UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

August 25, 2008

Mr. David A. Christian
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 05000338/2008003, 05000339/2008003, AND 07200056/2008003

Dear Mr. Christian:

On June 30, 2008, the U. S. Nuclear Regulatory Commission (NRC) completed an inspection at your North Anna Power Station Units 1 and 2. The enclosed integrated inspection report documents the inspection findings which were discussed on July 9, 2008 and July 30, 2008 with Mr. Daniel Stoddard, and on August 22, 2008 with other members of your staff.

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

Based on the results of this inspection, one self-revealing finding of very low safety significance (Green) was identified which involved a violation of NRC requirements. Additionally, one licensee-identified violation which was determined to be of very low safety significance is listed in this report. NRC is treating these violations as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy because of the very low safety significance of the violations and because they were entered into your corrective action program. If you contest these non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II, the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the North Anna Power Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if any, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Mark A. Bates, Acting Chief
Reactor Projects Branch 5
Division of Reactor Projects

Docket Nos. 50-338, 50-339
License Nos. NPF-4, NPF-7

Enclosure: Inspection Report 05000338/2008003, 05000339/2008003, and 07200056/2008003
w/Attachment: Supplemental Information

cc w/encl. (See next page)

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Report to D. A. Christian from M. A. Bates dated August 25, 2008.

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REGION II

Docket Nos:	50-338, 50-339, 72-056
License Nos:	NPF-4, NPF-7
Report No:	05000338/2008003, 05000339/2008003, 07200056/2008003
Licensee:	Virginia Electric and Power Company (VEPCO)
Facility:	North Anna Power Station, Units 1 & 2
Location:	1022 Haley Drive Mineral, Virginia 23117
Dates:	April 1, 2008 to June 30, 2008
Inspectors:	J. Reece, Senior Resident Inspector R. Clagg, Resident Inspector R. Moore, Senior Reactor Inspector, Section 4OA5.1 C. Peabody, Reactor Inspection, Section 1R17 C. Even, Reactor Inspector, Section 1R17 G. Gardner, Reactor Inspector, Section 1R17 K. Miller, Reactor Inspector, Section 1R17 J. Helm, Reactor Inspector, Section 1R17
Approved by:	M. A. Bates, Acting Chief Reactor Projects Branch 5 Division of Reactor Projects

Enclosure

CONTENTS

SUMMARY OF FINDINGS

IR 05000338/2008-003, 05000339/2008-003; 04/01/2008 – 06/30/2008; North Anna Power Station, Units 1 and 2. Routine Integrated Resident and Regional Report.

The report covered a three month period of inspection by resident inspectors and reactor inspectors from the region. One Green finding, which was a non-cited violation (NCV), was Identified, and one licensee identified violation which was determined to be of very low safety significance are listed in this report. The significance of most findings is identified by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process" Revision 4, dated December, 2006.

A. NRC Identified and Self-Revealing Findings

Green. A Green self-revealing non-cited violation of Technical Specification (TS) 5.4.1.a was identified for failure to adequately establish procedural requirements for repair of the Unit 1 '1H' emergency diesel generator (EDG) air start check valves. The licensee entered this problem into their corrective action program as condition report 098146, revised the procedure, and successfully completed repairs to the '1H' EDG.

The finding was more than minor because it directly impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the related attribute of procedure quality in that the procedure failed to ensure air start check valves were properly assembled following maintenance. The inspectors reviewed IMC 0609, Appendix A, and determined that the finding was of very low safety significance (Green) because it did not result in a loss of operability due to a design or qualification deficiency, did not represent an actual loss of safety function, did not result in a train being out of service longer than allowed by TS, and was not potentially risk significant due to possible external events. (Section 1R12)

B. Licensee-Identified Violations.

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

REPORT DETAILS

Summary of Plant Status

Unit 1 and 2 began the period at full Rated Thermal Power (RTP) and operated at or near full RTP for the entire report period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors reviewed the licensee's adverse weather preparations for hot weather operations, specified in 0-GOP-4.1, Rev 23, 07/10/08, "Hot Weather Operations," and the licensee's correction action data base for hot weather related issues. The inspectors walked down the two risk-significant areas listed below to verify compliance with the procedural requirements and to verify that the specified actions provided the necessary protection for the structures, systems, or components.

- Unit 1 & 2 auxiliary feedwater (AFW) pump rooms;
- Unit 1 & 2 quench spray (QS) pump rooms; and
- Unit 1 outside recirculation spray (RS) and low head safety injection (LHSI) pump room.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial Walkdown

a. Inspection Scope

The inspectors conducted four equipment partial alignment walkdowns to evaluate the operability of selected redundant trains or backup systems, listed below, 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 that critical components were properly aligned and to identify any discrepancies which could affect operability of the redundant train or backup system.

- Unit 2 '2J' Emergency Diesel Generator (EDG) and support systems during planned maintenance on '2H' EDG;
- Unit 1 '1H' EDG during planned maintenance on '1J' EDG;
- Unit 1 '1J' EDG and support systems during planned maintenance on '1H' EDG; and,
- Unit 1 'B' LHSI pump during planned maintenance on 'A' LHSI pump and related valves.

b. Findings

No findings of significance were identified.

.2 Complete Walkdown

a. Inspection Scope

The inspectors performed a detailed walkdown and inspection of the Unit 1 'A' Train outside RS system components external to containment to assess proper alignment and to identify discrepancies that could impact its availability and functional capacity. The inspectors assessed the physical condition and position of each recirculation spray and casing cooling valve, whether manual, power operated or automatic to ensure correct positioning of the valves. The inspection also included a review of the alignment and the condition of support systems including fire protection, room ventilation, and emergency lighting. Equipment deficiency tags were reviewed and the condition of the system was discussed with the engineering personnel.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors conducted tours of the eight areas listed below that are important to reactor safety to verify the licensee's implementation of fire protection requirements as described in Virginia Power Administrative Procedure VPAP-2401, Rev 28, 12/14/07, "Fire Protection Program." 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.

- Emergency Diesel Generator 2H Unit 2 (fire zone 9A-2a / EDG-2H);
- Emergency Switchgear Room Unit 1 (fire zone 6-1a / ESR-1);
- Emergency Switchgear Room Unit 2 (fire zone 6-2a / ESR-2);
- Emergency Diesel Generator 2J Unit 2 (fire zone 9B-2a / EDG-2J);

- Motor-Driven Auxiliary Feedwater Pump Room Unit 1 (fire zone 14B-1a / MDAFW-1);
- Turbine-Driven Auxiliary Feedwater Pump Room Unit 1 (fire zone 14A-1a / TDAFW-1)
- Turbine-Driven Auxiliary Feedwater Pump Room Unit 2 (fire zone 14A-2a / TDAFW-2); and,
- Motor-Driven Auxiliary Feedwater Pump Room Unit 2 (fire zone 14B-2a / MDAFW-2).

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

a. Inspection Scope

The inspectors reviewed a crew examination that involved a reactor coolant system (RCS) leak with a partial loss of annunciators, a loss of instrument air outside containment, a failure of 1-RC-PT-1554 that fails open a pressurizer power operated relief valve (PORV), and a rod ejection resulting in a small break loss of coolant accident (LOCA). The inspectors observed crew performance in terms of communications; ability to take timely and proper actions; prioritizing, interpreting, and verifying alarms; correct use and implementation of procedures, including the alarm response procedures; timely control board operation and manipulation, including high-risk operator actions; and 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.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

For the four equipment issues listed below, the inspectors evaluated the effectiveness of the corresponding 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 system engineers. The inspectors compared the licensee's actions with the requirements of the Maintenance Rule (10 CFR 50.65) using ER-AA-MRL-10, Rev 2, 12/18/07, "Maintenance Rule Program," and Engineering Transmittal CEP-97-0018, Rev 12, 08/04/99, "North Anna Maintenance Rule Scoping and Performance Criteria Matrix."

- Condition report (CR) 099531, “A MRule Evaluation was not assigned for CR091536” and respective MRE006778, “MRule Eval to Eng for 1-EE-BKR-1J1-1-F2 contactor failed;”
- CR096110, “1A leak to “B” water box vacuum breakers,” for maintenance issues concerning Unit 2 Condenser Outlet Waterbox vacuum break;
- CR098146, “During maintenance run #8 air start check valve supply pipe to header melted at fitting,” and respective MRE006709, “MRule; #8 Air Start Ckvalve Supply Pipe to header melted at fitting;" and,
- CR091169, "2-SW-P-1B Automatically tripped," and respective MRE006467, "MRule evaluation: 2-SW-P-1B Automatically tripped."

b. Findings

Introduction: A self-revealing, Green, non-cited violation (NCV) of TS 5.4.1.a was identified for the failure to adequately establish procedural requirements for repair of the Unit 1 ‘1H’ EDG air start check valves.

Description: On May 7, 2008, during a maintenance run of the '1H' EDG following activities associated with a scheduled 80 hour maintenance outage, the air start check valve associated with the #8 cylinder stuck open. This allowed combustion gas into the air start header, subsequently causing it to rupture due to heating of the soldered joints. An evaluation by the licensee determined that the self-locking nut associated with the #8 cylinder air start check valve had disengaged from the threaded check valve shaft and was oriented in such a way as to prevent the check valve from reseating. Further evaluation by the licensee determined that the self locking nuts were consumable items that were intended to be replaced with new self-locking nuts after each use. The licensee determined that maintenance procedure O-MCM-0701-14, Rev 5, 05/12/06, “Repair of Emergency Diesel Generator Air Start Check Valves,” was inadequate in that it did not include guidance to treat the self locking nuts as consumable items. The licensee revised maintenance procedure, 0-MCM-0701-14 and completed repairs to the air start check valve and air start header. The licensee also conducted inspections of the remaining air start check valves and returned the '1H' EDG to an operable status on May 10, 2008.

Analysis: The inspectors determined that the failure to adequately establish procedural requirements for repair of the ‘1H’ EDG air start check valves was a performance deficiency. The finding was more than minor because it impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the related attribute of procedure quality in that the procedure failed to ensure air start check valves were properly assembled following maintenance. The inspectors reviewed IMC 0609, Appendix A, and determined that the finding was of very low safety significance (Green) because it did not result in a loss of operability due to a design or qualification deficiency, did not represent an actual loss of safety function, did not result in a train being out of service longer than allowed by TS, and was not potentially risk significant due to possible external events.

Enforcement: TS 5.4.1.a, requires, in part, that written procedures shall be established, implemented and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A. Specifically, Section 9 requires, in part, that maintenance that can affect the performance of safety-related equipment should be properly performed in accordance with written procedures and documented instructions appropriate to the circumstances. Licensee procedure O-MCM-0701-14, "Repair of Emergency Diesel Generator Air Start Check Valves," Rev 5, 05/12/06, contains instructions for rebuilding EDG air start check valves. Contrary to this, the licensee failed to adequately establish appropriate procedural requirements in 0-MCM-0701-14 in that the procedure did not contain instructions to replace the consumable, self-locking nuts for the air start check valves. Because the finding is of very low safety significance and because it has been entered into the licensee's corrective action program (CAP) as CR098146, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000338/2008003-01, Failure to Adequately Establish Procedural Requirements for Air Start Check Valve Maintenance for the '1H' EDG.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated, as appropriate, the four activities listed below for the following: (1) effectiveness of the risk assessments performed before maintenance activities were conducted; (2) management of risk; (3) upon identification of an unforeseen situation, necessary steps were taken to plan and control the resulting emergent work activities; and (4) maintenance risk assessments and emergent work problems were adequately identified and resolved. The inspectors verified that the licensee was complying 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.

- Emergent work on "1H" EDG due to #8 cylinder air start check valve failure resulting in the extension of a maintenance outage, but overall risk remained Green;
- Emergent work for instrument air leak to 'B' water box vacuum breakers; overall risk remained Green;
- Emergent entry into 0-AP-41, Rev 39, 06/06/08, "Severe Weather Conditions," due to a tornado watch which when combined with other unavailable equipment resulted in a yellow risk condition;
- Emergent work due to failure of '1H' EDG battery charger; overall risk remained Green.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed six operability evaluations affecting the risk-significant mitigating system, listed below, 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 compensating 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 Significance Determination Process (SDP). The inspectors' review included a verification that determinations of operability were made as specified by procedure VPAP-1408, Rev 4, 05/28/08, "System Operability."

- CR093429, review of OD000158, "Evaluate leak by of terry turbine steam supply valve;"
- CR092489, review of OD000154, "Deflected Control Rods on 2-SW-REJ-24E;"
- CR092894, review of OD000156, "Evaluate wall thickness;"
- CR091976, review of OD000152, "Perform OD for required actions on battery chargers," relative to EDGs during high winds and cold ambient conditions;
- CR098251, "1H EDG air stop check valve supply fitting failure – common cause failure review;" and,
- CR091896, review of OD000151, "#1 seal o-rings installed in 1-B RCP exceeded 6 year life on o-rings."

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed selected samples of evaluations to confirm that the licensee had appropriately considered the conditions under which changes to the facility, UFSAR, or procedures may be made, and tests conducted, without prior NRC approval. The inspectors reviewed evaluations for eight changes and additional information, such as drawings, calculations, supporting analyses, the UFSAR, and TS to confirm that the licensee had appropriately concluded that the changes could be accomplished without obtaining a license amendment. The eight evaluations reviewed are listed in the Attachment to this report.

The inspectors reviewed samples of changes for which the licensee had determined that evaluations were not required, to confirm that the licensee's conclusions to "screen out" these changes were correct and consistent with 10 CFR 50.59. The twenty-three "screened out" changes reviewed are listed in the Attachment to this report.

The inspectors evaluated engineering design change packages (DCPs) for fourteen material and design based modifications to evaluate the modifications for adverse effects on system availability, reliability, and functional capability. The fourteen modifications and the associated attributes reviewed are as follows:

DCP-99-003, Fuel Assembly Repair, 4/15/1999 (Barrier Integrity)
- Materials/Replacement Components
- Structural
- Licensing Basis
- Failure Modes

DCP-99-169, Charging Pump Upgrades, 1/27/2000 (Mitigating Systems)
- Materials/Replacement Components
- Failure Modes
- Licensing Basis
- Operations

DCP-01-160, Replacement of Vital Bus Inverters 1-III & 1-IV, 12/02/2005 (Mitigating Systems)
- Energy Needs
- Control Signals
- Operations
- Licensing Basis

DCP-01-162, Replacement of Vital Bus Inverters 2-III and 2-IV, 4/28/05, (Mitigating Systems)
- Energy Needs
- Material/Replacement Components
- Operations
- Structural
- Licensing Basis

DCP-02-015, Pump Modifications to Support Operation with Low Lake Anna Level, 10/24/2002 (Mitigating Systems)
- Process Medium
- Operations

DCP-02-016, Revision to Lake Anna Minimum Level, 3/24/2004 (Mitigating Systems)
- Operations
- Licensing Basis
- Structural

DCP-02-161, Emergency Diesel Fuel Oil Drain Header Replacement, 10/2/2002
- Energy Needs
- Materials/Replacement Components
- Structural

DCP 04-150, Install Manual Switch to Close Fire Protection Dampers in Unit 1&2 Emergency Switchgear Rooms, 1/13/05 (Mitigating Systems)
- Materials/Replacement Components
- Energy Needs
- Operations

DCP-05-007, Design Basis for North Anna Spent Fuel 100-hour Core Offload, 10/6/2005 (Barrier Integrity, Mitigating Systems)
- Heat Removal
- Licensing Basis

DCP-05-112, Replace FW Temperature RTDs and Re-scale Loop, 01/11/2006 (Mitigating Systems)
- Energy Needs
- Control Signals
- Process Medium
- Licensing Basis

DCP-05-117, Removal of Spare 7300 Process Cards, 6/1/05, (Initiating Events)
- Control Signals
- Licensing Basis
- Failure Modes

DCP-05-143, Relocation of Switchyard Breaker H502, and Replacement of Switchyard Breakers G1TH5 and G102, 02/07/2006 (Mitigating Systems)
- Energy Needs
- Timing
- Materials/Replacement Components
- Licensing Basis

DCP-06-138, Control Room Recorder Replacement, 12/14/2006 (Mitigating Systems)
- Energy Needs
- Process Medium
- Licensing Basis

DCP-07-155, CO_2 Fire Protection System Design Zone 2-2 Nozzle Replacement (Mitigating Systems)
- Materials/Replacement Components
- Energy Needs
- Equipment Protection
- Operations
- Licensing Basis

Documents reviewed included procedures, engineering calculations, modification design and implementation packages, work orders, site drawings, corrective action documents, applicable sections of the updated UFSAR, supporting analyses, Technical Specifications, and design basis information. The inspectors additionally reviewed test documentation to ensure adequacy in scope and conclusion. The inspectors verified

that all changes were incorporated in licensing and design basis documents and associated plant procedures.

The inspectors also reviewed selected corrective action documents and the licensee's recent self-assessments associated with modifications and 10 CFR 50.59 screening / evaluation issues to verify that problems were identified at an appropriate threshold, were entered into the corrective action process, and appropriate corrective actions had been initiated and tracked to completion.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

The inspectors reviewed six post maintenance test procedures and/or test activities, as appropriate, 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) test 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 licensee procedure VPAP-2003, Rev 12, 05/01/07, "Post Maintenance Testing Program."

- WO 00798652-01, Obtain samples per engineering 3A Heat and Vent Exhaust Filter Bank;
- WO 00767749-01, Replace pump/motor assembly;
- WO 00804803-01 & 01A, Clean contacts on K1 relay;
- WO 00801938, Unit 2 2-SW-P-1A uncouple, couple replace seal;
- WO 00782951, Unit 2 1C Charging Pump Lube Flex Couplings – Clean Lube Oil Coolers; and,
- WO 00790617-01, Replace MOT on 1J EDG.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the eight surveillance tests listed below, the inspectors examined the test procedure, witnessed testing, 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. The inspectors reviewed four in-service testing activities for a risk significant pump or valve as part of the surveillance activities.

In-Service Test:

- 1-PT-63.1A.2, "Quench Spray System – "A" Subsystem Comprehensive Pump Test," Revision 12;
- 2-PT-213.7B, "Valve Inservice Inspection ("B" Train of Recirc Spray System)," Revision 12;
- 2-PT-64.4B.2, "Casing Cooling Pump (2-RS-P-3B) Biennial IST Comprehensive Pump Test," Revision 3;
- 1-PT-71.3Q.1, "1-FW-P-3B, B Motor-Driven AFW Pump IST Comprehensive Pump Test and Valve Testing," Revision 3;
- 2-PT-75.2B, "Service Water Pump (2-SW-P-1B) Quarterly Test," Revision 48; and,
- 2-PT-14.1, "Charging Pump 2-CH-P-1A," Revision 44.

Other Surveillance Tests:

- 2-PT-33.10, "Reactor Trip System Channel Operational Test for Reactor Coolant Pump Bus 2A Underfrequency," Revision 9; and,
- 2-PT-33.7, "Reactor Trip System Channel Operational Test for Reactor Coolant Pump Bus 2A Undervoltage," Revision 10.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors reviewed the licensee's procedures for developing the data for the Barrier Integrity PI which are: (1) RCS Specific Activity; and (2) RCS Leakage. The inspectors examined data reported to the NRC for the period April 2007 through March

2008. Procedural guidance for reporting PI information and records used by the licensee to identify potential PI occurrences were also reviewed for both units. The inspectors reviewed the licensee event reports, corrective action program documents, and maintenance rules records as part of the verification process. The inspection was conducted in accordance with NRC Inspection Procedure 71151, "Performance Indicator Verification." The applicable planning standards, 10 CFR 50.0 and NEI 99-02, "Regulatory Assessment Performance Indicator Guidelines," were used as reference criteria.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Review of items Entered into the Corrective Action Program:

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

.2 Semi-Annual Review to Identify Trends

a. Inspection Scope

As required by Inspection Procedure 71152, Identification and Resolution of Problems, the inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment and corrective maintenance issues but also considered the results of daily inspector corrective action program item screening. The review also included issues documented outside the normal correction action program in system health reports, corrective maintenance works orders, component status reports, site monthly meeting reports and maintenance rule assessments. The inspectors' review nominally considered the six-month period of January 1, 2008 through June 30, 2008. The inspectors' compared and contrasted their results with the results contained in the licensee's latest integrated quarterly assessment report. Corrective actions associated with a sample of the issues identified in the licensee's trend report were reviewed for adequacy.

b. Assessments and Observations

No findings of significance were identified. In general, the licensee has identified trends and has appropriately addressed the trends with their CAP. However, the inspectors identified an adverse trend in the completion quality of safety-related work order packages which may contain procedures used for performing maintenance or post-maintenance tests (PMT). Specifically, the following deficiencies are indicated below:

- WO 00787908-01: NRC identified incomplete foreign material exclusion (FME) checklist; incorrect date, incorrect step completion.
- WO 00796258-01: NRC identified no radiation work permit identified; incomplete FME checklist, incorrect dates; incorrect step completion.
- WO 00801525-01: NRC identified that PMT for motor heater operability test was not performed.
- WO 00801935-01: NRC identified missing signatures for work completion.
- WO 00797498-01: Licensee identified missing FME checklist; missing Lift/Land Lead sheet.
- WO 00767749-01: NRC identified missing page of FME checklist; incorrect step completion.
- WO 00783887-02: NRC identified that PMT for motor heater operability test was not performed.
- WO 00790617-01: NRC identified missing FME checklist.

The licensee acknowledged the identified trend and entered all of the above discrepancies into their CAP for appropriate corrective action.

.3 Annual Samples

CR091896, #1 Seal O-rings Installed on 1-B-RCP

a. Inspection Scope

The inspectors reviewed the licensee's assessments and corrective actions for CR091896, "#1 Seal O-rings installed in 1-B RCP seal reach the end of qualified life." The condition report was reviewed 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 procedure, PI-AA-200, Rev 2, 05/06/08, "Corrective Action Program," and 10 CFR 50, Appendix B.

b. Findings

No findings of significance were identified. On February 2, 2008, Unit 2 was removed from service because of degrading seal performance on the 'A' RCP. During the licensee's root cause evaluation, RCE000219, a procedural error was discovered in preventative maintenance procedure for RCP seals, 0-MPM-0110-01, Rev 19, 03/06/06, "Reactor Coolant Pump Seal Injection," that involved replacement of the #1 seal high temperature o-rings. Specifically, the procedure states that the applicable o-ring service history and current leak data must be reviewed, and if the o-rings have been installed greater than 9 years or the #1 seal leak rate changes by greater than 0.3 gallons per minute, then component engineering must perform an evaluation to determine requirements for inspection or seal replacement. However, the seal vendor technical manual recommends replacement of the #1 seal ring and runner o-rings every 45,000 hours of operation or 6 years. The licensee reviewed seal replacement history for both

units and determined that the Unit 2 'B' RCP #1 seal high temperature o-rings were installed in October, 2001, but were not replaced during a subsequent refueling outage in 2007. The licensee initiated CR091896 for corrective action and performed an apparent cause evaluation, ACE013661, which determined a cause category of inadequate written instructions.

The inspectors reviewed ACE013661 and verified the cause and related corrective actions. The inspectors also noted and reviewed compensatory measures, described below, initiated by the licensee due to the potential impact of a seal failure on the licensee's 10 CFR 50, Appendix R analysis.

- Initiate trending of Unit 2 'B' RCP #1 seal parameters for indications of degrading performance.
- Establish a twice per shift fire watch in the auxiliary building areas involving the charging pumps, component cooling (CC) pumps and respective power supply cables to reduce the risk of an fire resulting in a loss of normal and backup seal cooling.
- Establish zones prohibiting transient combustibles within 20 feet of Unit 1 charging pump power cables and reschedule any 'hot work' involving components in the areas of the charging pumps, CC pumps and respective power cables. This protects the unit charging cross-tie function.

The inspectors will continue to monitor the licensee's compensatory actions. The inspectors also verified initiation of WO 00802328-01 to replace all o-rings in the Unit 2 'B' RCP #1 seal and actions to correct 0-MPM-0110-01.

CR094772, 2H EDG Oil Leakage Increasing and CR101714, Technical Specification Violation for Two Service Water Pumps Inoperable for Greater Than Allowed Completion Time

a. Inspection Scope

The inspectors reviewed CR094772, "2H diesel oil leakage increasing," and related CRs 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 procedure, PI-AA-200, Rev 2, 05/06/08, "Corrective Action Program," and 10 CFR 50, Appendix B.

b. Findings

No findings of significance were identified. On April 5, 2008, the licensee identified increasing oil leakage on the '2H' EDG exhaust manifolds and performed an air roll of the EDG which indicated the cylinders had excessive oil accumulation. The licensee subsequently determined that the wrong size impeller had been installed in the standby lube oil pump during a maintenance outage that occurred from March 24, 2008, through March 29, 2008. The enforcement aspects are discussed in section 4OA7 of this report. When the licensee declared '2H' EDG inoperable, they also declared the Unit 2 'A' SW

pump inoperable on April 5, 2008, in accordance with TS 3.8.1, due to inoperability of the Unit 1 'B' SW pump, which was removed from service on April 1, 2008, and entered a 72 hour LCO under TS 3.7.8. The Unit 1 'B' SW pump was subsequently returned to service on April 6, 2008, and '2H' EDG was returned to service on April 9, 2008. The inspectors determined that the licensee correctly implemented Technical Specifications from the time the service water pumps and EDG were declared inoperable; therefore, there was no performance deficiency.

The inspectors reviewed the completed root cause evaluation, RCE000225, and related documents including the licensee's probabilistic risk analysis. The inspectors determined that the installation of the incorrect impeller affected the EDG operability, which also affected the operability of the associated service water pump. The inspectors noted that although the Unit 2 'A' SW pump was technically inoperable, it remained available based on the availability of its normal power supply. The licensee entered this problem into their CAP as CR101714 and submitted Licensee Event Report 05000338, 339/2008-001-00 to document the problem.

4OA3 Event Followup

.1 (Closed) Licensee Event Report (LER) 05000339/2007-004-00 and Revised LER 05000339/2007-004-01: Automatic Reactor Trip Due to Loss of Coolant Flow with Power Greater Than 30 Percent

On December 25, 2007, at 2110 hours, with Unit 2 at approximately full rated thermal power an automatic reactor trip occurred due to loss of coolant flow in the 'B' loop. The cause was determined to be a trip of the 'B' RCP motor due to actuation of the neutral over current protection relay. The licensee installed a spare motor in order to return the unit to service. The licensee documented the corrective actions associated with this event in CR027748. The inspectors reviewed the LER and related cause evaluations. This LER is closed.

.2 (Closed) LER 05000338, 339/2008-001-00: Two Service Water Pumps Inoperable Greater Than Technical Specification Allowed Completion Time.

On April 1, 2008, the Unit 1 'B' SW pump was removed from service for motor maintenance. On April 5, 2008, the Unit 2 '2H' EDG was declared inoperable due to excessive oil leakage from the exhaust manifolds. In compliance with TS, inoperability of the 2H EDG also rendered the Unit 2 'A' SW pump inoperable resulting in a 72 hour LCO per TS 3.7.8 for the SW system. Subsequently, the cause of the '2H' EDG inoperability was identified as an incorrect impeller installed in the associated standby lube oil pump during a maintenance outage for the '2H' EDG from March 24 through March 29, 2008. Consequently, the two SW pumps were inoperable for greater than the TS allowed completion time. The inspectors completed a review of the LER and related corrective action documents.

4OA5 Other Activities

.1 (Closed) Temporary Instruction (TI) 2515/166, Pressurized Water reactor Containment Sump Blockage (NRC Generic Letter 2004-02) Units 1 & 2

a. Inspection Scope

The inspector reviewed the status of the implementation of the licensee's actions in response to Generic Letter (GL) 2004-02, Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors, for Units 1 and 2. The onsite inspections which verified the installation of modifications were performed in April and October of 2007 (NRC Report Nos.: 50-338,339/2007003 and 50-338,339/2007005). The licensee's GL 2004-02 commitments which were incomplete at the time of the on-site inspections included chemical effects and downstream effects analyses to support the installed strainer design and program changes to assure the assumptions of the GL 2004-02 /GSI-191 design basis assumptions remained valid. The inspector requested information to review the status of the incomplete commitment items and performed an in-office review during the week of May 5-9, 2008, to verify completion of the outstanding commitment items.

The inspector reviewed the licensee design and licensing documentation to verify that the GL 2004-02 modifications and program changes were complete and to determine the status of GL 2004-02 commitments which were not completed during the previous onsite inspections

b. Findings

No findings of significance were identified. Plant physical modifications and program changes identified in the licensee's initial and supplemental responses to GL 2004-02 were complete.

The chemical effects and downstream analyses were not complete. A completion date extension for these analyses was granted until May 31, 2008 (USNRC letter to VEPCO, dated 12/13/07). The licensee requested additional extension to September 30, 2008 (Dominion letter to USNRC, dated May 22, 2008). Any additional plant changes identified as a result of these analyses will be reviewed via the routine design control inspection activity implemented by the existing reactor oversight program.

A violation was identified and documented in a previous NRC inspection report related to implementation of the GL 2004-02 strainer modification, NCV 05000339/2008002-04, Inadequate Design Control Involving Unit 2 Containment Sump Strainer Gaps.

This documentation of TI-2515/166 completion as well as any results of sampling audits of licensee actions will be reviewed by the NRC staff (Office of Nuclear Reactor Regulation - NRR) as input along with the GL 2004-02 "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors" responses to support closure of GL 2004-02 and Generic Safety Issue (GSI)-191 "Assessment of Debris Accumulation on Pressurized-Water Reactor (PWR)

Sump Performance." The NRC will notify each licensee by letter of the results of the overall assessment as to whether GSI-191 and GL 2004-02 have been satisfactorily addressed at that licensee's plant(s). Completion of TI-2515/166 does not necessarily indicate that a licensee has finished all testing and analyses needed to demonstrate the adequacy of their modifications and procedure changes. Licensees may also have obtained approval of plant-specific extensions that allow for later implementation of plant modifications. Licensees will confirm completion of all corrective actions to the NRC. The NRC will track all such yet-to-be-performed items identified in the TI-2515/166 inspection reports to completion and may choose to inspect implementation of some or all of them.

.2 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

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

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

b. Findings

No findings of significance were identified.

.3 Review of the Operation of an Independent Spent Fuel Storage Installation (Inspection Procedure 60855.1)

a. Inspection Scope

Inspectors reviewed the normal operations of the ISFSI. The inspectors walked down the ISFSI pad to assess the material condition of the casks, the installation of security equipment, and the performance of the monitoring systems. In preparation for an upcoming cask load involving the NUHOMS® design the inspectors reviewed licensee cask loading and handling procedures and reviewed previous cask loading and ISFSI related plant issues and corrective actions status. Additionally, the inspectors observed cask loading during the week of June 2, 2008, to verify that work was performed in accordance with approved procedures and that loaded fuel assemblies were identified and recorded in a controlled document.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

.1 Exit Meeting Summary

On July 9, 2008 and July 30, 2008, the senior resident inspector presented the inspection results for the routine integrated quarterly report to Mr. Dan Stoddard and other members of the staff. The licensee acknowledged the findings. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

On August 22, 2008, the Acting Chief, Reactor Projects Branch 5 presented the revised inspection results for the routine integrated quarterly report to Mr. Page Kemp.

.2 Temporary Instruction 2515/166 Exit Meeting

An interim meeting was conducted via telephone on May 27, 2008 with Mr. P. Kemp.

.3 10 CFR 50.59, Modifications Exit Meeting

An interim exit meeting with licensee management and staff was conducted on June 4, 2008, to discuss the results of this inspection. Proprietary information, reviewed by the team as part of routine inspection activities, was returned to the licensee in accordance with prescribed controls.

4OA7 Licensee Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600 for characterization as a NCV:

- 10 CFR 50, Appendix B, Criterion V, requires in part that activities affecting quality shall be prescribed and accomplished by documented instructions of a type appropriate to the circumstances. Contrary to this, on April 5, 2008, the instructions involving a part number for a pump impeller in a work order to repair the standby lube oil pump were incorrectly prescribed and accomplished. This issue is in the licensee's CAP as CR094772 (4OA3).

ATTACHMENT: SUPPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:

V. Armentrout, SG Programs, ISI Corporate
J. Bailey, Manager Vendor Quality
J. Breeden, Supervisor, Radioactive Analysis and Material Control
W. Corbin, Director, Nuclear Engineering
R. Evans, Manager, Radiological Protection and Chemistry
R. Foster, Supply Chain Manager
E. Hendrixson, Director, Nuclear Safety and Licensing
S. Hughes, Manager, Nuclear Operations
P. Kemp, Supervisor, Station Licensing
J. Kirkpatrick, Manager, Nuclear Maintenance
L. Lane, Plant Manager
G. Lear, Manager, Organizational Effectiveness
J. Leberstien, Licensing Technical Consultant
T. Maddy, Manager, Nuclear Protection Services
M. Main, Component Engineer
G. Marshall, Manager, Nuclear Outage and Planning
C. McClain, Manager, Nuclear Training
J. McHale, Engineering Supervisor
F. Mladen, Manager, Nuclear Site Services
B. Morrison, Supervisor Nuclear Engineering
J. Rayman, Nuclear Emergency Preparedness
J. Scott, Supervisor, Nuclear Training (operations)
D. Stoddard, Site Vice President
R. Williams, Component Engineer

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

05000338/2008003-01	NCV	Failure to Adequately Establish Procedural Requirements for Air Start Check Valve Maintenance for the '1H' EDG (1R12)

Closed

2515/166	TI	Pressurized Water Reactor Containment Sump Blockage (NRC Generic Letter 2004-02) Units 1 & 2 (Section 4OA5.1)

Attachment

05000339/2007-004-00	LER	Automatic Reactor Trip Due to Loss of Coolant Flow With Power Greater Than 30 Percent
05000339/2007-004-01	LER	Automatic Reactor Trip Due to Loss of Coolant Flow With Power Greater Than 30 Percent (Revised)
05000338, 339/2008-001-00	LER	Two Service Water Pumps Inoperable Greater Than Technical Specification Allowed Completion Time

Discussed

None

LIST OF DOCUMENTS REVIEWED

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

Full Evaluations

- 99-SE-MOD-04, Fuel Assembly Repair 4/15/1999
- 06-SE-MOD-01, Abandonment of Incore Thermocouples, 3/29/2006
- 06-SE-OT-01, Reload Safety Evaluation, 3/31/2006
- 06-SE-OT-02, Technical Report NE-1453, Rev. 0, Addendum 002, Reload Safety Evaluation, North Anna 2 Cycle 18 Pattern MOE, 3/31/2006
- 07-SE-OT-01, Reduced Recirculation Spray Pump Flowrates, 9/3/2007
- 07-SE-ST-01, Special Test Procedure, 0-ST-FP-001, Low Pressure CO_2 Blower Door Test, 8/27/2007
- DCP-99-003, Fuel Assembly Repair, 4/15/1999 (associated with 99-SE-MOD-04)
- DCP-99-169, Charging Pump Upgrades, 1/27/2000
- TSCR N-018, Eliminate Transmitter Response Time Testing Requirements, 9/11/2007

Screened Out Items - Modifications

- DCP 01-121, Safety Injection (SI) Accumulator Nozzle Replacement, 3/17/2001
- DCP 01-160, Replacement of Vital Bus Inverters 1-III & 1-IV, 12/02/2005
- DCP 01-162, Replacement of Vital Bus Inverters 2-III and 2-IV, 4/28/2005
- DCP 02-015, Pump Modifications to Support Operations with Low Lake Anna Level, 10/24/2002
- DCP 02-016, Revision to Lake Anna Minimum Level, 3/24/2004
- DCP 02-161, Emergency Diesel Fuel Oil Drain Header Replacement, 10/2/2002
- DCP 04-150, Install Manual Switch to Close FP Dampers in Unit 1&2 Emergency Switchgear Rooms, 12/16/2004
- DCP 05-007, Design Basis for North Anna Spent Fuel 100 hr Core Offload, 10/6/2005
- DCP 05-112, Replace FW Temperature RTDs and Re-Scale Loop, 01/11/2006
- DCP 05-117, Removal of Spare 7300 Process Cards, 6/1/2005
- DCP 05-143, Relocation of Switchyard Breaker H502, and Replacement of Switchyard Breakers G1th% and G102, 02/07/2006
- DCP 05-152, HV Motor Replacement, 1/26/06
- DCP 06-138, Control Room Recorder Replacement, 12/14/2006

Screened Out Items - Item Equivalency Evaluation Review (Like for Like)

- IEER NOM00163-000, Mechanical Seal 01-SW-P-22A/B-Pump, Chesterton 180 Seal Replacing Chesterton 123 Seal, 10/23/2006
- IEER 10000001417, Installation of Chesterton 180 Seal Replacing Chesterton 123 on 1-SW-P-22A/B, 5/7/2008
- IEER NEL00950-000, RCS Temperature Transmitter, 6/7/2006
- IEER NEL00984-000, Emergency Diesel Generator Battery, 11/29/2006
- IEER NEL00961-000, Transient Event Recorder Power Supply – Replace Filter Capacitor; Model 53D to Model 066151U400JS2, 05/09/2006
- IEER NEL01012-000, Circuit Breaker – Eaton Model, 4/20/2007
- IEER NVL 0009-002, 3” Globe Valve 1500#, 6/12/2006

- IEER NVL 0175-000, ½ in. brass valve with Stainless Steel Trim, Air Operated valve, Powers Flowrite 593ss in lieu of 591-7971, 9/6/2006

Screened Out Items Procurement Technical Evaluation (Commercial Grade Dedication)
- PTE 000 NOM00020-A03, Pump W/Motor, Service Water Radiation Monitoring, 01-SW-P-10, 4/18/2002
- PTE 42057909, 1 Inch brass relief valve for Control Room Chillers, 7/30/2007

Design Basis Documents
- SDBD-NAPS-EA, North Anna Power Generation System, Revision 10
- SDBD-NAPS-FP, System Design Basis Document for Fire Protection System North Anna Power Station, Revision 9
- SDBD-NAPS-FP, DBD Change Request NFP-2007-06
- SDBD-NAPS-FP, DBD Change Request NFP-2008-01
- SDBD-NAPS-FP, System Design Basis Document for Control Room Ventilation System North Anna Power Station, Revision 8
- SDBD-NAPS-HC, DBD Change Request NHC-2005-03

Licensing Basis Documents
- Technical Specifications, Current
- Updated Final Safety Analysis Report, Current

Corrective Actions
- N-2005-4372-R1, Initial Load Bank Testing on Inverter 2-IV Failed, 10/13/2005

Procedures
- VPAP-3001, Safety and Regulatory Reviews, Revision 15
- DNAP-3004, Dominion Program for 10 CFR 50.59 and 10 CFR 72.48 – Changes, Tests, and Experiments, Revision2
- 0-AP-10, Loss of Electrical Power, Revision 59
- 1-AP-20, Operation From the Auxiliary Shutdown Panel, Revision 23
- 2-AP-20, Operation From the Auxiliary Shutdown Panel, Revision 21
- 0-FS-CR-1, Control Room – Units 1 and 2 Safe Shutdown Equipment, Revision 0
- 1-OP-26.5, 120 V Vital Bus Distribution Revision 27
- 0-FCA-1, Mitigation of Spurious Valve Operation, Revision 34
- 0-NAT-E-001, Revision 0, Electrical Loop Functional Checkout Action Sheet, 10/13/2005
- 1-PT-138.3B, Combined Charging Pump 1B Head curve Verification and HHSI Branch Flow Verification, Revision 6 and Revision 8
- 2-PT-138.AB, Combined Charging Pump 1A Head curve Verification and HHSI Branch Flow Verification, Revision 5
- 0-ST-FP-001, Low Pressure CO_2 Blower Door Test, Revision 0
- 1-ICP-RC-L-1460, Revision 3, Pressurizer Level Protection Channel II Calibration, 9/13/2007
- NASES 6.20, Revision 1, Test Plan for DCP 01-162, 4/26/2005
- 47241, Test Procedure for Seismic Testing of One DC Inverter, 5/20/2002

Work Orders
- 1-PT-31.8.2-779573-01, Pressurizer Level Protection Channel II Calibration

Calculations
- 131035-Z2-2, Low Pressure CO_2 Hydraulic Calculations, Unit 2, Revision 1
- EE-0057, DC Equipment Sizing, Revision 1
- EE-0718, North Anna Feedwater Temperature Uncertainty, Revision 0
- EE-0718, North Anna Feedwater Temperature Uncertainty, Revision 1
- 14258.79-E-4, Short Circuit Currents 120 V AC Vital Buses and Misc. Circuits-App. R Evaluation, Revision 1
- ME-0491, Spent Fuel Pit Cooling System Analysis, Revision 0
- NE-0154, Minimum Quantity for Fire Protection Low Pressure CO_2 Tanks 1-FP-TK-06 and 1-FP-TK-5, Revision 002
- NE-0165, Volume Calculation of North Anna Fire Zones Protected by Low Pressure CO_2 Revision 000

Drawings
- N-04150-0-1FE12AR, Wiring Diagram – Emergency Switchgear Room – Halon 1301 Aux Relay & Abort / Lockout Panels – North Anna Power Station – Units 1 & 2, Revision 0
- N-04150-0-1FP089, Sheet 1, Fire Protection System – Unit 1 Emergency Switchgear Room Halon Control & Alarm, Revision 0
- N-04150-0-2FP041, Sheet 1, Fire Protection System – Unit 2 Emergency Switchgear Room Halon Control & Alarm, Revision 0
- N-051430101FE1BD, One Line Switching Diagram Switchyard, Revision 0
- N-05143-1-FE1BB, One Line Diagram Electrical Distribution System, Revision 0
- N-05143-1-1ESK4CC-1-A, Outline Switchyard Monitor Panel, Revision 0
- N-05143-1-1ESK4CC-1-B, Outline Switchyard Monitor Panel, Revision1
- 11715-FE-1BB, One Line Diagram Electrical Distribution System, Revision 39
- 11715-FE-1BD, One Line Switching Diagram Switchyard, Revision 11
- 11715-FE-1BD, One Line Switching Diagram Switchyard, Revision 27
- 11715-FH-32A, Treatment Lagoon Discharge Structure Dike III SH-1 North Anna Power Station, Revision 5
- NA-DW-6008D13, Loop #1 Feedwater Control System, Revision 0
- NA-DW-6008D49, Loop #2 Feedwater Control System, Revision 0
- NA-DW-6008D63, Loop #3 Feedwater Control System, Revision 0

Post Modification Testing
- NASES 6.20 Attachment 2, Test Plan for DCP 05-112, Revision 1
- NASES 6.22 Attachment 2, Testing and Inspection of FW RTDs for DCP 05-112, Revision 0
- Testing Release for 1-RC-LR-1310A, 02/19/2007
- Testing Release for 2-RC-LR-2310A, 02/15/2007
- Testing Release for 1-LM-PR-110B, 02/13/2007
- Testing Release for 1-RH-TR-1604, 01/31/2007
- Testing Release for 2-FW-LR-2477, 01/31/2007
- Testing Release for 2-RH-TR-2604, 01/31/2007
- Testing Release for 1-LW-FR-104, 01/10/2007

- Testing Release for 1-L0-XR-SGVRP, 01/31/2007
- Testing Release for 2-LO-XR-SGVRP, 02/05/2007
- Testing Release for 2-LM-PR-210B, 02/12/2007
- Testing Release for 1-HC-H2R-101-1, 02/22/2007
- Testing Release for 2-HC-H2R-201-2, 01/10/2007
- Testing Release for 2-FW-FR-2478, 02/26/2007
- Testing Release for 2-FW-FR-2488, 02/26/2007
- Testing Release for 2-FW-FR-2498, 02/27/2007

Calibration Data

- Calibration Data Record for NQC-0496, 06/02/2006
- Calibration Data Record for NQC-0496, 11/30/2005
- Calibration Data Record for NQC-0496, 01/02/2008
- Calibration Data Record for NQC-0496, 06/04/2007
- Calibration Data Record for NQC-0496, 12/01/2006

Technical Reports

- NE-1401, Rev. 0, Operational Impact of Framatome Fuel and use of the CASMO/SIMULATE Code Package at North Anna, April 2, 2004
- NE-1452, Rev. 0, Reload Safety Analysis Checklist North Anna 2 Cycle 18 Pattern MOE, September 22, 2005
- NE-1453, Rev. 0, Addendum 002, Reload Safety Evaluation, North Anna 2 Cycle 18 Pattern MOE, April 2006

Engineering Transmittals

- ET-SE-99-086, Evaluation of Hydraulic Performance of CH/HHSI Rotating Assembly Ingersoll-Dresser serial Number NE012911-01 - North Anna Power Station, Unit 1 and 2, Revision 0
- ET-N-01-122, Evaluation of Hydraulic Performance of CH/HHSI Rotating Assembly Flowserve BR/Order 7029-2673 - North Anna Power Station, Unit 1 and 2, Revision 0
- ET-N-02-068, Evaluation of Replacement Rotating Element for Charging Pump 2-CH-P-1B - North Anna Power Station, Unit 2, Revision 0
- ET- N-03-0144, Evaluation of Replacement Rotating Element for Charging Pump 2-CH-P-1A - North Anna Power Station, Unit 2, Revision 0
- ET- N-04-0057, Evaluation of Replacement Rotating Element for Charging Pump 2-CH-P-1C - North Anna Power Station, Unit 1, Revision 0
- ET- N-05-0072, Evaluation of Replacement Rotating Element for Charging Pump 2-CH-P-1B - North Anna Power Station, Unit 1, Revision 0
- ET-N-07-0049, Revision to North Anna Technical Specifications Bases to Eliminate Periodic Pressure Sensor Response Time Tests and Periodic Protection Channel Response Time Tests, Revision 0
- ET-N-07-0077, Evaluation of Low Pressure CO_2 System Vendor Calculation and Blower Test, Revision 1
- ET-N-07-0109, Estimating Water Flow Rate through Dike 3, Revision 0

Vendor Manuals
- 59-W813-00006, Vendor Technical Manual for Weed Instrument RTD Temperature Sensors
- 59-5984-00004, Component List For A Bill of Material, 3/20/02

Miscellaneous documents
- AREVA Letter FAB06-226, North Anna Advanced Mark-BW Top Nozzle Change Evaluation, March 29, 2006
- Request for Engineering Assistance – Tracking No. R2003-128, 8/27/2003
- NCRODP-6, Fire Protection System, 5/2/2007
- Procurement Engineering Inspection Plan 208, 4/18/2002
- Purchase Order no. 45526645, 7/18/2007
- O-MAT-E-001, Electrical Loop Functional Checkout Sheet
- Short Circuit Simulation Results for G102-1 and G102-2
- NAP-0111, Specification for Vital Bus Static Inverters, Revision 0
- CM-NA-FCI-0213, Enhanced Surveillance Program for Rosemount Transmitters IAW CB 90-01: Loss of Oil-Fill in Transmitters Manufactured by Rosemount, Revison 0
- LBDCR N-018, TS Bases Change Eliminate Periodic Pressure Sensor Response Time Tests and Periodic Protection Channel Response Time Tests, Revision 0
- WCAP-14036-P-A, Elimination of Periodic Protection Channel Response Time Tests, Revision 1

Corrective Actions Written as a Result of this Inspection
- CR100465, Receipt Inspection Package contains typographical error, 6/3/2008

Section 4OA5: Other Activities

Temporary Instruction (TI) 2515/166
- Procedure VPAP-0301, Design Change Process, Revision 26
- Procedure VPAP-0905, Insulation Control Program, Revision 4
- DNES-VA-MAT-1007, Protective Coating Requirements for procured Equipment to be Installed Inside Containment, Revision 0
- Letter, VEPCO to USNRC, North Anna Power Station Units 1 and 2, Supplemental Response to NRC GL 2004-02 Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at PWRs, dated February 29, 2008
- Letter, USNRC to VEPCO, Kewaunee Power Station, Millstone Power Station, Units 2 and 3, North Anna Power Station Unit 1 and 2, Request for Extension of Completion Dates for GL 2004-02 Corrective Actions, dated December 13, 2007
- Design Change Package DCP-06015, NRC GSI-191, RWST Level ESFAS Function to Support Containment Sump Modification, 08/14/07
- Design Change Package DCP-07005, NRC GSI-191, Containment Sump Strainer Interferences, 08/08/07
- Design Change Package DCP-07129, NRC GSI-191, Piping Isulation Modifications, 08/08/07

LIST OF ACRONYMS

ADAMS	Agency-wide Document Access and Management System
CA	Corrective Action
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
EDG	Emergency Diesel Generator
IMC	Inspection Manual Chapter
JPM	Job Performance Measures
LHSI	Low Head Safety Injection
NCV	Non-cited Violation
NRC	Nuclear Regulatory Commission
OD	Operability Determination
PARS	Publicly Available Records
PI	Performance Indicator
QS	Quench Spray
RCE	Root Cause Evaluation
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RTP	Rated Thermal Power
SDP	Significance Determination Process
SR	Surveillance Requirements
TDAFWP	Turbine Driven Auxiliary Feedwater Pump
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VEPCO	Virginia Electric and Power Company
VPAP	Virginia Power Administrative Procedure
WO	Work Order