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

November 10, 2014

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

SUBJECT: SURRY POWER STATION – NRC COMPONENT DESIGN BASES INSPECTION REPORT 05000280/2014007 AND 05000281/2014007

Dear Mr. Heacock:

On September 26, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Surry Power Station Units 1 and 2 and discussed the results of this inspection with Mr. Larry Lane and other members of your staff. In addition, on November 7, 2014, the inspectors re-exited via telephone with members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented two findings of very low safety significance (Green) in this report. Both of these findings involved violations of NRC requirements.

If you contest the violations or significance of these violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, U.S. 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 Title 10 of the Code of Federal Regulations 2.390, “Public Inspections, Exemptions, Requests for Withholding,” of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (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/

Rebecca L. Nease, Chief
Engineering Branch 1
Division of Reactor Safety

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

Enclosure: Inspection Report 05000280/2014007 and 05000281/2014007
w/Attachment: Supplementary Information

cc: Distribution via Listserv

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-280, 50-281
License Nos.:	DPR-32, DPR-37
Report Nos.:	05000280/2014007 and 05000281/2014007
Licensee:	Virginia Electric and Power Company (VEPCO)
Facility:	Surry Power Station, Units 1 and 2
Location:	5850 Hog Island Road Surry, VA 23883
Dates:	August 18, 2014, through September 26, 2014
Inspectors:	E. Stamm, Senior Reactor Inspector (Lead) S. Walker, Senior Reactor Inspector R. Patterson, Reactor Inspector T. Fanelli, Reactor Inspector O. Mazzoni, Contractor (Electrical) M. Yeminy, Contractor (Mechanical)
Approved by:	Rebecca L. Nease, Chief Engineering Branch 1 Division of Reactor Safety

Enclosure

SUMMARY

IR 05000280/2014007 and 05000281/2014007; 08/18/2014 – 09/26/2014; Surry Power Station, Units 1 and 2; Component Design Bases Inspection.

This inspection was conducted by a team of four Nuclear Regulatory Commission (NRC) inspectors from Region II and two NRC contract personnel. Two Green non-cited violations (NCVs) were identified. The significance of inspection findings is indicated by their color (Green, White, Yellow, Red) using the NRC Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within the Cross Cutting Areas," dated December 19, 2013. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated July 9, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5, dated February 2014.

Cornerstone: Mitigating Systems

- Green. The team identified a Green non-cited violation of Technical Specification 6.4.A.7, "Unit Operating Procedures and Programs," for the licensee's failure to implement written procedures to perform periodic tests for the Class 1E 125 volt direct current thermal-magnetic molded case circuit breakers (MCCBs). The licensee entered the issue into their corrective action program as condition reports CR558445 and CR560488 and performed an immediate determination of operability, in which they determined that the MCCBs were operable but not fully qualified.

  The licensee's failure to conduct periodic tests to detect the deterioration of the system and to demonstrate that components not exercised during normal operation of the station are operable, as required by IEEE 308-1970, Section 6.3, was a performance deficiency. The performance deficiency was determined to be more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, absent testing to detect deterioration and to demonstrate continued operability, the likelihood that these MCCBs will unpredictably fail when called upon increases with time in service. The team used Inspection Manual Chapter 0609, Att. 4, "Initial Characterization of Findings," issued June 19, 2012, for Mitigating Systems, and Inspection Manual Chapter 0612, App. A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating structure, system, or component, which maintained its operability or functionality. The team determined that no cross-cutting aspect was applicable because the finding was not indicative of current licensee performance. (Section 1R21.2b.i)

- Green. The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to properly evaluate and quantify the system response times and accuracies over the range of conditions under which the service water canal level probes must operate. The licensee entered the issue into their corrective action program as condition report CR558429 and performed an immediate determination of operability, in which they determined the canal level probes to be operable but not fully qualified.

The licensee's failure to evaluate conditions that affected system response times and accuracy of the canal level probes, as required by IEEE 279-1968, Section 4.1, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Protection Against External Factors attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, response time delays could allow the canal water level to fall below Technical Specification limits reducing the available heat removal required to mitigate Updated Final Safety Analysis Report chapter 14 design basis accidents. The team used Inspection Manual Chapter 0609, Att. 4, "Initial Characterization of Findings," issued June 19, 2012, for Mitigating Systems, and Inspection Manual Chapter 0612, App. A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating structure, system, or component, which maintained its operability or functionality. The team determined that the finding was associated with the Design Margin cross-cutting aspect of the Human Performance area because recent modification designs for the canal probes were completed and approved without evaluating effects on the canal level probe response times and accuracies. [H.6] (Section 1R21.2b.ii)

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R21 Component Design Bases Inspection (71111.21)

.1 Inspection Sample Selection Process

The team selected risk-significant components for review using information contained in the licensee's probabilistic risk assessment. In general, this included components that had a risk achievement worth factor greater than 1.3 or Birnbaum value greater than 1E-6. The sample included 13 components, two of which were associated with containment large early release frequency (LERF), and four operating experience (OE) items.

The team performed a margin assessment and a detailed review of the selected risk-significant components to verify that the design bases had been correctly implemented and maintained. Where possible, this margin was determined by the review of the design basis and Updated Final Safety Analysis Report (UFSAR). This margin assessment also considered original design issues, margin reductions due to modifications, or margin reductions identified as a result of material condition issues. Equipment reliability issues were also considered in the selection of components for a detailed review. These reliability issues included items related to failed performance test results, significant corrective action, repeated maintenance, maintenance rule status, Manual Chapter 0326 conditions, NRC resident inspector input regarding problem equipment, system health reports, industry OE, and licensee problem equipment lists. Consideration was also given to the uniqueness and complexity of the design, OE, and the available defense-in-depth margins. An overall summary of the reviews performed and the specific inspection findings identified is included in the following sections of the report.

.2 Component Reviews

a. Inspection Scope

Components

- low head safety injection pumps (1/2-SI-P-1A/B)
- condenser water box isolation valves (1-CW-MOV-100A/B/C/D and 106A/B/C/D)
- emergency condensate storage tank (1-CN-TK-1)
- emergency diesel generator cooling water subsystem (1/2/3-EE-EG-1)
- component cooling water heat exchangers (1-CC-E-1A/B/C/D)
- canal level probes (1-CW-LS-102/103)
- 125VDC bus 1A (1-EP-DCS-1A)
- reserve station service transformer A and breaker 15D1 (1-EP-RST-1A, 1-EP-BKR-15DA)
- 4160V bus 1J and breaker 15J8 (1-EP-SW-1J, 1-EP-BKR-15J8)
- 125VDC battery 1A (1-EPD-B-1A)
- emergency switchgear room drain pit level switches (1-DA-LS-115A-1, 115B, 115B-1, 115B-2)

Components with LERF Implications

- refueling water storage tank and volume control tank charging suction motor operated valves (1-CH-MOV-1115B/D and 1-CH-MOV-1115C/E)
- auxiliary building ventilation system (1-VS-F-58A/B)

For the 13 components listed above, the team reviewed the plant technical specifications (TS), UFSAR, design bases documents (DBDs), and drawings to establish an overall understanding of the design bases of the components. Design calculations and procedures were reviewed to verify that the design and licensing bases had been appropriately translated into these documents. Test procedures and recent test results were reviewed against DBDs to verify that acceptance criteria for tested parameters were supported by calculations or other engineering documents, and that individual tests and analyses served to validate component operation under accident conditions. Maintenance procedures were reviewed to ensure components were appropriately included in the licensee's preventive maintenance program. System modifications, vendor documentation, system health reports, preventive and corrective maintenance history, and corrective action program documents were reviewed (as applicable) in order to verify that the performance capability of the component was not negatively impacted, and that potential degradation was monitored or prevented. Maintenance Rule information was reviewed to verify that the component was properly scoped, and that appropriate preventive maintenance was being performed to justify current Maintenance Rule status. Walkdowns for accessible components and interviews were conducted to verify that the installed configurations would support their design and licensing bases functions under accident conditions and had been maintained to be consistent with design assumptions.

Additionally, the team performed the following component-specific reviews:

- The team reviewed the 4kV switchgear incoming line breaker settings and coordination with transfer bus breakers and Transformer RSSTA protective relays.
- The team reviewed and evaluated the capability of the following operator actions: (1) align the Alternate AC (AAC) diesel and restore power to "J" bus within 10 minutes; (2) establish an alternate feed source to the steam generators within 10 minutes following a loss of all feedwater; and (3) initiate high head or low head safety injection flow for reactor coolant system injection within 10 minutes.
- The team reviewed procedures and design bases documents to verify assumptions made for time critical actions (i.e., the automatic transfer of filtered ventilation exhaust) were reasonable.

b. Findings

.i Failure to Perform Required Preventative Maintenance on Class 1E Molded Case Circuit Breakers

Introduction: The team identified a Green NCV of TS 6.4.A.7, "Unit Operating Procedures and Programs," for the licensee's failure to implement written procedures to perform periodic tests for the Class 1E 125 volt direct current (VDC) thermal-magnetic molded case circuit breakers (MCCBs).

Description: The team inspected the safety related (Class 1E) 125VDC distribution system (switchgear) to verify compliance with plant's licensing basis for Class 1E electric

systems, including IEEE 308-1970, “Standard Criteria for Class 1E Power Systems for Nuclear Power Generating Stations,” to which the licensee committed. The Class 1E switchgear contains Class 1E 125VDC MCCBs designed to interrupt the DC power to protect the wire and cabling, in the event of a short circuit or overload conditions. These MCCBs are located in two distribution panels per unit (01-EPD-DCS-1A and 01-EPD-DCS-1B for Unit 1) and related sub-panels.

To demonstrate operability and detect deterioration of Class 1E power systems (including protective features such as Class 1E MCCBs installed in Class 1E switchgear), IEEE 308-1970 specified periodic testing such as mechanical inspections, operational tests, and overcurrent trip tests. Specifically, IEEE 308-1970 Section 6.3, stated, in part, that “Tests shall be performed at scheduled intervals to: 1) Detect the deterioration of the system toward an unacceptable condition and 2) Demonstrate that standby power equipment and other components that are not exercised during normal operation of the station are operable.” The team requested results of periodic tests performed on the Class 1E 125VDC MCCBs, and found that the licensee had not performed any periodic tests on the Class 1E 125VDC MCCBs and that most were not included in the preventive maintenance program.

Analysis: The licensee’s failure to conduct periodic tests to detect the deterioration of the system and to demonstrate that components not exercised during normal operation of the station are operable, as required by IEEE 308-1970, Section 6.3, was a performance deficiency. The performance deficiency was determined to be more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, absent testing to detect deterioration and to demonstrate continued operability, the likelihood that these MCCBs will unpredictably fail when called upon increases with time in service. The team used IMC 0609, Att. 4, “Initial Characterization of Findings,” issued June 19, 2012, for Mitigating Systems, and IMC 0612, App. A, “The Significance Determination Process (SDP) for Findings At-Power,” issued June 19, 2012, and determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating structure, system, or component (SSC), and the SSC maintained its operability or functionality. The team determined that no cross-cutting aspect was applicable because the finding was not indicative of current licensee performance.

Enforcement: Technical Specification 6.4.A.7 stated, in part, that “Detailed written procedures with appropriate check-off lists and instructions shall be provided for preventive or corrective maintenance operations which would have an effect on the safety of the reactor. Licensing basis commitment IEEE 308-1970, Section 6.3, referenced in Surry’s Safety Evaluation Report (dated February 25, 1972), stated, in part, that “Tests shall be performed at scheduled intervals to: 1) Detect the deterioration of the system toward an unacceptable condition and 2) Demonstrate that standby power equipment and other components that are not exercised during normal operation of the station are operable.” Contrary to the above, since 1985, when the Class 1E 125VDC MCCBs were replaced, the licensee failed to provide detailed written procedures for preventative or corrective maintenance to perform tests to detect deterioration and demonstrate that standby power equipment and other components that are not exercised during normal operation of the station are operable. Specifically, the licensee failed to provide detailed written procedures to test Class 1E 125VDC MCCBs at scheduled intervals to detect the deterioration of the system and demonstrate continued operability. This is a violation of TS 6.4.A.7. The licensee performed an immediate

determination of operability and determined the Class 1E DC switchgear to be operable. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as CR558445 and CR560488. (NCV 05000280/2014007-01; 05000281/2014007-01, Failure to Perform Required Preventative Maintenance on Class 1E Molded Case Circuit Breakers)

.ii Failure to Evaluate the Range of Conditions that Effect Canal Level Probes

Introduction: The team identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to properly evaluate and quantify the system response times and accuracies over the range of conditions under which the service water canal level probes must operate.

Description: The team reviewed the canal level probes for the service water system to verify the design complied with the plant licensing basis, including IEEE 279-1968, "Proposed Criteria for Protection Systems," to which the licensee committed. In the event of a loss of circulating water pumps, the canal level probes must actuate to trip both units' turbines and to close non-essential circulating and service water isolation valves. This would prevent the canal from falling below its TS 3.14 requirements of 23 feet and conserve ultimate heat sink inventory. The team determined the licensee did not comply with their licensing basis commitment, in that the design did not account for certain factors which impact the precision and reliability of the probes, as required by IEEE 279-1968, Section 4.1.

The team reviewed the design basis calculations for the Surry intake canal level probes to verify the probes were capable of performing their safety function. Calculation ME-318, "Canal Level Probe Response Time," dated 07/14/1992, established that, when the intake canal water level falls below +23' 6", signals must be generated within 66 seconds. Engineering transmittal CEE 98-005, "Intake Canal Level Trip Set Point Procedural Changes," dated 02/12/1998, and calculation EE-0724, "Canal Level Probe Channel Statistical Accuracy Calculation," dated 02/02/1998, determined the response time of the probes to be 62.5 seconds due to various uncertainties in the sensor and signal loop. When compared to the drain time in calculation ME-318, this response time allowed for a 3.5-second margin before the canal level falls below the TS limit of 23 feet.

The team determined that calculations EE-0724 and CEE-98-005 did not fully consider the environmental effects on the probes' response times and accuracies over the full range of conditions that the canal level probes must perform. The team noted that the calculations did not consider the effects of biological fouling on the probes that occurs in the warm summer months. The team noted that the calculations also did not consider the effects of the various modifications to the probes that were implemented to mitigate the biological fouling. Finally, the team noted that the probe vendor document guide 06EN003322, "12-64B, 8-66B Installation, Operation and Troubleshooting Guide," had a cautionary note which stated, "Give consideration that significant amounts of air or gas flowing over the sensing element may lower the sensor dry signal (when used as a level probe), resulting in a false indication of wet." The team found that the licensee did not consider, evaluate, or account for the effects of winds blowing across the sensors in the level applications. A design change was recently approved to replace the existing canal probes with new probes of the same design; however, at the time of this inspection,

these NRC-identified vulnerabilities had not been addressed in the design change. This design change will be implemented in late 2014.

Analysis: The licensee's failure to evaluate conditions that affected system response times and accuracy of the canal level probes, as required by IEEE 279-1968, Section 4.1, was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Protection Against External Factors attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, response time delays could allow the canal water level to fall below TS limits reducing the available heat removal required to mitigate UFSAR chapter 14 design basis accidents. The team used IMC 0609, Att. 4, "Initial Characterization of Findings," issued June 19, 2012, for Mitigating Systems, and IMC 0609, App. A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating SSC, and the SSC maintained its operability or functionality. The team determined that the finding was associated with the Design Margin cross-cutting aspect of the Human Performance area because recent modification designs for the canal probes were completed and approved without evaluating the aforementioned effects on the canal level probe response times and accuracies. [H.6]

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," stated, in part, that "design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program." Licensing basis commitment, IEEE 279-1968, Section 4.1, referenced in UFSAR Section 7.2.1, stated, in part, that "The protection system shall, with precision and reliability, automatically initiate appropriate protective action whenever a plant condition monitored by the system reaches a preset level for the full range of conditions and performance of the environment during normal, abnormal, and accident circumstances throughout which the system must perform." Contrary to the above, since 1998, when environmental effects on the canal level probes were identified, the licensee failed to verify the adequacy of the design to ensure that the requirements of IEEE 279-1968 were met. Specifically, the licensee failed to verify the response time of canal level probes when biologically fouled, coated to prevent biological fouling, or affected by wind. This is a violation of 10 CFR Part 50, Appendix B, Criterion III. The licensee performed an immediate determination of operability and determined the canal level probes were operable but not fully qualified. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as CR558429. (NCV 05000280/2014007-02; 05000281/2014007-02, Failure to Evaluate the Range of Conditions that Effect Canal Level Probes)

.iii (Unresolved Item) Adequacy of Class 1E 125VDC Branch Circuit Breaker Design

Introduction: The team identified an Unresolved Item (URI) regarding the adequacy of design of the Class 1E 125VDC power branch circuit breaker for the 1H 4160V Bus controls.

Description: The team reviewed the Class 1E 125VDC power distribution design to verify compliance with the licensing basis requirements in IEEE 308-1970, "IEEE Standard Criteria for Class 1E Power Systems for Nuclear Power Generating Stations." The Surry licensing basis commitment to IEEE 308-1970 required the quality of the Class 1E power system design to be sufficient to ensure that multiple engineered safety features (ESF) would not lose power because of design vulnerabilities. Specifically IEEE 308-1970 stated, in part, "The Class IE electric systems shall be designed to assure that any design basis event as listed in Table 1 will not cause: 1) A loss of electric power to a number of engineered safety features, surveillance devices, or protection system devices sufficient to jeopardize the safety of the plant." Table 1 stated, in part, that design basis events include "Single act, event, component failure, or circuit fault that can cause multiple equipment malfunctions."

The team identified design vulnerabilities in design basis documents and in the sampled branch circuitry. In Calculation EE-0499, "DC Vital Bus Short Circuit Current," dated 11/30/1998, the licensee used AC power time current curve (TCC) data for HFB MCCBs (used in the 125VDC distribution system) instead of DC TCC data. In addition, in this calculation, the licensee did not de-rate components for the ambient temperature in the switchgear room. Furthermore, in 2009, the licensee replaced certain HFB MCCBs with model HFDDC MCCBs; however, did not evaluate the DC characteristics of these HFDDC MCCBs, and instead evaluated an AC model HFD MCCB. Because of these vulnerabilities the team questioned the coordination of the installed HFDDC breaker and whether it was adequate to protect the 1H branch circuit in the ambient temperature of the switchgear room. These calculational vulnerabilities were consistent across both trains A & B and for both Units 1 & 2.

The licensee captured the inspectors' questions in their corrective action program as CR559872 and CR559875. This issue is a URI pending further review of information provided by the licensee on November 4, 2014, and consultation with the Office of Nuclear Reactor Regulation to determine if this issue of concern constitutes a violation. (URI 05000280/2014007-03; 05000281/2014007-03, Adequacy of Class 1E 125VDC Branch Circuit Breaker Design)

.iv (Unresolved Item) Qualification Basis for Safety-Related Molded Case Circuit Breakers

Introduction: The team identified a URI regarding the licensee's actions to maintain or extend the qualification basis for safety-related MCCBs installed in mild environments greater than vendor design life specifications.

Description: In 2004, the licensee received Westinghouse Electric Technical Bulletin TB-04-13, "Replacement Solutions for Obsolete Classic MCCBs, UL [Underwriters Laboratory] Testing Issues, Breaker Design Life and Trip Band Adjustment," which was superseded in 2006 by TB-06-02, "Aging Issues and Subsequent Operating Issues for Breakers That are at Their 20-Year Design/Qualified Lives; UL Certification/Testing Issues Update." These bulletins informed the licensee of MCCB aging and operating issues. Specifically, grease and red oil used in these breakers were found to be key limiting factors for continued operability within published specifications. As grease and red oil aged beyond 20 years, their lubrication properties were reduced, resulting in slower trip times beyond the published time-current curves. The bulletins further defined the design life of MCCBs in mild environments as 20 years. However, the inspectors noted that approximately 60 safety-related MCCBs installed in mild environments

exceeded 20 years of service, and the licensee had not performed an engineering evaluation to justify continued operation beyond this design life. The affected MCCBs were associated with the Class 1E 125VDC distribution systems (switchgear) on both units.

The licensee captured the inspectors' questions in their corrective action program as CR558445 and CR560488. This issue is a URI pending further review, including consultation with the Office of Nuclear Reactor Regulation, to determine if this issue of concern constitutes a violation. (URI 05000280/2014007-04; 05000281/2014007-04, Qualification Basis for Safety-Related Molded Case Circuit Breakers)

.3 Operating Experience

a. Inspection Scope

The team reviewed four operating experience issues for applicability at Surry Power Station, Units 1 and 2. The team performed an independent review of these issues and, where applicable, assessed the licensee's evaluation and dispositioning of each item. The issues that received a detailed review by the team included:

- Information Notice (IN) 2013-17 - Significant Plant Transient Induced by Safety-Related Direct Current Bus Maintenance at Plant
- IN 2013-05 - Battery Expected Life and Its Potential Impact on Surveillance Requirements
- IN 2012-03 - Design Vulnerability In Electric Power System
- IN 1997-78 - Crediting of Operator Actions in Place of Automatic Actions and Modifications of Operator Actions, Including Response Times

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On September 26, 2014, the team exited with Mr. Larry Lane and other members of the licensee's staff. In addition, on November 7, 2014, the team re-exited via telephone with members of the licensee's staff. The inspectors verified that no proprietary information was documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:
T. Arnett, Engineer III, Electrical Design
C. Bruce, Supervisor, Mechanical Design Engineering
N. Dodenhoff, Supervisor, Electrical Design Engineering
B. Garber, Supervisor, Station Licensing
D. Godwin, Supervisor, Project Management
A. Harrow, Acting Director, Station Safety and Licensing
J. Helm, Supervisor, Construction Engineering
G. Hill, Unit Supervisor
R. Johnson, Manager, Station Operations
L. Lane, Site Vice President
J. Lansing, Engineer I, Electrical Design
D. Lawrence, Director, Station Safety and Licensing
R. Mitten, Engineer III, Electrical Systems
D. O'Connor, Technical Consultant, Electrical Systems
C. Olsen, Director, Site Engineering
M. Phillips, Corporate, Electrical Design Engineering Consulting Engineer
J. Pollard, Engineer III, Licensing
R. Scanlan, Manager, Maintenance
J. Rosenberger, Manager, Design Engineering
C. Vieitez, Manager, Transmission Sub Operations
D. Wilson, Nuclear Specialist – Station Support, Operations

NRC personnel:
M. King, Chief, Projects Branch 5, Division of Reactor Projects
P. McKenna, Senior Resident Inspector, Division of Reactor Projects
C. Jones, Resident Inspector, Division of Reactor Projects
G. MacDonald, Senior Reactor Analyst, Division of Reactor Projects

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened and Closed		
05000280, 281/2014007-01	NCV	Failure to Perform Required Preventative Maintenance on Class 1E Molded Case Circuit Breakers (Section 1R21.2b.i)
05000280, 281/2014007-02	NCV	Failure to Evaluate the Range of Conditions that Effect Canal Level Probes (Section 1R21.2b.ii)
Opened		
05000280, 281/2014007-03	URI	Adequacy of Class 1E 125VDC Branch Circuit Breaker Design (Section 1R21.2b.iii)
05000280, 281/2014007-04	URI	Qualification Basis for Safety-Related Molded Case Circuit Breakers (Section 1R21.2b.iv)

LIST OF DOCUMENTS REVIEWED

Procedures

01-CC-FI-150A-INDREC, Non Safety SPL QLTY/REG, Rev. 4
0-AP-12.01, Loss of Intake Canal, Rev. 31
0-AP-16.01, Shutdown LOCA, Rev. 20
0-AP-17.06, AAC Diesel Generator – Emergency Operations, Rev. 26
0-ECM-0301-01, 4160 V Breaker Maintenance, Rev. 46
0-ECM-0301-06, Transfer Bus "D" Switchgear Maintenance, Rev. 2
0-IPM-EG-TS-001, Instrument Preventive Maintenance, Rev. 8
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1-E-0, Reactor Trip or Safety Injection, Rev. 69
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1-EMP-P-RT-129, Protective Relay Maintenance for Reserve Station Service Transformer "A" Differential and Back Up Ground, Unit 1, Rev. 5
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1-FR-H.1, Response to Loss of Secondary Heat Sink, Rev. 36
1K-G3, Annunciator Response Procedure, Bus 1J Over Volt, Rev. 7
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1-OSP-SW-002, 14 Day Frequency, Macrofouling of CC HX 1-CC-E-1A, Rev. 32
1-OSP-SW-003, Measurement of Macrofouling Blockage of Component Cooling Heat Exchanger 1-CC-E-1B, Rev. 32
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11448-ESK-9E, Elementary Diagram Intake Canal Low Level Isolation Actuation Circuit Train A Sheet 1 of 4, Rev. 2
11448-ESK-9E, Elementary Diagram Intake Canal Low Level Isolation Actuation Circuit Train A Sheet 2 of 4, Rev. 1
11448-ESK-9E, Elementary Diagram Intake Canal Low Level Isolation Actuation Circuit Train A Sheet 3 of 4, Rev. 1
11448-ESK-9E, Elementary Diagram Intake Canal Low Level Isolation Actuation Circuit Train A Sheet 4 of 4, Rev. 1
11448-FB-006D, Auxiliary Ventilation System, Sheet 1 of 4, Rev. 14
11448-FB-006D, Auxiliary Ventilation System, Sheet 2 of 4, Rev. 18
11448-FB-006D, Auxiliary Ventilation System, Sheet 3 of 4, Rev. 10
11448-FB-006D, Auxiliary Ventilation System, Sheet 4 of 4, Rev. 11
11448-FB-046A, Emergency Diesel Generator #1, Rev. 16
11448-FB-046B, Emergency Diesel Generator #2, Rev. 13
11448-FBC-046B, Emergency Diesel Generator #2, Rev. 22
11448-FBC-046C, Emergency Diesel Generator #3, Rev. 25
11448-FC-19C, Main Steam Shielding Concrete Details, Rev. 9
11448-FE-1A, Main One Line Diagram, Rev. 40
11448-FE-1A1, 4160 Volt System Unit 1 & 2, Rev. 25
11448-FE-1A2, Elec. Pwr. Dist. One Line Integrated Schematic Electrical, Rev. 37
11448-FE-1A3, One Line Diagram Switchyard Layout, Rev.18
11448-FE-1B, 4160 Bus 1A & 1B and Transfer Bus D & E, Rev. 28
11448-FE-1D, 4160 Bus 1H & 1J, Rev. 27
11448-FE-1G, 125 VDC One-Line Diagram Unit 1, Rev. 37
11448-FE-8AZ, Wiring Diagram 4160 Emergency Bus 1H Bus Tie Breaker to Bus 1J Circuit 15h1, Rev. 5
11448-FE-8CC, Interconnection Diagram 4160 Switchgear Emergency Bus 1JH, Rev. 8
11448-FE-8CD, Interconnection Diagram 4160 Switchgear Emergency Bus 1J, Rev. 9
11448-FM-068B, Flow/Valve Operating Diagram Feedwater System, Rev. 60
11448-FM-071A, Flow/Valve Operating Diagram C&V Control System, Rev. 103
11448-FM-072C, Component Cooling Water System, Sheet 1 of 5, Rev. 40
11448-FM-072C, Component Cooling Water System, Sheet 2 of 5, Rev. 36
11448-FM-088B, Flow/Valve Operating Numbers Diagram Chemical & Volume Control, Sheet 1 of 3, Rev. 40
11448-FM-088B, Flow/Valve Operating Numbers Diagram Chemical & Volume Control, Sheet 2 of 3, Rev. 48
11448-FM-089A, Flow/Valve Operating Numbers Diagram Safety Injection System, Sheet 1 of 3, Rev. 61
11448-FM-089A, Flow/Valve Operating Numbers Diagram Safety Injection System, Sheet 2 of 3, Rev. 55
11448-FMC-071A, Circulating & SW System Diagram, Rev. 188
11448-FMC-089A, SIS Flow Diagram Unit 1, Rev. 61
11448-FMC-089A, SIS Flow Diagram Unit 2, Rev. 44
11448-MKS-127G2, HHSI Auxiliary Building, Rev. 5
11448-SE-101A, Wire and Cable Description and Schedule Index Sheet 1, Rev. 9

11448-SE-101B, Wire and Cable Description and Schedule Index Sheet 2, Rev. 10
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CA183006	CA228113	CA289609	CR552141
CA189393	CA233936	CR455255	CR553309
CA221237	CA241223	CR479661	CR553570
CA221238	CA264157	CR501356	CR553609
CA222177	CA264159	CR518809	CR553658
CA222998	CA274248	CR527157	CR554608
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CR556698, CDBI Related: 1-SI-P-1B reference vibration values incorrect in 1-OPT-SI-005
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CR558361, 0-DRP-049 Time Critical Operator Action Filtered Ventilation
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CR558445, DC Molded Case Circuit Breakers are Beyond Their Qualified Life
CR558890, CDBI - Open Item for Bus Duct Cooling
CR559626, EDS/PAMS equipment model incorrect for 1-EPD-BKR-1A-09
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CR559853, Evaluate 0-OSP-TCA-001 Procedure Enhancements
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CR559875, Calculation EE-0499 does not include DC offset in the curves
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38102110703, 1-CH-MOV-1115E As Found Diagnostic Test, dated 5/12/12
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