



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

May 10, 2011

George H. Gellrich, Vice President
Calvert Cliffs Nuclear Power Plant, LLC
Constellation Energy Nuclear Group, LLC
1650 Calvert Cliffs Parkway
Lusby, Maryland 20657-4702

SUBJECT: CALVERT CLIFFS NUCLEAR GENERATING STATION – NRC INTEGRATED
INSPECTION REPORT 050000317/2011002 AND 05000318/2011002

Dear Mr. Gellrich:

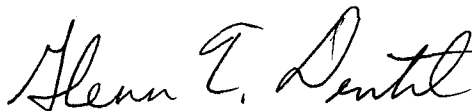
On March 31, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Calvert Cliffs Nuclear Power Plant (CCNPP) Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on April 13, 2011, with you and other members of your staff.

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 NRC-identified finding of very low safety significance (Green). The finding was determined to involve a violation of NRC requirements. Additionally, a 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 (CAP), the NRC is treating these findings as non-cited violations (NCVs) consistent with Section 2.3.2 of the NRC's Enforcement Policy. If you contest any NCV 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 1; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Calvert Cliffs. In addition, if you disagree with the cross-cutting aspect assigned to any finding 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 I, and the NRC Resident Inspector at Calvert Cliffs.

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

Sincerely,

A handwritten signature in cursive script that reads "Glenn T. Dentel".

Glenn T. Dentel, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos.: 50-317, 50-318
License Nos.: DPR-53, DPR-69

Enclosure: Inspection Report 05000317/2011002 and 05000318/2011002
w/Attachment: Supplemental Information

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Sincerely,

/RA/

Glenn T. Dentel, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos.: 50-317, 50-318
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Enclosure: Inspection Report 05000317/2011002 and 05000318/2011002
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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-317; 50-318

License Nos.: DPR-53; DPR-69

Report No.: 05000317/2011002; 05000318/201102

Licensee: Constellation Energy Nuclear Group, LLC

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

Location: Lusby, MD

Dates: January 1 through March 31, 2011

Inspectors: N. Perry, Acting Senior Resident Inspector
M. Osborn, Resident Inspector
S. Ibarrola, Acting Resident Inspector
J. Hawkins, Project Engineer
R. Montgomery, Project Engineer
P. McKenna, Resident Inspector
D. Silk, Senior Operations Engineer
J. Caruso, Senior Operations Engineer
R. Rolph, Health Physicist
E. Burket, Reactor Inspector

Approved by: Glenn T. Dentel, Chief
Reactor Projects Branch 1
Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000317/2011002, 05000318/2011002; 1/1/11 – 3/31/11; Calvert Cliffs Nuclear Power Plant (CCNPP), Units 1 and 2; Problem Identification and Resolution.

The report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. One Green finding, which was a non-cited violations (NCV), was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspects for the findings were determined using IMC 0310, "Components Within the Cross-Cutting Areas." Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

Cornerstone:

- Green. The inspectors identified a very low safety significance (Green) non-cited violation (NCV) of Technical Specification (TS) 5.5.8, Inservice Testing Program, involving Constellation's failure to perform inservice tests (ISTs) for the pressurizer power operated relief valves (PORVs) in accordance with American Society of Mechanical Engineers Operation and Maintenance (ASME OM) Code. Constellation entered this issue into its corrective action program and the PORVs are now tested during plant heat up coming out of an outage.

The finding is more than minor because it affected the procedure quality aspect of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, during the 2009 Unit 2 refueling outage one of the pressurizer PORVs closed in 2.7 seconds, failing to meet the 2.0 second acceptance criteria and resulted in the valve being declared inoperable. The inspectors concluded it is reasonable that a problem during the valve's transport, storage or installation affected the valve's operability and the slow closure time would have been identified if tested during plant startup in 2007. Although the valve was degraded during the operating cycle, Constellation concluded it remained functional in that it would have closed if demanded. Testing methods in place precluded any repair, retesting or engineering evaluation because the slow closure time was not discovered until after the operating cycle. The inspectors evaluated this finding using IMC 0609 Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," Table 4a. The inspectors determined that the finding is of very low safety significance (Green) because the condition was not a design or qualification deficiency, did not involve an actual loss of safety function for greater than its TS allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding does not have a cross-cutting aspect associated with it since the test practice was established in 2004 and is not reflective of current performance. (Section 40A2)

Other Findings

- A violation of very low safety significance that was identified by Constellation has been reviewed by the inspectors. Corrective actions taken or planned by Constellation have been entered into the corrective action program. This violation and Constellation's corrective action tracking number are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Calvert Cliffs Unit 1 began the inspection period at 100 percent power. On March 24, operators reduced power to 83 percent to support main turbine valve testing. Operators returned the unit to 100 percent on the same day. The unit remained at or near 100 percent power for the remainder of the inspection period.

Calvert Cliffs Unit 2 began the inspection period at 100 percent power. On February 8, operators reduced power to 93 percent for main steam safety valve and auxiliary feedwater pump testing. Operators returned the unit to 100 percent on February 9. On February 13, operators shut the unit down for the refueling outage. The unit was synchronized to the electrical grid on March 15, and 100 percent power was attained on March 18. On March 26, operators reduced power to 65 percent for planned maintenance on a main feedwater pump. Operators returned the unit to 100 percent on March 28. The unit remained at or near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – One Sample)

a. Inspection Scope

The inspectors reviewed the adverse weather preparations and mitigating strategies for impending adverse weather conditions associated with high winds on February 25, 2011, and a tornado watch on February 28, 2011. This review included an assessment of what the predicted conditions were and of the actions taken by site personnel. The inspectors verified that the operator actions specified in the associated procedures maintained readiness of essential equipment and systems to preclude weather induced initiating events. On February 28, the inspectors confirmed that site personnel conservatively suspended fuel movements and installed the containment equipment hatch when notified of the impending adverse weather. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial Walkdown (71111.04Q – Three Samples)

a. Inspection Scope

The inspectors conducted partial walkdowns to verify equipment alignment of selected risk significant systems. The inspectors reviewed plant documents to determine the

correct system and power alignments, as well as the required positions of critical valves and breakers. The inspectors verified that Constellation had properly identified and resolved equipment alignment problems that could cause initiating events or potentially affect the availability of associated mitigating systems. The inspectors performed a partial walkdown of the following systems:

- Nos. 21 and 22 low pressure safety injection (LPSI) system after restoration from planned refueling outage maintenance;
- Nos. 21, 22 and 23 salt water (SW) system after restoration from planned refueling outage maintenance; and
- Diesel fire pump while the electric fire pump was out of service for maintenance.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05Q – Seven Samples)

Fire Protection Tours

a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that: combustibles and ignition sources were controlled in accordance with Constellation's administrative procedures; the fire detection and suppression equipment was available for use; passive fire barriers were maintained in good material condition; and compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with Constellation's fire plan.

- Unit 1, component cooling pump room, fire area 15, room 228;
- Unit 1 B emergency diesel generator (EDG), fire area 30, room 421;
- Unit 1 and Unit 2 45' turbine building, fire area TB, room TB;
- Unit 1 boric acid storage tank (BAST) room, fire area 11, room 217;
- Unit 2 containment, room 229, fire area CNTMT;
- Unit 2 switchgear room 407 (45' el), fire area 25; and
- Unit 2 auxiliary feedwater pump room, fire area 43, room 605

b. Findings

No findings were identified.

1R08 Inservice Inspection (ISI) (71111.08 – One sample)

a. Inspection Scope

From February 28 through March 9, 2011, the inspector conducted a review of Constellation's implementation of inservice inspection (ISI) program activities for monitoring degradation of the reactor coolant system boundary and risk significant piping system boundaries for Calvert Cliffs Unit 2. The sample selection was based on the

inspection procedure objectives and risk priority of those components and systems where degradation would result in a significant increase in risk of core damage. The inspector reviewed documentation, observed in-process non-destructive examinations (NDEs) and interviewed inspection personnel to verify that the activities were performed in accordance with the requirements of ASME Boiler and Pressure Vessel Code Section XI, 2004 Edition.

Non-Destructive Examination (NDE) Activities

The inspector performed observations of NDE activities in process and reviewed documentation of nondestructive examinations listed below:

- Direct observation of a liquid penetrant test (PT), surface examination, 10 inch diameter safety injection line, integral attachment weld, component ID 6-SI-2204, Liquid Penetrant Examination Report No. CC11-IP-012, dated March 4, 2011.
- Direct observation of a magnetic particle test (MT), surface examination, 4 inch diameter auxiliary feedwater line, welded attachment, component ID A-21, Magnetic Particle Examination Report No. CC11-IM-002, dated March 4, 2011.
- Record review of eight manual phased array ultrasonic tests (UTs) of dissimilar metal butt welds on the 30 inch diameter suction and discharge lines of the reactor coolant pumps.

The inspector reviewed certifications of technicians performing the non-destructive examinations. The inspector verified that the examinations were performed in accordance with approved procedures and that the results were reviewed and evaluated by certified Level III NDE personnel.

There were no samples available for review during this inspection that involved volumetric or surface examinations with recordable indications that have been accepted for continued service from the previous outage through this outage.

Unit 2 Reactor Pressure Vessel Upper Closure Head Penetration Inspection Activities

The inspector reviewed the visual examination report and photographs of the reactor pressure vessel upper closure penetration nozzles to head penetrations. The Unit 2 reactor pressure vessel upper closure head was replaced in 2007. The inspector verified that no boric acid leakage or wastage had been observed on the reactor pressure vessel upper closure head surface and that visual inspection was conducted in accordance with 10 CFR 50.55a(g)(6)(ii)(D).

Repair/Replacement Consisting of Welding Activities

The inspector reviewed work order C91163312, associated with the repair and plugging of the N-3 pressurizer heater penetration which was found to be leaking at the support pad to outer heater sleeve weld during a scheduled VT-2 boric acid examination. The inspector verified the welding and applicable NDE activities were performed in accordance with ASME Section XI Code requirements. The inspector also reviewed several of the visual test (VT) and PT examination reports associated with extent of

condition inspections conducted as a result of the leak in the N-3 pressurizer heater penetration.

Boric Acid Corrosion Control Inspection Activities

The inspector reviewed the boric acid corrosion control program, which is performed in accordance with station procedures, discussed the program with the program owner, and sampled photographic inspection records of boric acid found on safety significant piping and components inside the containment during walkdowns conducted by Constellation personnel.

The inspector verified that potential deficiencies identified during the walkdowns were entered into Constellation's corrective action program and that corrective actions were consistent with the requirements of the ASME Code and 10 CFR 50, Appendix B, Criterion XVI.

Steam Generator Tube Inspection Activities

The inspector evaluated the implementation of the steam generator inspection program by conducting interviews with data management personnel, crack growth analysts, and the program owner. The inspector reviewed a sample of eddy current test (ET) data for three tubes which were plugged in one steam generator. Additionally, the inspector reviewed personnel certifications and inspection procedures to verify the steam generator program was being operated in accordance with regulations and industry guidelines.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11Q – One Sample)

.1 Resident Inspector Quarterly Review

a. Inspection Scope

On January 27, 2011, the inspectors observed a licensed operator requalification scenario to assess operator performance and the adequacy of the licensed operator training program. The inspectors verified the clarity and formality of communications, the completion of appropriate operator actions in response to alarms, the performance of timely control board operations and manipulations, and that the oversight and direction provided by the shift manager were in accordance with Constellation's administrative and technical procedures.

b. Findings

No findings were identified.

.2 In-Office Review of 2010 Operating Testsa. Inspection Scope

On January 6, 2011, one NRC region-based inspector conducted an in-office review of results of licensee-administered annual operating tests for 2010. The inspection assessed whether pass rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)". The inspector verified that:

- Crew failure rate was less than 20 percent (The crew failure rate was 0.0 percent.);
- Individual failure rate on the dynamic simulator test was less than or equal to 20 percent. (The individual failure rate was 0.0 percent);
- Individual failure rate on the walk-through test was less than or equal to 20 percent. (The individual failure rate was 0.0 percent.);
- Individual failure rate on the comprehensive written exam was less than or equal to 20 percent. (The comprehensive written exam was administered in 2009. The individual failure rate was 2.4 percent.); and
- Overall pass rate among individuals for all portions of the 2010 exam was greater than or equal to 75 percent. (The overall pass rate was 100 percent.)

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12Q – One Sample)Resident Inspector Quarterly Reviewa. Inspection Scope

The inspectors reviewed the maintenance effectiveness of the sample listed below for the following: 1) appropriate work practices; 2) identifying and addressing common cause failures; 3) scoping in accordance with 10 CFR Part 50.65(b) of the maintenance rule; 4) characterizing reliability issues for performance; 5) trending key parameters for condition monitoring; 6) recording unavailability for performance; 7) classification and reclassification in accordance with 10 CFR Part 50.65(a)(1) or (a)(2); and 8) appropriateness of performance criteria for systems, structures, and components (SSCs) classified as (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs classified as (a)(1).

- System 102 - Plant Areas.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – Five Samples)a. Inspection Scope

The inspectors reviewed the following activities to verify that Constellation performed the appropriate risk assessments for planned maintenance of out-of-service (OOS) equipment and emergent work. For the emergent work activities performed by station personnel, the inspectors verified that Constellation promptly reassessed and managed the plant risk. The inspectors compared the risk assessments and risk management actions with station procedure NO-1-117, “Integrated Risk Management,” and Constellation’s risk assessment tool to the requirements of 10 CFR Part 50.65(a)(4) and the recommendations of the Nuclear Management and Resources Council 93-01, “Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.” In addition, the inspectors assessed the adequacy of Constellation’s identification and resolution of problems associated with maintenance risk assessments and emergent work activities.

- 2A EDG OOS for STP-M-522A-2 on January 12, 2011;
- Time relay maintenance associated with 2B EDG on January 24, 2011;
- Unit 1 12 Main Feedwater Regulating Valve emergent work on February 20, 2011;
- Unit 1 emergent risk assessment associated with troubleshooting activities for ‘B’ auxiliary feedwater actuation signal (AFAS) logic failure and 11 direct current (DC) bus intermittent ground on March 21, 2011; and
- 21 steam generator feed pump maintenance on March 26, 2011.

b. Findings

No findings were identified.

1R15 Operability Evaluations (71111.15 – Six Samples)a. Inspection Scope

The inspectors reviewed operability evaluations and/or condition reports (CRs) to verify that the identified conditions did not adversely affect safety system operability or plant safety. The evaluations were reviewed using criteria specified in NRC Regulatory Issue Summary 2005-20, “Revision to Guidance formerly contained in NRC Generic Letter 91-18, Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability,” and IMC Part 9900, “Operability Determinations and Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety.” In addition, where a component was inoperable, the inspectors verified the TS limiting condition for operation implications were properly addressed. The inspectors performed field walkdowns, interviewed personnel, and reviewed operability evaluations associated with the following items:

- Unit 1 - AFAS ‘B’ input lights lit (CR-2011-003387);
- Unit 1 - 12 control room heating, ventilation and air conditioning (HVAC) compressor crankcase heaters do not appear to be working properly (CR-2010-012433);
- Unit 2 - debris left in reactor annulus (CR-2011-001866 and CR-2011-002058);

- Unit 2 - grease noticed on motor-operated valve (MOV)-626-OP was hard and dark brown in appearance (CR-2011-000553);
- Unit 2 - 21 LPSI pump/motor loose lamination (CR-2011-001594); and
- Unit 2 - CV-306 shutdown cooling flow control valve failed to stroke full open (CR-2011-001424).

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18 – Two Samples)

a. Inspection Scope

The inspectors reviewed the plant modifications listed below to verify that the modifications did not affect the safety functions of systems that are important to safety. The inspectors verified that the system design and licensing bases did not degrade due to the modifications, to ensure that the system maintained its availability, reliability, and functional capability. The inspectors conducted walkdowns of accessible portions of the modifications to verify that the proper configuration control was maintained to ensure that the plant was not placed in an unsafe condition, and that the modifications were implemented in accordance with Constellation procedures. Additionally, the inspectors observed portions of the installation and post maintenance test for one high point vent valve installation. Documents reviewed are listed in the Attachment.

- Installation of high point vent valves on Unit 2 safety injection/shutdown cooling piping (ECP ES200800212-001, ES200800212-004, ES200800212-009);
- Unit 2 reactor coolant system (RCS) level instrument permanent modification ESR-10-000458.

1R19 Post-Maintenance Testing (71111.19 – Four 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.

- Unit 1 Replacement of 12 component cooling heat exchanger SW outlet valve 1-I/P-5208 (WO #C91059265);
- Unit 2 main steam isolation valves overhaul STP-0-1-2;
- Unit 2 power-operated relief valves (PORVs) replacement STP-M 673A-2; and
- Unit 2 'A' RPS ATU-7 pre-trip current found low (WO #C90917628).

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20 – One Samples)

a. Inspection Scope

The inspectors reviewed the activities associated with the Unit 2 nineteenth refueling outage (2RFO19). Prior to the outage, the inspectors reviewed the outage plan and the risk assessment of the schedule. During the outage, the inspectors examined the following activities: shutdown of the plant; cool-down; drain down to the reactor vessel flange and mid-loop conditions; fuel handling operations; heat-up; dilution to criticality; and rise to full power operations. The inspectors reviewed applicable procedures, observed control room activities, conducted walkdowns, and interviewed key personnel. The inspectors also conducted periodic outage reviews of the following items: location of scaffolding; clearance activities; foreign material exclusion controls; RCS instrumentation; electrical power configuration; shutdown cooling system operation; spent fuel pool cooling system operation; inventory control measures; reactivity control measures; containment closure requirements; and fatigue management. The inspectors evaluated the activities against TS requirements, site procedures, and other applicable guidance and requirements.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – Seven Samples)

a. Inspection Scope

The inspectors observed and/or reviewed the surveillance tests listed below associated with selected risk-significant SSCs to determine whether the testing adequately demonstrated the ability of the SCC to perform its intended safety function. The inspectors also verified that proper test conditions were established as specified in the procedures, no equipment preconditioning activities occurred, and that acceptance criteria was satisfied.

- STP-O-4A-2, 'A' Train Integrated Engineered Safety Features Test;
- Unit 2 Turbine Overspeed Trip Test OI-43C, Unit 2 Main Turbine Performance Evaluation Checks;
- STP-O-108C-2 LLRT, Pen 41 (shutdown cooling containment isolation valve (CIV));
- Unit 1 turbine valves test OI-43C, Unit 1 Main Turbine Performance Evaluation Checks;
- STP-M-003A, On-Line Main Steam Safety Valve Testing (IST);
- STP-M-522A-2, 4KV Bus Undervoltage Relay Calibration and Response Time Check; and
- STP-M-510A-2, RPS RPSCIP DVM and Reference Power Supply Checks.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational/Public Radiation Safety

2RS01 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

During the period February 28 through March 4, 2011, the inspectors conducted the following activities to verify that Calvert Cliffs properly assessed the radiological hazards in the workplace and implemented appropriate radiation monitoring and exposure controls during refueling outage operations. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, relevant Technical Specifications, and Calvert Cliffs procedures.

Inspection Planning

- The inspectors reviewed radiation protection program self-assessments and audits.

Radiological Hazard Assessment

- The inspectors walked down the facility, including the containment building to evaluate material and radiological conditions. The inspectors verified the integrity and postings of the Locked High Radiation Areas (LHRAs) in the reactor building and one Very High Radiation Area (VHRA).
- The inspectors reviewed pre-work and in-progress surveys for the Steam Generators Primary entrances and work at the hand holes of the Steam Generator Secondary Side.
- The inspectors verified five lapel air samples were collected and analyzed in accordance with Calvert Cliffs procedures.

Instructions to Workers

- The inspectors verified that Calvert Cliffs had established a means to inform workers of changes that could significantly impact their occupational dose. Calvert Cliffs had a central monitoring system, implemented new alarming electronic dosimeters with transmitting capability, and intercom stations set up at various job sites inside containment.

Contamination and Radioactive Material Control

- The inspectors reviewed Calvert Cliffs' procedure for the survey and release of material and verified it is sufficient to control the spread of contamination and prevent the unintended release of radioactive materials from the site.
- The inspectors observed the surveys of material at the Radiologically Controlled Area (RCA) exit point and the actions taken when alarms occurred. The inspectors

verified that the surveys and actions taken in response to alarms were in accordance with the Calvert Cliffs' procedures.

Radiological Hazards Control and Work Coverage

- The inspectors verified the placement of radiation monitoring devices on selected individuals.
- The inspectors reviewed Radiation Work Permits (RWPs) for the removal of the blind flange in the refueling pool. The inspectors reviewed lapel air sample results and Total Effective Dose Equivalent (TEDE) evaluations for this and other tasks.

b. Findings

No findings were identified.

2RS02 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

During the period February 28 through March 4, 2011, the inspectors conducted the following activities to verify that Constellation was properly implementing operational, engineering, and administrative controls to maintain personnel exposure as low as reasonably achievable (ALARA). Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and Calvert Cliffs' procedures.

Verification of Dose Estimates and Exposure Tracking Systems

- The inspectors reviewed the assumptions and basis described in the RWP and ALARA packages for ISI activities, radiation protection activities, reactor path minor maintenance activities, scaffold activities, and minor maintenance activities. The inspectors reviewed the "ALARA" and the "ALARA and RWP Preparation" procedures to determine Calvert Cliffs' methodology for estimating exposures for specific work activities.
- The inspectors verified for the above activities that Calvert Cliffs has established measures to track, trend, and adjust occupational dose estimates for ongoing work activities. The inspector verified trigger points were used to prompt additional reviews.
- The inspectors reviewed Calvert Cliffs' method for adjusting exposure estimates when unexpected changes in scope, dose rates, or emergent work were encountered.

b. Findings

No findings were identified.

2RS03 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

During the period February 28 through March 4, 2011, the inspectors conducted the following activities to verify that Constellation was controlling in-plant airborne concentrations consistent with ALARA. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and Calvert Cliffs' procedures.

Engineering Controls

- The inspectors verified Calvert Cliffs used ventilation systems as part of its engineering controls to control airborne radioactivity.
- The inspectors verified the pressurizer heater weld repair area and pressurizer dog house portable ventilation unit efficiencies and airflow capacities are consistent with maintaining concentrations of airborne radioactivity in work areas below the concentrations of an airborne area to the extent practicable and are consistent with Calvert Cliffs' procedural guidance and ALARA.
- The inspectors verified the containment purge and containment monitoring system have alarms and set-points that are sufficient to prompt Calvert Cliffs and workers to take action to ensure that doses are maintained within the limits of 10 CFR Part 20 and ALARA.
- The inspectors verified that Calvert Cliffs had established trigger points for evaluating levels of airborne beta-emitting and alpha-emitting radionuclides.

Use of Respiratory Protection Devices

- The inspectors verified that Calvert Cliffs provided respiratory protective devices such that occupational doses were ALARA. The inspectors verified that Calvert Cliffs performed an evaluation concluding that the use of respirators is ALARA for the pressurizer repairs. The inspectors also verified that the level of protection provided by the respiratory protection devices during use is consistent with assumptions used in Calvert Cliffs' work controls and dose assessment.
- The inspectors verified respiratory protection devices used were National Institute for Occupational Safety and Health (NIOSH) certified.
- The inspectors verified for five individuals working in the cavity and three individuals working on the pressurizer repair were qualified to wear respiratory protection equipment by reviewing applicable training records and physical examination records.

b. Findings

No findings were identified.

2RS04 Occupational Dose Assessment (71124.04)a. Inspection Scope

During the period February 28 through March 4, 2011, the inspectors conducted the following activities to verify that Calvert Cliffs appropriately monitored occupational dose. Implementation of these controls was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and Calvert Cliffs' procedures.

Special Dosimetric Situations

- The inspectors reviewed the exposure records for one individual, who declared her pregnancy. The inspectors verified that Calvert Cliffs' radiological monitoring program was technically adequate to assess dose to the embryo/fetus.
- The inspectors reviewed Calvert Cliffs' methodology for monitoring external dose in situations in which non-uniform fields are expected. The inspectors verified that Calvert Cliffs had established criteria for determining when alternate monitoring techniques were to be used.
- The inspectors reviewed more than four dose assessments performed for the steam generator secondary side hand hole work where multiple badges were worn. The inspectors verified that the assessments were performed consistently with Calvert Cliff's procedures and dosimetric standards.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES (OA)4OA1 Performance Indicator (PI) Verification (71151 – Two Samples)a. Inspection Scope

The inspectors reviewed Constellation's submittal of the Safety System Functional Failures (SSFF) PIs for Units 1 and 2. The inspectors reviewed the PIs for the period of January 2010 through December 2010. These dates account for the previous four quarters reported in Licensee Event Reports, maintenance rule records, and maintenance work orders that prevented, or could have prevented, the fulfillment of a safety function. The inspectors used the guidance provided in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," to assess the accuracy of PI data that was collected and reported. The inspectors reviewed Constellation's PI data and plant records associated with the SSFF PIs that also included operator logs and system health reports.

- SSFF Unit 1; and
- SSFF Unit 2.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 – Two Samples)

.1 Reviews of Items Entered Into the CAP

a. Inspection Scope

As specified by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily review of items entered into Calvert Cliffs' CAP. In accordance with the baseline inspection procedures, the inspectors also identified selected CAP items across the Initiating Events, Mitigating Systems, and Barrier Integrity cornerstones for additional follow-up and review. The inspectors assessed the threshold for problem identification, the adequacy of the cause analyses, extent of condition review, operability determinations, and the timeliness of the specified corrective actions.

b. Findings

No findings were identified.

.2 Annual Sample: Corrective Actions for Building Roof Leaks

a. Inspection Scope

On February 18, 2010, Calvert Cliffs experienced a dual unit trip. The initiating event was the trip of a reactor coolant pump on Unit 1 due to water inleakage to the breaker cabinet; the source of the water was from switchgear roof leakage. Calvert Cliffs received NCV 05000317/318/2010006-01, because they had not ensured that leaking roofs over safety-related and nonsafety-related equipment were properly identified, tracked, prioritized and repaired. Plant management had been relying on a roof warranty which relied on the roofer to come in and make local repairs. Constellation concluded that station personnel lacked sensitivity to the consequences associated with degraded roof conditions which resulted in a reactive strategy for dealing with roof leaks. Consequently, they also did not have a systematic approach to limit or eradicate the roof leakage.

Immediate corrective actions for this issue included: implementing improved plant processes for categorization and prioritization of roofing issues; implementing a roofing strategy going forward to address correction of current problems, address preventive measures and periodic maintenance; ensuring appropriate roofing expertise is utilized in determining these actions; implementing guidance where active water leakage is detected; and verifying no active leaks once per shift during periods of rain or snow. Interim actions taken included requiring both units' switchgear roofs (and others) repaired prior to August 2010. Additionally, effective February 26, 2010, operation's staff was issued a standing order for more intrusive and frequent walk downs of plant areas which contained actions to be taken during periods of snow or rain to ensure plant equipment is not affected.

In July 2010 a roofing consulting/engineering company performed an assessment of the power block roofs. The assessment evaluated the issues with the existing roofs and

provided long term recommendations. The engineering assessment concluded that numerous roofs were in poor shape and required full replacement. In September 2010, the roofing project scope was defined to develop designs for the new roofs and ultimately install the new permanent roofs. The roof work was prioritized and is expected to begin in June 2011 and be completed by July 2013.

The inspectors reviewed the corrective actions taken and completed as of the end of March 2011, and discussed the planned actions with engineering personnel. Additionally, the inspectors reviewed the instances in which plant equipment was affected by roof leaks since May 2010.

b. Findings and Observations

During an intense rainstorm on September 30, 2010, operators identified rainwater leaking onto a motor control center (MCC) associated with the 2A EDG. The 2A EDG roof had not been previously identified as leaking at the location found on September 30. The 2A EDG was declared inoperable, and corrective actions were initiated to repair the leaking roof expansion joint. Operations management concluded that it was not possible for them to foresee the roof leak or to protect the equipment once the leak started due to the rate of leakage onto, and into, the MCC. In November and December 2010, the roofs covering the 1B, 2A and 2B EDGs were replaced. There has been little or no roof leakage identified since the roofs were repaired.

In January 2011, additional roof leaks were identified on the Unit 1 switchgear and west penetration rooms. As of March, new temporary roofs were installed on the Unit 1 and 2 switchgear and penetration rooms, providing 100 percent coverage of each roof, which will remain in place until full replacement. There has been little or no roof leakage identified since the roofs were replaced.

Additional roof leaks have also been identified. On January 26, 2011, 2 new leaks were identified: operators identified a small leak into the 2B EDG room, not affecting plant equipment; and NRC inspectors identified a roof leak in the Unit 1 45 foot east penetration room dripping onto a containment pressure switch, not previously identified and without protection installed, switches in the area were subsequently protected, and equipment was not damaged. On March 6, 2011, operators identified a roof leak into the 2B EDG room running under the MCC, but not affecting plant equipment. On March 27, 2011, the fire detection system was declared out of service in several rooms and corridors in the auxiliary building due to roof leakage dripping onto a detector after a snow/rain storm (a similar event had occurred on February 22, 2011).

The inspectors concluded that, for the leakage into the 2A EDG MCC, there was no performance deficiency since the roof leak was not foreseeable. Although the leak onto the containment pressure switch was not identified early by operations personnel, the inspectors concluded no equipment was affected. The leak onto the fire detector was not promptly corrected, had been identified previously, and had not been properly assessed by fire protection personnel. However, the inspectors concluded that the compensatory actions for the out-of-service fire detectors were appropriate and there were no resultant consequences. Although Constellation failed to promptly identify and correct several roof leaks in a timely manner to ensure equipment was not affected, it constituted a violation of minor significance that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.

At the end of the inspection period, the inspectors noted that the roof repairs over the switchgear, auxiliary building and EDG rooms were intact with little or no leakage observed. Constellation has an aggressive plan to fully replace the roofs on site with permanent roofs. The replacements have been prioritized and planned, and the project is expected to be complete in 2013. The project has received significant management attention, and the schedule is being evaluated to determine whether replacements can be further accelerated.

.3 Review of ISI Items Entered Into the CAP

a. Inspection Scope

The inspector reviewed a sample of Calvert Cliffs Unit 2 condition reports, which identified flaws and other nonconforming conditions since the previous outage and during the current outage. The inspector verified that nonconforming conditions were identified, dispositioned, and entered into the corrective action program.

b. Findings

No findings were identified.

.4 (Closed) Unresolved Item (URI) 05000317/318/2010005-05 Failure to Perform Testing of Power-Operated Relief Valves (PORVs) in Accordance with American Society of Mechanical Engineers (ASME) Code for the Operation and Maintenance (OM) of Nuclear Power Plants

a. Inspection Scope

This URI was opened in NRC inspection report (IR) 05000317/318/2010005 pending a review of Constellation's completed evaluation and corrective actions for this issue and a determination if the performance deficiency associated with this issue was more than minor. The characterization of this issue as a finding and its risk significance are discussed below. This URI is closed.

b. Findings

Introduction: The inspectors identified a very low safety significance (Green) non-cited violation (NCV) of Technical Specification (TS) 5.5.8, Inservice Testing Program, involving Constellation's failure to perform inservice tests (ISTs) for the pressurizer power operated relief valves (PORVs) in accordance with American Society of Mechanical Engineers Operation and Maintenance (ASME OM) Code.

Description: In 2000, Calvert Cliffs changed the preventive maintenance requirement for the PORVs at both units to remove and overhaul the valves every cycle (every two years), rather than every six years. In 2004, they began to functionally test the PORVs to meet their TS and IST surveillance requirements at the end of a unit's operating cycle in accordance with procedure STP-M-673, "PORV Response Time Test." This testing was performed on valves which were subsequently replaced by refurbished spares. This was done to reduce the number of actuations the inservice valves were subjected to at a pressure below the normal operating pressure. Operating experience indicated

that by testing the PORVs at the lower pressures prescribed by STP-M-673, the potential for seat leakage was increased due to insufficient pressure to fully reseat the main valve disc. The failure to inservice test the PORVs following installation precluded the ability to demonstrate that performance parameters that could be affected by the replacement were within acceptable limits.

The inspectors' review of this practice identified that testing established in 2004 was not a proper interpretation of the requirements of the ASME OM Code. Specifically, Section ISTC-3310 requires a valve to be stroke time tested to verify that the reference value was still valid, or to set a new reference value following any maintenance which could affect the performance of the valve. The mounting of the solenoid and the setting of the plunger on site could affect the performance of the PORV being installed. IST runs were not performed following replacement of both valves during refueling outages since 2004 for both units (1-ERV-402, 1-ERV-404, 2-ERV-402, and 2-ERV-404) to verify or reestablish the valves' reference values. During the 2009 Unit 2 refueling outage one of the pressurizer PORVs closed in 2.7 seconds, failing to meet the 2.0 second acceptance criteria and resulted in the valve being declared inoperable. Subsequent analysis of the valve yielded no definitive root cause; therefore, Calvert Cliffs engineering concluded that the slow closing time was most likely caused by a stack up of equipment tolerances.

In response to this inspector-identified concern, Constellation initiated CR-2010-011886. Constellation has corrected the practice of testing the valves during unit down power, The PORVs are now tested during plant heat up coming out of an outage to ensure that the testing is performed following maintenance which could affect the performance of the valves.

Analysis: The failure to correctly perform inservice testing for the PORVs in accordance with ASME OM Code requirements was a performance deficiency. The finding is more than minor because it affected the procedure quality aspect of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, during the 2009 Unit 2 refueling outage one of the pressurizer PORVs closed in 2.7 seconds, failing to meet the 2.0 second acceptance criteria and resulted in the valve being declared inoperable. The inspectors concluded it is reasonable that a problem during the valve's transport, storage or installation affected the valve's operability and the slow closure time would have been identified if tested during plant startup in 2007. Although the valve was degraded during the operating cycle, Constellation concluded it remained functional in that it would have closed if demanded. Testing methods in place precluded any repair, retesting or engineering evaluation because the slow closure time was not discovered until after the operating cycle. The inspectors evaluated this finding using IMC 0609 Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," Table 4a. The inspectors determined that the finding is of very low safety significance (Green) because the condition was not a design or qualification deficiency, did not involve an actual loss of safety function for greater than its TS allowed outage time, and did not screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding does not have a cross-cutting aspect associated with it since the test practice was established in 2004 and is not reflective of current performance.

Enforcement: Technical Specification 5.5.8, "Inservice Testing Program" requires the inservice testing of ASME Code Class 1, 2, and 3 components in accordance with the

ASME Boiler and Pressure Vessel Code. ASME Code Section ISTC-3310 requires a valve to be stroke time tested to verify that the reference value was still valid, or to set a new reference value following any maintenance which could affect the performance of the valve.

Contrary to the above, the ASME Code Class 1 pressurizer PORVs for both units (1-ERV-402, 1-ERV-404, 2-ERV-402, and 2-ERV-404) were not tested in accordance with ASME OM Code following replacement since 2004. Because this violation was of very low safety significance and Constellation entered this finding into their corrective action program (CR-2010-011886) and corrected the practice by testing the valves following maintenance which could affect their performance, this violation is being treated as a non-cited violation (NCV) consistent with the Enforcement Policy. **(NCV 05000317, 318/2010005-05: Failure to Perform Testing of the Power-Operated Relief Valves in Accordance with ASME OM Code.**

4OA3 Followup of Events and Notices of enforcement Discretion (71153)

(Closed) Licensee Event Report (LER) 05000317/2010-002-00: Pressurizer Safety Valves As-Found Settings Outside Technical Specification Limits.

The Unit 1 pressurizer safety valves were removed during the 2010 refueling outage, and were subsequently tested at an offsite facility. In March 2010, Calvert Cliffs received the results indicating the safety valves had as-found setpoints outside of the Technical Specification allowable values. Corrective actions included refurbishing the valves. Constellation concluded that the valves were installed in 2006 with the lift setpoints properly set and that the setpoints changed during the 2006 – 2008 cycle. Additionally, Constellation concluded that the condition of the valves would not have prevented the system from fulfilling its safety function based on the small setpoint change. The LER was reviewed by the inspectors and no findings of significance were identified. This failure to comply with Technical Specifications constitutes a violation of minor significance that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.

4OA6 Meetings

Exit Meeting

On April 13, 2011, the resident inspectors presented the inspection results to Mr. George H. Gellrich and other members of the Constellation staff who acknowledged the findings. Constellation indicated that none of the information presented at the exit meeting was proprietary.

4OA7 Licensee-Identified Violations

The following violation of very low significance (Green) was identified by Constellation and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

- Calvert Cliffs Emergency Response Plan Implementation Procedure 905, Exercises, Tests and Drills, requires that exercise scenarios shall be varied such that all major

elements of emergency plans and preparedness organizations are tested within a six year period. Contrary to this, on January 29, 2011, Calvert Cliffs personnel identified that the assembly and accountability element has not been fully demonstrated in the past six years. Constellation initiated CR-2011-000904 and planned to conduct a full assembly and accountability drill as part of the April 6, 2011, integrated drill. This violation is of very low safety significance since the Calvert Cliffs biennial exercises were not sufficiently varied to ensure that all Planning Standard Program Elements were tested within a 6-year period (Inspection Manual Chapter 0609, Appendix B, Section 4.14).

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION**KEY POINTS OF CONTACT****Constellation Personnel**

G. Gellrich, Vice President CCNPP
 T. Trepanier, Plant General Manager
 A. Ball, Radiation Protection Supervisor
 T. Beck, ISI Engineer
 R. Courtney, Radiation Protection Supervisor
 H. Crockett, IST Engineer
 B. Dansberger, Radiation Protection Supervisor
 D. Frye, Manager, Operations
 R. Gines, System Engineer
 R. Jones, ISI Engineer
 A. Kelley, Operations Continuing Training Supervisor
 J. Koelbel, PRA Engineer
 D. Lauver, Director, Licensing
 C. Neyman, Licensing
 T. Robertson, Senior Engineering Analyst
 J. Stanley, Manager, Engineering Services
 B. Wilson, Engineering Program Manager

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

05000317/318/2010005-05	NCV	Failure to Perform Testing of PORVs in Accordance with ASME OM Code (Section 4OA2)
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Closed

05000317/318/2010005-05	URI	Failure to Perform Testing of PORVs in Accordance with ASME OM Code (Section 4OA2)
05000317/2010-002-00	LER	Pressurizer Safety Valves As-Found Settings Outside Technical Specification Limits (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

EP-1-108, Severe Weather Preparation, Revision 0
ERPIP-3.0, Immediate Actions, Attachment 20, Severe Weather, Revision 04900

Miscellaneous

OAP-92-9, Cold Weather Operations, Revision 7

Section 1R04: Equipment Alignment

Condition Reports

2011-001228
2011-002019

Procedures

OI-20, Fire Protection System (COMMON), Revision 30
OI-29-2, Saltwater System, Revision 58
OI-29A, Saltwater Chemical Addition System, Revision 00401
OI-3A, Safety Injection and Containment Spray, Revision 26
OP-7, Shutdown Operations, Revision 44

Drawings

62708SH0001, Circulating Water Cooling System, Revision 33
62708SH0002, Circulating Water Cooling System, Revision 106
62708SH0003, Circulating Saltwater System, Revision 7
62731SH0001, Safety Injection & Containment Spray Systems, Revision 75
62731SH0002, Safety Injection & Containment Spray Systems, Revision 42
62731SH0001, Safety Injection & Containment Spray Systems, Revision 28
62731ELEV02, System Piping Profile Safety Injection System, Revision 1
62731ELEV03, System Piping Profile Safety Injection System, Revision 1

Section 1R05: Fire Protection

Condition Reports

2010-009055

Procedures

OI-20, Fire Protection System (COMMON), Revision 30
Fire Fighting Strategies Manual, Revision 00301
SA-FFSM-AB5, Fire Fighting Strategies Manual Component Cooling Pump Room Unit 1 Room
228, Revision 00200
SA-FFSM-PAEDG, Fire Fighting Strategies Manual 1B Emergency Diesel Generator, Revision
00102
SA-FFSM-PA12, Fire Fighting Strategies Manual U-2 Auxiliary Feed Pump Room, Revision 1
STP-F-591-1, Inspection of Fire Doors and Watertight Doors, Revision 10
STP-F-592-1, Penetration Fire Barrier Inspection, Revision 00900

Miscellaneous

FP-0002, Fire Hazards Analysis Summary Document, Revision 0
SA-1-100, Fire Prevention, Revision 16
SA-1-102, Fire Protection/Appendix R Compensatory Actions, Revision 2
UFSAR Section 9.9, Calvert Cliffs Power Plant Fire Protection Program, Revision 39
Fire Fighting Strategies, Revision 0

Drawings

60714SH0002, Plant Fire Protection System Auxiliary and Containment Buildings, Revision 26
FFSM-10A,-5A,-27A,-45A,-96A

Section 1R08: Inservice Inspection

Examination Procedures

NDE-5140-CC, Magnetic Particle Testing, Revision 00001
NDE-5240-CC, Penetrant Testing, Revision 00002
NDE-5750-CC, Visual Examination, Revision 00001
NDE-G-001, Guidelines for Evaluating Ultrasonic Indications in Accordance with ASME Section XI, Revision 1
SI-UT-130, Procedure for the Phased Array Ultrasonic Examination of Dissimilar Metal Welds, Revision 3
SI-NDE-08, Qualification and Certification of NDE Personnel for Nuclear Applications, Revision 1
SI-NDE-06, Calibration of Ultrasonic NDE Equipment, Revision 4

NDE Records

CC11-BP-023	CC11-BP-031	CC11-BP-032	CC11-BP-033
CC11-BP-034	CC11-BP-035	CC11-BP-036	CC11-BP-037
CC11-BP-038	CC11-BP-039	CC11-BP-040	CC11-BP-041
CC11-BP-042	CC11-BP-043	CC11-BP-084	CC11-BP-090
CC11-BV-024	CC11-BV-042	CC11-BV-066	CC11-BV-067
CC11-BV-068	CC11-BV-069	CC11-BV-070	CC11-BV-071
CC11-BV-073	CC11-BV-074	CC11-BV-075	CC11-BV-076
CC11-BV-077	CC11-BV-083	CC11-BV-084	CC11-BV-085
CC11-BV-086	CC11-BV-087	CC11-BV-088	CC11-BV-089
CC11-BV-090	CC11-BV-091	CC11-BV-092	CC11-BV-093
CC11-BV-094	CC11-BV-095	CC11-BV-096	CC11-BV-097
CC11-IM-002	CC11-IP-012	CC11-IV-142	CC11-IVE-002
CC11-IVE-003	CC11-IVE-004	CC11-IVE-005	CC11-IVE-006
CC11-IVE-007	CC11-IVE-008	CC11-IVE-009	

Work Orders

WO# C90780571
WO# C90791825
WO# C90791826
WO# C91163312

Procedures

CNG-AM-1.01-1006, Qualification and Certification of Non-Destructive Examination Personnel, Revision 00300

MN-3-110, Inservice Inspection of ASME Section XI Components, Revision 00600
 MN-3-120, ASME Section XI Repair/Replacement Program, Revision 01100
 MN-3-123, Boric Acid Corrosion Control Program, Revision 00200
 MN-3-101, Nondestructive Examination, Revision 00800
 MN-3-304, Control of the Alloy 600 Program Plan, Revision 00400
 EN-4-106, Steam Generator Program, Revision 00700

Miscellaneous

OE-2009-000326
 OE-2010-000349
 OE-2010-001860
 OE-2010-002323
 OE-2010-001896
 Report of Audit SPC-10-01-C, Special Processes, Testing, and Inspection, dated 10/22/2010
 50-9155941, Pressurizer Heater Penetration N3 Plugging, dated 2/26/2011
 51-9155947, ASME Section XI Reconciliation for Calvert Cliffs, Unit 2, Pressurizer Penetration
 N3 Modification, Revision 0
 51-9153318, Calvert Cliffs Nuclear Power Plant Unit 2, Steam Generator Degradation
 Assessment, Spring 2011/2R19, Revision 0
 32-9156183, CCNPP Unit 2 Pressurizer: One Cycle Justification for Plug in Location N3,
 Revision 0
 33-9156199, CCNPP Unit 2 Pressurizer Location N3 Plug Certified Design Report, Revision 0
 SP-0886, AREVA NP Repair Plugs and Stabilizers, Revision 0005
 ES-054, Boric Acid Corrosion Evaluations, Revision 0

Welding Procedure Specification

55-WP43/43/F43AW1, Manual Gas Tungsten Arc Welding, Revision 8

Condition Reports

2009-001991	2010-003600	2011-001764	2011-002165
2009-008218	2011-001596	2011-001767	2011-002371
2010-002262	2011-001608	2011-001928	2011-002386
2010-002292	2011-001638	2011-002009	2011-002402
2010-002356	2011-001754	2011-002054	2011-002519
2011-002578	2011-002652	2011-002674	2011-002674
2011-002690	2011-002787		

Section 1R11: Licensed Operator Requalification Program

Procedures

OI-01A, Reactor Coolant System and Pump Operations, Revision 00370
 OP-01-2, Plant Startup from Cold Shutdown, Revision 02800
 AOP-03B-2, Abnormal Shutdown Cooling Conditions, Revision 00230
 AOP-01B, CEA Malfunctions, Revision 00300

Section 1R12: Maintenance Effectiveness

Procedures

CNG-AM-1.01-1023, Maintenance Rule Program, Revision 00100

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Condition Reports

2011-001748
2011-003387
2011-003390

Procedures

Maintenance Rule Risk Assessment Guideline, Revision 7
CNG-MN-1.01-1002, Troubleshooting, Revision 00100
CNG-OP-4.01-1000, Integrated Risk Management, Revision 00603
OI-12A, Feedwater System, Revision 50

Miscellaneous

CCNPP EOOS Risk Monitor Guidelines – Senior Reactor Operators, Revision 1

Drawings

61024, Single Line Diagram 125 V DC Vital System Bus 11, Revision 51

Section 1R15: Operability Evaluations

Condition Reports

2011-000553
2011-001294
2011-001405
2011-001424
2011-001594
2011-001754
2011-003387

Procedures

CNG-OP-1.01-1002, Conduct of Operability Determinations/Functionality Assessments,
Revision 00101
MOV-12, Limitorque Motor Operated Valve Inspection and Preventive Maintenance,
Revision 01200

Miscellaneous

ES199600713, ISTBD Section 14, Safety Injection, Revision 0
PM20520005

Work Orders

WO# C90815388

Drawings

62713SH0001, Safety Injection and Containment Spray Systems, Revision 75

Section 1R18: Plant Modifications

Condition Reports

IRE-031-507	2010-000226	2010-001959
IRE-031-517	2010-001745	2010-002023

2010-002145	2010-006056	2011-001604
2010-002196	2011-000537	2011-001806
2010-002368	2011-000767	2011-002065
2010-006050	2011-001587	2011-002079
2010-002342	2011-001237	

Procedures

OP-7-1, Shutdown Operations, Revision 04702

Work Orders

WO #C220081848
WO #C220081850
WO #C220081851
WO #C220081856
WO #C90627370
WO #C90745493
WO #C90812822
WO #C90894035

Miscellaneous

51-9099650-000, CCNPP Mansell Level Monitoring System Instrument Error Analysis
CCNPP letter, Nine-Month Supplemental (Post-Outage) Response to NRC GL 2008-01,
dated 06/12/2009
CCNPP letter, Response to Request for Additional Information Re: Response to GL 2008-01,
“Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and
Containment Spray Systems” – Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2,
dated 09/28/2009
ECP-09-000105 CA06996-0000, Support Shelves for U-2 MLMS Pressure Transducers,
Revision 0
ES-2010-000203
ESR-10-000458
GL 88-17
VTM 15894-001, Mansell Level Monitoring System, Revision 0000

Drawings

FSK-MP-3166, GC-5 (Nuclear Class II) Reactor Coolant to LPSI Pumps, Revision 6

Section 1R19: Post-Maintenance Testing

Procedures

STP-O-1-2, MSIV Full Stroke Test, Revision 01402

Condition Reports

2011-000259
2011-000323
2011-000378

Work Orders

WO# C90917628
WO# C91059265

Section 1R20: Refueling and Other Outage ActivitiesCondition Reports

2010-012784	2011-001677	2011-001920	2011-002086
2011-001341	2011-001684	2011-001933	2011-002091
2011-001355	2011-001718	2011-001998	2011-002096
2011-001382	2011-001734	2011-002006	2011-002119
2011-001405	2011-001738	2011-002010	2011-002125
2011-001424	2011-001755	2011-002019	2011-002129
2011-001438	2011-001767	2011-002032	2011-002141
2011-001487	2011-001823	2011-002049	2011-002146
2011-001449	2011-001882	2011-002054	
2011-001587	2011-001883	2011-002067	
2011-001589	2011-001919	2011-002082	

Procedures

E-10, Testing and Adjustment of Agastat Relays, Revision 00401
 N0-1-103, Conduct of Lower Mode Operations, Revision 02900
 N0-1-114, Containment Closure, Revision 01900
 OI-43A, Main Turbine and Generator/Exciter Operation, Revision 30
 OP-1, Plant Startup from Cold Shutdown, Revision 28
 OP-2, Plant Startup from Hot Standby to Minimum Load, Revision 45
 OP-4, Plant Shutdown From Power Operation To Hot Standby, Revision 18
 OP-6, Pre-Startup Checkoff, Revision 52
 OP-7, Shutdown Operations, Revision 44
 STP O-01, MSIV Full Timed Stroke Test, Revision 01402
 STP O-69-2, SGIS and CSAS-3 Logic Test, Revision 15
 STP-M 673A-2, PORV Response Time Test, Revision 00800

Work Orders

WO #C91101169
 WO #C220083385
 WO #C220094037

Miscellaneous

Calvert Cliffs Unit 2 RFO 2011 Water Level Script
 High Risk Activity, Attachment 9, Lowered RCS Level Activity Plan

Section 1R22: Surveillance TestingProcedures

STP-M-003A-0, On-Line Main Steam Safety Valve Testing, Revision 00500
 STP-M-522A-2, 4KV Bus Undervoltage Relay Calibration and Response Time Check,
 Revision 0002
 STP-M-510A-2, RPS RPSCIP DVM and Reference Power Supply Checks, Revision 00100
 STP-O-4A-2, A Train Integrated Engineered Safety Features Test, Revision 30
 OI-43C, Unit 1 Main Turbine Performance Evaluation Checks, Revision 24
 OI-43C, Unit 2 Main Turbine Performance Evaluation Checks, Revision 20
 STP-O-94B-2, RCS/SDC Loop Operability Verification (Modes 4, 5, and 6), Revision 5
 STP-O-108C-2, Local Leak Rate Test, Penetration 41 SDC (Shutdown Cooling),
 Revision 00308

Drawings

OM-462 Sh. 1 & 2(62-731-E) Operations Drawing, Safety Injection & Containment Spray Systems

Miscellaneous

Pre-Job Brief Checklist, STP-O-108C SDC Header Local Leak Rate Test, Feb. 23, 2011

Work Orders

WO# C220093322

Section 2RSO1: Radiological Hazard Assessment and Exposure Controls

Procedures

CNG-RP-1.01-2000, Conduct of Radiation Protection Operations, Revision 00100
CNG-RP-1.01-2002, Effective Dose Equivalent – External (EDEX), Revision 00000
RSP-1-101, Routine Radiological Surveys, Revision 02701
RSP-1-104, Area Posting and Barricading, Revision 02300
RSP 1-113, Release of Items, Material and Vehicles From a Contaminated or Radiologically Controlled Area, Revision 01000
RSP 1-115, Radiological Air Sampling Program, Revision 01200
RSP 1-132, Job Coverage in Radiologically Controlled Areas, Revision 01500
RSP 1-200, ALARA Planning and RWP Preparation, Revision 02500
RSP 1-203, Temporary Shielding, Revision 01501
RSP 3-102, Personnel Radiation Dose Control, Revision 01101

Section 2RS02: Occupational ALARA Planning and Controls

Procedures:

RSP 1-200, ALARA Planning and RWP Preparation, Revision 02500

RWP and ALARA Packages:

2002, ISI/NDE Activities Performed During a Unit two Refueling Outage
2008, Inspections & FME Activities Performed During a Unit two Refueling Outage
2010, Minor Maintenance Activities Performed During a Unit two Refueling Outage
2016, Scaffold Activities Performed During a Unit two Refueling Outage

Section 2RS03: In-Plant Airborne Radioactivity Control and Mitigation

Procedures:

RSP 1-115, Radiological Air Sampling Program, Revision 01200

Section 4OA1: Performance Indicator Verification

Procedures

STP-M-522A-2 4KV Bus Undervoltage Relay Calibration and Response Time Check, Revision 0002
STP-M-510A-2 RPS RPSCIP DVM and Reference Power Supply Checks, Revision 00100

NEI 99-02, Regulatory Assessment Performance Indicator Guidelines, Revision 5
CNG-NL-1.01-1010, NRC and INPO Performance Indicator Reporting, Revision 00500

Miscellaneous

LER 05000318/2010-001-01
LER 05000317/2010-002-00

Section 4OA2: Problem Identification and Resolution

Condition Reports

IRE-024-202	2009-001276	2010-000894	2010-001351
2010-001566	2010-001573	2010-001801	2010-001951
2010-010272	2010-010273	2010-011658	2010-011886
2011-000784	2011-000813	2011-000814	2011-000819
2011-000822	2011-000836	2011-000904	2011-001263
2011-002012	2011-002764	2011-003676	

Procedures

RCS-25, Electromatic Relief Valve Removal, Repair, and Installation, Revision 01103
STP-M-673-2 PORV Response Time Test, Revision 00702

Miscellaneous

ASME OM Code-2004, Code for Operation and Maintenance of Nuclear Power Plants
Constellation Energy (CCNPP Unit 1) IST Program, Pump and Valve Inservice Testing Program
Fourth Ten-Year Interval, Rev. 0
Constellation Energy (CCNPP Unit 1) IST Program Component Basis Information – Unit 1
Constellation Energy (CCNPP Unit 2) IST Program Component Basis Information – Unit 2
Nuclear Plant Operations Section Standing Orders 10-02, Rain/Snow Water Intrusion
Compensatory Measures, Revision 1 and 4
Purchase Order (PO) 424644, PORV Serial No. BS07325 and BY77325 overhaul,
refurbishment and testing activities, Rev. 0

Drawings

12119-0002, Consolidated Electromatic Relief Valve 2500# Class, Revision 7
12965SH0001, Valve Assembly, Revision 6
12965SH0005, Quality Control Plan, Revision 2

LIST OF ACRONYMS

ADAMS	Agency-Wide Documents Access and Management System
AFAS	Auxiliary Feedwater Actuation Signal
ALARA	As Low As Reasonably Achievable
ASME OM	American Society of Mechanical Engineers Operation and Maintenance
BAST	Boric Acid Storage Tank
CAP	Corrective Action Program
CCNPP	Calvert Cliffs Nuclear Power Plant
CFR	Code of Federal Regulations
CIV	Containment Isolation Valve
CR	Condition Report
DC	Direct Current
EDG	Emergency Diesel Generator
ET	Eddy Current Test
HVAC	Heating, Ventilation and Air Conditioning
IMC	Inspection Manual Chapter
IR	Inspection Report
ISI	Inservice Inspection
IST	Inservice Test
LER	Licensee Event Report
LHRA	Locked High Radiation Area
LPSI	Low Pressure Safety Injection
MCC	Motor Control Center
MOV	Motor-Operated Valve
MT	Magnetic Particle Test
NCV	Non-Cited Violation
NDE	Non-destructive Examination
NEI	Nuclear Energy Institute
NIOSH	National Institute for Occupational Safety and Health
NRC	Nuclear Regulatory Commission
OOS	Out-of-Service
PARS	Publicly Available Records
PI	Performance Indicator
PORV	Power-Operated Relief Valve
PT	Penetrant Test
RCA	Radiologically Controlled Area
RCS	Reactor Coolant System
RWP	Radiation Work Permit
SDP	Significance Determination Process
SSCs	Systems, Structures, and Components
SSFF	Safety System Functional Failures
SW	Salt Water
TEDE	Total Effective Dose Equivalent
TS	Technical Specification
URI	Unresolved Item
UT	Ultrasonic Test
VHRA	Very High Radiation Area
VT	Visual Test