manager  
G. Saxon, Plant Manager  
J. Talley, Service Water System Engineer  
J. Thomas, Work Management Director  
T. Thompson, Systems Engineering Manager  
K. Walden, Licensing

#### **NRC personnel:**

M. Franke, Chief, Region II Reactor Projects Branch 2

## LIST OF ITEMS OPENED AND CLOSED

### Open and Closed

05000424/2014004-01	NCV	Failure to Correctly Implement a Condensate and Feedwater Systems Procedure for Startup (Section 1R11)
05000424/2014004-02	NCV	Inoperability of Unit 1 Emergency Containment Coolers due to Incorrect Tagout (Section 1R20)
05000425/2014004-03	NCV	Loss of Plant Effluent Monitoring Capability (Section 2RS6)
05000424/2014004-04	NCV	Failure to Correctly Implement a Chemical and Volume Control System Procedure for Reactor Water Makeup (Section 4OA2)

### Opened

05000425/2014004-05	URI	NOED 14-2-03 to allow mechanical seal replacement and testing of the Unit 2 "B" Containment Spray Pump. (Section 4OA3.1)
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### Closed

05000424/2014-004-00	LER	Manual Reactor Trip due to Loss of Feedwater Flow (Section 4OA3.2)
05000424/2014-003-00	LER	Failure to Comply with TS 5.5.11 (Section 4OA3.3)



## LIST OF DOCUMENTS REVIEWED

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

#### Procedures

11145-2 Rev. 12.2, Diesel Generator Alignment  
11146-2 Rev. 7.1, Diesel Generator Fuel Oil Transfer System Alignment  
14552-2 Rev. 5.4, NSCW Flow Path Verification  
14552-2 Rev. 8.4, NSCW Flow Path Verification  
11115-2 Rev. 9.2, Containment Spray System Alignment

#### Drawings

2X4DB133-1 Rev. 54, 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. 28, P&I Diagram Nuclear Service Cooling Water System, System No. 1202  
2X4DB135-2 Rev. 29, P&I Diagram Nuclear Service Cooling Water System, System No. 1202  
2X4DB170-1 Rev. 42.0, P&I Diagram Diesel Generator System Train A – System No. 2403  
1X4DB133-1 Rev. 54, P&I Diagram Nuclear Service Cooling Water System, System No. 1202  
1X4DB133-2 Rev. 60, P&I Diagram Nuclear Service Cooling Water System, System No. 1202  
1X4DB134 Rev. 31, P&I Diagram Nuclear Service Cooling Water System, System No. 1202  
1X4DB135-1 Rev. 29, P&I Diagram Nuclear Service Cooling Water System, System No. 1202  
1X4DB135-2 Rev. 34, P&I Diagram Nuclear Service Cooling Water System, System No. 1202  
2X4DB131 Rev. 32.0, P&I Diagram Containment Spray System – System No. 1206  
2X4DB122 Rev. 53.0, P&I Diagram Residual Heat Removal System 1205

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

#### Procedures

92760-1 Rev. 1.2, Zone 60 – Control Building – Level B, Fire Fighting Preplan  
92761-1 Rev. 2.1, Zone 61 – Control Building – Level B, Fire Fighting Preplan  
92764-1 Rev. 4.1, Zone 64 – Control Building – Level B, Fire Fighting Preplan  
92762-1 Rev. 4.0, Zone 62 – Control Building – Level B, Fire Fighting Preplan  
92763-1 Rev. 1.2, Zone 63 – Control Building – Level B, Fire Fighting Preplan  
92782-1 Rev. 1.2, Zone 82 – Control Building – Level B, Fire Fighting Preplan  
92776-1 Rev. 2.1, Zone 76 – Control Building – Level B, Fire Fighting Preplan  
92777A-1 Rev. 1.1, Zone 77A – Control Building – Level B, Fire Fighting Preplan  
92777B-1 Rev. 1.2, Zone 77B – Control Building – Level B, Fire Fighting Preplan  
92778A-1 Rev. 2.1, Zone 78A – Control Building – Level B, Fire Fighting Preplan  
92778B-1 Rev. 1.2, Zone 78B – Control Building – Level B, Fire Fighting Preplan  
92771-1 Rev. 4.1, Zone 71 – Control Building – Level B, Fire Fighting Preplan  
92756A-1 Rev. 0.2, Zone 56A – Control Building – Level B, Fire Fighting Preplan  
92756B-1 Rev. 1.2, Zone 56B – Control Building – Level B, Fire Fighting Preplan  
92779A-1 Rev. 0.2, Zone 79A – Control Building – Level B, Fire Fighting Preplan  
92779B-1 Rev. 1.2, Zone 79B – Control Building – Level B, Fire Fighting Preplan  
92783-1 Rev. 2.2, Zone 83 – Control Building – Level B, Fire Fighting Preplan  
92852-1 Rev. 3.0, Zone 152 – Control Building – Level B, Fire Fighting Preplan  
92752-2 Rev. 1.0, Zone 52 – Auxiliary Building – Level 1, Train B ACCW Hx, Fire Fighting Preplan  
92749-2 Rev. 1.0, Zone 49 – Auxiliary Building – Level 1, Train A ACCW Hx, Fire Fighting Preplan

92736-2 Rev. 5.0, Zone 36 – Auxiliary Building – Level A, CCW Pumps, Train A, Fire Fighting Preplan

92733-2 Rev. 3.0, Zone 37 – Auxiliary Building – Level A, CCW Pumps, Train B, Fire Fighting Preplan

92799-1 Rev. 3.2, Zone 99 – Control Building – Level A, Fire Fighting Preplan

92804-1 Rev. 4.2, Zone 104 – Control Building – MSIV Room North Level 1, Fire Fighting Preplan

92865-1 Rev. 2.2, Zone 165 – Diesel Generator Tanks and Pumphouse Fire Fighting Preplan

92866-1 Rev. 1.2, Zone 166 – Diesel Generator Tanks and Pumphouse Fire Fighting Preplan

### **Section 1R06: Flood Protection Measures**

#### Procedures

NMP-ES-051-004 Rev. 1.1, Pull Box Inspection Procedure

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

#### Procedures

14000-1, Operations Shift and Daily Surveillance Logs, Rev. 88.2

14802, NSCW Pump/Check Valve IST and Response Time Test, Rev. 5

14825-1, Quarterly In service Valve Test, Rev. 98

18021-C, Loss of Nuclear Service Cooling Water System, Rev. 19.1

35110-C, Chemistry Control of the Reactor Coolant System, Rev. 63

35363-C, Chemistry Control of the NSCW System, Rev. 6.2

37363, Chemistry Sampling of the NSCW, Rev. 6

38363, Chemical Addition to the NSCW, Rev. 6

83305-C, Heat Exchanger Testing/Maintenance Program, Rev. 7.8

83306-C, CCW and ACCW Heat Exchanger Testing, Rev. 8

83308-C, Testing of Safety-Related NSCW System Coolers, Rev. 31.3

83309-C, Safety Related Heat Exchanger Inspection, Rev. 9

83310-C, Emergency Diesel Generator Jacket Water Heat Exchanger, Rev. 6

Gen-95, Diesel Generator Surveillance Manual, Lube Oil Heat Exchanger, Chapter 28, Rev.

5NMP-ES-002, System Monitoring and Health Reporting, Rev. 17

NMP-ES-002-005, System Monitoring, Rev. 5

NMP-ES-012, Heat Exchanger Program, Rev. 8

NMP-ES-012-GL01, Heat Exchanger Program, Rev. 3

NMP-ES-021, Monitoring Program for the Maintenance Rule, Rev. 7.2

NMP-ES-036, Underground Pipe and Tanks Monitoring Program, Rev. 10

NMP-GM-002, Corrective Action Program, Rev. 13

NMP-GM-002-001, Corrective Action Program Instructions, Rev. 32.1

NMP-GM-002-005, Corrective Action Program Trending, Rev. 1

NMP-GM-013, Performance Improvement Model, Rev. 6

NMP-GM-013-002, Performance Assessment and Trending, Rev. 2

NMP-GM-027-F06, Replacement of NSCW Agastat Relays, Rev. 3

#### Calculations

X4C1203E05, Determination of CCW Heat Exchanger Over-all Average Tube Fouling Factor Using Test Data, 2011

X4C2403E02, PROTO-HX Diesel Generator Jacket Water Heat Exchanger Model, 2011

Drawings

1K5-1202-181-01, Nuclear Service Cooling Water System Fabrication Isometric, Rev. 11  
 111X4DB122, Residual Heat Removal System 1205, Rev. 51  
 1X4DB133-1, Nuclear Service Cooling Water System No. 1202, Rev. 54  
 1X4DB133-2, Nuclear Service Cooling Water System No. 1202, Rev. 60  
 1X4DB134, Nuclear Service Cooling Water System No. 1202, Rev. 31  
 1X4DB135-1, Nuclear Service Cooling Water System No. 1202, Rev. 29  
 1X4DB135-2, Nuclear Service Cooling Water System No. 1202, Rev. 34  
 1X4DB149-2, Flow Diagram Cooling Water Systems 1202, 1203, and 1217, Rev. 6  
 1X4DB149-4, Flow Diagram Cooling Water Systems 1202, 1203, and 1217, Rev. 6  
 1X5DT0025, Component Cooling Water Surge Tank B, Rev. 4  
 1X5DT0122, Level Settling Diagram NSCW C.T. Basin Trn A & B, Rev. 3  
 2X4DB133-2, Nuclear Service Cooling Water System No. 1202, Rev. 53  
 2X4DB134, Nuclear Service Cooling Water System No. 1202, Rev. 31  
 2X4DB135-1, Nuclear Service Cooling Water System No. 1202, Rev. 28  
 2X4DB135-2, Nuclear Service Cooling Water System No. 1202, Rev. 29  
 AX4DD300, Plot Plan, Rev. 23  
 AX4AF02-00006-1, Nuclear Service Cooling Water Pump Motor Sheet 4, Rev. 3

Corrective Action Documents Generated

838365, NRC Heat Sink Inspection Observations

Corrective Action Documents Reviewed

125446, Agastat Relay 162-2 for 1AA02-04 did not pass acceptance criteria of 23290-C  
 125626, While Performing Procedure 23290-C, per SCL02464 on NSCW Pump 3, the Agastat Timing Relay  
 157400, NSCW Pump #6 found in the Alert Range at 0.272 in/sec  
 160828, NSCW Pump No. 6 Has Vibration in the Alert Range  
 162619, EDG Jacket Water HX Testing Evaluation Indicates the Fouling Factor Increased  
 346948, Motor Upper Parallel Vibrations in the Alert Range  
 611548, 2A CCW HX Fouling Factor Test  
 640973 NRC Questions Acceptability of Code Repair Executed on Previous Through Wall Flow  
 669068, Agastat Relay Failed Calibration and Was Replaced  
 808490, Tube Plugging Needed on the 2A DG LOC

Other Documents

DC-1203, Component Cooling Water System Design Basis  
 DC-1202, Nuclear Service Water Cooling System Design Basis  
 DC-1202-A, Nuclear Service Water Cooling System Cooling Towers Design Basis  
 DC-1202-B, Nuclear Service Make-Up Water Cooling System Design Basis  
 DC-1202-C, Leak Detection for Nuclear Service and Component Cooling Water Systems  
 NRC response to Vogtle on GL96-06, 2004  
 GL89-13 Response to NRC, 1990  
 VEGP-FSAR-9, Table 9.2.1-2, GL89-13 Single Failure Analysis  
 Nuclear Service Cooling Water Chemistry Report, 2014  
 Nuclear Service Cooling Water NALCO Chemistry Report, 2014  
 Nuclear Service Cooling Water System 1202 4th QTR 2011 Health Report  
 Nuclear Service Cooling Water System 1202 4th QTR 2012 Health Report

Nuclear Service Cooling Water System 1202 4th QTR 2013 Health Report  
 Nuclear Service Cooling Water System 1202 1st QTR 2014 Health Report  
 Report # REA 01-VAA017, Eddy Current Testing of CCW Heat Exchangers, 2001  
 Report # 83309-C, Visual Examination of 1B DG Lube Oil Cooler, 2009  
 Report # RER C100337801, Structural Monitoring Inspection, 2010  
 Report # SNC320532, Monitoring Settlement of Major Structures, 2011  
 Report # SNC419348, Monitoring Settlement of Major Structures, 2012  
 Report # RER SNC 345851, EDG Lube Oil Cooler Plugging, 2012  
 Report # PR5-45, Diesel Generator Lube Oil Cooler Heat Exchanger 1A, 2012  
 Report # S12V1V001, Visual Examination of CCW Heat Exchanger Support, 2012  
 Report # SNC503924, Monitoring Settlement of Major Structures, 2013  
 Report # 11203E4002, CCW B Heat Exchanger Inspection, 2014  
 Report #14000-2, Operations Shift and Daily Surveillance Logs for Reservoir Capacity, 2014  
 Work Order # 1090100001, EDG 1B Jacket Water Cooler Heat Exchanger Instrument Accuracy  
 Work Order # SNC328897, Nuclear Service Water Pump #6 Surveillance Test, 2011  
 Work Order # SNC523171, Replace Unit 1 NSCW Solid State Timer AGASTAT Relays, 2013  
 Work Order # SNC498917, Quarterly NSCW Check Valve IST (B Train), 2013  
 Work Order # SNC519891, Interface Valve Surveillance Test, 2014  
 Work Order # SNC394802, 1B Component Cooling Water Heat Exchanger Instrument Accuracy

### **Section 1R11: Licensed Operator Requalification Program**

#### Condition Reports and Action Items

CAR 211606, Human Performance Checklist for condenser hotwell level transient

#### Procedures

12004-C Rev. 109, Power Operation (Mode 1)  
 13006-1 Rev. 105, Chemical and Volume Control System  
 18001-C Rev. 36 System Instrumentation Malfunction  
 18031-C Rev. 28, Loss of Class 1E Electrical Systems  
 NMP-EP-110 Rev. 7.1, Emergency Classification Determination and Initial Action  
 13615-1 Rev. 83, Condensate and Feedwater Systems

#### Other

Operating Test – Dynamic Simulator Scenario #5, Rev. 20.1  
 Issue Response Team final report for 1B SGMFP not maintaining SG water level

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

#### Condition Reports and Action Items

CR 860850, Unit 1 loop 2 ARV 1PV-3010 found leaking oil  
 CR 846342, 1PV-3010, loop 2 ARV oil leak  
 CR 855943, 1PV-3010 will exceed its allowable MR unavailability hours  
 CR 675427, 1PV-3010 fluid leak  
 CAR 207789, Basic Cause Determination (BCD) for 1PV-3010 MPFF  
 CR 866017, 2HV8147 will not close  
 TE 866035, 2HV-8147 Motor operator damaged  
 TE Perform further evaluation of MR call made in TE 866035

Drawings

2X4DB116-1, Chemical and Volume Control System P&I Diagram, Ver. 48

Other

Maintenance rule (MR) system 1301S unavailability chart for 1PV-3010, loop 2 ARV  
 MR 1PV-3010 rolling 18 month unavailability  
 MR system 1301S (a)(1) plan as of 9/15/14

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**Procedures

10032-C, Version 10.1, Outage Risk Assessment Monitoring

Other

2R17 Refueling Outage Defense-in-Depth Assessment Notes, 9/12/14  
 2R17 Refueling Outage Defense-in-Depth Assessment Notes, 9/16/14

**Section 1R15: Operability Evaluations**Licensing Bases Documents

VEGP - FSAR 9.5.5 Diesel Generator Cooling Water System

Procedures

NMP-AD-012, Operability Determinations and Functionality Assessments, Ver. 12.3  
 NMP-AD-012-GL03, Immediate Determination of Operability (IDO) Guideline, Ver 2.0  
 NMP-AD-012-GL03, Immediate Determination of Operability Template, Ver 3.1  
 50085-C, Gas Accumulation Monitoring and Trending, Ver. 11

Corrective Action Records

CR 842418, 2B EDG fuel oil leak on #2 cylinder  
 CR 832520, Leak on DG2A Jacket Water pump shaft at an estimated rate of 120 dpm  
 CR 832406, 2A Jacket Water Heater Level Dropped from 98% to 90%  
 CR 846545, Oil leak on atmospheric relief valve 1-1301-PV-3020  
 CR 851965, 1B Emergency Safety Feature (ESF) chiller oil pressure below normal operating range  
 TE 832707, IDO – Operability Request by Operations for IDO – 2ADG Jacket Water Leak  
 U2 Operations Shift Log, 07/01/2014  
 TE 842326, MREVAL for 2b EDG  
 Corrective Action Report (CAR) 211688, IDO for 1B ESF chiller oil pressure below normal operating range, 8/11/2014  
 CR 853511, 2A NSCW Pump No. 1 upper guide bearing is reading 202 degrees Fahrenheit, 8/13/2014  
 CAR 211781, IDO – Unit 2 NSCW Pump No. 1 upper guide bearing is reading 202 degrees Fahrenheit, 8/13/2014  
 CR 856198, Void detected at location S-12 on the 2B containment spray pump discharge piping

Drawings

1X4DB221, P&I Diagram – Safety Related (Essential) Chillers, Unit 1 Trains A and B – System No. 1592, Ver. 27.0

AX4AJ04-141-7, Emergency Safety Feature Chillers Line Diagram - Sheet 1, Ver. 5.0  
 AX4AJ04-140, Emergency Safety Feature Chillers Line Diagram - Sheet 2, Ver. 1.0  
 AX4AJ04-139, Emergency Safety Feature Chillers Line Diagram - Sheet 1, Ver. 1.02X4DB131,  
 Containment Spray System P&I Diagram, Ver. 32

#### Other Documents

AX4AJ04-20000, Installation, Operation, and Maintenance – Manual ESF Chillers, Ver. 7.0  
 Ultrasonic Gas/Void Report No. 0823201401, 8/26/14

### **Section 1R18: Plant Modifications**

#### Procedures

NMP-AD-010 Rev. 13.0, 10 CFR 50.59 Screening/Evaluation  
 NMP-ES-054-001 Rev. 2.0, Temporary Modification Processing

#### Work Orders

SNC591516, Temporary modification (TM) to simulate a trip signal for Unit 1 main feedwater pump (MFP) A within the auxiliary feedwater (AFW) motor-driven pump start logic and also steam generator blowdown isolation logic  
 SNC591517, TM Installation work order  
 SNC591518, TM Removal work order

#### Drawings

1X3D-BC-F04A Rev. 11.0, Elementary Diagram AFW System  
 1X3D-BC-F05A Rev. 12.0, Elementary Diagram AFW System  
 1X3D-BC-Q04B Rev. 11.0, Elementary Diagram Main Steam System  
 1X3D-BC-Q04C Rev. 10.0, Elementary Diagram Main Steam System Safety Actuation Signals  
 1X3D-BC-F02G Rev. 7.0, Elementary Diagram AFW System Auto Start Signal  
 1X3D-CE-H02E Rev. 8.0, Wiring Diagram AUX Relay Panel PAR2 SH.1  
 1X3D-CE-H05G Rev. 10.0, Wiring Diagram AUX Relay Panel PAR4 SH.3  
 1X3D-CE-M57B Rev. 13.0, Wiring Diagram BOP Turbine Drive Steam System 1NQJB6012  
 1X4AA12-00187 Rev. 5.0, Wiring Diagram SGFPT Terminal Boards  
 1X4AA12-00195 Rev. 5.0, Controls Diagram SGFPT  
 1X4AA12-00197 Rev. 2.0, Controls Diagram SGFPT 200 PSIG Control System

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

#### Procedures

27714-C Rev. 1.1, Air circuit breaker troubleshooting and investigation  
 26860-C Rev. 27.1, ARV valve actuator set-up and maintenance  
 20429-C Rev. 33.3, Plant equipment component configuration control  
 24376-1 Rev. 16.1, Main steam atmospheric relief valve control 1P-3000 channel calibration  
 25210-C Rev. 20.2, General collection of vibration data  
 NMP-AD-002, Rev 11.0, Problem Solving and Troubleshooting Guidelines  
 14992A-1 Ver. 3, Main Feedwater Pump Turbine A Trip Mechanism Test  
 14992B-1 Ver. 3.1, Main Feedwater Pump Turbine B Trip Mechanism Test

Work Orders

SNC586376 Unit 1 nuclear service cooling water (NSCW) fan #2  
 SNC591664 – Unit 1 PV-3000, loop 1 atmospheric relief valve  
 SNC591662 – Unit 1 PV-3010, loop 2 atmospheric relief valve  
 SNC414940 – Technical support center (TSC) HVAC preventive maintenance  
 SNC591234 – Unit 1A SGMFP solenoid valve (SV) 13 replacement

Drawings

1X4AA12-00199, Ver. 1.0, SGFPT Controls Diagram – Trip System  
 1X4AA12-00197, Ver. 1.0, SGFPT Controls Diagram – 200psig Control System  
 1X4AA12-00195-5, Ver. D, Controls Diagram

Other Records

Trouble Shooting Plan 5, PMT for 1A SGMFPT  
 Trouble Shooting Plan 8, 1A SGMFPT Test for Replacement of Solenoid Valve SV-13 and Control Room Hand Switch on Main Control Board.  
 Trouble Shooting Plan 10, 1A SGMFPT Test for Control Room Hand Switch on Main Control Board Replacement  
 Corrective Action Report (CAR) 211457 (Untitled 8/4/14)  
 2X4AA12-239-0, S.G.F.P. Turbine – Description of Control Mechanism

**Section 1R22: Surveillance Testing**Procedures

24995-2 Rev. 13, Nuclear instrumentation system (NIS) source/intermediate range channel  
 2RE-13135A(2N31/2N35) channel calibration  
 14992A-1 Rev. 3, Main feedwater pump turbine A trip mechanism test  
 28911-C Rev. 46, Safety related seven day battery maintenance  
 14802A-1 Rev. 5.2, Train A NSCW pump/check valve IST and response time test  
 14349-2 Ver. 9, Containment Penetration No. 49 Excess Letdown and Seal Water Leakoff Local Leak Rate Test  
 14806C-2, Containment Spray Pump and Check Valve Refueling Comprehensive Full Flow Inservice Test

Work Orders

SNC541853, 1DDIB – Weekly Battery Surveillance  
 SNC541826, 2DDIB – Weekly Battery Surveillance  
 SNC508367, 18-Month NI Source Range MON N31 & Intermediate Range MON N35 CH Cal  
 SNC546951, 2-Month Staggered, Train A RTB Under-voltage and Shunt Trip Test  
 SNC545151, Quarterly train A NSCW pump 11202P4001 discharge MOV and check valve IST  
 SNC545152, Quarterly train A NSCW pump 11202P4003 discharge MOV and check valve IST  
 SNC545153, Quarterly train A NSCW pump 11202P4005 discharge MOV and check valve IST  
 SNC521810, LLRT/PEN 49 – CVCS Seal Leakoff Containment Isolation (As-Found test)  
 SNC374250, LLRT/PEN 49 – CVCS Seal Leakoff Containment Isolation (As-Left test)

Drawings

2X4DB114, Chemical and Volume Control System P&I Diagram, Ver. 38  
 2X4DB131, Containment Spray System P&I Diagram, Ver. 32

Other Records

ASME OM CODE-2001, "Subsection ISTB, Inservice Testing of Pumps in Light-Water Reactor Nuclear Power Plants.

ASME OM CODE-2001, "Subsection ISTC, Inservice Testing of Valves in Light-Water Reactor Nuclear Power Plants.

Certificate of Conformance, Certification No. VP-1247:139229996, dated 2/13/2014  
1X5DZ011760, Rev. 1.0, Scaling document for NSCW pump discharge flow elements and indicators

Certificate of Conformance, Certification No. VP-5277:1389620060, dated 1/21/2014

Corrective Action Records:

CR 870919, Verify calibration range of ultrasonic flowmeter used for containment spray pump functional test

**Section 2RS6: Radioactive Gaseous and Liquid Effluent Treatment**

Procedures and Manuals

Offsite Dose Calculation Manual, Version 29, February 2013

VEGP Plant Technical Specifications

33015-2, Obtaining Gaseous Samples for Radioactivity Analysis Unit #2, Rev 13.1

33040-C, Compositing Samples Weekly, Monthly, Quarterly, Rev 19.

Records and Data

Gaseous Radioactive Waste Release Permit, G-20140322-072-B, 03/22/2014

Gaseous Radioactive Waste Release Permit, G-20140316-064-B, 03/16/2014

Drawing 2X4DB203, P&I Diagram Equipment Building HVAC System 1526 and 1524, Ver 15

Chemistry Log of 2RE12442A Daily TS Channel Check, 03/01 to 06/19/2014

Work Order (W/O) SNC562308

CAP Documents

CR 787610

TE 828835

CR 829304

CR 830391

CR 829499

Corrective Action Review (CAR) 210845

CAR 210971

**Section 2RS8: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation**

Procedures and Manuals

46111-C, Storage of Radwaste in Outdoor Process Shields, Rev 6.1

NMP-HP-405, Shipment of Radioactive Waste and Radioactive Material, Ver 2.0

Records and Data

10CFR71.959b) Report of Radwaste Shipping Error, dated 08/21/2014

CAP Documents

CAR 210971



**Section 40A1: Performance Indicator Verification**Procedures

00163-C, Rev. 14.6, NRC Performance Indicator and Monthly Operating Report Preparation and Submittal

NEI 99-02, Regulatory Assessment Indicator Guideline

Records and Data

System Health Reports for System 1302, Auxiliary Feedwater

System Health Reports for System 1204, Safety Injection

System Health Reports for System 1208, Chemical and Volume Control System

System Health Reports for System 1205, Residual Heat Removal

**Section 40A2: Identification and Resolution of Problems**Condition Actions Program:

CAR 211142, ACD for unexpected reactor power increase of 0.2% during manual VCT makeup

CAR 211594, Equipment Reliability Checklist for 1-PV-3000 unexpected operation

CAR 211610, ACD for Loop 1 ARV reactivity event, Version 2.0

CR 837899, Two consecutive 10-minute average total thermal power alarms

CR 847665, Loop 1 atmospheric relief valve (ARV) reactivity event

CR 871586, Operating with steam line pressure close to ARV setpoints

Procedures:

NMP-OS-001, Reactivity Management Program, Version 17.1

SOP 13009-1, CVCS Reactor Makeup Control System, Version 50.1

NMP-OS-006, Operations Performance Indicators, Version 15.0

12003-C, Reactor Startup (Mode 3 to Mode 2), Version 55

12004-C, Power Operation (Mode 1), Version 111

13601-1, Steam Generator and Main Steam System Operation, Version 62

Other Records

Unit 1 Control Room Log Entries Report, 7/7/2014 thru 7/10/2014