



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II**

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May 11, 2018

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

**SUBJECT: VOGTLE ELECTRIC GENERATING PLANT – NUCLEAR REGULATORY
COMMISSION INTEGRATED INSPECTION REPORT 05000424/2018001 AND
05000425/2018001**

Dear Mr. Myers:

On March 31, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Vogtle Electric Generating Plant, Units 1 and 2. On April 26, 2018, the NRC inspectors discussed the results of this inspection with Mr. Daniel Komm and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented three findings of very low safety significance (Green) in this report. Three of these findings involved violations of NRC requirements. 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; and the NRC resident inspector at the Vogtle Electric Generating Plant Units 1 and 2.

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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; and the NRC resident inspector at the Vogtle Electric Generating Plant Units 1 and 2.

D. Myers

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This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Alan Blamey, Chief
Reactor Projects Branch 2
Division of Reactor Projects

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

Enclosure:
Inspection Report 5000424/2018001 and
05000425/2018001

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D. Myers

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COMMISSION INTEGRATED INSPECTION REPORT 05000424/2018001 AND
05000425/2018001 May 11, 2018

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Numbers: 50-424, 50-425

License Numbers: NPF-68, NPF-81

Report Numbers: 05000424/2018001; and 05000425/2018001

Enterprise Identifier: I-2018-001-0067

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Vogtle Electric Generating Plant, Units 1 and 2

Location: Waynesboro, GA 30830

Inspection Dates: January 1, 2018 through March 31, 2018

Inspectors: M. Endress, Senior Resident Inspector
A. Alen, Resident Inspector
G. Crespo, Senior Construction Inspector

Approved By: Alan Blamey, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Enclosure

SUMMARY

The NRC continued monitoring the licensee's performance by conducting a quarterly inspection at Vogtle Electric Generating Plant Units 1 and 2 in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html> for more information. NRC and self-revealed findings, violations, and additional items are summarized in the table below.

List of Findings and Violations

Failure to Provide Work Instructions for Sealing Around NSCW System Pump Shaft Well Access Openings			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000424/2018001-001 Opened/Closed	[H.1] – Resources	71111.12
<p>An NRC identified Green NCV of Vogtle Electric Generating Plant Technical Specification (TS), Section 5.4.1.a, "Procedures," was identified for the licensee's failure to provide work instructions for the sealing of gaps around cover plates for the nuclear service cooling water (NSCW) system pumps' shaft well access openings and for the failure to follow work instructions for NSCW tower clean/inspect. Specifically, the licensee failed to provide instructions for sealing around the well plate covers following well plate cover removal/reinstallation in work orders SNC737852 (Unit 1 NSCW pump #3) and SNC737853 (Unit 1 NSCW pump #5). Also, during the performance of a NSCW tower clean/inspect work order, the licensee failed to generate condition reports, as required by the work instructions, upon the discovery of cracks or gaps in the Foreign Material Exclusion (FME) barrier. As a result, gaps were left around the NSCW pumps which could allow foreign material to enter the NSCW system and adversely affect cooling water flow to essential component coolers.</p>			

Inadequate Acceptance Criteria for Testing of NSCW Pump Discharge Valves			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000425/425/2018001-002 Opened/Closed	[H.8] – Procedure Adherence	71111.22
<p>An NRC identified Green NCV of 10 CFR 50.55a(f), "Inservice testing (IST) requirements," subsection (4), American Society of Mechanical Engineers (ASME) Operation and Maintenance of Nuclear Power Plants (OM) code Subsection ISTC-5122, "Stroke Acceptance Criteria," was identified for the licensee's failure to incorporate adequate acceptance criteria for exercise testing of NSCW pump discharge valves into procedures. Specifically, the licensee failed to incorporate acceptance criteria for stroke close exercise testing into in-service test procedures and used inadequate reference values when determining the HIGH/LOW code allowable limits for the stroke open exercise testing.</p>			

Inadequate Refurbishment of Emergency Diesel Generator Pneumatic Control System Logic Boards			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000425/2018001-003 Opened/Closed	[H.1] – Resources	71153
A Green self-revealing NCV of TS Section 5.4.1.a, “Procedures,” was identified for the licensee’s failure to properly preplan and perform maintenance work on the Unit 2 ‘B’ train (2B) emergency diesel generator (EDG) pneumatic control shutdown logic board. The inadequate shutdown logic board refurbishment resulted in a pneumatic control system air leak that generated an EDG shutdown signal during testing and de-energized the safety-related emergency power bus.			

Additional Tracking Items

Type	Issue number	Title	Report Section	Status
Licensee Event Report (LER)	05000425/2017-001-00	Power Supply Failure Results in Operation in a Condition Prohibited by Technical Specifications	71153	Closed
LER	05000425/2017-001-01	Power Supply Failure Results in Operation in a Condition Prohibited by Technical Specifications	71153	Closed
LER	05000425/2017-002-00	Valid Undervoltage Condition Results in Automatic Actuation of a Safety System	71153	Closed

PLANT STATUS

Unit 1 operated at or near 100 percent rated thermal power (RTP) for the entire inspection period.

Unit 2 operated at or near 100 percent RTP for the entire inspection period.

INSPECTION SCOPES

Inspections were conducted using the inspection procedure (IP) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met. The inspectors performed plant status activities described in Inspection Manual Chapter (IMC) 2515 Appendix D, "Plant Status" and conducted routine reviews using IP 71152, "Problem Identification and Resolution." The inspectors used the Commission's rules and regulations as the criteria for determining compliance along with established licensee standards as the criteria for assessing licensee performance.

REACTOR SAFETY

71111.04 - Equipment Alignment

Partial Walkdown (4 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Unit 2 'A' train EDG while 'B' train EDG was unavailable for troubleshooting of an emergent issue associated with the control air sub-system on January 3, 2018
- (2) Unit 2 'A' train of the NSCW system while NSCW pump #3 was unavailable due to elevated motor vibrations, March 1, 2018
- (3) Unit 1 NB08 and NB10 480-volt (V) switchgears while NB09 was unavailable due to an electrical fault on its 4160V/480V transformer connections, on March 5, 2018
- (4) Unit 2 'B' train of the containment spray (CS) system while the 'A' train was unavailable due to planned maintenance work, March 7, 2018.

71111.05 - Fire Protection Annual/Quarterly

The inspectors evaluated the following:

Quarterly Inspection - 71111.05Q (5 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Unit 1 rod control and switchgear areas, fire zones 59, 68, 69, and 75, on January 17, 2018
- (2) Unit 2 rod control and switchgear areas, fire zones 59, 68, 69, and 75 on January 17, 2018

- (3) North and south firewater pump houses, fire zones 530 and 531, on January 18, 2018
- (4) Unit 2 B EDG and electrical tunnel to control building, fire zones 144, 162, and 164 on February 27, 2018
- (5) Unit 2 B level east and west penetration areas, fire zones, 60, 61, 62, 63, 64, and 82 on February 27, 2018.

71111.11 - Licensed Operator Requalification Program and Licensed Operator Performance

Operator Requalification (1 Sample)

The inspectors observed and evaluated a simulator scenario administered to an operating crew on January 24, 2018. The scenario (V-RQ-SE-18101) consisted of an earthquake that resulted in a reactor trip and safety injection.

Operator Performance (2 Samples)

The inspectors observed and evaluated operator performance in the main control room during a Unit 2 'A' train residual heat removal pump and valve in-service test on February 7, 2018 and during a Unit 2 control rod repositioning and operability test on March 5, 2018.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness (2 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) Units 1 and 2 Control Building ESF Equipment Room HVAC – System No. 1532 (Review Period: October 2016 thru March 2018)
- (2) Unit 1 Train A NSCW Pumps – System No. 1202 (Review Period: April 2017 thru March 2018).

71111.13 - Maintenance Risk Assessments and Emergent Work Control (4 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Unit 2, GREEN risk profile due to the 'B' EDG being out-of-service (OOS) for replacement of control air subsystem shutdown logic boards and NSCW pump no. 3 being OOS for troubleshooting of a ground on the pump's discharge valve 2HV-11606 on January 24-25, 2018
- (2) Unit 1, GREEN risk profile during 'A' EDG 24-hour endurance surveillance and NSCW pump no.3 OOS for motor termination box inspection and rework on February 6, 2018
- (3) Units 1 and 2, GREEN risk profile, risk impact, and associated troubleshooting associated with missed TS surveillance for CS gas void on February 15, 2018
- (4) Unit 1, GREEN risk profile and troubleshooting associated with 1NB09 switchgear fault on March 5, 2018.

71111.15 - Operability Determinations and Functionality Assessments (5 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Unit 2, immediate determination of operability (IDO) for the 'B' train EDG after the diesel unexpectedly shutdown during its monthly surveillance run on January 3, 2018, Condition Report (CR)10445421
- (2) Unit 1, IDO for the pressurized leak-by at the pipe cap downstream of 1HV-11651 on NSCW supply header cross-pump connect on January 9, 2018, CR10448082 and CR10447498
- (3) Common, functionality assessment for diesel fire pump no. 1 due to the diesel engine's jacket water heater being found non-functional on January 10, 2018, CR10448326 and CAR249514
- (4) Unit 2, IDO for the 'A' train EDG due to higher than expected crankcase pressure identified during its monthly surveillance run on January 16, 2018, CR10450654
- (5) Unit 2, emergency core cooling system (ECCS) centrifugal charging pump (CCP) train A operability with alternate minimum flow valve HV8508A out of service for planned maintenance on March 12, 2018, 2-DT-18-1805-00042.

71111.19 - Post Maintenance Testing (5 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) SNC904665, Unit 1 Train B EDG direct current (DC)-DC power supply wiring modification on January 22, 2018
- (2) 14980B-2, Unit 2 Diesel Generator Operability Test Train B, on January 25, 2018 after replacement of control air shutdown logic boards under maintenance work order (MWO) SNC907177
- (3) 14825-1, Quarterly In-service Valve Test (Section 5.3.12, Main Steam System Valves – Modes 1, 2, 3 for 1-PV-3020) on January 30, 2018, following pressure switch calibrations on Unit 1 main steam loop 3 atmospheric relief valve (1PV-3020) under MWO SNC646724
- (4) 14802A-1, Train A NSCW Pump/Check Valve IST and Response Time Test – Section 5.3, on February 15, 2018, following maintenance activities on the Unit 1 NSCW pump no. 5 motor, motor breaker, and discharge valve under MWOs 907144, 732534, 535716, 838540, and 891373
- (5) SNC649293, Unit 2 Auxiliary Relay Room ESF A/C on March 29, 2018.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (4 Samples)

- (1) 14980B-1, Unit 1 Train B Semi-Annual Diesel Operability Test, on January 22, 2018
- (2) 14668A-1, Unit 1 Train A 24-hour Operability Test, on February 5-6, 2018
- (3) 14150B-2, Unit 2 Train B NSCW Fan Operability Test, on February 18, 2018
- (4) 14668B-1, Unit 1 Train B 24-hour Operability Test, on February 19-20, 2018

In-service Test (4 Samples)

- (1) 14825-1, Unit 1 Train B Safety Injection Valve Quarterly IST, on January 23, 2018
- (2) 14690B-2, Unit 2 Train B Centrifugal Charging Pump and Check Valve IST with K601 and K608 Train B SSPS Safety Injection Slave Relay Tests, on January 26, 2018
- (3) 14802A-2, Unit 2 NSCW pump no. 3 ISTs, on January 12, February 9, 13, 20, and 27, 2018
- (4) 14802A/B-1/2, Units 1 and 2 NSCW pumps' discharge valve IST, on March 19-20, 2018

71114.06 - Drill Evaluation

Emergency Planning Drill (1 Sample)

The inspectors evaluated an emergency planning exercise on February 28, 2018.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below for the period from January 01, 2017, through December 31, 2017 for both Units 1 and 2. (6 Samples)

Cornerstone: Initiating Events

- (1) Unplanned scrams per 7,000 critical hours, both units
- (2) Unplanned power changes per 7,000 critical hours, both units
- (3) Unplanned scrams with complications, both units.

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (2 Samples)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

(1) Failure to Start of the 2A Emergency Diesel Generator

The inspectors reviewed documentation associated with the licensee's corrective action program dealing with Unit 2, A EDG to evaluate the effectiveness of the licensee's corrective action program in identifying, prioritizing, evaluating, and correcting problems. The 2A EDG "failed to start" while performing 14980A-2, 2A EDG Operability Test and was declared inoperable. The 2A EDG successfully reached rated speed and voltage; however, a "failed to start" signal prevented satisfying the speed permissive, necessary to allow manual or automatic closure of the output breaker from the main control room.

The inspectors reviewed documents that included an independent evaluation that provided analysis supporting the conclusion that the 2A EDG Speed Switch assembly power circuit is susceptible to failure due to overvoltage conditions local to the 2A EDG

engine control panel. This condition is postulated to initiate from the 125 VDC supply indicating lamp socket shorting, resulting in the bulb to blow (open-circuit) and the breaker to open. The bulb filament (when intact) acts to provide a voltage suppression path for the energy released by the power fail solenoid coil as voltage collapses when the circuit breaker trips open. This energy release without the bulb filament present, potentially fails the 125V to 24V DC-DC converter used to power the associated speed switch assembly. The inspector determined that the licensee properly utilized the CAP to identify, analyze and correct the “fail to start” signal on the 2A EDG. The licensee effective use of the program resulted in identifying the root cause and proposed actions to prevent recurrence.

(2) Unit 2 Loss of Control Power to the Pressurizer Group ‘B’ Backup Heaters.

The inspectors reviewed and evaluated licensee troubleshooting work activities and corrective action program documentation associated with a loss of control power event to the Unit 2 pressurizer group ‘B’ backup heaters that occurred on January 29, 2018. Specifically, during data gathering work activities of the pressurizer pressure control loop, the group ‘B’ backup heaters control room hand switch lost indication power when expected and demanded to energize. The licensee declared the heater inoperable due to being unable to control its operation from the main control room. Licensee troubleshooting identified that the heaters were actually energized with its power breaker closed and narrowed the loss of control power to two possible causes; (1) a remote shutdown panel transfer switch and/or (2) a 52a relay contact in the heater’s main breaker opening circuit. The licensee cycled (wiped) the transfer switch multiple times as these style switches have had operating experience with high resistance of contacts due to oxidation and/or dust buildup on the contacts. On the sixth cycle, control power was restored and the heaters operated satisfactorily. Although power was restored following cycling of the transfer switch, oxidation and/or dust buildup on the contacts was not expected as this transfer switch had been in-service since September 2017 and was routinely cycled five times as part of surveillance and preventative maintenance activities with no issues. The licensee expanded its troubleshooting and removed the heater’s power breaker and identified higher than normal resistance across the 52a contact. The licensee determined the most likely cause to be the 52a contact due to the high resistance and took CAs to replace the breaker. Additional corrective actions included a long term CA (SNC 922269) to remove, inspect, and replace the transfer switch during the next refueling outage. The inspectors determined that the licensee properly utilized the CAP to identify, analyze and correct the loss of power to the pressurizer Group B backup heaters. Other documents reviewed by the inspectors included one-line and elementary diagrams, corrective action reports (CARs), and condition reports (CRs).

71153 - Follow-up of Events and Notices of Enforcement Discretion

Licensee Event Reports (3 Samples)

The inspectors evaluated the following licensee event reports (LERs) which can be accessed at <https://lersearch.inl.gov/LERSearchCriteria.aspx>:

- (1) 05000425/2017-001-00, Power Supply Failure Results in Operation in a Condition Prohibited by Technical Specifications, on March 9, 2017
- (2) 05000425/2017-001-01, Power Supply Failure Results in Operation in a Condition Prohibited by Technical Specifications, on March 9, 2017

(3) 05000425/2017-002-00, Valid Under-Voltage Condition results in Automatic Actuation of a Safety System, on September 26, 2017

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

60855.1 - Operation of an Independent Spent Fuel Storage Installation

The inspectors evaluated the onsite independent spent fuel storage installation (ISFSI) pads on March 16, 2018.

INSPECTION RESULTS

Failure to Provide Work Instructions for Sealing Around NSCW System Pump Shaft Well Access Openings			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000424/2018001-001 Opened/Closed	[H.1] – Resources	71111.12
<p><u>Introduction:</u> An NRC identified Green NCV of Vogtle Nuclear Station TS, Section 5.4.1.a, “Procedures,” was identified for the licensee’s failure to provide work instructions for the sealing of gaps around cover plates for the nuclear service cooling water (NSCW) system pumps’ shaft well access openings and for the failure to follow work instructions for NSCW tower clean/inspect. Specifically, the licensee failed to provide instructions for sealing around the well plate covers following well plate cover removal/reinstallation in work orders SNC737852 (Unit 1 NSCW pump #3) and SNC737853 (Unit 1 NSCW pump #5). Also, during the performance of a NSCW tower clean/inspect work order, the licensee failed to generate condition reports, as required by the work instructions, upon the discovery of cracks or gaps in the foreign material exclusion (FME) barrier. As a result, gaps were left around the NSCW pumps which could allow foreign material (FM) to enter the NSCW system and adversely affect cooling water flow to essential component coolers.</p>			
<p><u>Description:</u> On September 29, 2016, the licensee initiated work orders SNC737852 and SNC737853 for the inspection and pump well cleaning of Unit 1 NSCW pumps #3 and #5, respectively. To perform the work associated with these work orders, the NSCW pump shaft well access openings were removed to allow divers into the pump well for inspections. Upon completion of the inspections, the pump well covers were reinstalled, but were not sealed completely around their outer edges. The work instructions provided to maintenance stated for “Maintenance to remove/reinstall access cover to well.” The licensee also included an FME plan in the work orders for the inspection in accordance with NMP-MA-009-001-F09, FME Plan Requirements, but the sealing around the well access covers following completion of the inspections was also not addressed in this FME plan. The well inspections and well cover removal/reinstallation were all completed on September 29, 2016, and there was no documentation in any work package about sealant being applied to the well plate cover openings.</p>			

In accordance with the Preventive Maintenance (PM) program, the licensee conducts semi-annual NSCW FME inspections in each NSCW cooling tower. On July 31, 2017, the licensee conducted a FME inspection on Unit 1 NSCW cooling tower for Train A in accordance with SNC839425. In the work instructions, each individual NSCW pump well cover was visually inspected to ensure sufficient RTV sealant was applied. There were no discrepancies documented in the work package notes and no CRs were generated, as required, to restore the integrity of an FME barrier if cracks or gaps were discovered. The PM for performing FME inspections in NSCW cooling towers was approved in early 2017, so this was the first time an FME inspection was performed in the Unit 1 A train NSCW cooling tower.

On February 7, 2018, while conducting walk down of the Unit 1 NSCW A Train cooling tower, inspectors identified gaps around the NSCW pump #3 and #5 well plate access covers. Upon further inspection and interviews with licensee personnel, the inspectors determined that the gaps were identified during the most recent FME inspection conducted (SNC839425), but that no action was taken to address and correct the deficiency. The inspectors verified that the well plate covers were properly sealed on all other NSCW pumps on both Unit 1 and Unit 2.

In inspection report (IR) 05000424/425/2015002 (ML15216A418), the licensee received a GREEN NCV for the failure to identify degraded conditions on the NSCW pump well cover plates. Part of the corrective actions for this NCV was to schedule/perform semi-annual FME inspections in the NSCW cooling towers as well as seal around all of the well cover plates. These corrective actions were taken and verified by the inspectors at the time of occurrence.

Corrective Action(s): Corrective actions included the sealing of the gaps identified on Unit 1 NSCW pumps #3 and #5, revisions to planned work orders for the removal of the NSCW pump shaft well access covers for both Units 1 and 2, and training for maintenance and engineering on the importance of proper documentation for actions taken during walk downs and subsequent corrective actions taken. The licensee entered this issue into their Corrective Action Program (CAP) as CRs 10461650 and 103459898.

Performance Assessment:

Performance Deficiency: The licensee's failure to provide work instructions for sealing around NSCW pump well plate covers following well plate cover removal/reinstallation was a performance deficiency. The licensee's failure to follow work instructions for documenting deficiencies in the NSCW pump FME barrier was also a performance deficiency.

Screening: The inspectors determined that the finding was more than minor because, if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, the openings in the pump well covers could allow FM to enter the NSCW system and adversely affect cooling water flow to essential component coolers. This was also a repetitive issue that was previously documented in IR 05000424/425/2015002 in which the licensee received a GREEN NCV.

Significance: The finding was evaluated using of Exhibit 2, "Mitigating Systems Screening Questions," of IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012. The finding was of very low safety significance (i.e. Green) because it did not represent an actual loss of function of one or more non-Tech Spec Trains of equipment designated as high safety-significant. No NSCW train was lost as a result of this finding.

Cross-cutting Aspect: The inspectors determined the finding had a cross-cutting aspect of resources in the human performance area, because the organization failed to ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. [H.1]

Enforcement:

Violation: Technical Specification 5.4.1.a, "Procedures," requires, in part, that written procedures covering the applicable procedures recommended in Appendix A to Regulatory Guide 1.33, "Quality Assurance Program Requirements," February 1978, shall be established and implemented. Appendix A, Item 9 required, in part, that maintenance activities that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written documented instructions appropriate to the circumstances.

Contrary to the above, in September 2016, the licensee did not properly preplan work orders SNC737852 (Unit 1 NSCW Pump #3) and SNC737853 (Unit 1 NSCW Pump #5) for the removal and reinstallation of NSCW pump shaft well access openings, by failing to provide instructions for sealing around the well plate covers following well plate cover removal/reinstallation. Also, contrary to the above, in July 2017, the licensee did not perform work order SNC839425 (Unit 1 NSCW A Train) for the NSCW tower clean/inspect, in accordance with the written instructions, by failing to generate CRs to create maintenance work orders to restore the integrity of an FME barrier if cracks or gaps are discovered.

Disposition: This violation is being treated as an NCV, consistent with Section 2.3.2.a of the Enforcement Policy.

Inadequate Acceptance Criteria for Testing of NSCW Pump Discharge Valves			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000425/425/2018001-002 Opened/Closed	H.8 - Resources	71111.22
<p><u>Introduction:</u> The inspectors identified a Green NCV of 10 CFR 50.55a(f), "Inservice testing requirements," subsection (4), American Society of Mechanical Engineers (ASME) Operation and Maintenance of Nuclear Power Plants (OM) code Subsection ISTC-5122, "Stroke Acceptance Criteria" for the licensee's failure to incorporate adequate acceptance criteria for exercise testing of nuclear service cooling water (NSCW) pump discharge valves into procedures.</p>			

Description: The inspectors observed testing and reviewed surveillance procedure 14802A-1, "Train A NSCW Pump/Check Valve IST and Response Time Test," version 8. Data Sheet 4 provided the open and close full-stroke times acceptance criteria for the unit 1 train 'A' (1A) NSCW pumps' discharge motor-operated valves (MOVs) 1-HV-11600/11605/11606. The valves' open stroke time reference values specified in the procedure were 59.0, 54.4, and 58.2 seconds, respectively. Consistent with ASME OM code Subsection ISTC-5122, "Stroke

Test Acceptance Criteria,” the licensee established acceptable HIGH/LOW stroke time limits at +/-15-percent (or +/-8.2-8.9 seconds) of the specified reference value. The inspectors determined the licensee used inadequate reference values when determining the HIGH/LOW code allowable limits. Specifically, the inspectors noted that valves actually stroked between 12-16 seconds, which corresponded to a stroke range limits between +/- 1.8-2.4 seconds. The higher reference values included a 40 – 45-second time delay relay (TDR) associated with the valves’ opening logic. Specifically, in order to minimize the effects of water hammer, the valves were interlocked to open 40-45-seconds after its associated pump is started. Per the ASME OM code Subsection ISTC-2000, “Supplemental Definitions,” the term *full-stroke time* is defined as “the time interval from initiation of the actuating signal to the indication of the end of the operating stroke.” In the case of the NSCW discharge valves, the licensee measured the open stroke time from the time the pump is started; however, the actuating signal to open the valve is not generated until the TDR times out. The inspectors determined that providing an additional 15-percent allowance associated with the TDR (which is already calibrated to +/-1 second) to the open stroke test acceptance criteria was not allowed by the Code, was non-conservative, and could prevent the licensee from detecting and monitoring degradation of the valves.

A second example involved the acceptance criteria for the stroke-close test of the same NSCW pump discharge valves. The valves have a safety function to ‘close’ following a loss of offsite power (LOSP) event in order to allow automatic restart of its associated NSCW pump. The inspectors noted Data Sheet 4 of 14802A-1 included a step to measure and record the valve’s full-stroke close time; however, there were no reference values nor associated allowable limits (+/-15-percent) to compare measured performance. The inspectors reviewed the licensee’s IST Program document and noted that the stroke-closed testing of the valves was added during the last IST 10-year program update, in May 2017 (fourth interval), after the licensee determined the stroke-close test had not been scoped in the IST program during update reviews. Following the program update the licensee added steps in the surveillance procedure to measure and record the valve’s full-stroke close time; however, it failed to establish stroke-closed reference values and associated High/Low acceptance criteria in accordance with ASME OM code subsection ISTC-5122. These issues were applicable to IST surveillance procedures for each NSCW system train of both units.

Corrective Action(s): The licensee entered these issues in their corrective action program and planned to revise the NSCW pump’s discharge valve IST surveillance procedures.

Corrective Action Reference(s): Condition reports (CRs) 10462846 and 10481385; technical evaluation (TE) 1006202 and corrective action report (CAR) 272720.

Performance Assessment:

Performance Deficiency: The failure to incorporate acceptance criteria for exercise testing of NSCW pump discharge valves into IST procedures in accordance with ASME OM code was a performance deficiency.

Screening: The PD was more than minor because if left uncorrected, it would have the potential to lead to a more significant safety concern. Specifically, if left uncorrected, the PD could result in degradation of NSCW pump discharge valves to go undetected.

Significance: The inspectors assessed the significance of the finding using Exhibit 2, “Mitigating Systems Screening Questions,” of Inspection Manual Chapter (IMC) 0609 0609,

Appendix A, "The Significance Determination Process (SDP) for Findings At- Power," issued June 19, 2012. The finding was of very low safety significance (i.e. Green) because the performance deficiency did not affect the design or qualification of the NSCW discharge valves, it did not result in an actual loss of safety system function, and it did not represent a loss of function of one or more than one train for more than its TS allowed outage time or greater than 24 hours. Specifically, the inspectors conducted a review of recent performance stroke times for the valves and did not identified any degradation that would impact component/system operability.

Cross-cutting Aspect: The finding was assigned a cross cutting aspect of "Procedures Adherence," because individuals did not follow IST program processes for maintaining NSCW pump discharge valves IST procedures following the 10-year program update, in May 2017. (H.8)

Enforcement:

Violation: Title 10 CFR 50.55a(f), "Inservice testing requirements," subsection (4) required, in part, that valves which are classified as ASME Class 3 must meet the inservice test requirements set forth in the ASME OM Code. The ASME Code of record for Vogtle for Operation and Maintenance of Nuclear Power Plants (OM) is the 2004 edition through 2006 addendum. Subsection ISTC-5122, "Stroke Test Acceptance Criteria," required in part for valves with reference values greater than 10 seconds, that stroke test results shall be compared to initial reference values, and (a) shall not exhibit more than +/-15-percent change in stroke time when compared to the reference value.

Contrary to the above, since initial plant operation, the licensee did not compare NSCW discharge MOVs close stroke test results to initial reference values, nor did it compare the MOVs' open stroke test results to be within +/-15-percent change of the open stroke time reference value.

Disposition: This violation is being treated as an NCV, consistent with Section 2.3.2.a of the Enforcement Policy.

Inadequate Refurbishment of Emergency Diesel Generator Pneumatic Control System Logic Boards			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000425/2018001-003 Opened/Closed	[H.1] – Resources	71153
<u>Introduction:</u> A Green self-revealing NCV of TS 5.4.1.a, "Procedures," was identified for the licensee's failure to properly preplan and perform maintenance work of the Unit 2 'B' train (2B) EDG pneumatic control shutdown logic board. The inadequate shutdown logic board refurbishment resulted in a pneumatic control system air leak that generated an EDG shutdown signal during testing and de-energized the safety-related emergency power bus.			
<u>Description:</u> As described in LER 05000425/2017-002, on September 26, 2017, during the performance of the Unit 2 'B' train engineered safety features actuation system test, operators simulated (1) a loss of power (LOSP) condition on the 4160-Volt (V) emergency			

power bus, 2BA03, and (2) a safety injection (SI) signal in accordance with test procedures. The EDG started and powered its associated 4160V bus, as expected, clearing the LOSP condition. Operators then proceeded to manually reset the SI signal from the main control room, in accordance with test procedures. Until the EDG is reset locally from the LOSP/SI signal it will continue to run in emergency mode (i.e. EDG non-emergency shutdown signals are blocked) even after the LOSP or SI signals are cleared. When operators locally reset the LOSP/SI signal, the engine control system generated a non-emergency shutdown signal to the engine and caused the output breaker to open, de-energizing the emergency bus. Because the EDG was the only source powering the bus, it caused an actual LOSP condition, which subsequently restarted the EDG in emergency mode, closed its output breaker, and sequenced loads back onto the bus. At the time of the event, Unit 2 was in Mode 6 and in the process of being refueled. Shutdown cooling to the unit was not affected because it was being provided by the 'A' train residual heat removal system, powered from the 'A' train 4160V emergency power bus, 2AA02.

The licensee initiated an incident response team to troubleshoot and determine the cause of the event. The cause of the diesel trip and subsequent LOSP to the bus was determined to be an air leak within the engine pneumatic control system. Specifically, a leak caused by aged-related degradation of an O-ring (CR10413540) between the shutdown logic board and a logic element (Orifice No. 5) on the pneumatic control system. The air leak was sufficient to drop system pressure below that which processed an EDG non-emergency shutdown signal. When the EDG was reset from the emergency mode of operation, which blocked the non-emergency shutdown signals, the engine controls processed the EDG shutdown signal caused by the air leak.

The 2B EDG pneumatic logic boards were replaced under maintenance work order (MWO) SNC803750 during the diesel's maintenance outage in June 2017, in accordance with the EDG's maintenance strategy. The replacement boards were refurbished under MWO SNC857461 in May 2017 after being removed from another EDG. In accordance with the EDG's maintenance strategy, refurbishment of the boards consisted of replacement of all logic board elements and O-rings every 12 months. Accordingly, MWO SNC857461 specifically requested the replacement of all logic elements. The inspectors conducted a detailed review of the completed MWO and noted discrepancies between the requested work, planning, and execution of the work. First, the planned work scope and instructions were not consistent with the requested work to replace all logic elements. The work scope and instructions called for an 'as-found' test of each board (three boards total) and replacement of defective elements, as needed. Second, although not identified to be defective during 'as-found' testing, 19 out of 23 logic elements were replaced on the shutdown logic board. Three of the four elements not replaced were obsolete and not available. The fourth element not replaced was Orifice No. 5 for which replacements were available. Third, Orifice No. 5 logic element was specifically identified to have a leak between the element and the board at the O-ring interface (documented in condition report (CR) 10363351) during 'as-found' testing; however, the element was not replaced. Fourth, materials listed in the MWO did not include Orifice No. 5. And finally, O-ring replacement for logic elements not replaced was not required as part of the refurb work. Per discussions with the system engineer, procurement delays with new replacement boards resulted in the installation of refurbished boards on the 2B EDG. The inspectors determined that MWO SNC857461 to refurbish 2B EDG pneumatic logic boards was not properly planned and executed, and resulted in the pneumatic controls air leak that tripped the 2B EDG during ESFAS testing.

Corrective Action(s): The licensee entered this issue into their corrective action program under CR 10412768 and corrective action report (CAR) 271341. The licensee replaced defective Orifice No. 5 element (under MWO SNC897326), verified no additional leaks on the other refurbished boards, and satisfactorily tested the EDG. Also, preventative maintenance instructions were revised to verify that all elements and O-rings are replaced before installing refurbished pneumatic logic boards (technical evaluation (TE) 998243.)

Performance Assessment:

Performance Deficiency: The failure to properly preplan and perform maintenance of the 2B EDG pneumatic control shutdown logic board was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the performance deficiency resulted in a loss of power to the 'B' 4160-volt emergency power bus.

Significance: The inspectors assessed the significance of the finding using Inspection Manual Chapter (IMC) 0609, Attachment 04, "Initial Characterization of Findings," dated October 7, 2016, to evaluate the significance of the finding. Since the plant was shutdown, the inspectors were directed to IMC 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings," dated May 9, 2014. Using Appendix G, Attachment 1, Exhibit 3, "Mitigating Systems Screening Questions." The inspectors determined the finding was of very low safety significance (Green) because all exhibit questions were answered 'No' because shutdown cooling to the unit was not affected, as it was being provided by the 'A' train of the residual heat removal system, which is power from the 'A' train emergency power bus, at the time of the event.

Cross-cutting Aspect: The inspectors determined the finding had a cross-cutting aspect of "Resources" in the Human Performance area because work instructions in MWO SNC857461 to refurbish the pneumatic control shutdown logic board for the 2B EDG were inadequate. [H.1]

Enforcement:

Violation: Technical Specification 5.4.1.a, "Procedures," required, in part, that written procedures covering the applicable procedures recommended in Appendix A to Regulatory Guide 1.33, "Quality Assurance Program Requirements," of February 1978, shall be implemented. Appendix A, Item 9 required, in part, that maintenance activities that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written documented instructions appropriate to the circumstances.

Contrary to the above, in May 2017, the licensee failed to properly preplan and perform maintenance activities to refurbish Unit 2 'B' train EDG pneumatic control system logic boards. These boards were installed on the EDG on June 2017 and developed an air leak that resulted in a shutdown of the EDG while powering the emergency bus in support of testing on September 26, 2017.

Disposition: This violation is being treated as an NCV, consistent with Section 2.3.2.a of the Enforcement Policy.

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On April 26, 2018, the inspectors presented the quarterly resident inspector inspection results to the Plant Manager, Mr. Daniel Komm, and other members of the licensee staff.

DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Procedures

11881-2, Auxiliary Building Rounds Sheet

Drawings

2X4DB131, P&I Diagram, Containment Spray System No. 1206, Rev. 32.0

2X3D-BD-J02C, Elementary Diagram, Containment Spray System – 2HV-9001A, Rev. 6

2X3D-AA-F118, One Line Diagram, 480V Motor Control Center 2ABD - 2-1805-S3-ABD, Rev. 8

2X3D-BD-J01A, Elementary Diagram, Containment Spray System 2-1206-P6-001-M01, Rev. 6

2X4DB133-1, P&I Diagram – Nuclear Service Cooling Water System No. 1202, Rev. 54.0

2X3D-AA-D02A, 4160V Switchgear 2AA02 – 2-1804-S3-A02, Rev. 7

2X3D-AA-F16A, One Line Diagram, 480V Motor Control Center 2ABB 2-1805-S3-ABB, Ver. 17

2X3D-BD-K04C, Elementary Diagram – Nuclear Service Cooling Water System – 2-1202-P4-003-M01, Ver. 18.0

Other

Tagout 2-DT-18-2403-00046 (000), Remove 2B EDG from service

Tagout 2-DT-18-1206-00036, 2A Containment Spray System Outage, Rev. 000

Tagout 2-DT-18-1202-00044, 2A NSCW tagout for removal of NSCW motor #3, Revs. 000 and 001

Section 1R05: Fire Protection Annual/Quarterly

Procedures

92930F-1, Zone 530 – North Firewater Pump house –Fire Fighting Preplan, Rev. 3.2

92931B-1, Zone 531 – South Firewater Pump house –Fire Fighting Preplan, Rev. 3.2

92759-1, Zone 59 Control Building Level B Fire Fighting Preplan, Rev. 1.2

92759-2, Zone 59 Control Building Level B Fire Fighting Preplan, Rev. 0.2

92760-2, Zone 60 Control Building Level B Fire Fighting Preplan, Rev. 1.0

92761-2, Zone 61 Control Building Level B Fire Fighting Preplan, Rev. 1.1

92762-2, Zone 62 Control Building Level B Fire Fighting Preplan, Rev. 2.0

92763-2, Zone 63 Control Building Level B Fire Fighting Preplan, Rev. 0.2

92764-2, Zone 64 Control Building Level B Fire Fighting Preplan, Rev. 1.1

92768-1, Zone 68 Control Building Level B Fire Fighting Preplan, Rev. 1.2

92768-2, Zone 68 Control Building Level B Fire Fighting Preplan, Rev. 0.2

92769-1, Zone 69 Control Building Level B Fire Fighting Preplan, Rev. 1.2

92769-2, Zone 69 Control Building Level B Fire Fighting Preplan, Rev. 0.2

92775-1, Zone 75 Control Building Level B Fire Fighting Preplan, Rev. 4.1

92775-2, Zone 75 Control Building Level B Fire Fighting Preplan, Rev. 0.2

92782-2, Zone 82 Control Building Level B Fire Fighting Preplan, Rev. 1.2

92844-2, Zone 144 Diesel Generator Building – Electrical Tunnel – Train B - Fire Fighting Preplan, Rev. 2.2

92862-2, Zone 162 Diesel Generator Building Fire Fighting Preplan, Rev. 1.1

92864-2, Zone 164 Diesel Generator Building – Train B DFO Day Tank Fire Fighting Preplan, Rev. 0.2

Section 1R11: Licensed Operator Regualification Program and Licensed Operator Performance

Procedures

14805A-2, Train A Residual Heat Removal Pump IST and Response Time Test, Rev. 4.1

14410-2, Control Rod Operability Test, Rev. 20.1
87046-C, All Rods Out Repositioning, Ver. 15.0
112004-C, Power Operation, Ver. 119.3
18001-C Primary Systems Instrumentation Malfunction, Ver. 37.1
18004-1 Reactor Coolant System Leakage, Ver. 30.1
19000-1 E-0 Reactor Trip or Safety Injection, Ver. 2.2
13145A-1 Diesel Generator Train A, Ver. 9.1
17014-1 Annunciator Response Procedures for ALB14 on Panel 1B1 on MCB, Ver. 15
NMP-EP-110 Ver. 8.1, Emergency Classification Determination and Initial Action
NMP-EP-110-GL03 Ver. 9, VEGP EALs –ICS, Threshold Values and Basis
NMP-EP-111 Ver. 11.0, Emergency Notifications

Other

V-RQ-SE-18101, As-Found Segment 20181, Ver. 1.0

Section 1R12: Maintenance Effectiveness

Procedures:

NMP-ES-027, Maintenance Rule Program, Ver. 7

Procedures

NMP-AD-002, Problem Solving and Troubleshooting Guidelines, Ver. 12.0
NMP-GM-002-001, Corrective Action Program Instructions, Ver. 34.0
NMP-MA-040, Maintenance and Alignment of Belt Driven Equipment, Ver. 1.0
27440-C, Equipment Room Cooler Periodic Maintenance, Ver. 15.0

Maintenance Work Orders

SNC737852, NSCW Train A Pump Restraints Inspection, 9/26/16
SNC737853, NSCW Train A Pump Restraints Inspection, 9/29/16
SNC839425, NSCW Tower A Clean/Inspect, 7/31/17
SNC839426, NSCW Tower A Clean/Inspect, 3/7/18
SNC839432, NSCW Tower B Clean/Inspect, 9/5/17
SNC839433, NSCW Tower B Clean/Inspect, 1/29/18

Corrective Action Program Records

Condition Reports (CRs)

10466844, MR Preventable Functional Failure of Control Building ESF Equipment Room HVAC fan motor
10462007, 1B Control Building ESF Equipment Room HVAC system exceeded unavailability performance criteria
10458438, 1B Loose belt and rubber smell from belt shroud of Control Building ESF equipment room HVAC fan
10456735, Stripped bolt in motor sheave
10456279, 1B Control Building ESF Equipment Room HVAC fan motor making abnormal noise
10386323, Loose belt on 1B Control Building ESF Equipment Room HVAC fan
10290363, Control Building ESF Equipment Room HVAC motor sheaves rubbing shroud
10353747, Loose belt on 2B Control Building ESF Equipment Room HVAC fan
10317324, 2B Control Building ESF Equipment Room HVAC fan belt sound
10461234, 2B Control Building ESF Equipment Room HVAC fan belts getting worse

Corrective Action Report (CARs)

272532, Evaluation for CR trend on equipment belt issues

971769, Maintenance Rule Evaluation for Control Building ESF Equipment Room HVAC motor sheaves rubbing shroud

Other

NUMARC 93-01, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, Rev. 4A

Eval-V-1532-04248 (Maintenance Rule) 10CFR50.65 a(1) Evaluation for Unit 1 System 1532 – Control Building ESF Room HVAC

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

NMP-GM-031-001, Online Maintenance Rule (a)(4) Risk Calculations, Ver. 3.0

Other

Unit 2 Phoenix Integrated Risk Report for January 24-25, 2018

Unit 2 Narrative Control Room Logs for January 24-25, 2018

Unit 2 Daily Work Schedule for January 25-26, 2018

Unit 1 Daily Work Schedule for February 5-6, 2018

Unit 1 Phoenix Integrated Risk Report for March 5, 2018

Unit 1 Narrative Control Room Logs for March 5, 2018

Drawings

1X3D-AA-E09A, One Line Diagram – 480V Switchgear 1NB09, 1-1805-S3-B09, Ver. 13

1X3D-AA-F06A, One Line Diagram – 480V MCC 1NBF, 1-1805-S3-NBF, Ver. 25

1X3D-AA-F13A, One Line Diagram – 480V Pressurizer Heater Panels 1NBPC, 1NBPB1, 1NBPB2, 1NBPB3, Ver. 7

1X3D-AA-E08A, One Line Diagram – 480V Switchgear 1NB08, 1-1805-S3-B08, Ver. 11

Corrective Action Program Records

Condition Reports (CRs)

CR10461661

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

NMP-AD-012, Operability Determinations and Functionality Assessments, Ver. 13.1

Drawings

CX5DT101-40R, Instrument Set Point List, Rev. 3

CX5DT101-40D, Instrument Set Point List, Rev. 3

2X4AK01-00361, Engine Control Panel Schematic (Sheet 1 of 13), Rev. 13.0

2X4AK01-20021, Diesel Generator Engine Pneumatic Schematic, Rev. 5.0

Corrective Action Program Records

Condition Reports (CRs)

10448326, Diesel Fire Pump No. 1 jacket water heater not working

10448094, ECCS Gas Void in 1B RHR Discharge Line

Corrective Action Reports (CARs)

249514, Diesel Fire Pump No. 1 jacket water heater non-functional (Functionality Assessment)

Other

National Fire Protection Association, Inc., NFPA 20-1983, "Standards for the Installation of Centrifugal Fire Pumps," NFPA, Quincy, MA
CX4AF14-00019, Fire Protection Pump Drive – Industrial Diesel Engines Operation, Maintenance Manual, and Parts Catalog, Rev. 10
CX4AF14-00025, Operation and Maintenance Manual for Fire Pump Drive Engines – CFP11E Series, Rev. 2.0
AX4AK01-509, Standby Diesel Generator Instruction Manual Volume 1, Rev. 27.0
Calculation X4C1202526
Stress Calculation 1X4CP-7159

Section 1R19: Post Maintenance Testing

Procedures

14802A-1, Train A NSCW Pump/Check Valve IST and Response Time Test, Ver.8
13150A-1, Train A Nuclear Service Cooling Water System, Ver. 11.1
NMP-ES-084-001-F19, Design Change/Modification – List of Materials, Ver. 2.0

Completed Procedures

14802A-1 (Section 5.3), Train A NSCW Pump/Check Valve IST and Response Time Test, completed on 2/15/2018
14825-1, Quarterly In-service Valve Test (Section 5.3.12, Main Steam System Valves – Modes 1, 2, 3 for 1-PV-3020), 1/30/2018
14980B-2, Diesel Generator Operability Test Train B, 1/25/2018
NMP-AD-010-F01, 10CFR50.59 Screening/Evaluation for EDG ZL-4674/5 Replacement, 7/11/2017
25719-C, Electrical Integrity and Configuration Control, 1/26/2018
25713-C, Crimping Cable Terminals and Splices, 1/22/2018
25718-C, Heat Shrink Insulation for Control and Power Cable Splices and Terminations, 1/22/2018
NMP-MA-017, Red Line Drawings, 1/26/2018

Drawings

1X4DB133-1, P&I Diagram – Nuclear Service Cooling Water System No. 1202, Ver. 55.0
1X4DB159-2, P&I Diagram – Main Steam System No. 1301, Rev. 34.0
1X3D-BC-Q03R, Elementary Diagram - Main Steam System - 1PV-3030 and 1 PV-3020, Rev. 12.0
1X3D-AA-H02B, On Line Diagram 125V DC 1E Class Distribution Panel 1BD11 & 1BD12 – 1-1806-Q3-DB1 & DB2, Rev.16.0
1X3D-AA-F04A, On Line Diagram 480V Motor Control Center 1BBC – 1-1805-S3-BBC, Rev. 31.0
1X3D-CA-F17C, Wiring Diagram Elect-Sys – 480V MCC 1BBB – 1-1805-S3-BBB, Rev. 7.0
1X3D-CE-H05L, Wiring Diagram – Aux Relay Panel PAR7 SH.2 – 1-1816-U3-015, Rev. 8.0
1X3D-BA-M06G, Elementary Diagram - Electrical System – Annunciator Circuit for MCC 1BBB, Rev. 5.0
1X4AK01-466-8, Wiring Diagram – Diesel Generator Control Power, Ver. 2.0
1X4AK01-00462, Wiring Diagram – Diesel Generator Control Power, Rev. H
AX4DB216, P&I Diagram, Control Building Cable Spreading Room, Level 2 and 3 HVAC, System No. 1539, Ver. 16
2X3D-BG-C07N, Elementary Diagram, CB Cable Spreading Room Level A HVAC System, 2-1539-A7-002-M01, Rev. 5
2X3D-CA-F19B, Wiring Diagram, Electrical System 480V MCC 2BBA, 2-1895-S3-BBA, Rev. 6

Corrective Action Program Records

Condition Reports (CRs)

10461115, Unit 1 NSCW pump no.5 junction box inspection results

Work Orders

SNC683672, LOOP 3 ARV actuator and hand pump filter replacement, 1/30/2018

SNC646724, LOOP 3 ARV pressure switch calibrations PS-1 and PS-2, 1/30/2018

Other

Tagout 1-DT-18-1202-00049, Unit 1 NSCW pump no. 5 motor/breaker and discharge valve maintenance

Tagout 1-DT-18-1301-00027(002), Electrically Isolate 1PV-3020 for preventative maintenance outage

Tagout 1-DT-18-2403-00046(000), Remove 2B EDG from service and isolate/depressurize control air

Tagout 2-DT-18-1539-00056, Control Building Aux Relay Room ESF HVAC Unit Fan Maintenance

LCO/TR 1-2018-022i Status Sheet

DECP SNC851150, EDG ZL-4674/5 and ZL-4677/8 Replacement, Rev. 6.0

Section 1R22: Surveillance Testing

Completed Procedures

14690B-2, Train B Centrifugal Charging Pump and Check Valve IST with K601 and K608 Train B SSPS Safety Injection Slave Relay Tests, Completed on 1/26/2018

Procedures

14802A-1, Train A NSCW Pump / Check Valve IST and Response Time Test, Ver. 8

14802B-1, Train B NSCW Pump / Check Valve IST and Response Time Test, Ver. 9.0

14802A-2, Train A NSCW Pump / Check Valve IST and Response Time Test, Ver. 9.1

14802B-2, Train B NSCW Pump / Check Valve IST and Response Time Test, Ver. 8.2

NMP-ES-013-005, IST Implementation, Ver. 5.0

Drawings

2X4DB116-2, P&I Diagram – Chemical and Volume Control System No. 1208, Rev. 32.0

2X3D-BD-K04Z, Elementary Diagram Nuclear Service Water System 2-HV-11600-05-06, Ver. 6

2X3D-BD-K04C, Elementary Diagram Nuclear Service Water System 2-1202-P4-003-M01, Ver. 18

Work Orders

SNC576875, Unit 1 NSCW pump discharge valve 1HV11600 diagnostic test, September 2017

SNC124640, Unit 1 NSCW pump discharge valve 1HV11605 diagnostic test, June 2012

SNC125520, Unit 1 NSCW pump discharge valve 1HV11606 diagnostic test, February 2013

SNC614680, Unit 1 NSCW pump discharge valve 1HV11607 diagnostic test, August 2017

SNC723675, Unit 1 NSCW pump discharge valve 1HV11612 diagnostic test, December 2016

SNC407967, Unit 1 NSCW pump discharge valve 1HV11613 diagnostic test, May 2014

SNC411846, Unit 2 NSCW pump discharge valve 2HV11600 diagnostic test, August 2013

SNC503030, Unit 2 NSCW pump discharge valve 2HV11605 diagnostic test, November 2015

SNC411845, Unit 2 NSCW pump discharge valve 2HV11606 diagnostic test, December 2014

SNC411613, Unit 2 NSCW pump discharge valve 2HV11607 diagnostic test, July 2014

SNC506115, Unit 2 NSCW pump discharge valve 2HV11612 diagnostic test, November 2015
SNC547688, Unit 2 NSCW pump discharge valve 2HV11613 diagnostic test, March 2016

Other

ASME OM Code, Subsection ISTB, Inservice Testing of Pumps in Light-Water Reactor Nuclear Power Plants, 2004

U.S. Nuclear Regulatory Commission, "Guidelines for Inservice Testing at Nuclear Power Plants: Inservice Testing of Pumps and Valves and Inservice Examination and Testing of Dynamic Restraints (Snubbers) at Nuclear Power Plants — Final Report," NUREG-1482, Revision 2, October 2013

Vogtle Electric Generating Plant Fourth 10-Year Interval Inservice Testing (IST) Program Update," May 17, 2017

Section 1EP6: Drill Evaluation

Records and Data

Facility Activation Drill Documents for February 28, 2018 Drill

Section 4OA1: Performance Indicator (PI) Verification

Procedures, Guidance Documents, and Manuals

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

Unit 1 and Unit 2 Narrative Logs (eSOMS) between January 1, 2017 and December 31, 2017

Section 4OA2: Problem Identification and Resolution

Corrective Action Program Records

Condition Reports (CRs)

10449112, EDG DC-DC Converter Potential Degraded Component

10455611, Control power lost for 2NB10 breaker 5

Corrective Action Report (CARs)

269286, 2A EDG Control Circuit Failures

209741, Apparent Cause Determination for pressurizer backup heaters not starting from the control room handswitch, 5/7/14

Technical Evaluation (TE)

1003039, Maintenance Rule Evaluation for loss of control power to 2NB10 breaker 5

Drawings

2X3D-BD-B01L, Elementary Diagram, Reactor Coolant System, 2-1805-Q3-PB2, Ver. 7.0

2X3D-AA-H01A, One Line Diagram 125 V DC Class 1E DISTR TRAIN A 2-1806-S3-DSA, 2-1806-S3-DCA, Rev. 14.0

2X3D-AA-H01B, One Line Diagram 125 V DC Class 1E Distribution Panels 2AD11 & 2AD12, 2-1806-Q3-DA1 & -DA2, Rev. 8

2X3D-BA-G03C, Elementary Diagram, Diesel Engine Control, Diesel Engine – Generator DG2A, Rev. 7.0

AX3AC02B-20001, RMAX-AKR C-1-C Schematic (Sheets 1 of 3), Ver. 2.0

AX3AC02B-20003, RMAX-AKR C-1-C Schematic (Sheets 3 of 3), Ver. 2.0

Other

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ED 98-VAD103, EDG Control Panel Light Bulb/Socket Change, 12/31/98
AX4AK01-00646, Seismic Evaluation for EDG Control Panel

71153: Follow-up of Events and Notices of Enforcement Discretion

Corrective Action Program Records

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10412768, Unexpected LOSP during train B ESFAS testing
10363351, 1A-7055 pneumatic logic board UNSAT
10413540, Logic board O-ring material condition

Corrective Action Report (CARs)

271341, Emergency Reliability Checklist (ERC) for Unexpected Emergency Diesel Generator
Trip During Testing, 10/30/17

Technical Evaluation (TE)

994963, Maintenance Rule Evaluation for LOSP during train B ESFAS testing
994964, Maintenance Rule Evaluation for unexpected LOSP during train B ESFAS testing

Drawings

2X4AK01-00361, Engine Control Panel Schematic (Sheet 1 of 13), Rev. 13.0
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Work Orders

SNC803750, Unit 2 B-train EDG 144-Month pneumatic logic board replacement, July 28, 2017
SNC857461, Refurbish the pneumatic logic board after 2A AOT

Miscellaneous Records

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Applications, Revision 1
PMCR 82109, Evaluation to extend pneumatic logic boards replacement/refurbishment PM from
to 144 months

60855.1: Operation of an Independent Spent Fuel Storage Installation

Procedures

11882-1, Outside Area Rounds Sheets, Ver. 98.2

Corrective Action Program Records

Condition Reports (CRs)

10381823, Lower screen on Hi-Storm is bowing out
10319000, Possible FM from Hi-Storm sticker Labels
10294253, Debris partially covering one of four vents on Hi-Storm
10324641, Dry cask storage canister vent screen gapped, loose hardware
10381816, Hi Storms missing mounting hardware on lower screens and equipment IDs

Technical Evaluations (TEs)

977544, Possible FM from Hi-Storm sticker Labels

Miscellaneous Records

11882-1, Outside Area Rounds Sheets (Figure 1 - Sheet 1 of 24), completed 1/1/18 – 3/15/18
Operations Control Room Logs, 1/1/18 – 3/15/18