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

January 30, 2013

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 05000338/2012005, and 05000339/2012005

Dear Mr. Heacock:

On December 31, 2012, 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 results which were discussed on January 16, 2013, with Mr. G. Bischof and 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 license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

No findings were identified during this inspection.

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 NRC's Agencywide Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,
/RA/

Gerald J. McCoy, Branch Chief
Reactor Projects Branch 5
Division of Reactor Projects

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

Enclosure: Inspection Report 05000338/2012005 and 05000339/2012005
w/ Attachment: Supplemental Information

cc w/ encl. (See page 2)

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Letter to David A. Heacock from Gerald J. McCoy January 30, 2013

SUBJECT: NORTH ANNA POWER STATION - NRC INTEGRATED INSPECTION REPORT 05000338/2012005 AND 05000339/2012005

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	05000338, 05000339
License Nos.:	NPF-4, NPF-7
Report No.:	05000338/2012005 and 05000339/2012005
Licensee:	Virginia Electric and Power Company
Facility:	North Anna Power Station, Units 1 and 2
Location:	Mineral, VA
Dates:	October 1, 2012 through December 31, 2012
Inspectors:	G. Kolcum, Senior Resident Inspector R. Clagg, Resident Inspector J. Laughlin, Emergency Preparedness Inspection, Section 1EP4 S. Walker, Senior Reactor Inspector, Section 4OA5.5 E. Crowe, Senior Resident Inspector, Section 4OA5.5 C. Even, Senior Construction Project Engineer, Section 4OA5.5 E. Lea, Senior Operations Engineer, Section 1R11.3
Approved by:	Gerald McCoy, Chief Reactor Projects Branch 5 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000338/2012005, 05000339/2012005; 10/01/2012 – 12/31/2012; North Anna Power Station, Units 1 and 2; Routine Resident Inspection.

The report covered a three month period of inspection by resident inspectors and reactor inspectors from the region. 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

None

B. Licensee-Identified Violations.

None

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Enclosure

REPORT DETAILS

Summary of Plant Status

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

Unit 2 began the inspection period at full RTP and began a forced outage on October 8, 2012, due to 'A' Reactor Coolant Pump seal leak off flow degradation. Unit 2 returned to full power on October 19, 2012, and experienced an automatic reactor trip on October 24, 2012 due to low level in the 'C' Steam Generator. On October 25, 2012, Unit 2 returned to full power and operated at full power for the remainder of the report period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

.1 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," Revision 53, 0-GOP-4.2, "Extreme Cold Weather Operations," Revision 34, and 0-GOP-4.3, "Extreme Cold Weather Operations Daily Checks," Revision 7, and the licensee's corrective action data base for cold weather related issues. The inspectors walked down the three risk-significant areas listed below 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.

- Unit 1 and Unit 2 Safeguard Areas
- Auxiliary Building
- Station Blackout Diesel Building

b. Findings

No findings were identified.

.2 Site Specific Event

a. Inspection Scope

The inspectors performed the two site specific weather related inspections listed below due to anticipated adverse weather conditions in the area. Specifically, the inspectors reviewed licensee adverse weather response procedures and site preparations including work activities that could impact the overall maintenance risk assessments.

- Forecasted heavy rain and wind in the area due to Hurricane Sandy on October 25, 2012
- Site coverage for peak winds from Hurricane Sandy on October 29, 2012

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

a. Inspection Scope

The inspectors conducted three equipment alignment partial 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.

- 2J Emergency Diesel Generator (EDG) during EDG two year maintenance
- 1H EDG during 1J EDG maintenance on exhaust manifold
- 1H EDG Starting Air Compressor with maintenance planned on diesel driven air compressor

b. Findings

No findings were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors conducted focused tours of the six 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,” Revision 5, CM-AA-FPA-101, “Control of Combustible and Flammable Materials,” Revision 4, and CM-AA-FPA-102, “Fire Protection and Fire Safe Shutdown Review and Preparation Process and Design Change Process,” Revision 3. 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 1 Quench Spray Pump House and Safeguards Area (includes Z-16-1) (fire zone 15-2a / QSPH-2)
- Unit 2 Main Steam Valve House (includes MG Set Room) (fire zone 17-2a / MSVH-2)
- Fuel Building (fire zone Z-18 / FB)
- Unit 2 Containment fire zone 1-2a / RC-2)
- Emergency Diesel Generator 1H (fire zone 9A-1a / EDG-1H) and Emergency Diesel Generator 2H (fire zone 9A-2a / EDG-2H)
- Emergency Diesel Generator 1J (fire zone 9B-1a / EDG-1J) and Emergency Diesel Generator 2J (fire zone 9B-2a / EDG-2J)

b. Findings

No findings were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors assessed the internal flooding vulnerability of the Unit 1 Turbine Building 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.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program

.1 Resident Inspector Quarterly Review

a. Inspection Scope

The inspectors reviewed licensed operator performance during conduct of simulator exercise, LORP-SEG-10A , on October 16, 2012, which involved a loss of offsite power, an automatic reactor trip, a control rod failure, emergency boration, and a fire in the emergency switchgear room leading to utilization of the fire contingency action procedures. The scenario required classifications and notifications that were counted for NRC performance indicator input.

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 were identified.

.2 Operator Observations

a. Inspection Scope

During the inspection period, the inspectors conducted 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;

- Licensed operator actions in response to a low reactor coolant pump (RCP) seal leak off flow on October 3, 2012
- Licensed operator actions for reactor coolant system cooldown as part of a forced outage to repair ‘A’ RCP seal on October 8, 2012

- Rod control bank deviation during start up for Unit 2 on October 19, 2012
- Licensed operator actions during Unit 2 startup following automatic reactor trip on October 25, 2012
- Licensed operator actions during unit ramp for conduct of turbine valve freedom test on November 28, 2012

b. Findings

No findings were identified.

.3 Annual Review of Licensee Requalification Examination Results

a. Inspection Scope

On February 3, 2012, the licensee completed the annual requalification operating examinations required to be administered to all licensed operators in accordance with 10 CFR 55.59(a)(2). The inspectors performed an in-office review of the overall pass/fail results of the individual operating examinations and the crew simulator operating examinations in accordance with inspection procedure 71111.11, "Licensed Operator Requalification Program." These results were compared to the thresholds established in Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," Appendix I, "Operator Requalification Human Performance Significance Determination Process."

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

For the two 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," Revision 5.

- CR493396 and CR493425, "Unit 2 Feed pump 1A discharge check valve"
- CR485784, "Quench spray valve failed to stroke closed"

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated, as appropriate, the two 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 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.

- Updated maintenance risk assessment for Unit 2 ramp down and entry into a forced outage on October 8, 2012
- Updated maintenance risk assessment for Unit 1 and Unit 2 due to Hurricane Sandy on October 25, 2012

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments

a. Inspection Scope

The inspectors reviewed five 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 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 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," Revision 9. Documents reviewed are listed in the Attachment.

- CR490732, "Seal leakage from 1-EG-P-3H (jacket cooling water circulation pump) has worsened to 0.8 gph"
- OD000506, "Complete/Document OD for 1-RS-LT-103B (Unit 1 casing cooling tank level transmitter) being incomplete"
- OD000507, "1J EDG Operability Determination due to control side exhaust oil leaks"

- CR491029, “1H EDG coolant glycol concentration”
- CR489949, “2H EDG #14 lower crankshaft main bearing found degraded during inspections”

b. Findings

No findings were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed the two completed permanent plant modification design change packages listed below. The inspectors conducted walkdowns of the installations, discussed the desired improvements 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 implication of each design change. Documents reviewed are listed in the Attachment.

- DC-NA-11-101213, “Permanent Replacement of Seismic Monitoring Equipment, Phase 2,” Revision 21
- DC-NA-12-00009, “Ground Grid Improvements for Unit 1 and Unit 2 Containment”

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 for selected risk-significant mitigating systems listed below, 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,” Revision 14. Documents reviewed are listed in the Attachment.

- WO 59102394531, “Need to perform ground grid improvements for DC-NA-12-0009”
- WO 59102520079, “Removal and inspection of 2H EDG #14 bearing oil booster”

- WO 59102524949, “Repair valve stem on 2-FW-MOV-250C IAW engineering ETE-NA-2012-0059”
- 2-PT-17.1, “Control Rod Operability,” Revision 31
- 1-PT-77.11C, “Control Room Chiller 1-HV-E-4C Pump and Valve Test,” Revision 32
- 2-PT-82H, “2H Emergency Diesel Generator Slow Start test,” Revision 52

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities

Unit 2 Forced Outage Due to RCP Seal Leak Off Flow Degradation

a. Inspection Scope

Unit 2 began a forced outage on October 8, 2012 due to decreased leak off flow on ‘A’ RCP #1 seal, which continued until October 19, 2012. During the forced outage period, the inspectors used NRC inspection procedure 71111.20, “Refueling and Outage Activities,” to observe portions of the maintenance and startup activities to verify that the licensee maintained defense-in-depth commensurate with outage risk assessments and applicable TS. Prior to the forced outage, the inspectors reviewed the licensee’s outage risk control plan and verified that the licensee had appropriate considered risk, industry experience and previous site specific problems. The inspectors reviewed licensee actions for the outage activities listed below. Documents reviewed are listed in the Attachment.

- Licensee configuration management, including daily outage reports, to evaluate defense-in-depth commensurate with the outage safety plan and compliance with the applicable TS when taking equipment out of service.
- Shutdown and cooldown activities to verify that technical specification restrictions are followed
- Controls over the status and configuration of electrical systems and switchyard to ensure that TS and outage safety plan requirements were met.
- Decay heat removal processes to verify proper operation and that steam generators, when relied upon, were a viable means of backup cooling.
- Containment closure activities, including a detailed containment walkdown prior to startup, to verify that there was no evidence of leakage and that debris had not been left which could affect the performance of the containment sump.
- Heat up and startup activities to verify TS, license conditions, and other requirements, commitments, and administrative procedure prerequisites for mode changes were met prior to changing modes or plant conditions. Reactor Coolant System (RCS) integrity was verified by reviewing RCS leakage calculations and containment integrity was verified by reviewing the status of containment penetrations and containment isolation valves.

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. Documents reviewed are listed in the Attachment.

In-Service Test:

1-PT-213.5J, "Valve Inservice Inspection (1-QS-MOV-101B)," Revision 9

Other Surveillance Tests:

- 2-PT-75.2A, "Service Water Pump (2-SW-P-1A) Quarterly Test," Revision 54
- 2-PT-61.4, "RCS Pressure Isolation Valves Leakage Test," Revision 25
- 2-PT-46.21.1, "Containment Boric Acid Accumulation Inspection," Revision 1
- 2-PT-62.2.1, "RSHX SW Inleakage," Revision 14
- 1-PT-71.2, "Unit 1 'A' Motor Driven Auxiliary Feedwater," Revision 39
- 1-PT-34.3, "Turbine Valve Freedom Test," Revision 33

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency action Level and Emergency Plan Changes

a. Inspection Scope

The NSIR headquarters staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures (EPIPs) and the Emergency Plan located under ADAMS accession numbers ML12174A361 and ML121910411, as listed in the Attachment.

The licensee determined that in accordance with 10 CFP 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47 (b) and Appendix E to

10 CFP Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, these revisions are subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on the annual basis.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors performed a periodic review of the Safety System Functional Failures PI for both Unit 1 and Unit 2 to assess the accuracy and completeness of the submitted data and whether the performance indicators were calculated in accordance with the guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. 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 October 1, 2011 through September 30, 2012. Documents reviewed included applicable NRC inspection reports, licensee event reports, operator logs, station performance indicators, and related CRs.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution

.1 Review of Items Entered into the Corrective Action Program

a. Inspection Scope

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.

b. Findings

No findings were identified

.2 Annual Sample: Review of CR490136, 2H EDG #14 lower crankshaft main bearing found degraded during inspections

a. Inspection Scope

The inspectors performed a review regarding the licensee's assessments and corrective actions for CR490136, 2H EDG #14 lower crankshaft main bearing found degraded during inspections, 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 reviewed ACE019280, 2H EDG #14 lower crankshaft main bearing inspection found degraded. The inspectors evaluated the CR and the ACE against the requirements of the licensee's CAP as specified in procedure, PI-AA-200, "Corrective Action Program," Revision 20 and 10 CFR 50, Appendix B.

b. Findings

No findings were identified.

.3 Annual Sample: Operator Workarounds

a. Inspection Scope

The inspectors performed a review of the licensee's operator workarounds to ensure that the full extent issues were identified, appropriate evaluations were performed, and appropriate corrective actions were specified and prioritized. The OWA sample was evaluated considering all existing plant conditions including the cumulative effects of other OWAs.

b. Findings

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

.4 Annual Sample: CR493193, 2-RC-PCV-2455C Momentarily Opened as Designed During the Unit 2 Reactor Trip

a. Inspection Scope

The inspectors performed a review regarding the licensee's assessments and corrective actions for CR493193, "2-RC-PCV-2455C Momentarily Opened as Designed During the Unit 2 Reactor Trip," 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 reviewed ACE19310, "Investigate Incorrect Declaration for EAL SU6.1," as part of this assessment. The inspectors evaluated the CR and ACE against the requirements of the licensee's CAP as specified in procedure, PI-AA-200, "Corrective Action Program," Revision 10 and 10 CFR 50, Appendix B.

b. Findings

No findings were identified

.5 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's correction action program 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 discussed in Section 4OA2.1. The review included issues documented outside the normal correction action program in system health reports, corrective maintenance work orders, component status reports, site monthly meeting reports, and maintenance rule assessments. The inspectors' review nominally considered the six month period of July 2012 through December 2012, although some examples expanded beyond those dates when the scope of the trend warranted.

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. Assessment and Observations

No findings were identified. Trends noted by the inspectors were previously identified by the licensee and addressed in the licensee's corrective action program.

4OA3 Event Followup

Unit 2 Automatic Reactor Trip

a. Inspection Scope

The inspectors responded to an automatic reactor trip of Unit 2 on October 24, 2012 due to low level in the 'C' Steam Generator. The inspectors discussed the trip with operations, engineering, and licensee management personnel to gain an understanding of the event and assess follow up actions. The inspector reviewed operator actions taken in accordance with licensee procedures, and reviewed unit and system indications to verify that actions and system responses were as expected. The inspectors will perform a detailed review of the cause of the event during a subsequent review of the licensee's respective licensee event report. The inspectors also reviewed the initial licensee notifications to verify that the requirements specified in NUREG-1022, "Event Reporting Guidelines," Revision 2, were met.

b. Findings

No findings were identified.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with 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 any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed changes made to the programs and procedures for the Independent Spent Fuel Storage Installation (ISFSI) to ensure that any changes made to fuel handling procedures were consistent with the licensee's Certificate of Compliance (CoC) and did not reduce the effectiveness of the program. The inspectors verified that these procedures still fulfill the commitments and requirements specified in the Safety Analysis Report (SAR), Safety Evaluation Report, CoC, 10 CFR Part 72, the site-specific license and TS as applicable, any related 10 CFR 50.59 and 72.48 evaluations, and 10 CFR 72.212(b) evaluations for general licensed ISFSIs.

b. Findings

No findings were identified.

.3 (Discussed) NRC Temporary Instruction 2515/187, "Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns

a. Inspection Scope

Inspectors conducted independent walkdowns to verify that the licensee completed the actions associated with the flood protection feature specified in paragraph 03.02.a.2 of this TI. Inspectors are performing walkdowns at all sites in response to a letter from the NRC to licensees, entitled "Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," dated March 12, 2012 (ADAMS Accession No. ML12053A340).

Enclosure 4 of the letter requested licensees to perform external flooding walkdowns using an NRC-endorsed walkdown methodology (ADAMS Accession No. ML12056A050). Nuclear Energy Industry (NEI) document 12-07 titled, "Guidelines for Performing Verification Walkdowns of Plant Protection Features," (ADAMS Accession No. ML12173A215) provided the NRC-endorsed methodology for assessing external flood protection and mitigation capabilities to verify that plant features, credited in the CLB for protection and mitigation from external flood events, and are available, functional, and properly maintained.

b. Findings

Findings or violations associated with the flooding, if any, will be documented in the 1st quarter integrated inspection report of 2013.

.4 (Closed) NRC Temporary Instruction 2515/188, Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns

a. Inspection Scope

The inspectors accompanied the licensee on their seismic walkdowns of the following six areas:

- 1-RS-P-2B, RS/Outside Recirculation Spray Pump B
- 1-RS-E-2B, RS/Outside Recirculation Spray Pump B Seal HX
- 1-RS-MOV-101B, RS/Casing Cooling Pump B Discharge Isolation
- 1-SI-P-1B, SI/Low Head Safety Injection Pump B
- Unit 1 Motor-Driven Auxiliary Feedwater Pump Room, including 1-FW-P-3A, 1-CN-LT-100B, and 1-FW-P-3B
- Unit 2 Charging Pump 1A Room 2-CH-P-1A

The inspectors independently performed their walkdown and verified that the following areas were free of potential adverse seismic conditions:

- BY/1254 Battery 1-IV (area 19)
- BY/1254 Battery 2-II (area 23)
- AP/EDG Batteries and Racks (1J) (Area 25)
- AP/EDG Batteries and Racks (2H) (Area 26)
- Quench Spray 1-QS-LT-100A, 1-QS-LT-101, and 1-QS-TK-2 (Area 51)

The inspectors verified that the licensee confirmed that the following seismic features associated with seismic walkdown equipment list items were free of potential adverse seismic conditions:

- Anchorage was free of bent, broken, missing or loose hardware.
- Anchorage was free of corrosion that is more than mild surface oxidation.
- Anchorage was free of visible cracks in the concrete near the anchors.
- Anchorage configuration was consistent with plant documentation.
- Structures, systems and components will not be damaged from impact by nearby equipment or structures.
- Overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls are secure and not likely to collapse onto the equipment.
- Attached lines have adequate flexibility to avoid damage.
- The area appears to be free of potentially adverse seismic interactions that could cause a fire in the area.
- The area appears to be free of potentially adverse seismic interactions associated with housekeeping practices, storage of portable equipment, and temporary installations (e.g., scaffolding, lead shielding).

Observations made during the walkdown that could not be determined to be acceptable were entered into the licensee's corrective action program for evaluation.

Additionally, inspectors verified that items that could allow the spent fuel pool to drain down rapidly were added to the SWEL and these items were walked down by the licensee.

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.5 (Closed) NRC Temporary Instruction 2515/177, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems (NRC Generic Letter 2008-01)"

a. Inspection Scope

The inspectors reviewed the implementation of the licensee's actions in response to Generic Letter 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems." The subject systems included the high head safety injection system, low head safety injection system, residual heat removal system, chemical volume and control system, quench spray system, and the recirculation spray system.

The following areas were reviewed during the inspection:

- The licensing basis of the facility to verify that actions to address gas accumulation were consistent with the operability requirements of the subject systems.
- The design of the subject systems to verify that actions taken to address gas accumulation were appropriate given the specifics of the functions, configurations, and capabilities of these systems.
- The design and operation of the decay heat removal system to determine if flashing in decay heat removal suction lines would challenge system operability.
- Selected analyses performed by the licensee to verify that methodologies for predicting gas void accumulation, movement, and impact were appropriate.
- The walkdowns performed of selected subject systems to verify that the reviews and design verifications conducted by the licensee had drawn appropriate conclusions with respect to piping configurations and pipe slope which could result in gas accumulation susceptibility.
- Testing implemented by the licensee to address gas accumulation in subject systems. A selection of test procedures and completed test results were reviewed to verify that test procedures were appropriate to detect gas accumulations that could challenge subject systems.
- The specified testing frequencies to verify that the testing intervals had appropriately taken historical gas accumulation events as well as susceptibility to gas accumulation into account.
- The test programs and processes to verify that they were sensitive to pre-cursors to gas accumulation.
- The corrective actions associated with gas accumulation in subject systems to verify that identified issues were being appropriately identified and corrected. This review included modifications made to the plant including the installation of additional vent valves.
- The locations of selected vent valve installations to verify that the locations selected were appropriate based on piping configuration and pipe slopes.

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Quarterly Exit Meeting Summary

On January 16, 2013, the resident inspector presented the inspection results to Mr. G. Bischof and other members of the staff, who acknowledged the findings. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:
A. Anwar, System Engineer
K. Avery, Component Engineer
M. Becker, Manager, Nuclear Outage and Planning
G. Bischof, Site Vice President
M. Crist, Plant Manager
J. Daugherty, Manager, Nuclear Maintenance
R. Evans, Manager, Radiological Protection
R. Garver, Acting Director, Nuclear Safety & Licensing
B. Gaspar, Manager, Nuclear Site Services
C. Gum, Manager, Nuclear Protection Services
E. Hendrixson, Director, Nuclear Engineering
S. Hughes, Manager, Nuclear Operations
P. Kemp, Supervisor, Station Licensing
J. Leberstien, Technical Advisor, Licensing
J. Plossl, Supervisor, Nuclear Station Procedures
J. Schleser, Manager, Nuclear Organizational Effectiveness
R. Wesley, Manager, Nuclear Training
M. Whalen, Technical Advisor, Licensing

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Closed

TI 2515/177	TI	TI Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems, NRC Generic Letter 2008-01 (Section 4OA5.5)
TI 2515/188	TI	Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns (Section 4OA5.4)

Discussed

TI 2515/187	TI	Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns (Section 4OA5.3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection
0-AP-41, "Severe Weather Conditions," Revision 54
CO-PROC-000-HRP-NUCLEAR, Hurricane Response Plan (Nuclear), Revision 11

Section 1R05: Fire Protection
2-PT-108.5, "Visual Inspection – Unit 2 Containment Radiant Energy Shields, Cable Tray Firestops, and RCP Oil Collection Systems Required By Appendix R," Revision 9
0-FS-F-3, Fuel Building Safe Shutdown Equipment Fire Fighting Strategy," Revision 6

Section 1R15: Operability Determinations and Functionality Assessments
Engineering Transmittal, ET-N-06-0074, "Emergency Diesel Generator Engine Coolant Water Leakage," Revision 0

Section 1R18: Plant Modifications
Final Report, North Anna Power Station, Grounding System Evaluation, dated November 9, 2012
Drawing, 11715-FE-33A, "Grounding Plan & Details," Sheet 1, Revision 0
Test Plan, DC-NA-12-00009, "Ground Grid Improvements for Unit 1 and Unit 2 Containment," Revision 0

Section 1R19: Post Maintenance Testing
ETE-NA-2012-0059, "Repair of 2-FW-MOV-250C "1C Main FW Pump Discharge MOV" Stem (with Belzona)," Revision 0
WO59101669066, "2H EDG Air Start SOV Replacement"
WO59102384057, "2H EDG Replace SOV"
Final Report, North Anna Power Station, Grounding System Evaluation, dated November 9, 2012
Drawing, 11715-FE-33A, "Grounding Plan & Details," Sheet 1, Revision 0
Test Plan, DC-NA-12-00009, "Ground Grid Improvements for Unit 1 and Unit 2 Containment," Revision 0

Section 1R20: Refueling and Other Outage Activities
2012 Unit 2 Forced Outage Plan Safety Review, dated October 8, 2012
Calculation, ME-0779, Debris Generation Due to LOCA within Containment for Resolution of GSI-191," Revision 3

Section 1R22: Surveillance Testing
Calculation, NA-CALC-MEC-ME-0620, Minimum Delivered Service Water Flow and Acceptance Criteria for SW Pump Operability Verification Testing, Revision 1

Section 1EP4: Emergency action Level and Emergency Plan Changes

Change Packages
North Anna Power Station Emergency Plan, revision 37
Emergency Action Level Technical Bases Document, Revision 3

Section 4OA5: Other Activities
Temporary Instruction 2515/177

Licensing Basis Documents

Updated Final Safety Analysis Report
Technical Specifications and Bases

Miscellaneous

Calculation, NA-CALC-MEC-ME-0620, Minimum Delivered Service Water Flow and Acceptance Criteria for SW Pump Operability Verification Testing, Revision 1
ETE-CME-2012-0016, Update North Anna Power Station's Generic Letter 2008-01 Report ME-0178 in response to OE from Surry Power Station, Revision 0
ETE-NA-2012-0058, NRC Generic Letter 2008-01 NAPS Engineering Walkdowns, Revision 0
Supplemental Response to NRC Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems – Inaccessible Areas, Unit 1, dated 1-15-2009
Supplemental Response to NRC Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems – Inaccessible Areas, Unit 2, dated 7-6-2009
Training Presentation: Managing Gas Accumulation at Dominion and Engineering's Response to GL 2008-01
Training Presentation: Training Module 3, How Operations Can Manage Gas Accumulation, Revision 0
Letter from VEPCO to U.S. Nuclear Regulatory Commission, Response to Request for Additional Information GL 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray, dated 7/29/10
Training Attendance Records, LORP, NEI Gas Intrusion Lesson, dated 4/21/11, 4/28/11, 5/6/11, 4/14/11, 5/12/11
Training Attendance Records, ESPCT 11-1 General Session, dated 2/2/11, 2/8/11, 2/9/11, 2/15/11, 2/16/11
NCRODP-PG-APP-D3, Appendix D3 North Anna Non-Licensed Operator Continuing Training Plan, Revision 3
JPM, Reference 0796, SOER-97-01, Potential Loss of Hi Pressure Injection and Charging Capability from Gas Intrusion (Task – vent ECCS lines 1-PT-14.5)
Non-Licensed Operator Continuing Training Program, Session 11-3, Instructor Guide for Safety Injection, Revision 0

Drawings

11715-ECI-103K, Safety Injection System, Unit 1, Reactor Containment, Revision 2M
11715-ECI-103L, Safety Injection System, Unit 1, Reactor Containment, Fabrication Isometric, Revision 2M
11715-ECI-103N, Fabrication Isometric Line Designation 6"-SI-131-1502-Q1, Revision 2
11715-ECI-103P, Safety Injection System, Unit 1, Reactor Containment, Revision 1
11715-ECI-103R, Safety Injection System, Unit 1, Reactor Containment, Sheet 1 of 4, Revision 2

11715-ECI-103R, Safety Injection System, Unit 1, Reactor Containment, Sheet 2 of 4, Revision 2
11715-ECI-103R, Safety Injection System, Unit 1, Reactor Containment, Sheet 3 of 4, Revision 1
11715-ECI-103R, Safety Injection System, Unit 1, Reactor Containment Annulus Piping, Revision 2
11715-ECI-103T, Unit 1, Reactor Containment, Sheet 1 of 4, Revision 1
11715-ECI-103U&V, Safety Injection System, Unit 1, Reactor Containment, Revision 1
11715-ECI-103W, Service Water Lines, Unit 1, Reactor Containment, Sheet 1 of 4, Revision 1
11715-ECI-103Y, Safety Injection System, Unit 1, Reactor Containment, Revision 2M
11715-FM-095A, Flow/Valve Operating Numbers Diagram Chemical and Volume Control System, Unit 1, Sheet 1 of 4, Revision 41
11715-FM-095A, Flow/Valve Operating Numbers Diagram Chemical and Volume Control System, Unit 1, Sheet 2 of 4, Revision 20
11715-FM-095A, Flow/Valve Operating Numbers Diagram Chemical and Volume Control System, Unit 1, Sheet 3 of 4, Revision 16
11715-FM-095A, Flow/Valve Operating Numbers Diagram Chemical and Volume Control System, Unit 1, Sheet 4 of 4, Revision 30
11715-FM-095B, Flow/Valve Operating Numbers Diagram Chemical and Volume Control System, Unit 1, Sheet 2 of 2, Revision 41
11715-FM-095C, Flow/Valve Operating Numbers Diagram Chemical and Volume Control System, Unit 1, Sheet 1 of 2, Revision 31
11715-FM-095C, Flow/Valve Operating Numbers Diagram Chemical and Volume Control System, Unit 1, Sheet 2 of 2, Revision 27
11715-FM-096A, Flow/Valve Operating Numbers Diagram Safety Injection System, Unit 1, Sheet 1 of 3, Revision 40
11715-ECI-104A, Safety Injection System, Unit 1, Revision 2
11715-ECI-107B, Safety Injection System, Unit 1, Revision 3
11715-ECI-111AA, Safety Injection System, Unit 1, Revision 2
11715-ECI-111B, Safety Injection System, Unit 1, Revision 2
11715-ECI-107M, Safety Injection System, Unit 1, Revision 3
11715-ECI-111C, Safety Injection System, Unit 1, Revision 2
11715-ECI-111CA, Safety Injection System, Unit 1, Revision 2
11715-ECI-111D, Safety Injection System, Unit 1, Revision 2
12050-ECI-104B, Safety Injection System, Unit 2, Revision 1
12050-ECI-111AP, Safety Injection System, Unit 2, Revision 2
12050-WMKS-107B, Safety Injection System, Unit 2, Revision 3
12050-ECI-107B, Safety Injection System, Unit 2, Revision 1
12050-ECI-107C, Safety Injection System, Unit 2, Revision 1
12050-ECI-107E, Safety Injection System, Unit 2, Revision 2
12050-ECI-107K, Safety Injection System, Unit 2, Revision 2
12050-ECI-111AG, Safety Injection System, Unit 2, Revision 2
12050-ECI-111AJ, Safety Injection System, Unit 2, Revision 1
12050-ECI-111DA, Safety Injection System, Unit 2, Revision 2
12050-ECI-111AF, Safety Injection System, Unit 2, Revision 2
12050-ECI-103BB, Safety Injection System, Unit 2, Revision 1
12050-ECI-103BC, Safety Injection System, Unit 2, Revision 2
12050-ECI-103BD, Safety Injection System, Unit 2, Revision 2

12050-ECI-103BM, Safety Injection System, Unit 2, Revision 1
12050-ECI-103BN, Safety Injection System, Unit 2, Revision 1
12050-ECI-103BP, Safety Injection System, Unit 2, Revision 1
12050-ECI-103BV, Safety Injection System, Unit 2, Revision 1
12050-FM-095B, Flow/Valve Operating Numbers Diagram Chemical and Volume Control System, Unit 2, Sheet 1 of 2, Revision 38
12050-FM-095B, Flow/Valve Operating Numbers Diagram Chemical and Volume Control System, Unit 2, Sheet 2 of 2, Revision 47

Calculations
Technical Report ME-0178, Evaluation of Gas Accumulation in ECCS, Containment Spray and RHR Systems for GL 2008-01 Response, dated January, 2009
Technical Report ME-0178, Evaluation of Gas Accumulation in ECCS, Containment Spray and RHR Systems for GL 2008-01 Response, Revision 1

Condition Reports Reviewed During Inspection
CR 441515, ACE 018831, Unexpected Lift of 2-SI-RV-2845A During 2-PT-57.1A
CA 233801, Initiate procedure revision process for 1/2-PT-14.5
CR 381508, 1-SI-RV-1845C Lifting
CR 391714, 1-SI-RV-1845C Lifting
CR 391952, 1-SI-P-1B UT Inspection
CR 437426, LHSI Peak Pressure Negative Trend
CR 441515, 2-SI-RV-2845A Lifting
CR 472987, 1-SI-P-1A Discharge Line Gas Found
LC 000235, Nine-Month Response to NRC GL 2008-01

Procedures
1-MOP-7.01, Low Head Safety Injection Pump 1-SI-P-1A, Revision 33
1-MOP-7.07, Quench Spray Pump 1-QS-P-1A, Revision 19
1-MOP-7.08, Quench Spray Pump 1-QS-P-1B, Revision 20
1-PT-14.5, Venting ECCS Line, Revision 12
1-PT-138, Valve Inservice Inspection – LHSI System Functional Verification, Revision 30
1-MOP-8.01, 1-CH-P-1A, A Charging Pump, Revision 60
2-MOP-7.02, 2-SI-P-1A, Low Head Safety Injection Pump, Revision 33
2-MOP-7.01, Low Head Safety Injection Pump 2-SI-P-1A, Revision 30
2-MOP-7.07, Quench Spray Pump 2-QS-P-1A, Revision 18
2-MOP-7.08, Quench Spray Pump 2-QS-P-1B, Revision 22
2-MOP-8.02, 2-CH-P-2B, B Charging Pump, Revision 55
2-PT-14.5, Venting ECCS Line, Revision 13

Temporary Instruction 2515/187
CM-AA-BDB-1002, “Beyond Design Basis – Walkdowns of Flood Protection and Mitigation Features,” Revision 0
0-GEP-31, “Walkdown of Flood Protection Features,” Revision 0
Engineering Transmittal, ETE-NA-2012-0056, “Transmittal of Flooding Walkdown Information Related to the March 12, 2012 NRC 50.54(f) Request for Information,” Revision 0

NA-F-2012-301-00, “Topography Units 1 & 2,” Revision 0
NA-F-2012-304-00, “Flood Dike West of Unit 2,” Revision 0

Temporary Instruction 2515/188
2-MOP-8.02, 2-CH-P-2B, B Charging Pump, Revision 55
NA1-WD-SWEL-048, “BY/125V Battery 1-IV”
NA1-WD-SWEL-049, “AP/EDG Batteries and Racks”
NA2-WD-SWEL-049, “BY/125V Battery 2-II”
NA2-WD-SWEL-50, “AP/EDG Batteries and Racks”
SEWS, “BY/125V Battery 2-II”
SEWS, “Batteries in Diesel Generator Rooms”
SEWS, “BY/125V Battery 2-III”
Calculation, NA-CALC-CE-0872, “Seismic Verification of Emergency Diesel Generator Batteries,” Revision 0
Calculation, NA-CALC-CE-0872, “Seismic Verification of Emergency Diesel Generator Batteries,” Revision 0, Addendum 00A
Drawing, 11715-FE-27D, “Arrgt Plan & Details Emer Diesel Gen Rooms,” Revision 10
Calculation, 01040.4910-NM(B)-001-CZ, “Qualification of North Anna Unit 1&2 Emergency Diesel Generator Battery Racks Service Turbine Building,” Revision 0

LIST OF ACRONYMS

ADAMS	Agencywide 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