



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

April 26, 2016

Mr. David A. Heacock
President and Chief Nuclear Officer
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060

SUBJECT: NORTH ANNA POWER STATION – NRC INTEGRATED INSPECTION
REPORT 05000338/2016001 AND 05000339/2016001

Dear Mr. Heacock:

On March 31, 2016, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your North Anna Power Station Units 1 and 2. On April 13, 2016, the NRC inspectors discussed the results of this inspection with Mr. G. Bischof and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

The NRC inspectors did not identify any findings or violations of more than minor significance.

In accordance with Title 10 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 System (PARS) component of NRC's Agencywide Documents 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/

Steven D. Rose, Chief
Reactor Projects Branch 5
Division of Reactor Projects

Docket Nos.: 05000338, 05000339
License Nos.: NPF-4, NPF-7

Enclosure:
IR 05000338/2016001, 05000339/2016001
w/Attachment: Supplemental Information

Distribution via Listserv

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-338, 50-339

License Nos: NPF-4, NPF-7

Report No: 05000338/2016001 and 05000339/2016001

Licensee: Virginia Electric and Power Company (VEPCO)

Facility: North Anna Power Station, Units 1 & 2

Location: Mineral, Virginia 23117

Dates: January 1, 2016 through March 31, 2016

Inspectors: G. Croon, Senior Resident Inspector
G. Eatmon, Resident Inspector
S. Ninh, Senior Project Engineer
A. Butcavage, Reactor Inspector (Section 1R08)
A. Sengupta, Reactor Inspector (Section 1R08)
R. Baldwin, Senior Operations Engineer (Section 1R11.3)
J. Viera, Operations Engineer (Section 1R11.3)
J. Bundy, Operations Engineer (In-Training) (Section 1R11.3)

Approved by: Steven D. Rose, Chief
Reactor Projects Branch 5
Division of Reactor Projects

Enclosure

SUMMARY

IR 05000338/2016001, 05000339/2016001; 01/01/2016 – 03/31/2016; North Anna Power Station, Units 1 and 2. Integrated inspection report.

The report covered a three-month period of inspection by resident inspectors, a senior project engineer, one senior operations engineer, one operations engineer, and two reactor inspectors from the regional office. No NRC-identified or self-revealing findings were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the period at approximately 100 percent rated thermal power (RTP) and operated at full power for the entire report period.

Unit 2 began the inspection period at approximately 100 percent RTP. On March 6, 2016, the unit was taken offline for a planned refueling outage. The unit remained offline for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

.1 External Flooding

a. Inspection Scope

The inspectors assessed the external flood vulnerability of the North Anna for the auxiliary feedwater pump house. The inspectors also reviewed applicable station procedures and design documents to assess proper surveillance and maintenance for external flood protection features.

b. Findings

No findings were identified.

.2 Seasonal Susceptibilities

a. Inspection Scope

The inspectors reviewed the licensee's adverse weather preparations for cold weather operations specified in 0-GOP-4, "Cold Weather Operations", Rev 56, 0-GOP-4.2, "Extreme Cold Weather Operations", Rev 36, and 0-GOP-4.2A, "Extreme Cold Weather Daily Checks", Rev 8, as well as the licensee's corrective action data base for cold weather related issues. The inspectors walked down the risk-significant areas listed below on three occasions to verify compliance with procedural requirements and to verify that the specified actions provided the necessary protection for the applicable structures, systems, or components (SSCs). The inspectors reviewed the licensee's corrective action program (CAP) database to verify that weather related problems due to temperature were being identified at the appropriate level, entered into the CAP, and appropriately resolved.

- Station Blackout (SBO) Diesel on December 30, 2015 with anticipated weather in the teens for January 1, 2016.
- Unit 1 Aux Feedwater Pump House on January 22, 2016 with anticipated winter storm of 24" of snow and blizzard wind conditions.

- Unit 1 and Unit 2 Emergency Diesel Generators on January 22, 2016 with anticipated winter storm of 24" snow and blizzard wind conditions.

b. Findings

No findings were identified.

.3 Impending Adverse Weather Conditions

a. Inspection Scope

The inspectors performed a site specific weather related inspection due to anticipated adverse weather conditions. On January 21, 2016, the inspectors reviewed the licensee response to winter storm warnings, with blizzard conditions and wind warnings of 25 to 35 miles an hour with gusts up to 40 miles per hour for the area. Specifically, the inspectors reviewed licensee adverse weather response procedures, including 0-AP-41, "Severe Weather Conditions," Rev 61, and site preparations including work activities that could impact the overall maintenance risk assessments.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial Walkdowns

a. Inspection Scope

The inspectors conducted four equipment alignment partial walkdowns, listed below, to evaluate the operability of selected redundant trains or backup systems with the other train or system inoperable or out of service. The inspectors reviewed the functional systems descriptions, Updated Final Safety Analysis Report (UFSAR), system operating procedures, and Technical Specifications (TS) to determine correct system lineups for the current plant conditions. The inspectors performed walkdowns of the systems to verify the operability of a redundant or backup system/train or a remaining operable system/train with a high risk significance for the current plant configuration (considering out-of-service, inoperable, or degraded condition); or a risk-significant system/train that was recently realigned following an extended system outage, maintenance, modification, or testing; or a risk-significant single-train system. The inspector conducted the reviews to ensure that critical components were properly aligned, and to identify any discrepancies which could affect operability of the redundant train or backup system.

- Unit 1, C charging pump 2CH-P-1C during planned maintenance of B charging pump 2CH-P-1B
- Unit 1, A and B train control room chillers while C train 1 HV-E-4C was out of service for planned maintenance
- Unit 2, control room chillers while 2 HV-AC- 7/8 was out of service
- Unit 1, 1J emergency bus while 2H emergency diesel generator was out of service

b. Findings

No findings were identified

1R05 Fire Protection

Quarterly Fire Protection Walkdowns

a. Inspection Scope

The inspectors conducted focused tours of the five areas listed below that are important to reactor safety to verify the licensee's implementation of fire protection requirements as described in fleet procedures CM-AA-FPA-100, "Fire Protection/Appendix R (Fire Safe Shutdown) Program," Rev 10, CM-AA-FPA-101, "Control of Combustible and Flammable Materials," Rev 6, and CM-AA-FPA-102, "Fire Protection and Fire Safe Shutdown Review and Preparation Process and Design Change Process," Rev 5. The inspectors evaluated, as appropriate, conditions related to: (1) licensee control of transient combustibles and ignition sources; (2) the material condition, operational status, and operational lineup of fire protection systems, equipment, and features; and, (3) the fire barriers used to prevent fire damage or fire propagation. Other documents reviewed are listed in the Attachment to this report.

- Unit 2 Cable Vault and Tunnel and 280' Rod Drive
- Unit 1 Yard Fire Hydrants and Hose Houses while Hose House 'E' was non-functional
- Unit 1 Transformers
- Unit 1 and Unit 2 Emergency Diesel Generator

b. Findings

No findings were identified.

1R06 Flood Protection Measures

Internal Flooding

a. Inspection Scope

The inspectors assessed the internal flooding vulnerability of the one flood area listed below with respect to adjacent safety-related areas to verify that the flood protection barriers and equipment were being maintained consistent with the UFSAR. The licensee's corrective action documents were reviewed to verify that corrective actions with respect to flood-related items identified in condition reports were adequately addressed. The inspectors conducted a field survey of the selected areas to evaluate the adequacy of flood barriers, and floor drains to protect the equipment, as well as their overall material condition.

- Safety related switchgear room

b. Findings

No findings were identified.

1R07 Heat Sink Performance

System Heat Exchangers

a. Inspection Scope

The inspectors selected the risk significant Unit 2 'B' charging pump lube oil heat exchangers for the 2B gear box lube oil cooler and reviewed inspection records, test results, maintenance work orders, and other documentation to ensure that deficiencies which could mask or degrade performance were identified and corrected. The test procedures and records were also reviewed to verify that they were consistent with Generic Letter 89-13 licensee commitments, and Electric Power Research Institute (EPRI) Heat Exchanger Performance Monitoring Guidelines. In addition, the inspectors reviewed inspection documentation of the related service water piping to assess general material condition and to identify any degraded conditions. Documents reviewed included Virginia Power Administrative Procedure (VPAP) -0811, "Service Water Inspection and Maintenance Program," Rev 6, and licensee procedure ER-AA-HTX-1003, "Heat Exchanger Monitoring and Assessment," Rev 6.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities

a. Inspection Scope

Non-Destructive Examination Activities and Welding Activities

From March 14–18, 2016, the inspectors conducted an onsite review of the implementation of the licensee's inservice inspection (ISI) program for monitoring degradation of the reactor coolant system boundary, risk-significant piping and component boundaries, and containment boundaries in Unit 2.

The inspectors either directly observed or reviewed the following non-destructive examinations (NDEs) mandated by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code of Record: 2004 Edition with No Addenda) to evaluate compliance with the ASME Code, Section XI and Section V requirements, and if any indications or defects were detected, to evaluate if they were dispositioned in accordance with the ASME Code, or an NRC-approved alternative requirement. The inspectors also reviewed the qualifications of the NDE technicians performing the examinations to determine whether they were current and in compliance with the ASME Code requirements.

- Penetrant Testing (PT), Component ID, 12050-WMKS-0103CB / 2-RC-455 / SW-64, Pipe-to Elbow Weld, Class 1 (reviewed)

- PT, Component ID, 12050-WMKS-0103CB / 2-RC-455 / SW-65, Elbow-to-Pipe Weld, Class 1 (reviewed)
- Visual Testing (VT), Component ID, 12050-WMKS-0111Y/3-CH-479/R-7, Restraint, Class 2

The inspectors either directly observed or reviewed the following welding activities, qualification records, and associated documents in order to evaluate compliance with procedures and the ASME Code, Section XI and Section IX requirements. Specifically, the inspectors reviewed the work order (WO), repair and replacement plan, welder performance qualification records, and NDE reports.

- Weld SW-65, "A" RCS Cold Leg Loop Drain, ASME Code Class 1 (reviewed)

During non-destructive surface and volumetric examinations performed since the previous refueling outage, the licensee did not identify any relevant indications that were analytically evaluated and accepted for continued service; therefore, no NRC review was completed for this inspection procedure attribute.

Pressurized Water Reactor Vessel Upper Head Penetration Inspection Activities

The inspectors verified that for the Unit 2 vessel head, a bare metal visual (BMV) examination was required during this outage, in accordance with the requirements of ASME Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D).

The inspectors observed portions of the BMV examination of the reactor vessel upper head penetrations, and reviewed NDE reports for penetration numbers 22, 27, 35, 55, and 59 to determine if the examinations were performed in accordance with the requirements of ASME Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D). Additionally, the inspectors reviewed the final NDE report, VE-16-004, to determine if the required examination coverage was achieved, and if limitations were recorded in accordance with the licensee procedures.

The licensee did not identify any relevant indications that were accepted for continued service. Additionally, the licensee did not perform any welding repairs to the vessel head penetrations since the beginning of the last Unit 2 refueling outage; therefore, no NRC review was completed for these inspection procedure attributes.

Boric Acid Corrosion Control Inspection Activities

The inspectors reviewed the licensee's boric acid corrosion control (BACC) program activities to determine if the activities were implemented in accordance with the commitments made in response to NRC Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants," and applicable industry guidance documents. Specifically, the inspectors performed an onsite records review of procedures, and the results of the licensee's containment walkdown inspections performed during the current refueling outage. The inspectors also interviewed the BACC program owner, conducted an independent walkdown of containment to evaluate compliance with licensee's BACC program requirements, and verified that degraded or non-conforming conditions such as boric acid leaks were properly identified and corrected, in accordance with the licensee's BACC and corrective action programs (CAPs).

The inspectors reviewed the following engineering evaluations, completed for evidence of boric acid leakage, to determine if the licensee properly applied applicable corrosion rates to the affected components; and properly assessed the effects of corrosion induced wastage on structural or pressure boundary integrity in accordance with the licensee procedures.

- Boric Acid Engineering Evaluation, Condition Report (CR)-577690, Component ID No. 2-SI-19, Refueling Water Storage Tank to Low Head Safety Injection Pump Suction Header, Check Valve, 5/11/2016
- Boric Acid Engineering Evaluation, CR-1000086, Component ID No. 2-SS-TV-201B, PZR Vapor Space Outside Isolation Valve, 7/13/2015
- Boric Acid Engineering Evaluation, CR-5557840, Component ID No. 2-SI-MOV-2865B, 10/5/2014

The inspectors reviewed the following CRs and associated corrective actions related to evidence of boric acid leakage to evaluate if the corrective actions completed were consistent with the requirements of the ASME Code, and 10 CFR Part 50, Appendix B, Criterion XVI.

- CR-3026890, Prior to Head Set, Engineering to Evaluate Material Observed on Unit-2 Reactor Vessel Closure Head, 3/18/2016
- CR-1030218, Body to Bonnet Leak found on 2-RC-MOV-2590, 3/13/2016
- CR-1030015, 1-SS-1019, Has A Packing Leak, 3/11/2016
- CR-1031351, Suspected leakage residue at inlet flange of 2-RH-E-1B, 3/30/2016

Steam Generator Tube Inspection Activities

The inspectors verified that for the Unit 2 steam generator (SG) B tubes, no inspection activities were originally required for this refueling outage, in accordance with the requirements of the ASME Code, the licensee's Technical Specifications (TSs), and Nuclear Energy Institute (NEI) 97-06, "Steam Generator Program Guidelines." Required expansion scope is 20 percent sample per the Electric Power Research Institute (EPRI) Steam Generator Examination Guidelines, if needed.

The inspectors reviewed the eddy current (EC) examination activities performed in Unit 2 SGs A and C during current refueling outage, to verify compliance with the licensee's TSs, ASME BPVC Section XI, and NEI 97-06, "Steam Generator Program Guidelines."

The inspectors reviewed the scope of the EC examinations, and the implementation of scope expansion criteria, to verify that these were consistent with the EPRI Pressurized Water Reactor Steam Generator Examination Guidelines, Revision 7. The inspectors reviewed documentation for a sample of EC data analysts, probes, and testers to verify that personnel and equipment were qualified to detect the applicable degradation mechanisms, in accordance with the EPRI Examination Guidelines. This review included a sample of site-specific Examination Technique Specification Sheets (ETSSs) to verify that their qualification and site-specific implementation were consistent with Appendix H or I of the EPRI Examination Guidelines. The inspectors also reviewed a sample of EC data for SG tubes A-R20C48, A-R16C25, C-R47C49, C-R25C18, and

C-R40C42, with a qualified data analyst to confirm that data analysis, and equipment configuration, were performed in accordance with the applicable ETSSs and site-specific analysis guidelines. The inspectors verified that recordable indications were detected and sized in accordance with vendor procedures.

The inspectors selected a sample of degradation mechanisms from the Unit 2 Degradation Assessment report (i.e., tube support wear), and verified that their respective in-situ pressure testing criteria were determined in accordance with the EPRI Steam Generator Integrity Assessment Guidelines, Revision 3. Additionally, the inspectors reviewed EC indication reports to determine whether tubes with relevant indications were appropriately screened for in-situ pressure testing. The inspectors also compared the latest EC examination results with the last Condition Monitoring and Operational Assessment report for Unit 2, to assess the licensee's prediction capability for maximum tube degradation, and number of tubes with indications. The inspectors verified that the licensee's evaluation was conservative, and that current examination results were bound by the Operational Assessment projections.

The inspectors assessed the latest EC examination results to verify that new degradation mechanisms, if any, were identified and evaluated before plant startup. The review of EC examination results included the disposition of potential loose part indications on the SG secondary side, to verify that corrective actions for evaluating and retrieving loose parts were consistent with the EPRI Guidelines. The inspectors also reviewed a sample of primary-to-secondary leakage data for Unit 2, to confirm that operational leakage in each SG remained below the detection or action level threshold during the previous operating cycle.

The inspectors' review included the implementation of tube repair criteria and repair methods, to verify they were consistent with plant TSs and industry guidelines.

The inspectors' review also included the implementation of tube repair criteria and repair methods, to verify they were consistent with plant TSs and industry guidelines. The inspectors verified that the licensee had selected the appropriate tubes for plugging based on the required plugging criteria. The inspectors reviewed the tube plugging procedure, and a sample of tube plugging results for SG 2C tubes R46C49 and R47C49, to determine if the licensee installed the tube plugs in accordance with the applicable procedures.

Furthermore, the inspectors interviewed licensee staff and reviewed a sample of inspection results for the inspection conducted in the secondary side internals of SGs A and C, to verify that potential areas of degradation based on site-specific operating experience (OE) were inspected, and appropriate corrective actions were taken to address degradation mechanisms. This review included the results of Foreign Object Search and Retrieval activities in both SGs, and an evaluation for a potential loose part in the secondary side of SGs A and C.

Identification and Resolution of Problems

The inspectors reviewed a sample of ISI-related issues entered into the CAP to determine if the licensee had appropriately described the scope of the problem, and had initiated corrective actions. The review also included the licensee's consideration and assessment of OE events applicable to the plant. This review included the Control Rod

Drive Mechanism seismic support plate inspection requirements per ASME Section XI, Table IWF 2500-1, Item F1.40, supports other than piping supports; and Section XI inspection requirements per Table IWE-2500-1 requirements for Item E1.30 Moisture Barriers. Corrective action documents were initiated for both of these sample areas and are included in the documents reviewed section of the Attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance

.1 Resident Inspector Quarterly Review

a. Inspection Scope

The inspectors reviewed a licensed operator performance on February 3, 2016, during a simulator scenario which involved loss of vital instrumentation for a pressurizer level channel failing low and a first state pressure channel failing low. This was followed by a subsequent small break loss of coolant accident, a manual reactor trip, and the requirement to manually borate because the automatic function failed. The scenario required classifications and notifications that were counted for NRC performance indicator input.

The inspectors observed the following elements of crew performance in terms of communications: (1) ability to take timely and proper actions; (2) prioritizing, interpreting, and verifying alarms; (3) correct use and implementation of procedures, including the alarm response procedures; (4) timely control board operation and manipulation, including high-risk operator actions; and (5) oversight and direction provided by the shift supervisor, including the ability to identify and implement appropriate TS actions. The inspectors observed the post training critique to determine that weaknesses or improvement areas revealed by the training were captured by the instructor and reviewed with the operators. Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings were identified.

.2 Quarterly Control Room Operator Performance Observations

a. Inspection Scope

During the inspection period, the inspectors conducted four observations of licensed reactor operators actions and activities to ensure that the activities were consistent with the licensee procedures and regulatory requirements. These observations took place during both normal and off-normal plant working hours. As part of this assessment, the inspectors observed the following elements of operator performance: (1) operator compliance and use of plant procedures including technical specifications; (2) control board/in-plant component manipulations; (3) use and interpretation of plant instruments, indicators and alarms; (4) documentation of activities; (5) management and supervision

of activities; and, (6) communication between crew members. The inspectors observed and assessed licensed operator performance during the following events:

- Unit 1, Control rod movement test on January 12, 2016
- Unit 1 and Unit 2, Observe work management, and plant configuration control on January 14, 2016
- Unit 1, Fuel oil transfer pump surveillance and Unit 2 Quench spray pump and valve stroke time testing on February 10, 2016
- Unit 2, shutdown on March 6, 2016

b. Findings

No findings were identified.

.3 Licensed Operator Regualification

a. Inspection Scope

The inspectors reviewed the facility operating history and associated documents in preparation for this inspection. During the week of January 25, 2016, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of operating tests associated with the licensee's operator requalification program. Each of the activities performed by the inspectors was done to assess the effectiveness of the facility licensee in implementing requalification requirements identified in 10 CFR Part 55, "Operators' Licenses." The evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and Inspection Procedure 71111.11, "Licensed Operator Requalification Program." The inspectors also evaluated the licensee's simulation facility for adequacy for use in operator licensing examinations using ANSI/ANS-3.5-1998, "American National Standard for Nuclear Power Plant Simulators for use in Operator Training and Examination." The inspectors observed two crews during the performance of the operating tests. Documentation reviewed included Job Performance Measures (JPMs), simulator scenarios, licensee procedures, on-shift records, simulator modification request records, simulator performance test records, licensed operator qualification records, remediation plans, watchstanding records, and medical records. The records were inspected using the criteria listed in Inspection Procedure 71111.11. Documents reviewed during the inspection are documented in the List of Documents Reviewed.

b. Findings

No findings were identified

1R12 Maintenance Effectiveness

a. Inspection Scope

For the four equipment issues listed below, the inspectors evaluated the effectiveness of the respective licensee's preventive and corrective maintenance. The inspectors performed walkdowns of the accessible portions of the systems, performed in-office

reviews of procedures and evaluations, and held discussions with licensee staff. The inspectors compared the licensee's actions with the requirements of the Maintenance Rule (10 CFR 50.65), and licensee procedure ER-AA-MRL-10, "Maintenance Rule Program," Rev 6. Other documents reviewed are listed in the Attachment to this report.

- CR1024849, "SBO EDG Sensing Lines Need Flushing"
- CR1027757, "Increasing vibrations on 1-CH-P-1A"
- CR1027869, "SBO diesel radiator fan motor replacement"
- CR1026632, "Spent fuel pool makeup from fire protection removed from service"

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated, as appropriate, the three activities listed below for the following: (1) effectiveness of the risk assessments performed before maintenance activities were conducted; (2) management of risk; (3) appropriate and necessary steps taken to plan and control the resulting emergent work activities upon identification of an unforeseen situation; and (4) adequate identification and resolution of maintenance risk assessments and emergent work problems. The inspectors verified that the licensee was in compliance with the requirements of 10 CFR 50.65 (a)(4) and the data output from the licensee's safety monitor associated with the risk profile of Units 1 and 2. The inspectors reviewed the corrective action program to verify that deficiencies in risk assessments were being identified and properly resolved.

- Emergent work for replacement of the positioner transmitter on the 2B S/G blowdown flash tank inlet flow control valve, (2-BD-FCV-202B) on January 6, 2016
- Emergent work to recalibrate the power range mismatch enabling the control rods to returned to automatic on February 11, 2016
- Emergent work for the recovery of five set screws from the instrument gauge used in the core up-flow modification project on March 24, 2016

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments

Operability and Functionality Review

a. Inspection Scope

The inspectors reviewed six operability determinations and functionality assessments, listed below, affecting risk-significant mitigating systems, to assess, as appropriate: (1) the technical adequacy of the evaluations; (2) whether continued system operability was warranted; (3) whether other existing degraded conditions were considered as compensatory measures; (4) whether the compensatory measures, if involved, were in

place, would work as intended, and were appropriately controlled; and (5) where continued operability was considered unjustified, the impact on TS Limiting Conditions for Operation and the risk significance in accordance with the Significant Determination Process (SDP). The inspectors' review included a verification that operability determinations (OD) were made as specified by procedure OP-AA-102, "Operability Determination," Rev 12. Other documents reviewed are listed in the Attachment to this report.

- Review of OD 000555, "2J Manual Emergency Stop Button Did Not Trip 1H EDG"
- Review of OD 3024939, "2J EDG Through Wall Oil Leak"
- Review of operability determination for CA3018583, "Emergency Diesel Generator Coolant Corrosion"
- Review of OD 000611, "Through Wall Leak Occurring on U1 2-RC-56-1502-Q1"
- Review of OD 000597, "Degraded Areva AMBW Fuel"
- Review of OD 3010028, "SW Spray MOV Shaft Extension Modification"

b. Findings

No findings were identified.

1R18 Plant Modifications

Permanent Modifications

a. Inspection Scope

The inspectors reviewed the one completed permanent plant modification design change packages listed below. The inspectors conducted a walkdown of the installation, discussed the desired improvement with system engineers, and reviewed the 10 CFR 50.59 Safety Review/Regulatory Screening, technical drawings, test plans and the modification package to assess the TS implications. Other documents reviewed are listed in the Attachment to this report.

- DC-NA-13-00016, "Station Service Bus to Emergency Bus Crosstie Installation"

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed six post maintenance test procedures and/or test activities, listed below, for selected risk-significant mitigating systems to assess whether: (1) the effect of testing on the plant had been adequately addressed by control room and/or engineering personnel; (2) testing was adequate for the maintenance performed; (3) acceptance criteria were clear and adequately demonstrated operational readiness consistent with design and licensing basis documents; (4) test instrumentation had current calibrations, range, and accuracy consistent with the application; (5) tests were performed as written with applicable prerequisites satisfied; (6) jumpers installed or

leads lifted were properly controlled; (7) test equipment was removed following testing; and (8) equipment was returned to the status required to perform in accordance with VPAP-2003, "Post Maintenance Testing Program", Rev 14.

- 1-BY-BC-1.1, "Commence PMs and replace AC/DC Breakers"
- 1-PT-82H, "Replace insulation Pads on 1H Emergency Diesel Generator"
- 2J emergency diesel generator start after periodic maintenance
- 1H emergency diesel generator start after six year maintenance
- 2H emergency diesel generator start after isolation relay replacement during U2 outage
- 2J emergency bus after cross tie modification during U2 outage

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities

Unit 1 Refueling Outage

a. Inspection Scope

The inspectors reviewed the Outage Safety Review (OSR) and contingency plans for the Unit 2 refueling outage, which began March 6, 2016, to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. The inspectors also confirmed that the licensee had mitigation/response strategies in place for any losses of key safety functions. Using NRC inspection procedure 71111.20, "Refueling and Outage Activities," the inspectors observed portions of the refueling, and maintenance activities to verify that the licensee maintained defense-in-depth commensurate with the outage risk plan and applicable TS. The inspectors monitored licensee controls over the outage activities listed below.

- Licensee configuration management, including daily outage reports, to evaluate maintenance of defense-in-depth commensurate with the OSR for key safety functions and compliance with the applicable TS when taking equipment out of service.
- Implementation of clearance activities and confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing.
- Installation and configuration of Reactor Coolant System instrumentation for system pressure, level, and temperature to provide accurate indication, and an accounting for instrument error.
- Implementation of licensee procedures for foreign material exclusion.
- Controls over the status and configuration of electrical systems to ensure that TS and outage safety plan requirements were met, and controls over switchyard activities.
- Controls to ensure that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system.
- Reactor inventory controls including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss.
- Controls over activities and SSCs which could affect reactivity.

- Fatigue management in accordance with meeting the rule requirements for each process.
- Refueling activities, including fuel handling operations (inspection, sipping, reconstitution and insertion), and fuel assemblies tracking, including new fuel, from core offload through core reload.
- Refueling activities, including fuel handling operations (inspection, sipping, reconstitution and insertion), and fuel assemblies tracking, including new fuel, from core offload through core reload.
- Controls over containment penetrations, per TS, such that containment closure could be achieved at all times.
- Licensee identification and resolution of problems related to refueling outage activities.
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the containment to verify that debris had not been left which could block emergency core cooling system strainers, and the review of reactor physics testing.

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the seven surveillance tests listed below, the inspectors examined the test procedures, witnessed testing, or reviewed test records and data packages, to determine whether the scope of testing adequately demonstrated that the affected equipment was functional and operable, and that the surveillance requirements of TS were met. The inspectors also determined whether the testing effectively demonstrated that the systems or components were operationally ready and capable of performing their intended safety functions.

In-Service Test:

- 2-PT-213.5J, "Valve Inservice Inspection (2-QS-MOV-201B – 'B' Quench Spray Pump Discharge Valve)," Rev 10

RCS Leakage:

- 1-GOP-52.2A, "Identifying Increased RCS Leakage," Rev 01

Containment Isolation Valve:

- 2-PT-57.5A, "Leak Rate Test of 2-SI-P-1A and Associated Piping and Inservice Inspection for 2-SI-6," Rev 21
- 2-PT-57.5B, "Leak Rate Test of 2-SI-P-1B and Associated Piping and Inservice Inspection for 2-SI-29," Rev 21

Other Surveillance Tests:

- 0-PT-100.6, "Fire Protection – Main Fire Loop Flow Test," Rev 6

- 1-PT-82.4A, "1H Diesel Generator Test (Start by ESF Actuation)," Rev 51-MR-1
- 2-PT-14.2, "Unit 2 1B Charging Pump," Rev 19

b. Findings

No findings were identified.

1EP6 Drill Evaluation

Emergency Preparedness (EP) Drill

a. Inspection Scope

On February 9, 2016, the inspectors reviewed and observed the performance of a drill that involved a General Area Emergency where a large break LOCA led to an offsite releases exceeding EPA PAG exposure levels. The inspectors assessed emergency procedure usage, emergency plan classification, notifications, and the licensee's identification and entrance of any problems into their corrective action program. This inspection evaluated the adequacy of the licensee's conduct of the drill and performance critique. Exercise issues were captured by the licensee in their corrective action program as CRs. Requalification training deficiencies were captured within the operator training program.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors performed a periodic review of the three Unit 1 and 2 PIs listed below to assess the accuracy and completeness of the submitted data and whether the performance indicators were calculated in accordance with the guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," Rev 7. The inspection was conducted in accordance with NRC inspection procedure 71151, "Performance Indicator Verification." Specifically, the inspectors reviewed the Unit 1 and Unit 2 data reported to the NRC for the period April 1, 2015 through March 31, 2016. Documents reviewed included applicable NRC inspection reports, licensee event reports, operator logs, station performance indicators, and related CRs.

- Unplanned Scrams per 7000 Critical Hours (IE01)
- Unplanned Transients per 7000 Critical Hours(IE03)
- Unplanned Scrams With Complications (IE04)

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution

.1 Review of Items Entered into the Corrective Action Program

As required by NRC inspection procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished by reviewing daily CR report summaries and periodically attending daily CR Review Team meetings.

.2 Annual Sample: Review of CR1030800 "FME Inspection of Long Handled Tool Working in Cavity"

a. Inspection Scope

The inspectors performed a review regarding the licensee's assessments and corrective actions for CR1030800, "FME Inspection of Long Handled Tool Working in Cavity," to ensure that the full extent of the issue was identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized. The inspectors also evaluated the CR against the requirements of the licensee's CAP as specified in licensee procedure, PI-AA-200, "Corrective Action Program," Rev 23 and 10 CFR 50, Appendix B.

b. Findings and Observations

No findings were identified. In general, the inspectors verified that the licensee had identified problems at an appropriate threshold and entered them into the CAP database, and had proposed or implemented appropriate corrective actions.

4OA3 Event Followup

a. Inspection Scope

(Closed) LER 05000338, 339/2016-001-00, Emergency Diesel Generators Automatic Start Due to Loss of Power to "C" Reserve Station Service Transformer

The inspectors followed up on actions taken in response to the autostart of the 1H and 2J emergency diesel generators on loss of C Reserve Station Service Transformer (RSST) resulting from the opening of the L102 breaker. The inspectors reviewed the problem resolution documents and the licensee actions taken to ensure appropriate corrective actions were specified and prioritized. Documents reviewed are listed in the Attachment to this report.

On January 23, 2016, with Unit 1 and 2 both in Mode 1 and at 100 percent power, switchyard breaker L102, supply to 34.5kV bus #3, tripped open on low gas pressure. This resulted in loss of "C" RSST which supplies "F" transfer and 2G intake structure 4160VAC buses. The 2G bus fast transferred to the 1G bus allowing all Unit 2 circulating water pumps to continue to run being supplied by Unit 1. The "F" transfer bus supplies

the 1H and 2J emergency buses. Their associated EDGs started and loaded to recover those buses.

The 1H bus was swapped to its alternate supply from 1B station service and the 1H EDG was shutdown and returned to auto standby. Limiting Conditions for Operation (LCO) (3.8.1) on Unit 1 was exited on January 24, 2016 at 1538.

The 2J EDG continued to power the 2J bus until repairs to L102 were completed and the Unit 2 72 hour LCO was exited on January 24, 2016 at 1802. L102 SF6 gas pressure switch was found defective and replaced.

The cause of the event was the inadvertent opening of the L102 breaker due to wind driven snow intrusion into the breaker cabinet. The preventive maintenance procedure was being revised to include an additional check for snow and moisture intrusion paths into cabinets and seal as appropriate for the breakers in question. The inspectors reviewed the Licensee Event Report (LER), the licensee's apparent cause evaluation, and corrective action documents to verify the accuracy of the LER and that the corrective actions were appropriate. This issue was entered in the licensee's corrective action program as CR1024928.

b. Findings

No findings or violations were identified.

4OA5 Other Activities

Contingency Plans for Licensee Strikes or Lockouts (IP 92709)

a. Inspection Scope

The inspectors reviewed the content of the licensee's strike contingency plans in response to the labor contract agreement between Dominion Virginia Power and the International Brotherhood of Electrical Workers set to expire on March 31, 2016, to determine if reactor operations, facility security, emergency preparedness and fire protection were to be maintained consistent with site technical specifications and regulatory requirements in the event of a strike.

The inspectors reviewed the process used by the licensee to train non-licensed personnel who could be performing functions they are not normally assigned. The inspectors also reviewed the licensee's nuclear business continuity plan and discussed this plan with licensee management to ensure there would be provisions to maintain site coverage for licensed operators, other workers to operate the site, and to implement the site emergency plan.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On April 13, 2016, the resident inspectors presented the quarterly inspection results to Mr. G. Bischof and other members of the staff. The licensee acknowledged the results of these inspections. The inspectors verified no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:

M. Becker, Manager, Nuclear Outage and Planning
G. Bischof, Site Vice President
B. Gaspar, Manager, Nuclear Site Services
R. Hanson, Manager, Nuclear Protection Services
E. Hendrixson, Director, Nuclear Site Engineering
L. Hilbert, Director, Nuclear Station Safety & Licensing
J. Jenkins, Manager, Nuclear Maintenance
P. Kemp, Supervisor, Station Licensing
J. Leberstien, Technical Advisor, Licensing
F. Mladen, Plant Manager
J. Plossl, Supervisor, Nuclear Station Procedures
J. Schleser, Manager, Nuclear Organizational Effectiveness
J. Slattery, Manager, Nuclear Operations
W. Standley, Manager, Nuclear Training
M. Whalen, Technical Advisor, Licensing

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

None

Closed

05000338, 339/2016-001-00	LER	Emergency Diesel Generators Automatic Start Due to Loss of Power to "C" Reserve Station Service Transformer (Section 4OA3)
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Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedure 0-GOP-4.2, "Extreme Cold Weather Operations," Rev 38

Procedure 0-GOP-4.2, "Extreme Cold Weather Operations," Attachment 4, "Safeguards Areas Actions for Extreme Cold Weather," Rev 38

Section 1R04: Equipment Alignment

1-PT-82J, "1J EMERGENCY DIESEL GENERATOR SLOW START TEST," Rev 56

2-PT-14.3, "CHARGING PUMP 2-CH-P-1C," Rev 51

2-PT-77.11, "CONTROL ROOM CHILLER 2-HV-E-4C PUMP AND VALVE TEST," Rev 42

Section 1R05: Fire Protection

Contingency plan – Fuel Building Hose Station – Hose House "E" Isolation

CM-AA-FPA-101, "Control of Combustible and Flammable Materials," Rev 8

CM-AA-FPA-102, "Fire Protection and Fire Safe Shutdown Review and preparation Process and Design Change Process," Rev 5

Hose House Contingency Plan to Facilitate Repair of Hydrant in Hose House "E"

Hose House Contingency Plan to Facilitate Repair of Hydrant in Hose House "E" (Added Snow Contingency)

Procedure 1-FS-DR-1, "Loss Prevention Fire Strategy, Unit 1 and 2 Emergency Diesel Engine Rooms," Rev 6

Procedure 2-FS-S-2, "Fire Fighting Preplan for Cable Vault and Tunnel and 280' Rod Drive, Unit 2 Safe Shutdown Equipment," Rev 11

Procedure 1-FS-T-1, "Loss Prevention Fire Strategy, Transformers – Unit 1," Rev 4

Procedure CM-AA-FPA-100, "Fire Protection/Appendix R (Fire Safe Shutdown) Program," Rev 10

Section 1R08: Inservice Inspection Activities

Procedures:

ER-AA-NDE-VT-300, Nuclear Fleet Nondestructive Examination Procedure, ASME Section XI Liquid Penetrant Examination Procedure, Revision 7

ER-AA-NDE-VT-603, Nuclear Fleet Nondestructive Examination Procedure, Visual Examination (VT-3) Visual Examination Procedure, Revision 4

ER-AA-NDE-VT-604, Nuclear Fleet Nondestructive Examination Procedure, Visual Examination for Leakage of PWR Reactor Head Penetrations, Revision 2

ER-AA-NDE-VT-605, Nuclear Fleet Nondestructive Examination Procedure, IWE Visual Examination Procedure, Revision 0

ER-AA-NDE-UT-812, Nuclear Fleet Nondestructive Examination Procedure, Manual Phased Array Ultrasonic Examination of Austenitic and FERRITIC Piping Welds, Revision 0

CH-87.200, Primary to Secondary Leakage Monitoring, Revision 6

CH-87.203, Primary to Secondary Leak Rate Calculation Using Tritium Analysis, Revision 5

ER-AA-NDE-125, Steam generator Tube Examination Independent Qualified Data Analyst Requirements and Responsibilities, Revision 1

ER-AP-SGP-103, Steam Generator Condition Monitoring and Operational Assessments, Revision 5

ER-AP-SGP-101, Steam Generator Program, Revision 10

I0004-07-000012, ZR-100 Installation, Calibration and Removal Procedure, Revision 11

NS-WKI-000006-07, Mechanical Tube Plug & Stabilization Procedure, Revision 0

NAP-SGPMS-001, North Anna Site Specific Eddy Current Analysis Guidelines Procedure, Revision 17

Drawings:

12050-FC-16A, Plan and Details El. 216-11, Sht. 1, Interior Conc. Reactor Cont., Area B-4, North Anna Power Station, Revision 3
 12050-FC-16AG, Plan & Details El. 216-11, Sheet 3. Interior Conc. Reactor Containment, Area D-4, Section 17-17, North Anna Power Station, Revision 3
 12050-WMKS-0103CB, Inservice Inspection Isometric RC Sys. 3" & 2" Loop 1 Drain Line North Anna Power Station Unit 2, Virginia Power, Revision 4

Self-Assessments:

SAR 002257, Inservice Inspection/Risk Informed Inservice Inspection Program Formal Self-Assessment, January 2014
 ETE-NA-2016-0007, Steam Generator Condition Monitoring and Operational Assessment, Revision 0
 ETE-NA-2014-0032, Steam Generator Condition Monitoring and Operational Assessment, Revision 0
 ETE-NA-2011-0076, Steam Generator Condition Monitoring and Operational Assessment, Revision 0
 ETE-NA-2016-00006 Steam Generator Degradation Assessment, Revision 0
 SAR001750, Steam Generator Program Formal Self-Assessment, February 2013
 SAR000359, Primary Chemistry Program, including S/U and S/D Chemistry, May 2008
 SAR001869, Primary to Secondary Leak Rate Program, November 2013
 SAR002162, Startup, Shutdown, and Transient Chemistry Strategies, March 2013
 SAR002670, North Anna Power Station Mid-Cycle Assessment, June 2014

Work Orders/Work Requests:

59102382441, Spacer Plate on the Unit-1 Reactor Head, Reference CR447611, 3/5/2012
 59102378464, Adjust CRDM Seismic Plates, Unit-2, Reference CR446711, 10/13/2011
 59102945579, Piping and Elbow Replacement, 02-RC-PP-2.00-RC-Pipe-455-1502Q1, 3/10/2016
 59102882718, Primary to Secondary Leak Rate Determination
 59102858557, North Anna Secondary Side Steam Drum 2A, 2C/7th Support Inspection

Condition Reports:

CR 1030792, White Material Observed on Unit-2 Reactor Vessel Closure Head during NRC Boric Acid Program Walkdowns, (NRC Identified) 3/17/2016
 CR1030594, Unit-2 CRDM Seismic Support Structure Not in the ISI Program, (NRC Identified) 3/15/2016
 CR1032764, Unit-1 CRDM Seismic Support Structure Not in the ISI Program, (NRC Identified) 4/4/2016
 CR1031351, Suspected leakage residue at inlet flange of 2RH-E-1B, (NRC Identified) 3/18/2016
 CR1030873, NRC Concern on the Containment Liner to Basemat Interface, (NRC Identified) 3/17/2016
 CR 1030015, Valve 1-SS-1019 Packing Leak, 3/11/2016
 CR 1030085, Valve 2-SS-TV-201B Inactive Boric Acid leak on Body/Bonnet, 3/12/2016
 CR 1030094, Dried Boric Acid on Insulation and Piping, 3/12/2016
 CR 1029889, Unacceptable UT Indication in Weld SW-65, "A" Cold Leg Loop Drain, 3/10/2016

CR 1029999, Work Order Request for Unit-2 Incore Thimble Tube Retraction, 3/11/2016
 CR 1030959, NRC 2R24 SGISI inspection (NRC Identified)
 CR 1030763, Identification Tag for Eddy Current Equipment Found in 2-RC-E-1C Bowl
 CR 567463, SGMP has issued Interim Guidance SGMP-IG-14-02
 CR 326926, Foreign Object found in "A" steam generator

NDE Examiner Quals:

Dominion, Supplemental NDE Personnel Certification Review Checklist, Level II, VT-1, VT-2 & VT-3, Examiner ID# 000-00-A2612, 1/22/2016
 Areva, Certificate of Personnel Qualification, VT-1, VT-2 & VT-3, with Bare Head Visual Special Qualifications, Examiner ID# A2612, 1/19/2016
 Dominion, Supplemental NDE Personnel Certification Review Checklist, Level II, PT Examiner, ID# 000-00-6325, 2/17/2016
 Dominion, Supplemental NDE Personnel Certification Review Checklist, Level II, UT Examiner, ID# 000-00-2333, 1/22/2016
 Dominion, Supplemental NDE Personnel Certification Review Checklist, Level II, UT Examiner, ID# 000-00-3094, 3/4/2016
 Curtis-Wright, Personnel Certification Statement LMT-QA-46, for ID# 000-00-2333, 1/15/2016
 Curtis-Wright, Personnel Certification Statement LMT-QA-46, for ID# 000-00-3094, 9/22/2015
 Curtis-Wright, Hands on Practice Verification for ID# 000-00-2333, 1/14/2016
 Curtis-Wright, Hands on Practice Verification for ID# 000-00-3094, 3/2/2016
 Curtis-Wright, Certification of Visual Acuity and Color Vision, for J. Gatica, 1/14/2016
 ITLS, Vision Acuity Certification, NDE Examiner ID# 000-00-A2612, 2/13/2016
 Dominion, Certification of Vision Examination, C. Morgan, 7/16/2015

Miscellaneous Documents:

ASME Boiler and Pressure Vessel Code, 2004 ed. (no addenda)
 Certificate of Certification, Spotcheck Penetrant, SKL-SP2, 1/25/2012
 Certificate of Certification, Spotcheck Developer, SKD-S2, 6/20/2014
 Certificate of Certification, Spotcheck, SKC-S, 10/30/2013
 Certificate of Calibration #153531042HMCY, AEMC Instruments Model CA-811 Light Meter, SN 1042HMCY, 12/19/2015
 Measuring and Test Equipment Calibration Certificate, Digital Thermometer, Model 32322-K, ATK-4, 2/17/2016
 Non-destructive Examination (NDE) Report No. VE-16-001, Component ID, 12050-WMKS-0103CB/2-RC-445/SW-65, 3/10/2016
 Non-destructive Examination (NDE) Report No. VE-16-004, Component ID, 12050-WMKS-RC-1.2/2-RC-R-1 RPVH and Nozzles, 3/22/2016
 Non-destructive Examination (NDE) Report No. VE-16-012, Component ID, 12050-WMKS-RC-1.5/2-RC-R-1 CRDM Platform, 3/27/2016
 Non-destructive Examination (NDE) Report No. VE-16-013, Component ID, 12050-WMKS-RC-1.5/2-RC-R-1 CRDM Platform, 3/27/2016
 Non-destructive Examination (NDE), Visual Examination of IWE Surfaces, North Anna -2, Summary No. N2.E1.11.279, N2E1.30.001, WO-59102895823, 3/15/2016
 NDE Report No. VT-16-007, Component ID, 12050-WMKS-0111Y/3CH-479/R-7, 4/1/2016
 NDE Report No. PT-16-003, Component ID, 12050-WMKS-0103CB/2-RC-455/SW-64, 3/12/2016
 NDE Report No. PT-16-001, Component ID, 12050-WMKS-0103CB/2-RC-455/SW-65, 3/12/2016

North Anna Nuclear Plant Component Information, Summary No. N2.F1.40.097, Component ID, 12050-WMKS-RC-R-1.5/2-RC-R-1/CRDM Platform, Schedule Works Entry, 4/1/2016
 North Anna Nuclear Plant Component Information, Summary No. N1.F1.40.102, Component ID, 11715-WMKS-RC-R-1.5/1-RC-R-1/CRDM Platform, Schedule Works Entry, 4/2/2016
 Dominion Ultrasonic Instrument Linearity Check, Zetec Serial Number (SN) 637401, with Transducer SN# 024LN5, 3/16/2016
 Krautkramer Transducer Certificate of Conformity, SN# 01CWK2, Revision D
 Eddy Current Analysts: J5670, C9813, G7081, B5371, R1509, N5330, B9540, S7752, A9574, K2858, G4841, and C3274
 Probes S/N 663062, 663071, 663072, 663063, and 693545
 Calibration Standards ASME S/N 1696, 9103643, 9103645, 1396, and EDM 503399
 EPRI Eddy Current Examination Technique Specification Sheets 96041.1, 10908.4, 96004.1, 96910.1, 21998.1, 96005.2, 21998.1, and 99998
 Health Report, Steam Generator, Q1-2016
 Instrument miz80iD S/N 540462, 648201, 166
 Miz-80iD Installation and Operation Manual, 2010
 S000162.01-TECR-000001, EPRI App. H/I Eddy Current Technique Validation, Unit 2, 2R24, Revision 0
 S000162.01-WKP-000003, North Anna SG Inspection Plan, Unit 2, 2R24, 2016
 Certificate for secondary side visual inspection and FOSAR Technician, H5064, B9111
 Site Eddy Current Examination Technique Specification Sheets 1, 2, 3, 4, and 7 for Bobbin and RPC probes

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

Procedure 0-MCM-0703-03, "Emergency Generator Storage Tank 1-EG-TK-2B Inspection and Cleaning", Rev 2
 Procedure 0-PT-89.4B, "Underground Diesel Fuel Oil Storage Tank 1-EG-TK-2B Draining, Cleaning, and Inspecting", Rev 8
 Procedure 1-OP-6.8A, "Valve Checkoff – Emergency Generator Fuel Oil System", Rev 6

License Reactivation Packages (complete records for four licensed operators)
 Remedial Training Packages (complete records for sixteen licensed operators)
 Remedial Training Exams (two exams)
 Simulator Work Orders (last two years of records)
 Medical Packages (completed 12 records)
 Attendance records (shift E)

Written Examinations:

2015 A Shift Part A Written Exam
 2015 A Shift Part B Written Exam
 2015 D Shift Part A Written Exam
 2015 D Shift Part B Written Exam

Procedures:

OP-AA-103, Operator Qualifications, Revision 6
 TR-AA – 100, Analysis, Revision 13
 TR-AA – 101, Conduct of Training, Revision 5
 TR-AA – 200, Design, Revision 5
 ADM-TR-AA – 300, Development, Revision 12

ADM-TR-AA – 310, Just – In – Training, Revision 3
 TR-AA – 400, Implementation, Revision 17
 TR-AA-710, NRC Exam Security Requirements, Revision 4
 TR-AA-730, Licensed Operator Biennial and Annual Operating Requalification Exam Process, Revision 8
 TR-AA-740, Administrative Requirements for Application and Maintenance of Operator Licenses, Revision 1
 TR-AA-750, Conduct of Simulator Training and Evaluation, Revision 6
 TR-AA-SIM-100, Simulator Modification Process, Revision 5
 TR-AA-SIM-101, Simulator Configuration Control Committee, Revision 2
 TR-AA-SIM-200, Simulator Hardware Management, Revision 4
 TR-AA-SIM-300, Simulator Software Management, Revision 3
 TR-AA-SIM-400, Simulator Performance Testing, Revision 6

Simulator Records:

NA-ANS-00, Performance Operability Steady State Test (100%, 74%, 29%), Revision 0
 Scenario-Based Testing for SXG-5
 2015 Transient Test 0-NA-ANS-05
 2015 Transient Test 0-NA-ANS-06
 2015 Transient Test 0-NA-ANS-07
 2015 Transient Test 0-NA-ANS-08
 2015 Transient Test 0-NA-ANS-09

Condition Reports:

ACE 019803
 ACE 019737
 ACE 019906
 CR 538653
 CR 578841
 CR 1009994
 RCE 001115
 LER 50-339/2014-001-00
 LER 50-339/2015-001-00
 LER 50-338/2015-003-00

Scenario Packages:

LORP Session 16-1 Training Scenario
 SXG-5, E Shift Evaluated Scenario, Revision 9
 SXG-42, E Shift Evaluated Scenario, Revision 8
 SXG-20, D Shift Scenario, Revision 13
 SXG-43, D Shift Scenario, Revision 4
 SXG-12, B Shift Scenario, Revision 13
 SXG-39, B Shift Scenario, Revision 5

JPMS:

2016, A shift, Unit 2 N1585
 2016, A shift, S94.4
 2016, A shift, N1046

2016, A shift, N128
 2016, A shift, R706 / 15779
 2016, D shift, N1584
 2016, D shift, S94.5
 2016, D shift, R477
 2016, D shift, N907
 2016, D shift, R214 / 13368

Section 1R12: Maintenance Effectiveness

Alarm Response Procedure, 1-AR-E-C5, "SFP Hi/Hi-Hi Temp," Rev 1
 CR1024849, "SBO EDG Sensing Lines Need Flushing"
 CR1027757, "Increasing vibrations on 1-CH-P-1A"
 CR1027869, "SBO diesel radiator fan motor replacement"
 CR1026632, "Spent fuel pool makeup from fire protection removed from service"
 High Risk Contingency Plan Actions, "Spent Fuel Pool (SFP) will have both trains of Spent Fuel Pool Cooling tagged out to support maintenance activities", dated January 12, 2016
 Procedure 0-AP-27, "Malfunction of Spent Fuel Pit System," Rev 25
 Procedure 2-OP-3.7, "Unit Shutdown from Mode 1 to Mode 5 for Refueling," Rev 45
 Procedure ER-AA-SYS-1003, "System Performance Monitoring," Rev 5
 Procedure 0-MOP-16.06, "Removal and Return to Service of Spent Fuel Cooling System for Maintenance," Rev 4
 SDBD-NAPS-FC, "Fuel Pool Cooling and Purification System, North Anna Power Station, System Design Basis Document," Rev 12
 System Health Report Q1 2016, "FC-Fuel Pit Cooling"

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

CR1007570, "Possible binding on Unit 2 'A' main feed reg valve feedback linkage"
 CR1027278, "TREF Adjustment Procedures need evaluation for future use at full reactor power"
 CR1027299, "Unit 2 'C' Main Feed Regulating valve operates erratically when in manual"
 Procedure 2-ICP-RC-T-2409D, "Power Mismatch Calibration," Rev 1
 Procedure 2-ICP-RC-T-2409D, "Power Mismatch Calibration," Implemented October 1, 2011
 Procedure 2-ICP-RC-T-2490D, "Power Mismatch Calibration," Implemented February 11, 2016
 Procedure 2-OP-3.7, "Unit Shutdown From Mode 1 to Mode 5 for Refueling," Rev 45

Section 1R15: Operability Determinations and Functionality Assessments

CA 3010028, "SW Spray MOV Shaft Extension Modification"
 CA 3018583, "Emergency Diesel Generator Coolant Corrosion"
 CA3019106, "ODCA: Perform and document inspection findings - for OD 3018583 - EDG corrosion inhibitor impact"
 CA3022660, "Engineering to revise OD CA3018583 based on as-found inspection results (CAP review added)"
 CR1021412, "EDG liner coating and cooling water chemical incompatible"
 CR1025885, "Found cylinder liner corrosion resistant coating (Herisite) degraded"
 Engineering Transmittal ET-N-06-0074, "Emergency Diesel Generator Engine Coolant Later Leak", Rev 0
 OD 000555, "2J Manual Emergency Stop Button Did Not Trip 1H EDG"
 OD 000597, "Degraded Areva AMBW Fuel"
 OD 000611, "Through Wall Leak Occurring on U1 2-RC-56-1502-Q1"
 OD 3024939, "2J EDG Through Wall Oil Leak"

Section 1R18: Plant Modifications

DC-NA-13-00016, "Station Service Bus to Emergency Bus Crosstie Installation"

WO59102618520, "Station Service Bus to Emergency Bus Crosstie Installation"

Section 1R19: Post Maintenance Testing

WO 59102940588, "2J EDG emergency diesel generator fast start after periodic maintenance"

WO 59102654900, "1H emergency diesel fast start after six year maintenance"

Section 1R22: Surveillance Testing

Calculation SE-0008, "Head Loss Calculation for the Main Fire Loop Flow Test 1-PT-100.6," Rev 0

Calculation SE-0008, Addendum C, "Acceptance Criteria with Unit 3 and 4 Piping Removed from the Flow Paths," Rev 0

Procedure 0-PT-100.6, "Fire Protection – Main Fire Loop Flow Test," Rev 6

Procedure 0-PT-100.6-OTO1, "Fire Protection – Main Fire Loop Flow Test," performed February 4, 2016

Procedure 1-PT-82.4A, "1H Diesel Generator Test (Start by ESF Actuation)," Rev 51-MR1

2-PT-14.2, "Unit 2 1B charging pump," Rev 19

Procedure 2-PT-36.7.1, "Engineered Safety Features and Containment Isolation Valve Response Time," Rev 23

Procedure 2-PT-57.5A, "Leak Rate Test of 2-SI-P-1A and Associated Piping and Inservice Inspection for 2-SI-6," Rev 21

Procedure 2-PT-57.5B, "Leak Rate Test of 2-SI-P-1B and Associated Piping and Inservice Inspection for 2-SI-29," Rev 21

Procedure 2-PT-213.5J, "Valve Inservice Inspection (2-QS-MOV-201B)," Rev 10

Technical Procedure Approval to 0-PT-100.6, "Made changes as necessary to perform test with D Hose House isolated," Approved February 3, 2016

Work Orders 59102871,73, "Valve Inservice Inspection (2-QS-MOV-201B)"

Work Order 59102779093, "Valve Inservice Inspection (2-SI-29)"

Work Order 59102782524, "Valve Inservice Inspection (2-SI-6)"

1EP6 Drill Evaluation

NFEB16 BE, "Biennial Exercise, North Anna Power Station"

4OA3 Event Followup

CR 1024928, "Breaker L102 Tripped Open Causing Loss of C RSST."

LER 05000338/2016-001-00: "Autostart of 1H and 2J emergency diesel generators on loss of C RSST resulting from the opening of the L102 breaker."