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

November 2, 2012

Mr. David A. Heacock
President and Chief Nuclear Officer
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: SURRY POWER STATION – NRC INTEGRATED INSPECTION REPORT 05000280/2012004, 05000281/2012004, 05000280/2012502, AND 05000281/2012502

Dear Mr. Heacock:

On September 30, 2012, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Surry Power Station Units 1 and 2. The enclosed inspection report documents the inspection findings which were discussed on October 25, 2012, with Mr. Mladen 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 licenses. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

One NRC identified finding of very low safety significance (Green) was identified during this inspection. This finding was determined to be a violation of NRC requirements. The NRC is treating this violation as noncited violation (NCV) consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest the violation or the significance of the NCV, 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 Surry Power Station.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II; and the NRC Resident Inspector at the Surry 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 NRC's Agencywide Document Access and management System (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

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

Docket Nos.: 50-280, 50-281
License Nos.: DPR-32, DPR-37

Enclosure: Inspection Report 05000280/2012004, 05000281/2012004, 05000280/2012502, and 05000281/2012502
w/Attachment: Supplemental Information

cc w/encl. (See page 3)

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 Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

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

Docket Nos.: 50-280, 50-281
License Nos.: DPR-32, DPR-37

Enclosure: Inspection Report 05000280/2012004, 05000281/2012004, 05000280/2012502, and 05000281/2012502
w/Attachment: Supplemental Information

cc w/encl. (See page 3)

X PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE X NON-SENSITIVE

ADAMS: X Yes ACCESSION NUMBER: ML12307A291 X SUNSI REVIEW COMPLETE ☐ FORM 665 ATTACHED

OFFICE	DRP	DRP	DRP	DRP	DRP	DRP	DRP
SIGNATURE	Vai email	GJM for	Via email	Via emial	Via email	Via email	Via email
NAME	Nadel, J	Sanchez, S	Mills, D	Kolcum, G	Clagg, R	Austin, J	Sowa, J.
DATE	11/2/2012	11/2/2012	11/2/2012	11/2/2012	11/2/2012	11/2/2012	11/2/2012
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICE	DRP	DRS	DRS	DRP	DRP	DRP	
SIGNATURE	Via email	WTL:/RA/	MES:/RA/	GJM:/RA/	Via email	BDB:/RA/	
NAME	Stewart, J.	Loo, W.	Speck, M.	McCoy, G	Nihn, S.	Bishop, B.	
DATE	11/2/2012	11/2/2012	11/2/2012	11/2/2012	11/02/2012	11/02/2012	
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	

OFFICIAL RECORD COPY DOCUMENT NAME: G:\DRPII\RPB5\SURRY\REPORTS\2012\IR 2012-004\SURRY 2012-004.DOCX

cc w/encl:
Larry Lane
Site Vice President
Surry Power Station
Virginia Electric and Power Company
Electronic Mail Distribution

B. L. (Sonny) Stanley
Director, Nuclear Safety and Licensing
Virginia Electric and Power Company
Electronic Mail Distribution

Kenny B. Sloane
Plant Manager
Surry Power Station
Virginia Electric & Power Company
Electronic Mail Distribution

Lillian M. Cuoco, Esq.
Senior Counsel
Dominion Resources Services, Inc.
Electronic Mail Distribution

Tom Huber
Director, Nuclear Licensing & Operations Support
Inssbrook Technical Center
Electronic Mail Distribution

Virginia State Corporation Commission
Division of Energy Regulation
P.O. Box 1197
Richmond, VA 23209

Attorney General
Supreme Court Building
900 East Main Street
Richmond, VA 23219

Senior Resident Inspector
Surry Power Station
U.S. Nuclear Regulatory Commission
5850 Hog Island Rd
Surry, VA 23883

Michael M. Cline
Director
Virginia Department of Emergency Services Management
Electronic Mail Distribution

Letter to David A. Heacock from Gerald J. McCoy dated November 2, 2012

SUBJECT: SURRY POWER STATION – NRC INTEGRATED INSPECTION REPORT 05000280/2012004, 05000281/2012004, 05000280/2012502, AND 05000281/2012502

Distribution w/encl:
C. Evans, RII
L. Douglas, RII
OE Mail
RIDSNRRDIRS
PUBLIC
RidsNrrPMSurry Resource

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-280, 50-281
License Nos.:	DPR-32, DPR-37
Report No:	05000280/2012004, 05000281/2012004, 05000280/2012502, and 05000281/2012502
Licensee:	Virginia Electric and Power Company (VEPCO)
Facility:	Surry Power Station, Units 1 and 2
Location:	5850 Hog Island Road Surry, VA 23883
Dates:	July 1, 2012 through September 30, 2012
Inspectors:	J. Nadel, Acting Senior Resident Inspector S. Sanchez, Senior Resident Inspector D. Mills, Acting Resident Inspector G. Kolcum, Senior Resident Inspector at North Anna R. Clagg, Resident Inspector at North Anna J. Austin, Senior Resident Inspector at Harris J. Sowa, Resident Inspector at Farley J. Stewart, Senior Resident Inspector at Turkey Point W. Loo, Senior Health Physicist Inspector (1EP2, 1EP3,1EP5, 4OA1, 4OA6) M. Speck, Senior Emergency Preparedness Inspector (1EP2, 1EP3,1EP5, 4OA1, 4OA6)
Approved by:	Gerald J. McCoy, Chief Reactor Projects Branch 5 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IRs 05000280/2012004, 05000281/2012004, 05000280/2012502, and 05000281/2012502 ; 07/01/2012 - 09/30/2012; Surry Power Station, Units 1 and 2: Routine Integrated Inspection Report; Identification and Resolution of Problems, Other Activities.

The report covered a three month period of inspection by resident inspectors and region based inspectors. One finding was identified and determined to be a noncited violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspect was determined using IMC 0310, "Components Within The Cross-Cutting Areas." 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

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," when licensee personnel failed to implement operability procedure, OP-AA-102, "Operability Determinations." Specifically, personnel declared the '1B' charging pump on Unit 1 operable for a period of approximately 7 days without adequate supporting technical information when the speed increaser (gearbox) was observed with excessive lube oil foaming to the point where sight glass oil level was not visible and could not be determined. The licensee has entered this issue into their CAP as CR 461276.

  The inspectors determined that the failure to provide adequate technical information to support the immediate operability declarations of the '1B' charging pump, as required by operability procedure, OP-AA-102, "Operability Determinations", was a performance deficiency. The inspectors reviewed IMC 0612, Appendix B, "Issue Screening" and determined that the finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the foaming condition and the inadequate operability determinations resulted in both a degradation of pump reliability and affected pump availability. The inspectors also noted that this issue was part of a larger programmatic concern associated with the licensee's implementation of its operability process and procedure.

  The inspectors screened this finding in accordance with IMC 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and IMC 0609, Appendix A, "SDP for Findings At-Power", and determined the finding was of very low safety significance, Green, since it was a deficiency determined not to have resulted in the loss of operability or functionality of a single train for greater than its TS allowed outage time. The cause of this finding involved the cross-cutting area of human performance, the component of decision making, and the aspect of using conservative

assumptions, H.1(b), because the multiple immediate operability determinations concluding that the '1B' charging pump was operable were non-conservative in light of the lack of supporting technical information.

B. Licensee Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at or near rated thermal power (RTP) until July 31 when it was ramped to 90 percent RTP due to a spurious closure of the number 3 turbine stop valve. The unit returned to full RTP on August 31 and operated there for the remainder of the inspection period.

Unit 2 operated at or near RTP until August 23 when it was ramped to approximately 70 percent RTP for planned condenser waterbox maintenance. The unit returned to full RTP on August 26 and operated there for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection

External Flooding

a. Inspection Scope

The inspectors performed walkdown inspections of the Unit 1 Emergency Switchgear Room and Relay Room and the common Low Level Intake Structure, including doors, flood protection barriers, penetrations, and the integrity of the perimeter structure. The inspectors reviewed the applicable Updated Final Safety Analysis Report (UFSAR) sections, Technical Specifications (TS), and other licensing basis documents regarding external flooding, flood protection, and the probable maximum hurricane (PMH); including specific plant design features to mitigate the maximum flood level. Corrective Action Program (CAP) documents and work orders (WO) related to actual flooding or water intrusion events over the past five years were also reviewed by the inspectors to ensure that the licensee was identifying and resolving severe weather related issues that caused or could lead to external flooding of safety related equipment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial Walkdown

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, valve alignment 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.

- Emergency service water pumps 'A', 'B', and 'C'
- Emergency diesel generator #3 while emergency diesel generator #2 was out of service for planned relay calibrations and other preventative maintenance
- The 'B' spent fuel pool cooling pump while the 'A' spent fuel pool cooling pump was in service and posted as protected equipment

b. Findings

No findings were identified.

1R05 Fire Protection

Quarterly Fire Protection Reviews

a. Inspection Scope

The inspectors conducted 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 reviews were performed to evaluate the fire protection program operational status and material condition and the adequacy of: (1) control of transient combustibles and ignition sources; (2) fire detection and suppression capability; (3) passive fire protection features; (4) compensatory measures established for out-of-service, degraded or inoperable fire protection equipment, systems, or features; and (5) procedures, equipment, fire barriers, and systems so that post-fire capability to safely shutdown the plant is ensured. The inspectors reviewed the corrective action program to verify fire protection deficiencies were being identified and properly resolved.

- Emergency Service Water Pump Room
- Unit 1 Emergency Switchgear Room
- Unit 2 Emergency Switchgear Room
- Common AAC Diesel Generator Room
- Unit 1 Normal Switchgear Room
- Unit 2 Normal Switchgear Room

b. Findings

No findings were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors reviewed the internal flood protection measures and procedural controls established to address potential flooding in the Unit 1 and 2 Emergency Switchgear and Relay Rooms, and Mechanical Equipment Room #3. The inspectors conducted a walk down of the affected areas to observe and assess the condition of the installed flood dikes, floor drain backflow preventers, the sealing of holes and penetrations between flood areas, the adequacy of water tight doors, and the condition of fluid filled piping. The inspectors reviewed a risk evaluation of Emergency Switchgear Room internal flooding from a previous flooding event. The inspectors reviewed the corrective action program and verified internal flooding related problems were being identified and properly addressed.

b. Findings

No findings were identified.

1R07 Heat Sink Performance

Annual Review of Heat Sink Performance

a. Inspection Scope

The inspectors reviewed the licensee's heat exchanger program document, 0-MCM-0812-01, "Component Cooling Heat Exchanger Inspection and Cleaning," Revision 16, trending data maintained by the system engineer, maintenance rule information, specific commitments, and design basis information; including Technical Report ME-0032, "Service Water System Compliance with General Design Criterion 2 During a Hurricane Surry Power Station – Units 1 & 2," Revision 1, and calculation 14937.80-M-4, "Extreme Weather/Hurricane Shutdown Calculations – Analysis of Service Water Profile and Heat Transfer Capabilities," Revision 2. The inspectors observed the licensee perform surveillance procedure 1-OSP-SW-003, "Measurement of Macrofouling Blockage of Component Cooling Heat Exchanger 1-CC-E-1B," Revision 28, which is designed to assess the performance of CCW Heat Exchanger '1B'. The inspectors reviewed testing procedures and test results to confirm that the component was still able to perform its function and that planned corrective actions were appropriate. The inspectors verified that significant heat exchanger performance issues were being entered into the licensee's CAP and appropriately addressed.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program

a. Inspection Scope

The inspectors observed and evaluated a licensed operator simulator exercise given on July 25, 2012. The scenario involved a loss of main control board annunciators, a failed pressurizer master pressure controller, a loss of main feedwater, and a failure of the reactor to trip with a valid trip signal present. This scenario was intended to exercise the entire operations crew and assess the ability of the operators to react correctly to multiple failures. The inspectors observed the crew's performance to determine whether the crew met the scenario objectives; accomplished the critical tasks; demonstrated the ability to take timely action in a safe direction and to prioritize, interpret, and verify alarms; demonstrated proper use of alarm response, abnormal, and emergency operating procedures; demonstrated proper command and control; communicated effectively; and appropriately classified events per the emergency plan. 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.

1R12 Maintenance Effectiveness

a. Inspection Scope

For the four equipment issues described in the condition reports listed below, the inspectors evaluated the effectiveness of the corresponding licensee's preventive and corrective maintenance. The inspectors performed a detailed review of the problem history and associated circumstances, evaluated the extent of condition reviews, as required, and reviewed the generic implications of the equipment and/or work practice problem(s). Inspectors performed walkdowns of the accessible portions of the system, 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), station procedures ER-AA-MRL-10, "Maintenance Rule Program," Revision 4, and ER-AA-MRL-100, "Implementing the Maintenance Rule," Revision 5.

- CR 481579, Master pressure controller placed in manual due to output going up in auto
- CR 479695, AAC diesel generator house dampers failed to function on power loss
- CR 484089, Low as-found emergency diesel generator stator winding resistance
- CR 483280, AAC diesel generator jacket water heater pump tripped

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated, as appropriate, the six activities listed below for the following: (1) the effectiveness of the risk assessments performed before maintenance activities were conducted; (2) the management of risk; (3) that, upon identification of an unforeseen situation, necessary steps were taken to plan and control the resulting emergent work activities; and, (4) that 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. The inspectors reviewed the corrective action program to verify deficiencies in risk assessments were being identified and properly resolved.

- Unit 2 risk during maintenance on a leaking underground pipe on the condensate makeup system
- Unit 2 risk model for removing condensate tank results in PRA 'Red' condition
- Unit 2 risk when emergency diesel generator #2 was removed from service for planned preventative maintenance
- Unit 1 risk with the B reactor trip breaker auto shunt coil inoperable and a tornado watch issued for Surry County
- Unit 2 risk during performance of 1-PT-8.5, Hi Hi CLS testing with contingencies
- Unit 2 risk when emergency diesel generator #2 was OOS beyond its TS LCO allowed outage time in accordance with NOED 12-2-003 and the unit was under a severe thunderstorm warning

b. Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the five operability evaluations 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; (4) if compensatory measures were involved, whether the compensatory measures 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. The inspectors' review included verification that operability determinations were made as

specified in OP-AA-102, “Operability Determination,” Revision 9. The inspectors reviewed the licensee’s corrective action program to verify deficiencies in operability determinations were being identified and corrected.

- CR 482396, Unit 2 channel one containment pressure input proving test lamp flickering
- CR 480902, Low shaft RPM on emergency service water pump '1C' results in unsatisfactory post maintenance test
- CR 479695, AAC DG house dampers failed to function on power loss
- OD 495, Emergency service water pump '1C' cannot achieve full rated RPMs
- OD 496, 2-RLY-2BM failed to actuate during Hi Hi CLS testing

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.

- 0-OPT-SW-009, Rev 12, Emergency service water pump ‘1C’ comprehensive test, following pump maintenance package
- 0-OPT-SW-007, Rev 10, Emergency service water pump ‘1A’ comprehensive test, following suction bowl cleaning
- 0-ECM-0309-01, Rev 5, Control panel maintenance, following AAC diesel jacket water pump heater circuit contactor and fuse replacement
- 1-IPT-CC-RC-P-444, Rev 14, Pressurizer pressure control loop P-1-444 channel calibration, following replacement of Unit 1 master pressure controller

- 1-PT-8.1, Rev 37 {OTO 1}, Instrument periodic test, following replacement of the Unit 1 'B' reactor trip breaker auto shunt coil and other components
- 2-OPT-EG-009, Rev 46 {OTO1}, Emergency diesel generator #2 major maintenance operability test, following the 18-month maintenance overhaul and complete power pack replacement

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

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

In-Service Testing:

- 2-OPT-CS-002, Rev 14, Containment spray system test

Surveillance Testing:

- 1-OPT-EG-001, Rev 54, Emergency diesel generator #1 monthly surveillance test
- 1-PT-8.5, Rev 23, Hi Hi CLS testing
- 2-OPT-EG-001, Rev 60, Emergency diesel generator #2 monthly exercise test
- 1/2-OPT-FW-021, Rev 4, Stroke exercise test of the auxiliary feedwater cross tie motor operated valves

RCS Leak Rate Determination

- 2-OPT-RC-10.0, Rev 39, Reactor coolant leakage - computer calculated

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation

a. Inspection Scope

The inspectors evaluated the adequacy of the licensee's methods for testing the alert and notification system in accordance with NRC Inspection Procedure 71114, Attachment 02, Alert and Notification System (ANS) Evaluation. The applicable planning standard, 10 CFR Part 50.47(b)(5) and its related 10 CFR Part 50, Appendix E, Section IV.D requirements were used as reference criteria. The criteria contained in NUREG-0654, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants, Revision 1, were also used as a reference.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

b. Findings

No findings were identified.

1EP3 Emergency Preparedness Organization Staffing and Augmentation System

a. Inspection Scope

The inspectors reviewed the licensee's Emergency Response Organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection was reviewed to assess the effectiveness of corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, Emergency Preparedness Organization Staffing and Augmentation System. The applicable planning standard, 10 CFR 50.47(b)(2), and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness

a. Inspection Scope

The inspectors reviewed the corrective actions identified through the Emergency Preparedness program to determine the significance of the issues, the completeness and effectiveness of corrective actions, and to determine if issues were recurring. The licensee's post-event after action reports, self-assessments, and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. The inspectors toured facilities and reviewed equipment and facility maintenance records to assess licensee's adequacy in maintaining them. In addition, the inspectors reviewed licensee procedures and training for the evaluation of changes to the emergency plans.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 05, Maintenance of Emergency Preparedness. The applicable 10 CFR 50.47(b) planning standards and related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the maintenance of emergency preparedness on a biennial basis.

b. Findings

No findings were identified.

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed one emergency response training drill conducted on September 25, 2012, to assess licensee performance in event classification per the emergency plan, protective action recommendations, and off-site notifications. The drill required emergency plan response action be taken by personnel located in the simulator control room, the technical support center (TSC), and the local emergency operating facility (LEOF). The inspectors observed conduct of the drill from the simulator, the TSC, the LEOF, and the subsequent critique performance. This drill was included in the Emergency Response Performance Indicator Statistics.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

.1 Mitigating Systems Cornerstone

a. Inspection Scope

The inspectors performed a periodic review of the following two PIs 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 July 1, 2011 through June 30, 2012. Documents reviewed included applicable NRC inspection reports, licensee event reports, operator logs, station performance indicators, and related CRs.

- Unit 1 & 2 Auxiliary Feedwater MSPI
- Unit 1 & 2 Emergency AC Power MSPI

b. Findings

No findings were identified.

.2 Emergency Preparedness Cornerstone

a. Inspection Scope

The inspectors sampled licensee submittals relative to the PIs listed below for the period April 1, 2011, and June 30, 2012. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used to confirm the reporting basis for each data element.

- Emergency Response Organization (ERO) Drill/Exercise Performance
- ERO Drill Participation
- Alert and Notification System Reliability

For the specified review period, the inspector examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences. The inspectors verified the accuracy of the PI for ERO drill and exercise performance through review of a sample of drill and event records. The inspectors reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. The inspectors verified the accuracy of the PI for alert and notification system reliability through review of a sample of the licensee's records of periodic system tests. The

inspectors also interviewed the licensee personnel who were responsible for collecting and evaluating the PI data. Licensee procedures, records, and other documents reviewed within this inspection area are listed in the Attachment. This inspection satisfied three inspection samples for PI verification on an annual basis.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems

.1 Daily Reviews 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 CR481497, Performance Improvement Plan for the Oil Program

a. Inspection Scope

The inspectors performed a review regarding the licensee's assessments and corrective actions CR481497, "Performance Improvement Plan for the Oil Program" 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, "Corrective Action Program," Revision 20 and 10 CFR 50, Appendix B.

b. Findings

No findings were identified. In general, the inspectors verified that the licensee had identified problems at an appropriate threshold and entered them into the CAP database, and had proposed or implemented appropriate corrective actions. Inspectors noted that a comprehensive vendor report on the station's oil sampling methods was still pending at the end of the quarter.

.3 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 January through June 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. In general, the licensee has identified trends and has addressed the trends with their corrective action program. No new adverse trends were identified this period that had not already been identified by the licensee.

4OA3 Event Follow-up

Notice of Enforcement Discretion (NOED) Review

a. Inspection Scope

On August 6, 2012 emergency diesel generator (EDG) #2 was removed from service for a scheduled 18-month maintenance package. The maintenance was completed and the engine was started for a series of return to service post maintenance test runs on August 9, 2012. The next day, on August 10, 2012, during the last test run, an operator dropped an oil sample tube into the EDG sump while the engine was running. The presence of the tube was evaluated by engineering and it was decided that the test run could continue. After the test run was competed, the sump was drained to retrieve the tube and large flakes of metal were found at the bottom of the engine sump. Subsequently, oil sample results from the test run showed the presence of silver and the engine was disassembled, and identified that wrist pin bearing #5 had been damaged. Unusual wear was identified on 16 of the 19 remaining bearings. On August 12, 2012 the licensee verbally indicated their intent to request a NOED based on the projected repair time needed to restore EDG #2 to operable status.

The NRC verbally granted NOED 12-2-003 at 8:39 p.m. on August 12, 2012. The licensee subsequently returned EDG #2 to an Operable status on August 16, 2012, at 8:56 a.m., which was within the completion time approved in the NOED.

The inspectors reviewed NOED 12-2-003 and related documents to determine the accuracy and consistency with the licensee's assertions and implementation of the licensee's compensatory measures and commitments, those of which included monitoring for adverse weather, the protection of the #1 and #3 EDGs, the station blackout (SBO) EDG, the reserve station service transformers, and the Unit 1 and Unit 2 turbine driven auxiliary feedwater pumps. Further compensatory actions verified include a backup supply of fuel available onsite and the hourly fire watches in the Unit 1 and Unit 2 cable vaults and tunnels, the Unit 1 emergency switchgear room, the Unit 1 and Unit 2 normal switchgear rooms, and the #1 and #3 EDG rooms. The SBO DG is in compliance with branch technical 8-8 capacity requirements, including loads needed to reach cold shutdown.

b. Findings

Introduction: An unresolved item (URI) was identified for Surry Power Station Units 1 and 2, Technical Specification 3.16 Emergency Power System, Specific to Emergency Diesel Generator (EDG) 02-EE-EG-1.

Description: The inspectors reviewed NOED 12-2-003 and related documents to determine the accuracy and consistency with the licensee's assertions and implementation of the licensee's compensatory measures and commitments as described above. Additional inspection is required to conduct a review of the root cause, extent of condition evaluation for EDGs #1 and #3, and planned corrective actions. This URI is identified as URI 05000280, 281/2012004-01, Follow-up for NOED 12-2-003, Surry Power Station Units 1 and 2, Technical Specification 3.16 Emergency Power System, Specific to Emergency Diesel Generator (EDG) 02-EE-EG-1.

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 (Discussed) NRC Temporary Instruction (TI) 2515/187, Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns, and NRC TI 2515/188, Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns

a. Inspection Scope

Inspectors accompanied the licensee on a sampling basis, during their flooding and seismic walkdowns, to verify that the licensee's walkdown activities were conducted using the methodology endorsed by the NRC. These walkdowns are being performed 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 3 of the March 12, 2012, letter requested licensees to perform seismic walkdowns using an NRC-endorsed walkdown methodology. Electric Power Research Institute (EPRI) document 1025286 titled, "Seismic Walkdown Guidance," (ADAMS Accession No. ML12188A031) provided the NRC-endorsed methodology for performing seismic walkdowns to verify that plant features, credited in the current licensing basis (CLB) for seismic events, are available, functional, and properly maintained.

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, are available, functional, and properly maintained.

b. Findings

Findings or violations associated with the flooding and seismic walkdowns, if any, will be documented in future reports.

.3 Independent Spent Fuel Storage Installation (ISFSI) Inspections (IP 60855.1)

a. Inspection Scope

The inspectors reviewed reported changes made to the licensee's procedures and programs for the Independent Spent Fuel Storage Installation (ISFSI) to verify the changes made were consistent with the license and Certificate of Compliance (CoC),

and did not reduce the effectiveness of the program. The inspectors, through direct observation and independent evaluation, verified cask loading activities were performed in a safe manner and in compliance with approved procedures. Based on direct observation and review of selected records, the inspectors verified the licensee had properly identified each fuel assembly and insert placed in the ISFSI, had recoded the parameters and characteristics of each fuel assembly and insert, and had maintained a record of each as a controlled document. Inspection activities were associated with casks DOM-32PTH-039-C and DOM-32PTH-042C.

The inspectors reviewed the design limitations for each Dry Shielded Cask (DSC) and compared the specified cask loading to the cask's loading limitations and Technical Specification requirements. The inspectors verified limitations for heavy load lifts in and around the spent fuel pool were adhered to and incorporated into the licensee's procedures.

b. Findings

No findings were identified.

.4 (Closed) URI 05000280/2012002-01, Operability Determinations Questioned When the '1B' Charging Pump Lube Oil Exhibited Foaming

a. Inspection Scope

As a result of the NRC's inspection of licensee performance under inspection procedure 71111.15 (NRC Inspection Report 05000280/2012002), the inspectors opened a URI to evaluate the adequacy of licensee operability evaluations and other actions associated with gearbox lube oil foaming which occurred on the '1B' charging pump on Unit 1 on January 25, 2012. The results of this inspection are discussed below.

b. Findings

Introduction: The inspectors identified a Green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," when Dominion personnel failed to follow operability procedure, OP-AA-102, "Operability Determinations." Specifically, personnel declared the '1B' charging pump on Unit 1 operable for a period of approximately 7 days without adequate supporting technical information when the speed increaser (gearbox) was observed with excessive lube oil foaming to the point where sight glass oil level was not visible and could not be determined.

Description: On January 25, 2012, operators discovered that foam present in the main gearbox oil sightglass of the 1B charging pump covered the entire sight glass. No oil level could be seen. Operators immediately added one gallon of oil, but there was still no visible level in the sight glass. The pump was then shutdown based on a recommendation from Engineering. The foaming subsided and oil level was then seen to be above the top of the sight glass (sight glass full of oil). Approximately one half

gallon of oil was drained to return the oil level to the proper height in the sight glass. The associated Condition Report (CR) declared the pump was operable; however licensee personnel did not document a technical basis with adequate supporting information for that conclusion. The CR also documented several open questions regarding the pending results of an oil analysis and the need to run the pump again to see if the foaming would recur.

The inspectors reviewed the issue and associated documentation on January 30 and found that the pump had remained in standby since the 25. No actions had been taken or assigned from the previous CRs, no answers to the open questions were documented, and the CR had been closed to a work order that was still in a planning stage. The inspectors questioned the documented immediate operability determination and requested answers to the open questions. The next day, after further challenges from the inspectors, the licensee decided to run the pump again to see if the foaming would recur immediately after pump start; an indication that air was intruding into the lube oil system. The pump was started with Engineering present and after approximately 30 seconds the foaming appeared and the sight glass was again full of foam. The licensee continued to maintain the pump was operable in this condition; however their immediate operability determination still lacked adequate supporting technical information.

The next day, February 1, 2012, the resident inspectors challenged the conclusions of the operability determinations again and this time, licensee personnel agreed that they did not have adequate technical information to support pump operability for its 30-day mission time; they declared the pump inoperable and entered the applicable Technical Specification (TS) Limiting Condition for Operation (LCO).

The inspectors reviewed the requirements of Dominion procedure OP-AA-102, "Operability Determinations." Step 3.2.2.a states that, "If adequate technical information exists that supports the operability of the TS SSC (i.e. no further documentation in the form of an OD evaluation is needed) and no compensatory measures are required, then declare the SSC operable." Between January 25, 2012, and February 1, 2012, the '1B' charging pump was declared operable without adequate technical information to support that determination.

The licensee subsequently replaced all of the oil with new oil and sealed and tightened all piping connections in the pump's lube oil system. The pump was returned to service on February 4, 2012, and the foaming issue did not recur.

Over the next five months, in a past-operability analysis, the licensee sought out more information on lube oil aeration phenomena, gathered internal operating experience, contacted several vendors for input, built a mock-up test apparatus, and performed additional oil testing analysis on the samples from the January 25, 2012, event. After several revisions to the operability determination document and multiple meetings to respond to inspector questions, licensee personnel were able to document adequate technical information to provide reasonable assurance that the '1B' charging pump would have performed its safety function in a design basis accident for its 30-day mission time with the foaming condition present.

Analysis: The inspectors determined that the failure to provide adequate technical information to support the immediate operability declarations of the '1B' charging pump, as required by operability procedure, OP-AA-102, "Operability Determinations", was a performance deficiency. The inspectors reviewed IMC 0612, Appendix B, "Issue Screening" and determined that the finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the foaming condition and the inadequate operability determinations resulted in both a degradation of pump reliability and affected pump availability. The inspectors also noted that this issue was part of a larger programmatic concern associated with the licensee's implementation of its operability process and procedure.

The inspectors screened this finding in accordance with IMC 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and IMC 0609, Appendix A, "SDP for Findings At-Power", and determined the finding was of very low safety significance, Green, since it was a deficiency determined not to have resulted in the loss of operability or functionality of a single train for greater than its TS allowed outage time. The cause of this finding involved the cross-cutting area of human performance, the component of decision making, and the aspect of using conservative assumptions, H.1(b), because the multiple immediate operability determinations concluding that the '1B' charging pump was operable were non-conservative in light of the lack of supporting technical information.

Enforcement: 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that "activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings." Contrary to the above, from 16:30 on January 25, 2012, until 15:22 on February 1, 2012, the licensee declared the '1B' charging pump on Unit 1 operable without adequate supporting technical information as required by step 3.2.2.a of procedure OP-AA-102, "Operability Determinations". The licensee has entered this issue into their CAP as CR 461276. Because this violation was determined to be of very low safety significance and has been entered into the licensee's CAP, it is being treated as a NCV consistent with section 2.3.2 of the NRC Enforcement Policy: NCV 05000280/2012004-02, Failure to Follow Operability Procedure for '1B' Charging Pump.

4OA6 Meetings, Including Exit

.1 Resident Inspectors Exit Meeting Summary

On October 25, 2012, the inspection results were presented to Mr. F. Mladen and other members of his staff, who 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.

.2 Emergency Preparedness Exit Meeting Summary

On July 27, 2012, the lead inspector presented the inspection results to Mr. K. Sloane, and other members of the staff. The inspector confirmed that proprietary information was not provided or reviewed during the inspection.

ATTACHMENT: SUPPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

P. Blasioli, Director, Nuclear Protection Services & Emergency Preparedness
E. Collins, Manager, Emergency Preparedness
J. Eggart, Manager, Radiation Protection & Chemistry
B. Garber, Supervisor, Station Licensing
L. Hilbert , Manager, Outage and Planning
B. Hoffner, Manager, Nuclear Fleet Emergency Preparedness
R. Johnson, Manager, Operations
L. Lane, Site Vice President
F. Mladen, Director, Station Safety and Licensing
C. Olsen, Director, Station Engineering
L. Rollings, EP Staff
K. Sloane, Plant Manager (Nuclear)
M. Smith, Manager, Nuclear Oversight
W. Thompson, EP Staff
N. Turner, Supervisor, Emergency Preparedness
M. Wilda, Supervisor, Auxiliary Systems

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000280, 281/2012004-01	URI	Follow-up for NOED 12-2-003, Surry Power Station Units 1 and 2, Technical Specification 3.16 Emergency Power System, Specific to Emergency Diesel Generator (EDG) 02-EE-EG-1. (Section 4OA3)

Opened and Closed

05000280/2012004-02	NCV	Failure to Follow Operability Procedure for '1B' Charging Pump (Section 4OA5.4)

Closed

05000280/2012002-01	URI	Operability Determinations Questioned when the '1B' Charging Pump Lube Oil Exhibited Foaming (Section 4OA5.4)

Discussed

TI 2515/187	TI	Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns (Section 4OA5.4)
TI 2515/188	TI	Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns (Section 4OA5.4)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
ER-SU-BDB-FLD-001, Walkdown of Flood Protection Features, Rev. 0
0-OP-ZZ-021, Severe Weather Preparation. Rev. 0

CRs
484030, 484121, 484222, 484288, 484319, 484321, 484322, 484323, 484325, 484327, 484328, 484329, 484330, 484342, 484344, 484346, 484347, 484350, 484351, 484356, 484359, 484362, 484364, 484367, 484369, 484373, 484376, 484378, 484380, 484381, 484386, 484389, 484397, 484506, 484508, 484509, 484510, 484511, 484512, 484514, 484515, 484518, 484571, 485029, 485030

Walkdown Packages
SU-F-2012-154-00

Drawings
11448-FC-24CC, Cable Vault and Motor Cont. Ctr. Auxiliary Building, No revision given
11448-FA-1E, Control and Relay Room, Service Building, Rev. 23
11448-FA-3C, Wall Sections, Service Building, Rev. 12

Section 1R04: Equipment Alignment

Procedures
0-OP-EG-001A, EDG System Alignment, Rev. 14
0-OP-FC-001A, Spent Fuel Pit Cooling System Alignment, Rev. 7
0-OP-SW-002A, Emergency Service Water System Alignment, Rev. 9

Drawings
11448-FB-038A, Fuel Oil Lines, Rev. 27
11448-FP-15C, Spent Fuel Pit Cooling, Rev. 8
11448-FM-07, Circulation and Service Water System, Rev.79

Section 1R05: Fire Protection

Loss Prevention Fire Strategy Procedures
0-FS-FP-225, Alternate AC Diesel Room, Rev. 1
0-FS-FP-211, Emergency Service Water Pump House, Rev. 2

1-FS-FP-107, Unit 1 Emergency Switchgear Room, Rev. 2
1-FS-FP-124, Unit 1 Switchgear Room, Rev. 2
2-FS-FP-107, Unit 2 Emergency Switchgear Room, Rev. 2
2-FS-FP-124, Unit 2 Switchgear Room, Rev. 2

Section 1R06: Flood Protection Measures

Procedures

ER-SU-BDB-FLD-001, Walkdown of Flood Protection Features, Rev. 0
0-AP-13.00, Turbine Building or MER #3 Flooding, Rev. 26

Drawings

11448-FC-24CC, Cable Vault and Motor Cont. Ctr. Auxiliary Building, No revision given
11448-FA-1E, Control and Relay Room, Service Building, Rev. 23
11448-FA-3C, Wall Sections, Service Building, Rev. 12

Section 1R07: Heat Sink Performance

Documents

0-MCM-0812-01, Component Cooling Heat Exchanger Inspection and Cleaning, Rev. 16
Technical Report ME-0032, Service Water System Compliance with General Design Criterion 2 During a Hurricane Surry Power Station – Units 1 & 2, Rev. 1
Calculation 14937.80-M-4, Extreme Weather/Hurricane Shutdown Calculations – Analysis of Service Water Profile and Heat Transfer Capabilities, Rev. 2
1-OSP-SW-003, Measurement of Macrofouling Blockage of Component Cooling Heat Exchanger 1-CC-E-1B, Rev. 28
Work Order 38103200217, 14 Day Freq. PT: Macrofouling of CC HX 1-CC-E-1B

CRs

474385, 460614, 459380, 417538, 418961, 418958, 413188, 415037

Section 1R11: Licensed Operator Requalification Program

LORP Scenario 12.5-ST-3

Section 1EP2: Alert and Notification System Evaluation

Procedures and Reports

EPIP-1.01, Emergency Manager Controlling Procedure, Rev. 53
EPIP-2.02, Notification of NRC, Rev. 22
0-LSP-EW-001, Early Warning System Polling Functional Test, Rev. 10
0-LSP-EW-002, Early Warning System Siren Activation Monitoring, Rev. 8
0-LSP-EW-003, Early Warning System Siren Quarterly Inspection, Rev. 0
0-LSP-EW-004, Early Warning System Siren Quarterly Remote Activation Panel Inspection, Rev. 0
0-LSP-EW-008, Early Warning System Siren Annual Inspection, Rev. 0
PI-AA-200, Corrective Action, Rev. 19
Surry Power Station Emergency Plan, Rev. 56
Surry Power Station Site-Specific Offsite Radiological Emergency Preparedness Alert and Notification System Quality Assurance Verification, Final Report, 9/30/1987
Telecommunications Operability Testing Procedures, Emergency Warning System North Anna/Surry, Rev. H

Records and Data
Self Assessment No. SAR 1603, SPS EWS Design Requirements & Maintenance Procedures, Dated 02/28/12
Surry Power Station 2012 Nuclear Emergency Planning Information Calendar
Telecommunications Operability Testing Procedures, Emergency Warning System (EWS), North Anna/Surry, Rev. H, performances dated 09/03/10; 12/31/10; 03/23/11; 06/01/11; 09/28/11; 01/19/12; 03/13/12; and 06/14/12
Work Order (WO) 38102774921, 0-LSP- EW-001, Early Warning System Polling Functional Test, Rev. 9, Dated 10/05/10
WO 38102801787, 0-LSP- EW-001, Early Warning System Polling Functional Test, Rev. 9, Dated 11/30/10
WO 38102877304, 0-LSP- EW-001, Early Warning System Polling Functional Test, Rev. 9, Dated 04/19/11

Section 1EP3: Emergency Preparedness Organization Staffing and Augmentation System

Procedures
EPCP-0010, Nuclear Emergency Preparedness Training Program, Rev. 5
EPIP-3.05, Augmentation of Emergency Response Organization, Rev. 8
VPAP-2601, Maintaining Emergency Preparedness, Rev. 23
TPG-2400, Nuclear Emergency Responder, Rev. 1

Records and Data
2011, 2012 quarterly drill reports/critiques
2011, 2012 Unannounced pager test results
Emergency Response Organization Teams listing dated 7/20/2012
Various EP staff and ERO member training records
Various ERO member drill/exercise participation status records
Surry Power Station Emergency Plan, Rev. 56
Completion records of VPAP-2601, Augmentation Capability Assessment-Emergency Response Organization, Quarters 3 and 4 of 2011, and Quarters 1 and 2 of 2012
Self-Assessment Report, SAR1235, Emergency Response Organization (ERO) Activation (including on-shift staffing and staff augmentation), dated 12/14/2011
Self-Assessment Report, SAR001744, ERO Availability, dated 7/6/2012
Performance Indicator data, Quarters 3 and 4 of 2011, and Quarters 1 and 2 of 2012

Corrective Actions – Condition Reports (CR)
437727, Availability Survey Results-All positions not two-deep, 8/12/2011
439255, SPS ERO Availability Survey Results-All positions not two-deep, 8/24/2011
480959, ERO Members Require More Guidance for Completing Availability Surveys, 7/6/2012
481627, ERO Availability Results – 1 Position Less than N+1, 7/13/2012

Section 1EP5: Maintenance of Emergency Preparedness

Procedures
PI-AA-200, Corrective Action, Rev. 19
EP-AA-101, 10 CFR 50.54(q) Change Evaluation, Rev. 4

EP-AA-102, Revision and Control of Emergency Plan, Emergency Action Levels (Technical Basis and Matrix), and Reference Manual, Rev. 4
EP-AA-303, Equipment Important to Emergency Response, Rev. 3

Records and Data
Event records and critique of 4/16/2011 NOUE (tornado)
Event records and critique of 8/23/2011 NOUE (earthquake)
SAR1108, Shift Manager Role During Emergency Plan Implementation, 1/11/2011
SAR1603, Siren Design Requirements/Maintenance Procedures, 2/24/2012
SAR0987, B.5.B Implementation by Operations, 3/31/2010
SAR1433, Corporate Support of EP, 4/13/2011
SAR1220, EAL Matrix/Technical Documents, 10/18/2010
SAR1235, ERO Activation, 12/14/2011
SAR1744, ERO Availability, 7/6/2012

SAR0934, Effectiveness of Drill/Exercise CAP, 11/1/2010
Nuclear Oversight Audit 11-02, Emergency Preparedness, April 13, 2011
Nuclear Oversight Audit 12-02, Emergency Preparedness, April 30, 2012
EPIP-5.09, Security Team Leader Controlling Procedure, Rev. 12 - 10CFR 50.54(q) change package

Corrective Actions – Problem Evaluation Reports (PERs)
435094; Failure to declare NOUE on nitrogen leak

Section 1EP6: Drill Evaluation
Procedures
1-AP-10.07, Loss of Unit 1 Electrical Power, Rev. 65
1-VSP-F1, Loose Parts Unit 1, Rev. 5
1-RM-F7, 1-CH-RI-188 High, Rev. 5
0-SEAL-Matrices, Surry Power Station emergency Action Level Matrices, Rev. 2
1-ES-0.1, Reactor Trip Response, Rev. 49
1-AP-16.01, Shutdown LOCA, Rev. 17
0-FCA-10.00, Establishing Communications, Rev. 5
1-AP-17.04, EDG #1 or #2 Emergency Operations, Rev. 25

Section 4OA1: Performance Indicator Verification
Procedures
EP-AA-103, Emergency Preparedness Performance Indicators, Rev. 2
O-LSP-EW-001, Early Warning System Polling Functional Test, Rev. 10
O-LSP-EW-002, Early Warning System Siren Activation Monitoring, Rev.8
0-LSP-EW-003, Early Warning System Siren Quarterly Inspection, Rev. 0
0-LSP-EW-004, Early Warning System Siren Quarterly Remote Activation Panel Inspection, Rev. 0
0-LSP-EW-008, Early Warning System Siren Annual Inspection, Rev. 0
EP-AA-103, Emergency Preparedness Performance Indicators, Rev. 2

Records and Data
Documentation of DEP opportunities for 4th quarter 2011 – 2nd quarter 2012
Documentation of ANS tests for 4th Quarter Calendar Year (CY) 2010 – 2nd Quarter CY 2012

Corrective Actions –Condition Reports (CR)
CR No. 397975, Siren No. 57 "Did Not Respond" during EWS Functional Polling Test
CR No. 405579, Siren No. 48 "Did Not Respond" during scheduled Polling Test
CR No. 407427, During EWS polling Siren No. 58 and 51 "DID NOT RESPOND"

Section 4OA3: Event Follow-up

Correspondence
NOED 12-2-003, August 15, 2012
Surry Power Station Units 1 and 2 Technical Specification 3.16 Emergency Power System Request for Enforcement Discretion, August 13, 2012

Calculations
EE-0035, Emergency Diesel Generator Loading Analysis, Rev. 2, Addendum K

Work Orders
38045420401

Miscellaneous
2-EE-EG-1 Event Team Report

Section 4OA5: Other Activities

Procedures
0-OP-FH-073, TC/DSC Transfer to ISFSI and DSC Transfer from TC to HSM, Rev. 10
0-HSP-ISFSI-002, NUHOMS Dry Spent Fuel Storage System Surveillance, Rev. 4
HP-1061.500, NUHOMS Spent Fuel Cask Preparation/Loading and Transport to ISFSI, Rev. 5

LIST OF ACRONYMS

ADAMS	Agencywide Document Access and Management System
ALARA	As Low As Reasonably Achievable
ANS	Alert and Notification System Testing
CA	Corrective Action
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
DEP	Emergency Response Organization Drill/Exercise Performance
DOT	Department of Transportation
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
ERO	Emergency Response Organization
HP	Health Physics
HPT	Health Physics Technician
HPAP	Health Physics Administrative Procedure
HRA	High Radiation Area
IMC	Inspection Manual Chapter
ISFSI	Independent Spent Fuel Storage Installation
JPM	Job Performance Measures
LHSI	Low Head Safety Injection
NCV	Noncited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OD	Operability Determination
PARS	Publicly Available Records
PCP	Process Control Program
PI	Performance Indicator
PS	Planning Standard
RAB	Reactor Auxiliary Building
RCE	Root Cause Evaluation
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RFO	Refueling Outage
RP	Radiation Protection
RTP	Rated Thermal Power
RWP	Radiation Work Permit
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
VHRA	Very High Radiation Area
VPAP	Virginia Power Administrative Procedure
WO	Work Order