



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
2100 RENAISSANCE BLVD., SUITE 100  
KING OF PRUSSIA, PA 19406-2713

October 27, 2014

Mr. George H. Gellrich  
Site Vice President  
Calvert Cliffs Nuclear Power Plant, LLC  
Exelon Generation Company, LLC  
1650 Calvert Cliffs Parkway  
Lusby, Maryland 20657-4702

**SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT – NRC INTEGRATED  
INSPECTION REPORT 05000317/2014004 AND 05000318/2014004 AND  
INDEPENDENT SPENT FUEL STORAGE INSPECTION REPORT  
07200008/2014001**

Dear Mr. Gellrich:

On September 30, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Calvert Cliffs Nuclear Power Plant (CCNPP), Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on October 22, 2014, with you and other members of your staff.

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

This report documents one violation of NRC requirements which was of very low safety significance (Green). Additionally, one licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs), consistent with Section 2.3.2.a of the NRC Enforcement Policy. If you contest any NCVs in this report, 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 I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at CCNPP. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, or a finding not associated with a regulatory requirement, 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 I, and the NRC Resident Inspector at CCNPP.

G. Gellrich

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In accordance with Title 10 of the *Code of Federal Regulations* (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 component of NRC's Agencywide Documents 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/***

Daniel L. Schroeder, Chief  
Reactor Projects Branch 1  
Division of Reactor Projects

Docket Nos. 50-317 and 50-318  
License Nos. DPR-53 and DPR-69

Enclosure: Inspection Report 05000317/2014004 and 05000318/2014004  
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

G. Gellrich

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos. 50-317 and 50-318

License Nos. DPR-53 and DPR-69

Report Nos. 05000317/2014004 and 05000318/2014004

Licensee: Exelon Generation Company, LLC (Exelon)

Facility: Calvert Cliffs Nuclear Power Plant, Units 1 and 2

Location: Lusby, MD

Dates: July 1, 2014 through September 30, 2014

Inspectors: R. Clagg, Senior Resident Inspector  
E. Torres, Resident Inspector  
E. Burket, Emergency Preparedness Inspector  
G. Callaway, Reactor Technology Instructor  
B. Fuller, Senior Operations Engineer  
J. Nicholson, Health Physicist  
P. Presby, Senior Operations Engineer  
A. Rosebrook, Senior Project Engineer  
S. Stewart, Senior Resident Inspector

Approved by: Daniel L. Schroeder, Chief  
Reactor Projects Branch 1  
Division of Reactor Projects

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## SUMMARY

IR 05000317/2014004, 05000318/2014004; 07/01/2014 – 09/30/2014; Calvert Cliffs Nuclear Power Plant (CCNPP), Units 1 and 2; Equipment Alignment.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. The inspectors identified one finding of very low safety significance which was a non-cited violation (NCV). The significance of most findings is indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Aspects 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.

### Cornerstone: Barrier Integrity

- Green. The inspectors identified a Green NCV of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a, "Codes and Standards," for Exelon's failure to meet the test requirements set forth in the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) for main steam line drains (MSLDs) and containment isolation valves (CIVs) motor operated valves (MOVs) (6611, 6612, 6613, 6615, 6620, 6621). Specifically, Exelon failed to scope the MSLD MOVs in their in-service testing (IST) program. As a result, the MOVs reliability was not ensured due to valve degradation not being trended as required in the IST program. Also, the MOV operability was in question because the valves were never tested to perform their containment isolation function. Exelon entered this issue into their corrective action program (CAP) as condition report (CR)-2014-005961. Immediate corrective actions included testing the MOVs.

The inspectors determined that the failure to scope and meet the testing requirements of the OM Code for MSLD MOVs in accordance with 10 CFR 50.55a was a performance deficiency. This finding is more than minor because it was associated with the barrier performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system (RCS), and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to scope and test the MSLD MOVs in accordance with the OM Code did not ensure component reliability by monitoring valve degradation and did not provide assurance that the MSLD MOVs would perform their CIV function in order to protect the public from radionuclides releases during a steam generator tube rupture (SGTR) with a loss of offsite power event. The inspectors reviewed IMC 0609.04, "Initial Characterization of Findings," issued June 19, 2012, and IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions" issued June 19, 2012, and determined that the finding was of very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of reactor containment, containment isolation system, and heat removal components and the finding did not involve an actual reduction of hydrogen igniters in the reactor containment. The inspectors determined that this finding did

not have a cross-cutting aspect because the most significant contributor to the performance deficiency was not reflective of current licensee performance. Specifically, the 2007 IST fourth year interval submittal was the last reasonable opportunity for Exelon to identify this issue. (Section 1R04)

**Other Findings**

One violation of very low safety significance that was identified by the licensee was reviewed by the inspectors. Corrective actions taken or planned have been entered into the CAP. The violation and corrective action tracking number is listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 began the inspection period at 100 percent power. On July 4, 2014, operators reduced power to 33 percent to repair a steam leak inside containment. Operators returned the unit to 100 percent power on July 5. On July 12, operators reduced power to 80 percent due to a loss of vacuum on the 13B main condenser water box. Operators returned the unit to 100 percent power on July 13. On July 24, operators reduced power to 10 percent to isolate a reactor coolant pressure boundary leak from the high pressure side of the 11A reactor coolant pump pressure differential transmitter. On July 25, operators raised power to 84 percent to conduct main condenser waterbox cleaning and conduct main turbine valve testing. Operators returned the unit to 100 percent power on July 26. On August 23 and September 26, operators reduced power to approximately 85 percent to conduct main condenser waterbox cleaning. Operators returned the unit to 100 percent power on August 24 and September 27 respectively. The unit remained at or near 100 percent power for the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent power. On July 9, 2014, operators reduced power to 95 percent to perform a reactor engineering surveillance. On July 10, after completion of the surveillance, operators reduced power to 83 percent to conduct main condenser water box cleaning. The unit was returned to 100 percent power the same day. On July 12, July 19, August 2, September 13, and September 22, the unit reduced power to 80 percent, 83 percent, 83 percent, 83 percent, 70 percent, and 77 percent respectively, to conduct main condenser waterbox cleaning. The unit was returned to 100 percent power on July 13, July 20, August 3, September 14, and September 22 respectively. The unit remained at or near 100 percent power for the remainder of the inspection period.

## 1. REACTOR SAFETY

### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

1R01 Adverse Weather Protection (71111.01 – 1 sample)

#### Readiness for Impending Adverse Weather Conditions

##### a. Inspection Scope

The inspectors performed a review of Exelon's readiness for severe thunderstorms and high winds forecasted for the area on July 14 - 15, 2014. The inspectors reviewed the implementation of adverse weather preparation procedures before the onset of this adverse weather condition. The inspectors verified that operator actions defined in Exelon's adverse weather procedure maintained the readiness of essential systems. The inspectors discussed readiness and staff availability for adverse weather response with operations and work control personnel. Documents reviewed for each section of this inspection report are listed in the Attachment.

##### b. Findings

No findings were identified.



1R04 Equipment Alignment.1 Partial System Walkdowns (71111.04Q – 5 samples)a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- 11 and 12 auxiliary feedwater (AFW) pumps with 13 AFW pump out of service on August 6, 2014
- 'B' emergency core cooling system (ECCS) train with 'A' ECCS train out of service on August 11, 2014
- Owner controlled area fire protection system with protected area fire pumps out of service on August 26, 2014
- 21 service water (SRW) header and 22A SRW heat exchanger during 22B SRW heat exchanger out of service for maintenance on August 27, 2014
- 21 saltwater (SW) header during 22 SW header out of service for maintenance on September 9, 2014

The inspectors selected these systems based on their risk-significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors reviewed applicable procedures, system diagrams, the Updated Final Safety Analysis Report (UFSAR), technical specifications (TS), CRs, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether Exelon's staff had properly identified equipment issues and entered them into the CAP for resolution with the appropriate significance characterization.

b. Findings

No findings were identified.

.2 (Closed) Unresolved Item (URI) 05000317, 318/2014003-01: Main Steam Line Drain Containment Isolation Valves not Scoped in In-Service Testing Programa. Inspection Scope

NRC Inspection Report 05000317, 318/2014003 opened an URI associated with MSLD MOVs not scoped in the IST program. The inspectors reviewed documentation regarding MSLD scoping in the IST program. The enforcement aspects of this issue are as described below. This URI is closed.

b. Findings

Introduction. The inspectors identified a Green NCV of 10 CFR 50.55a, "Codes and Standards," for Exelon's failure to meet the test requirements set forth in the ASME OM

Code for MSLD MOVs. Specifically, Exelon failed to scope the MSLD MOVs in their IST program.

Description. MSLD MOVs 6611, 6612, 6613, 6615, 6620, and 6621 are classified as CIVs per UFSAR Figure 5-10, "Containment Structure Isolation Valve Arrangement," Sheet 24 and 25. Per the figures, the main steam penetrations are classified as Type III and require the valves to be closed to perform their CIV function. UFSAR Section 5.2, "Isolation System," Subsection 5.2.2, "System Design," defines a Type III penetration as a line not directly connected to the RCS or the containment structure atmosphere that has at least one valve, either a check valve or a remotely-operated valve, outside of the containment structure. The MSLD MOVs are remotely-operated from the control room. They are open during normal operations and the drain path for each valve is to the main condenser. These valves are classified as ASME Code Class 2, per drawing 60740sh0001, "Steam Line Drainage System," and M-601, "Piping Class Summary Sheets."

OM Code 2004, Subsection ISTA, "General Requirements," Section ISTA-1100, "Scope," states in part, "Section IST establishes the requirements for pre-service and IST and examination of certain components to assess their operational readiness in light-water reactor nuclear power plants. These requirements apply to: a) pumps and valves that are required to perform a specific function in shutting down the reactor to the safe shutdown condition, in maintaining the safe shutdown condition, or in mitigating the consequences of an accident." 10 CFR 50.55a(f)(1), requires the establishment of OM Code IST test requirements for components which are classified ASME Code Class 1, 2 and 3. The inspectors identified that Exelon had not scoped MSLD MOVs in their IST program.

NUREG-1482, "Guidelines for In-service Testing at Nuclear Power Plants," Table 2.1, "Typical Systems and Components in an In-service Testing Program for a Pressurized-Water Reactor," includes CIVs. [Emergency operating procedure] EOP-6, "Steam Generator Tube Rupture," requires operations personnel to shut the valves remotely from the control room during a SGTR event. The inspectors determined that the operability of these valves to perform their CIV function was in question due to the valves never being adequately tested. The inspectors noted that TS 3.6.3 surveillance requirements don't apply to these valves because the valves are not containment vent valves; they are not manual valves normally closed; and the valves do not receive an automatic containment isolation signal to close. In accordance with IMC 0326, "Operability Determinations and Functionality Assessments for Conditions Adverse to Quality or Safety," Section A.03 for Missed Technical Specification Surveillance, states in part, "In cases where a specified safety function or a necessary and related support function required for operability has never been performed, then a reasonable expectation of operability does not exist." TS 5.5.8, "In-service Testing Program," incorporates IST surveillances into their license. The inspectors determined that the IST scoping criteria to mitigate the consequences of an accident applies to the MSLD MOVs.

The inspectors determined that Exelon had several opportunities to identify this issue, during each IST ten year interval submittal. The fourth ten year interval was submitted to the NRC on July 2, 2007 and documents a commitment to the ASME OM Code 2004 Edition.

The inspectors concluded that Exelon failed to scope the MSLD MOVs into their IST program. Exelon entered this issue in their CAP (CR-2014-005961). As immediate corrective actions, Exelon tested the MSLD MOVs on both units satisfactorily. As a long term corrective action, Exelon is revising calculation CA06453, "Steam Generator Tube Rupture Accident Using Source Terms."

Analysis. The inspectors determined that the failure to scope and meet the testing requirements of the OM Code for MSLD MOVs in accordance with 10 CFR 50.55a was a performance deficiency. This finding is more than minor because it was associated with the barrier performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, RCS, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to scope and test the MSLD MOVs in accordance with the OM Code did not ensure component reliability by monitoring valve degradation and did not provide assurance that the MSLD MOVs would perform their CIV function in order to protect the public from radionuclides releases during a SGTR with a loss of offsite power event. The inspectors reviewed IMC 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions," and determined that the finding was of very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of reactor containment, containment isolation system, and heat removal components and the finding did not involve an actual reduction of hydrogen igniters in the reactor containment.

The inspectors determined that this finding did not have a cross-cutting aspect because the most significant contributor to the performance deficiency was not reflective of current licensee performance. Specifically, the 2007 IST fourth year interval submittal was the last reasonable opportunity for Exelon to identify this issue.

Enforcement. 10 CFR 50.55a, "Codes and Standards," paragraph (f)(1), states, in part, that "Other pumps and valves that perform a function to shut down the reactor or maintain the reactor in a safe shutdown condition, mitigate the consequences of an accident, or provide overpressure protection for safety-related systems (in meeting the requirements of the 1986 Edition, or later, of the Boiler and Pressure Vessel or OM Code) must meet the test requirements applicable to components which are classified as ASME Code Class 2 or Class 3." Contrary to the above, before April 1, 2014, Exelon failed to meet the test requirements for Code Class 2 components because the MSLD MOVs were not scoped into their IST program. Immediate corrective actions included entering this issue into their CAP and testing the valves from the control room. Planned corrective actions are to revise calculation CA06453, "Steam Generator Tube Rupture Accident Using Source Terms." Because this finding is of very low safety significance (Green) and was entered into Exelon's CAP (CR-2014-005961), this issue is being treated as an NCV consistent with Section 2.3.2.a of the Enforcement Policy. **(NCV 0500037, 318/2014003-01: Main Steam Line Drain Containment Isolation Valves not Scoped in In-Service Testing Program.)**

1R05 Fire ProtectionResident Inspector Quarterly Walkdowns (71111.05Q – 6 samples)a. Inspection Scope

The inspectors conducted a tour of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that Exelon controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- Unit 1 Cable Spreading Room (CSR) and 1C Chase, Unit 1 Battery Rooms, Hallway outside Unit 1 CSR
- Unit 2 CSR and 2C Chase, Unit 2 Battery Rooms, Hallway outside Unit 2 CSR
- 2B Emergency diesel generator (EDG) Room, 1B EDG Room, 2A EDG Room,
- Outside Yard Area and Buildings, including Fire Pump House
- Unit 1 Turbine Building
- Unit 2 Turbine Building

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07 – 1 sample)a. Inspection Scope

The inspectors reviewed the 22B SRW heat exchanger to determine its readiness and availability to perform its safety functions. The inspectors reviewed the design basis for the component and verified Exelon's commitments to NRC Generic Letter 89-13. The inspectors observed actual performance tests for the heat exchangers and/or reviewed the results of previous inspections of the 22B SRW heat exchanger. The inspectors discussed the results of the most recent inspection with engineering staff and reviewed pictures of the as-found and as-left conditions. The inspectors verified that the licensee initiated appropriate corrective actions for identified deficiencies. The inspectors also verified that the number of tubes plugged within the heat exchanger did not exceed the maximum amount allowed.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11Q – 3 samples).1 Quarterly Review of Licensed Operator Requalification Testing and Traininga. Inspection Scope

The inspectors observed licensed operator simulator training on July 9, 2014, which included RCS leaks. The inspectors evaluated operator performance during the simulated event and verified completion of risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classification made by the shift manager and the TS action statements entered by the shift manager. Additionally, the inspectors assessed the ability of the crew and training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Rooma. Inspection Scope

The inspectors conducted two observations of licensed reactor operators actions and activities, during the events below, to ensure that the activities were consistent with Exelon procedures and regulatory requirements. As part of this assessment, the inspectors observed the following elements of operator performance: (1) operator compliance and use of plant procedures including TS; (2) control board/in-plant component manipulations; (3) use and interpretation of plant instruments, indicators and alarms; (4) documentation of activities; (5) management and supervision of activities; and (6) communication between crew members.

- Unit 2 power ascension from 82 percent to 100 percent on July 10, 2014
- Unit 1 commencement of a TS required shutdown, stabilizing at 10 percent reactor power, and return to rated thermal power on July 24, 2014

b. Findings

No findings were identified

1R12 Maintenance Effectiveness (71111.12Q – 4 samples)a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, and component (SSC) performance and reliability. The inspectors reviewed system health reports, CAP documents, maintenance work orders, and maintenance rule basis documents to ensure that Exelon was identifying and properly evaluating performance problems within the scope of the

maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by Exelon's staff was reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). Additionally, the inspectors ensured that Exelon's staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- Loss of vital instrument bus 2Y03 (CR-2013-009508)
- 2A EDG inoperable for two days (CR-2014-006670)
- 21 SW pump started to rotate backwards after shifting pumps (CR-2014-005859)
- 1A EDG inoperable due to lube oil leak (CR-2014-005664)

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 5 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that Exelon performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that Exelon personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When Exelon performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work and discussed the results of the assessment with the station's probabilistic risk analyst to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Updated maintenance risk assessment for forecasted severe thunderstorms and high winds on July 14 - 15, 2014
- Updated maintenance risk assessment for Yellow risk activities associated with Unit 1 pressurizer power-operated relief valve channel functional test on July 14, 2014
- Updated maintenance risk assessment for activities associated with protected area fire pumps out of service on August 26, 2014
- Updated maintenance risk assessment for 22B SRW heat exchanger out of service on August 27, 2014
- Updated maintenance risk assessment for Yellow risk activities associated with 22 SW header maintenance on September 9, 2014

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 7 samples)a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

- 11A safety injection tank level rising approximately 0.25 inches per week (CR-2014-005787)
- Unit 1 inadvertent steam generator isolation signal 'B' actuation (CR-2014-002827)
- 21A safety injection tank in leakage since reactor coolant drain tank line isolation (CR-2014-006282)
- 2A EDG was inoperable for two days (CR-2014-006670)
- Keyswitch 1-HS-5464A, reactor cavity sample isolation valve (CR-2014-006887)
- Seismic monitoring system functionality assessment (CR-2014-006996)
- Protected area fire pumps out of service (CR-2014-007225)

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether TSs operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TSs and UFSAR to Exelon's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by Exelon. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – 2 samples)a. Inspection Scope

The inspectors evaluated the permanent modifications listed below to determine whether the modifications affected the safety functions of systems that are important to safety. The inspectors verified that the design bases, licensing bases, and performance capability of the affected systems were not degraded by the modifications. In addition, the inspectors reviewed modification documents associated with the upgrade and design changes, including operational impact design evaluation, installation and testing instructions, and drawings changes associated with the modifications.

- ECP-13-000653, Kinometrics condor seismic monitoring system
- ECP-14-000303, Disconnect Unit 1 pressurizer heaters 1UL3 and 1UBB3

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 6 samples)a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure were consistent with information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- Repair steam leak on 11 steam generator level instrumentation transmitter isolation valve 1HVFV-1523 on July 7, 2014
- Repair of 2A EDG field flash fuse clips on July 12, 2014
- 11A Reactor coolant pump differential pressure transmitter leak repair on July 24, 2014
- 13 AFW pump motor relay maintenance on August 6, 2014
- 21 SW pump discharge check valve replacement on August 12, 2014
- Fire protection system valve maintenance on August 26, 2014

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 6 samples)a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TSs, the UFSAR, and Exelon's procedural requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- STP-O-8A-2, Test of 2A diesel generator and 4 kilovolt (kV) bus 21 loss of coolant incident sequencer on July 8, 2014
- STP-M-651C-1B, Safety injection actuation signal B-10 trip bypass for 1B diesel generator on July 9, 2014
- STP-M-698-1, Functional test of halon system for the CSR on July 10, 2014



- STP-M-352-2, 21 Station Battery Quarterly Check on July 10, 2014
- STP-M-672B-1, Pressurizer Relief Valve Channel Electronic Relief Valve Minimum Pressurization Temperature Functional Test on July 24, 2014
- STP-O-5A13-1, 13 AFW Pump Quarterly Surveillance Test on July 29, 2014 (in-service test)

b. Findings

No findings were identified.

**Cornerstone: Emergency Preparedness**

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04 – 1 sample)

a. Inspection Scope

Exelon implemented various changes to the CCNPP emergency action levels (EALs), Emergency Plan, and implementing procedures. Exelon had determined that, in accordance with 10 CFR 50.54(q)(3), any change made to the EALs, Emergency Plan, and its lower-tier implementing procedures, did not result in any reduction in effectiveness of the plan, and that the revised plan continued to meet the standards in 50.47(b) and the requirements of 10 CFR 50, Appendix E.

The inspectors performed an in-office review of all EAL and Emergency Plan changes submitted by Exelon as required by 10 CFR 50.54(q)(5), including the changes to lower-tier Emergency Plan implementing procedures, to evaluate for any potential reductions in effectiveness of the Emergency Plan. This review by the inspectors was not documented in an NRC Safety Evaluation Report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety. The requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06 – 1 sample)

a. Inspection Scope

The inspectors evaluated the conduct of an Emergency Preparedness Exercise (CAL-EP-EX-14-7, Emergency Preparedness Exercise Scenario, Revision 0) on September 24, 2014, to identify any weaknesses and deficiencies in the classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator, technical support center, and emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the station drill critique to compare inspector observations with those identified by Exelon staff in order to evaluate Exelon's critique and to verify whether Exelon's staff was properly identifying weaknesses and entering

them into the CAP. Drill issues were captured in Exelon's CAP as CR-2014-03652489 and were reviewed by the inspectors.

b. Findings

No findings were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151 – 10 samples)

.1 Mitigating Systems Performance Index

a. Inspection Scope

The inspectors reviewed Exelon's submittal of the Unit 1 and Unit 2 Mitigating Systems Performance Index for the following systems for the period July 1, 2013 through June 30, 2014:

- Emergency alternating current power system (MS06)
- High pressure injection system (MS07)
- Heat removal system (MS08)
- Residual heat removal system (MS09)
- Cooling water system (MS10)

To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7. The inspectors also reviewed Exelon's operator narrative logs, CRs, event reports, system health reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – 1 sample)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that Exelon personnel entered issues into the CAP at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the CAP.

b. Findings

No findings were identified.

.2 Annual Sample: 17 Configuration Control Events in 2013

a. Inspection Scope

The inspectors performed an in-depth review of Exelon's evaluations and the effectiveness of the corrective actions associated with numerous configuration control events in 2013 and 2014. Exelon completed a Tier 2 Apparent Cause Evaluation under CR-2013-002785 for configuration control events during the 2013 refueling outage and determined the apparent cause as maintenance workers not adhering to procedure use and adherence standards. Contributing causes were determined to be multiple guidance documents with conflicting information and problems in communication of compensatory actions to plant staff. Exelon completed a Category 1 Root Cause Analysis under CR-2013-009763 for an adverse trend in repetitive component mispositionings and identified the root cause as a lack of supervisory reinforcement of event free performance. A contributing cause was determined to be station management failure to timely address configuration control trends by focusing on consequences versus adverse behavior trends. Exelon completed a Tier 2 Apparent Cause Evaluation under CR-2014-003320 for an improperly positioned steam generator level instrument root isolation valve and determined the apparent cause as a lack of rigor in implementation of human performance tools during a valve lineup restoration.

The inspectors assessed Exelon's problem identification threshold, associated root cause analyses and evaluations, extent of condition reviews, and the prioritization and timeliness of actions to evaluate whether they were appropriately identifying, characterizing, and correcting problems associated with the issue; and whether the planned or completed corrective actions were appropriate and met the requirements of their CAP. The inspectors reviewed the applicable CRs and associated documents. Specifically, the inspectors reviewed Exelon's identification of weaknesses and corrective actions to prevent recurrence, as well as additional actions to address other probable and contributing causes identified in their evaluations. The inspectors also performed field observations of work control briefings, a work control job site walkdown and two control room pre-evolution briefs. In addition the inspectors interviewed several operations personnel to assess the acceptability and effectiveness of the implemented corrective actions.

b. Findings and Observations

No findings were identified.

The inspectors determined that Exelon appropriately identified the cause as a lack of supervisory reinforcement of event free performance, and properly evaluated the matter in accordance with Exelon procedures. The inspectors reviewed Exelon's Root Cause Analysis Report, several of the related CRs, and guidance documents and concluded that Exelon had appropriately evaluated the problems and identified the necessary corrective actions. The inspectors determined that the corrective actions were reasonable and addressed the probable and contributing causes. Both the

frequency and the event level of the station's configuration control issues exhibit a positive lowering trend, with 7 issues in the first 3 quarters of 2014, as compared to 17 issues in 2013.

Overall, the inspectors found that the configuration control issues had been accurately documented within the CAP. Exelon performed appropriate extent of condition reviews, as well as internal and external operating experience reviews, to assess the potential impact on the station. The inspectors determined that the associated event evaluations were sufficiently thorough and were based on focused plant walkdowns, review of procedures in effect, human performance guidance documents, and relevant operating experience. The inspectors concluded that Exelon-assigned corrective actions were aligned with the identified causal factors, reasonable, appropriately documented, and adequately tracked for completion. Based on the documents reviewed, job walkdown, observations and interviews, the inspectors noted that corrective actions have been effectively implemented and station personnel have an appropriately low threshold for reporting and documenting precursor human performance issues.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 6 samples)

.1 Plant Events

a. Inspection Scope

The inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems for a TS 3.4.13 required shutdown due to RCS pressure boundary leakage on July 24, 2014. The inspectors communicated the plant event to appropriate regional personnel, and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified that Exelon made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR 50.72 and 50.73. The inspectors reviewed Exelon's follow-up actions related to the events to assure that Exelon implemented appropriate corrective actions commensurate with their safety significance.

b. Findings

No findings were identified.

.2 (Closed) Licensee Event Report (LER) 05000318/2013-002-00: Pressurizer Safety Valve Setpoint High Due to Insufficient Margin

and

(Closed) LER 05000317/2014-003-00: Pressurizer Safety Valves As-Found Settings (Low) Outside TS Limits Due to Inadequate Lift Spring Performance

During routine post-service testing at the vendor's facility, a number of pressurizer safety valves were discovered to be outside of TS Surveillance Requirement 3.4.10.1 acceptance criteria for as-found lift point settings. There are two pressurizer safety

valves for each unit, and each valve is replaced with a spare valve and is tested and refurbished after being installed for a two year operating cycle.

On March 12, 2013, Unit 2 pressurizer safety valve BNO4375, which had been installed in position 2RV200 during the previous operating cycle, was measured higher than its TS allowable value during as-found lift point testing.

On February 28, 2014, Unit 1 pressurizer safety valves BN04373 and BM07952, which had been installed in positions 1RV200 and 1RV201 respectively during the previous operating cycle, were measured lower than their TS allowable value during as-found lift point testing.

In both cases, the valves had been replaced with tested, operable valves prior to discovery of the as-found condition. Exelon concluded that the valve had been inoperable for a period of time greater than the allowed TS outage times specified in TS 3.4.10. TS 3.4.10, "Pressurizer Safety Valves," requires two pressurizer safety valves to be operable during modes 1 and 2, and in mode 3 when all RCS cold leg temperatures are greater than 365°F for Unit 1 or 301°F for Unit 2. With one pressurizer safety valve inoperable, TS 3.4.10, Condition A, requires the inoperable valve to be restored within 15 minutes. If this is unable to be completed or if two pressurizer safety valves are inoperable, then TS 3.4.10, Condition B, is entered which requires the unit to be in Mode 3 within 6 hours AND the unit to be cooled down to below 365°F for Unit 1 or 301°F for Unit 2 within 12 hours.

Exelon entered the issues into their CAP as CR-2013-002415, CR-2014-002236, and CR-2014-002237. Exelon determined that the internal lifting spring assemblies for the pressurizer safety valves that failed due to setpoint drift were all from a common spring heat treatment lot. While current pre-service tests would not have identified an issue with these springs, the vendor and Exelon identified the potential issues with the heat treatment regime process used to produce the springs in this lot. As a result, all three of the spring assemblies were replaced.

The safety function of the pressurizer safety valve system to depressurize the RCS to maintain pressure within design limits was determined to have been maintained in each example.

The enforcement aspects of these issues are discussed in Section 4OA7. The inspectors did not identify any new issues during the review of the LER. These LERs are closed.

.3 (Closed) LER 05000317/2014-001-00: Reactor Trip Due to Turbine Control System Reboot

On January 21, 2014, Unit 1 experienced an automatic reactor trip from full power. The reactor trip occurred when 13 kV service bus 21 deenergized due to a ground fault on feeder breaker 252-2104. The loss of the service bus caused a loss of power to safety-related 4 kV bus 14, which caused an automatic start of the 1B EDG to power 4 kV bus 14. When the 1B EDG repowered 4 kV bus 14, the resultant voltage spike caused the digital main turbine controls to reboot. The reboot temporarily deenergized the electrical trip device solenoids, depressurizing the emergency trip supply header, and initiated turbine control valve closure. During the reboot, the turbine control system could not

communicate a trip signal to the reactor protective system (RPS), and the Unit 1 reactor subsequently tripped on high RCS pressure. The root cause was determined to be an electrical design vulnerability not anticipated in the original design, where a voltage spike can result in the turbine controls rebooting.

Inspection of this event was previously documented in Special Inspection Report 05000317, 318/2014008. The inspectors did not identify any new issues during the review of the LER. This LER is closed.

.4 (Closed) LER 05000318/2014-001-00: Reactor Trip Due to Inadequate Protection Against Weather Related Water Intrusion

On January 21, 2014, Unit 2 experienced an automatic reactor trip from full power. The reactor trip occurred when 13 kV service bus 21 deenergized due to a ground fault on feeder breaker 252-2104. The ground fault was caused by water intrusion into the breaker cubicle due to a dislodged air filter assembly which allowed windblown snow to enter the cubicle and subsequently melt and drip onto energized bus work and cause the ground fault. The root cause was determined to be the outdoor 13 kV switchgear louver and filter configuration did not provide adequate protection against weather related water intrusion because the problem (windblown snow) was not anticipated.

Inspection of this event was previously documented in Special Inspection Report 05000317, 318/2014008. The inspectors did not identify any new issues during the review of the LER. This LER is closed.

.5 (Closed) LER 05000317/2014-006-00: Reactor Trip Due to Reactor Protective System Matrix Relay Testing Pushbutton Failure

On May 1, 2014, Unit 1 experienced an automatic reactor trip from full power due to a RPS actuation. At the time, surveillance test M-212E-1, RPS Matrix Functional Test, was being performed and two reactor trip circuit breakers had been opened as part of the test. The reactor trip occurred when the remaining trip circuit breakers spuriously opened. The control element assemblies fully inserted into the core, all safety systems functioned as designed, and the plant was stabilized in Mode 3. There were no complications. Exelon documented the trip in the CAP as CR-2014-004215 and began an investigation. The cause of the trip was failure of the test pushbutton to maintain electrical continuity for the closed trip circuit breakers due to corrosion and aging. Exelon identified the root cause as failure to have a preventive maintenance strategy for the RPS test pushbuttons that would have assured their replacement prior to failure. The test pushbuttons were replaced and an action was established in the CAP to develop a preventive maintenance strategy for the RPS testing components. The inspectors observed portions of the operations trip response on May 1, 2014, and reviewed Exelon's post-trip review and cause evaluations.

The inspectors did not identify any new issues during the review of the LER. This LER is closed.

#### 4OA5 Other Activities

##### Operation of an Independent Spent Fuel Storage Installation at Operating Plants (60855 and 60855.1)

###### a. Inspection Scope

On August 18 to August 22, 2014, the inspectors observed and evaluated CCNPP's loading of a dry shielded canister (DSC) associated with Exelon's current Independent Spent Fuel Storage Installation (ISFSI) dry cask campaign. The inspectors also reviewed CCNPP's activities related to long-term operation and monitoring of their ISFSI. The inspectors verified compliance with the TS, regulations, and Exelon procedures.

The inspectors observed and evaluated CCNPP's loading of the second NUHOMS-32P canister associated with their current ISFSI dry cask loading campaign. The inspectors observed cask processing operations including: loading of fuel into the DSC, blowdown, vacuum drying, helium backfilling, welding operations, visual tests, and dye penetrant tests. During performance of these activities, the inspectors evaluated Exelon's familiarity with procedures, supervisory oversight, and communication and coordination between the personnel involved. The inspectors attended a licensee briefing to assess their ability to identify critical steps of the evolution, potential failure scenarios, and human performance tools to prevent errors. The inspectors also reviewed loading and monitoring procedures and evaluated CCNPP's adherence to these procedures.

The inspectors reviewed Exelon's program associated with fuel characterization and selection for storage. The inspectors reviewed the cask fuel selection package to verify that CCNPP was loading fuel in accordance with the TS and site procedures. In addition, the inspectors independently verified the cask loading via review of the digital recording.

The inspectors reviewed radiation protection procedures and radiation work permits associated with the ISFSI loading campaign. The inspectors also reviewed the as low as reasonably achievable goal for the cask loading to determine the adequacy of CCNPP's radiological controls and to ensure that radiation worker doses were as low as reasonably achievable, and that project dose goals could be achieved. The inspectors reviewed radiological survey records from the current loading campaign to confirm that dose rate levels measured on the cask were consistent with values specified in the TS.

The inspectors performed tours of the heavy haul path and ISFSI pad to assess the material condition of the path, pad, and the loaded horizontal storage modules (HSMs). The inspectors observed security, verifying TS surveillance of the HSMs by remote camera and verified that CCNPP appropriately performed surveillances in accordance with TS requirements. The inspectors verified that transient combustibles were not being stored on the ISFSI pad or in the vicinity of the loaded casks. Environmental reports were reviewed to verify that areas around the ISFSI site boundary were within the limits specified in 10 CFR 20 and 10 CFR 72.104.

The inspectors reviewed Exelon's 10 CFR 72.48 screening to verify that CCNPP had appropriately considered the conditions under which they may make changes without prior NRC approval. The inspectors also reviewed corrective action reports, audit

reports, and self-assessments that were generated since Exelon's last loading campaign to ensure that issues were being properly identified, prioritized, and evaluated commensurate with their safety significance.

In addition, regional inspectors, with assistance from NRC technical staff in the Division of Spent Fuel Storage and Transportation, performed an in-office review associated with the identification (on September 9, 2014, by CCNPP) of an indication associated with a weld of the top shield plug during the performance of non-destructive testing [penetrant testing] of the DSC to top shield plug root pass weld of DSC #75 assignment report 02175457. The inspectors and NRC technical staff reviewed procedures, action requests, work orders, penetrant testing results, and weld repair plans. The inspectors also reviewed CCNPP evaluations and corrective actions to verify that CCNPP implemented appropriate compensatory actions and weld repairs to the DSC.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On October 22, 2014, the inspectors presented the inspection results to Mr. George Gellrich, Site Vice President, and other members of Exelon's staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as a NCV.

- TS 3.4.10, "Pressurizer Safety Valves," requires two pressurizer safety valves to be operable during Modes 1 and 2, and in Mode 3 when all RCS cold leg temperatures are greater than 365°F for Unit 1 or 301°F for Unit 2. With one pressurizer safety valve inoperable, TS 3.4.10, Condition A, requires the inoperable valve to be restored within 15 minutes. If this is not able to be completed or if two pressurizer safety valves are inoperable, then TS 3.4.10, Condition B, is entered which requires the unit to be in Mode 3 within 6 hours AND the unit to be cooled down to below 365°F for Unit 1 or 301°F for Unit 2 within 12 hours. Contrary to the above, on March 12, 2013, Unit 2 pressurizer safety valve BNO4375, which had been installed in position 2RV200 during the previous operating cycle, was measured higher than its TS allowable value during as-found lift point testing. On February 28, 2014, Unit 1 pressurizer safety valves BN04373 and BM07952, which had been installed in positions 1RV200 and 1RV201 respectively during the previous operating cycle, were measured lower than their TS allowable value during as-found lift point testing. In both cases, the valves had been replaced with tested, operable valves prior to discovery of the as-found condition. Exelon concluded that the valve had been inoperable for a period of time greater than the allowed TS outage times specified in



TS 3.4.10. Exelon entered both issues into their CAP as CR-2013-002415, CR-2014-002236, and CR-2014-002237. In accordance with IMC 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, "The Significance Determination Process for Findings at Power," Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined that each example was a finding of very low safety significance (Green) because the finding did not represent an actual loss of the pressurizer safety valve system's credited safety function to relieve pressure to prevent RCS pressure from exceeding 110 percent of RCS piping's design pressure.

**ATTACHMENT: SUPPLEMENTARY INFORMATION**

**SUPPLEMENTARY INFORMATION****KEY POINTS OF CONTACT**Licensee Personnel

G. Gellrich, Site Vice President  
M. Flaherty, Plant General Manager  
B. Brown, Senior Engineering Analyst, Engineering Systems  
W. Buchanan, Manager Reactor Engineering  
H. Daman, Manager, Maintenance  
J. Delgado, Engineer 3  
J. Detchemendy, Supervisor, Radiation Protection  
M. Fick, Principle Regulatory Engineer  
J. Gaines, Senior Manager, Operations Support & Services  
J. Gines, Senior Engineer  
P. Gregory, Senior Program Manager, Dry Cask Storage  
T. Hickey, Lead Maintenance Technician  
M. Hillebrand, Supervisor Maintenance  
D. Lauver, Manager, Site Regulatory Assurance  
C. Ledwich, Radiation Protection Technician  
R. Lopez, Radiation Protection Technician  
C. Morgan, Shift Manager  
J. Nelson, Outage Services  
T. Pilkerton, Manager, Maintenance  
S. Reichard, Regulatory Specialist  
M. Salley, NDE Inspector [National Inspection & Consultants, Inc (NIC)]  
M. Shubert, Senior Reactor Engineer  
P. Wengloski, Director, Fuel Design Technology  
J. Wood, Manager ISFSI Implementation & Support  
T. Young, Manager, Site Security

**LIST OF ITEMS OPENED, CLOSED AND DISCUSSED**Opened and Closed

05000317, 318/2014003-01	NCV	Main Steam Line Drain Containment Isolation Valves not Scoped in In-Service Testing (Section 1R04.2)
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Closed

05000318/2013-002-00	LER	Pressurizer Safety Valve Setpoint High Due to Insufficient Margin (Section 4OA3.2)
05000317/2014-001-00	LER	Reactor Trip Due to Turbine Control System Reboot (Section 4OA3.3)

05000318/2014-001-00	LER	Reactor Trip Due to Inadequate Protection Against Weather Related Water Intrusion (Section 4OA3.4)
05000317/2014-003-00	LER	Pressurizer Safety Valves As-Found Settings (Low) Outside TS Limits Due to Inadequate Lift Spring Performance (Section 4OA3.2)
05000317/2014-006-00	LER	Reactor Trip Due to Reactor Protective System Matrix Relay Testing Pushbutton Failure (Section 4OA3.5)
05000317, 318/2014003-01	URI	Main Steam Line Drain Containment Isolation Valves not Scoped in In-Service Testing Program (Section 1R04.2)

### LIST OF DOCUMENTS REVIEWED

#### **Section 1R01: Adverse Weather Protection**

##### Procedures

EP-1-108, Severe Weather Preparation, Revision 00300  
ERPIP-3.0, Immediate Actions, Revision 04901

#### **Section 1R04: Equipment Alignment**

##### Procedures

OI-32A, Auxiliary Feedwater System, Revision 26  
OI-3A, Safety Injection and Containment Spray, Revision 29  
MOV-12, Limitorque Motor Operated Valve Inspection and Preventive Maintenance Revision 01201

##### Condition Report

CR-2013-008974  
CR-2013-009062  
CR-2014-003231  
CR-2014-005969  
CR-2014-006503

##### Drawings

62731sh0001, Safety Injection & Containment Spray Systems, Revision 80  
60583sh0001, Auxiliary feedwater System (Steam), Revision 64  
60583sh0002, Auxiliary Feedwaer System (Condensate), Revision  
460740sh0001, Steam Line Drainage System, Revision 39

##### Miscellaneous

CA09975, AST SGTR Analysis with MOV Leakage and Increased Safety Injection Flow

**Section 1R07: Heat Sink Performance**

Calculation, CA03477, Service Water Plate Heat Exchanger Thermal Performance Evaluation, Revision 0002

**Section 1R11: Licensed Operator Requalification Program**

Procedures

AOP-2A, Excessive Reactor Coolant Leakage, Revision 24  
AOP-2A, Excessive Reactor Coolant Leakage Basis Document, Revision 21  
EOP-5, Loss of Coolant Accident, Revision 25  
EOP-5, Loss of Coolant Accident Technical Basis Document, Revision 26  
OP-3, Normal Power Operation, Revision 50  
OI-30, Nuclear Instrumentation, Revision 23

Miscellaneous

Lesson Plan LOR 201-2A, 5-S-14, RCS Leak Fundamentals, Session 3-2014

**Section 1R12: Maintenance Effectiveness**

Procedures

ER-AA-310, Implementation of the Maintenance Rule, Revision 009  
STP-O-73A-2, Saltwater Pump and Check Valve Quarterly Operability Test, Revision 18  
System Health Report, Unit 2, Saltwater Cooling, System 12, 4/1-6/30/2014

Condition Reports

CR-2013-009508  
CR-2014-006670  
CR-2014-005859  
CR-2014-005664  
CR-2014-006343  
CR-2013-009851  
CR-2014-004857  
AR02381085

Work Orders

C92739986  
C92746849  
C120083888

Miscellaneous

Cyberex Product Bulletin No. SB-032-UPS, Component Reliability on Cyberex UPS's, Revision C02, dated 2/8/2010

**Section 1R15: Operability Determinations and Functionality Assessments**

Procedures

OI-46, Seismic Measurement Equipment, Revision 00902  
NUREG-1022, Event Reporting Guidelines: 10 CFR 50.72 and 50.73

STP-M-520F-1, Auto Removal of Pressurizer and Steam Generator Pressure Blocking  
Performed on 3/14/2014

EP-1-109, Equipment Important to Emergency Response, Revision 00400  
CP-0508, Chemistry Emergency Response Sampling System, Revision 00800  
CP-401, Nuclear Steam Supply System Sampling, Revision 00800

Calculations

M-93-124, Fire Protection System Relief Valve Modification, Revision 0

Condition Reports

CR-2014-002350	CR-2014-006670
CR-2014-002827	CR-2014-006887
CR-2014-005787	CR-2014-006996
CR-2014-006282	

Drawings

60731sh0002, Safety Injection & Containment Spray Systems, Revision 48  
60724sh0001, Post Accident Sampling System, Revision 60

Miscellaneous

EAL-TB, Emergency Action Level Technical Bases Document, Revision 00200

Work Orders

C92588340  
C91154334  
C92610265  
C92792269

**Section 1R18: Plant Modifications**

Procedures

CNG-CM-1.01-1004, Temporary Plan Configuration Change Process, Revision 00201  
STP-M-537-1, Pressurizer Heater Capacity Test, Revision 1

Work Orders

C92605582

Condition Reports

CR-2014-002696  
CR-2014-003782  
CR-2014-007153

Miscellaneous

ANSI N18.5-1974, Earthquake Instrumentation Criteria for Nuclear Power Plants  
Regulatory Guide 1.12, Instrumentation for Earthquakes, Revision 1  
Regulatory Guide 1.12, Instrumentation for Earthquakes, Revision 2  
MCDS-0YRC001, Master Calibration Data Sheet for Seismic Accelerometer Recorder, Revision  
0001  
NEI 96-07, Guidelines for 10 CFR 50.59 Implementation, Revision 1  
ECP-14-000303, Disconnect U-1 Pressurizer Heaters 1UL3 and 1UBB3

**Section 1R19: Post-Maintenance Testing**

Procedures

CNG-MN-4.01-GL-002, Post Maintenance Test and Post Maintenance Operability Test Requirements Guideline, Revision 0  
STP-O-73A-2, Saltwater Pump and Check Valve Quarterly Operability Test, 6/30/2014

Work Orders

C92115090  
C92173175  
C92384578  
C92576121  
C92739986  
C92363614  
C92772440  
C92749429

Drawings

60729Sh0001, Reactor Coolant System, Revision 79  
61079Sh0054C, Schematic Diagram Auxiliary Feedwater Motor Driven Pump 13, Revision 9

Condition Reports

CR-2014-000566  
CR-2014-000569  
CR-2014-000746

Miscellaneous

CCNPP Technical Specifications 3.7.7 Saltwater System  
Saltwater System, System Description No. 12, Revision 05

**Section 1R22: Surveillance Testing**

Procedures

STP-O-5A13-1, 13 Auxiliary Feedwater Pump Quarterly Surveillance Test, Revision 0  
STP-M-651C-1B, Safety Injection Actuation Signal B-10 Trip Bypass for 1B Diesel Generator, Revision 3  
STP-O-8B-1, Test of 1B Diesel Generator and 14 kV Bus Loss of Coolant Incident Sequencer, Revision 30  
STP-O-8A-2, Test of 2A Diesel Generator and 4 kV Bus 21 Loss of Coolant Incident Sequencer, Revision 29  
STP-M-698-1, Functional Test of Halon System for the Cable Spreading Room, Revision 1  
STP-M-352-2, #21 Station Battery Quarterly Check, Revision 00700

Miscellaneous

61086SH0013, Schematic Diagram, Diesel Generator No. 1B Engine Control, Revision 47  
61058, Logic Diagram Engineered Safety Features Actuation System Unit 1, Revision 36

**Section 1EP4: Emergency Action Level and Emergency Plan Changes**

EAL-TB, Emergency Action Level Technical Basis Document, Revision 00200

**Section 4OA1: Performance Indicators Verification**

Procedures

ER-AA-2008, Mitigating System Performance Index (MSPI) Monitoring and Margin Evaluation, Revision 4

LS-AA-2200, Mitigating System Performance Index Data Acquisition & Reporting, Revision 5

ER-AA-600-1047, Mitigating Systems Performance Index Basis Document, Revision 8

Condition Reports

CR-2014-005882

CR-2014-005352

CR-2014-005361

CR-2014-006670

Drawings

61086Sh0031, Schematic Diagram Diesel Gen 2A, 1B & 2B Exciter Regulator Control, Revision 15

Miscellaneous

Calvert Cliffs Unit 1 & 2 Performance Indicator Data

MSPI Derivation reports Units 1 & 2

**Section 4OA2: Problem Identification and Resolution**

Procedures

OP-AA-108-112, Plant Status and Configuration, Revision 8

Condition Reports

CR-2013-002785

CR-2014-002887

CR-2013-003088

CR-2014-002987

CR-2013-008840

CR-2014-003320

CR-2013-009763

CR-2014-003427

CR-2013-009862

CR-2014-003428

CR-2014-000133

CR-2014-004383

CR-2014-000541

CR-2014-005179

CR-2014-002847

\*CR-2014-02385168

(\*) denotes NRC identified during this inspection

**Section 4OA3: Event Followup**

Procedures

CNG-CA-1.01-1005, Apparent Cause Evaluation, Revision 00603

Condition Reports

CR-2013-002415

CR-2014-002236

CR-2014-002237

Miscellaneous

CA-2011-006210

CA-2011-007003

LER 05000318/2103-002-00: Pressurizer Safety Valve Setpoint High Due to Time Related Drift

LER 05000317/2014-003-00: Pressurizer Safety Valves As-Found Settings Outside TS Limits

Purchase Order 429486, Testing a Refurbishment of BM07952

### **Section 4OA5: Other Activities**

#### Condition Reports

CR-2012-006921	CR-2013-006921	CR-2014-007003
CR-2012-007043	CR-2013-007919	CR-2014-007085
CR-2012-007848	CR-2013-008420	CR-2014-007108
CR-2012-007919	CR-2014-005156	CR-2014-007129
CR-2012-008111	CR-2014-006749	CR-2014-007137
CR-2012-008210	CR-2014-006827	CR-2014-02175457
CR-2012-8420	CR-2014-006914	CR-2014-5149
CR-2013-000645	CR-2014-006971	
CR-2013-005046	CR-2014-006973	

#### Design and Licensing Basis Documents

Calvert Cliffs Independent Spent Fuel Storage Installation, Material License SNM-2505, Amendment 10 and Appendix A, Technical Specifications

Calvert Cliffs Independent Spent Fuel Storage Installation, Updated Safety Analysis Report, Revision 21

#### Completed Surveillance and Functional Testing

Inspect & Lubricate Aux Bldg. Cask Handling Crane, WO# C92325629

Perform ISFSI Cask Lifting Yoke Inspection, WO# C91915764

Craft to Inspect and Lubricate Aux Building Cask Handling Crane, WO# C92325629

Equipment Inspection Report of Yoke Lifting Assembly, re-inspected July 30, 2014

DVD of the verification of Loading DSC performed on August 18, 2014

DLR Plant Surveillance Data Sheet, Hang date February 19, 2013, Pull date April 23, 2013

DLR Plant Surveillance Data Sheet, Hang date April 23, 2013, Pull date January 16, 2014

#### Engineering Evaluations

ECP No. DS200700037-000, Revision 0001, Installation of HSM-HB Double Array Assembly, Installation of Handrails and Cage Ladder on HSM-HB Assembly

CALD ID CA06721, Source Terms for ISFSI 32P Burnup Extension, Approved March 12, 2014

Certificate of Conformance, Spent Fuel Storage Cask, NUHOMS 32P Dry Shielded Canister (DSC) Serial Number CEG3P2- LO-073

#### Miscellaneous

CCNPP 2014 Spent Fuel Loading Campaign (SFLC) Readiness Assessment, Check-in Self-Assessment

CENG Report of Audit ISF-12-01-C, Independent Spent Fuel Storage Installation (ISFSI) dated August 14, 2012

Constellation Energy Group Welding Procedure Specification, WPS No. B7.2H-LH(Fillet), Revision 21

Constellation Energy Group Welding Procedure Specification, WPS No. P8-T(ISFSI), Revision 20

Constellation Energy Group Welding Procedure Specification, WPS No. PH-LH(ISFSI), Revision 20



Constellation Energy Group Welding Procedure Specification, WPS No. P8-(Machine)(Berkley),  
Revision 24  
MSA ALTAIR 5X Operations Manual  
CENG Purchase Order 443396 for Airgas USA, LLC  
OE-213-001060, IN2013-07, Premature Degradation of Spent Fuel Storage Cask Structures,  
Bad Components from Environmental Moisture  
EPIC OE # OE-2012-003013, NRC Information Notice 2012-20, Potential Chloride-Induced  
Stress Corrosion Cracking of the Austenitic Stainless Steel and Maintenance of Dry  
Cask Storage System Canisters  
EPIC OE # OE-2013-001060, IN2013-07, Premature Degradation of Spent Fuel Storage Casks  
Structures and Components from Environmental Moisture  
Radiological Survey ISFSI-03-REV01400 Per Procedure for ISFSI 73  
Controlled Doc Type Q-LOG-1088 Rev 1, ECP-10-000857, Supp. No. 0, Revision 0, Helium for  
Filling of the DSC  
MX6iBrid Multigas Monitor Operation Guide  
ePIC OE# OE-307852R – Hydrogen Deflagration During Welding on ISFSI Canister  
AI-2014-000360 Perform Search for Hydrogen Analyzer  
Independent Spent Fuel Storage Installation (ISFSI) Audit Post-Audit Conference/Exit Meeting  
Handout, Audit ISF-14-01-C, Calvert Cliffs NPP, August 04-15, 2014  
CCNPP 2014 Spent Fuel Loading Campaign (SFLC) Readiness Assessment  
Report of Audit ISF-12-01-C Independent Spent Fuel Storage Installation (ISFSI)  
Welder Procedure Specification, WPS No. PB-T (Machine Berkley), Revision 24  
NUHOMS 32P DSC Loading and Unloading, Attachment 2, Fuel Assembly Characteristics  
Verification Sheet for DSC Loading Date August 4, 2014  
10 CFR 72.48 Screening of ECP 13-000637, Allow Use of 32P DSC with MMC Neutron  
Absorber to Store Standard and VAP CE 14x14 Fuel Assembly in HSM-HB Modules  
Within Current ISFSI Tech Spec Limits  
10 CFR 72.48 Screening of ECP ES200700037-000, Revision 1, Calvert Cliffs ISFSI HSM-HB  
Pads, Approach Slabs and Heavy Haul Path Design  
ISFSI Shipment Dose History  
PT Reports CC14-BP0238 and CC14-BP043  
Work Plan #C92262328  
AREVA, Inc. letter E-39833 Revision 1 to Paul Gregory dated September 11, 2014 RE:  
Evaluation of PT Indication in the Alignment Block to Top Casing Plate Weld,  
32P DSC #75

### Procedures

Technical Procedure HE-07, Auxiliary Building Cask Handling Crane Operator's Checklist,  
Revision 01800  
Technical Procedure ISFSI-03, Independent Spent Fuel Storage Installation (ISFSI) Loading  
NUHOMS-32P Dry Shielded Canister, Revision 01400  
Technical Procedure RSP 1-115, Radiological Air Sampling Program, Revision 01500  
Technical Procedure RSP 1-132, Job Coverage in Radiologically Controlled Areas,  
Revision 01701  
Technical Procedure, FH-352, NUHOMS 32P DSC Loading and Unloading, Revision 00500  
Technical Procedure, HE-07, Auxiliary Building Cask Handling Crane Operations Checklist  
Helium Mass Spectrometer Helium Leak Test Procedure, Dry Fuel Storage Container,  
Transnuclear/NUHOLMS 32P Casks, Procedure SNLT-NUHOLMS-32P Revision CC-4  
Technical Procedure NDE-5240-CC, Penetrant Testing Revision 00004  
Technical Procedure RSP 1-101, Routine Radiological Surveys, Revision 03001  
Technical Procedure RSP 1-1500, Radiological Air Sampling Program, Revision 01500

Technical Procedure RSP 1-132, Job Coverage in Radiologically Controlled Areas

**Section 40A7: Licensee Identified Violations**

Procedures

CNG-CA-1.01-1005, Apparent Cause Evaluation, Revision 00603

Condition Reports

CR-2013-002415

CR-2014-002236

CR-2014-002237

Miscellaneous

CA-2011-006210

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LER 05000318/2103-002-00: Pressurizer Safety Valve Setpoint High Due to Time Related Drift

LER 05000317/2014-003-00: Pressurizer Safety Valves As-Found Settings Outside TS Limits

Purchase Order 429486, Testing a Refurbishment of BM07952

**LIST OF ACRONYMS**

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
AFW	auxiliary feedwater
ASME	American Society of Mechanical Engineers
CAP	corrective action program
CCNPP	Calvert Cliffs Nuclear Power Plant
CIV	containment isolation valve
CR	condition report
CSR	cable spreading room
DSC	dry shielded canister
EAL	emergency action level
ECCS	emergency core cooling system
EDG	emergency diesel generator
Exelon	Exelon Generation Company, LLC
HSM	horizontal storage module
IMC	Inspection Manual Chapter
ISFSI	independent spent fuel storage installation
IST	in-service testing
kV	kilovolt
LER	licensee event report
MOV	motor operated valve
MSLD	main steam line drain
NCV	non-cited violation
NRC	Nuclear Regulatory Commission
OM Code	Code for Operation and Maintenance of Nuclear Power Plants
RCS	reactor coolant system
RPS	reactor protective system
SGTR	steam generator tube rupture
SRW	service water
SSC	structure, system, and component
SW	saltwater
TS	technical specification
UFSAR	Updated Final Safety Analysis Report