



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION I  
475 ALLENDALE ROAD  
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July 30, 2009

James A. Spina, Vice President  
Calvert Cliffs Nuclear Power Plant, Inc.  
Constellation Generation Group, LLC  
1650 Calvert Cliffs Parkway  
Lusby, Maryland 20657-4702

**SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT - NRC INTEGRATED  
INSPECTION REPORT 05000317/2009003 AND 05000318/2009003**

Dear Mr. Spina:

On June 30, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Calvert Cliffs Nuclear Power Plant (CCNPP) Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on July 15, 2009, 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). This 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 the findings are 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 VI.A.1 of the NRC 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 characterization of 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 1, and the NRC Resident Inspector at CCNPP. The information you provide will be considered in accordance with Inspection Manual Chapter (IMC) 0305.

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Sincerely,

**/RA/**

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 05000317/2009003 and 05000318/2009003  
w/Attachment: Supplemental Information

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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.: 05000317/2009003 and 05000318/2009003

Licensee: Constellation Generation Group, LLC (Constellation)

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

Location: Lusby, MD

Dates: April 1, 2009 through June 30, 2009

Inspectors: S. Kennedy, Senior Resident Inspector, DRP  
M. Davis, Resident Inspector, DRP  
K. Mangan, Senior Reactor Inspector, DRS  
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Approved by: Glenn T. Dentel, Chief  
Reactor Projects Branch 1  
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## SUMMARY OF FINDINGS

IR 05000317/2009003, 05000318/2009003; 4/1/09 – 6/30/09; Calvert Cliffs Nuclear Power Plant (CCNPP), Units 1 and 2: Equipment Alignment.

The report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. A Green finding, which was determined to be a non-cited violation (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). 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: Mitigating Systems

Green. The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for Units 1 and 2 because Constellation did not establish an adequate test program to assure that the auxiliary feedwater (AFW) pump room emergency ventilation system would perform satisfactorily in service. Specifically, the performance evaluations used to determine the equipment performance of the emergency ventilation system did not incorporate the requirements and acceptance limits contained in the Updated Final Safety Analysis Report (UFSAR). This resulted in Constellation not recognizing that the AFW pump room emergency ventilation system did not meet the design requirements stated in the UFSAR. Constellation entered this issue into their corrective action program (CAP) for resolution as condition report (CR)-2008-002833. The immediate corrective action included performing an operability determination to verify the operability of the Unit 1 and 2 turbine driven auxiliary feedwater (TDAFW) pumps. The planned corrective actions included the installation of larger ventilation fans to obtain the required flow rate and to create a preventive maintenance task to measure the airflow for each emergency ventilation fan.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of the AFW system, which responds to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors determined that the finding is of very low safety significance because it is not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train greater than its Technical Specifications (TS) allowed outage time, and did not screen as potentially risk significant due to external events. Since the performance deficiency was determined to be the result of a latent issue and does not reflect current performance, no cross-cutting aspect is assigned. (Section 1R04)

### 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 their CAP. This violation and the corrective action tracking numbers 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 June 6, 2009, operators reduced power to 85 percent to perform main turbine valve testing. Operators returned the unit to 100 percent power on the same day. The unit remained at 100 percent power for the remainder of the inspection period.

Calvert Cliffs Unit 2 began the inspection period at 100 percent power. On June 13, 2009, operators reduced power to 85 percent to perform main turbine valve testing. Operators returned the unit to 100 percent power on the same day. The unit remained at 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 – Two Samples)

##### a. Inspection Scope

The inspectors reviewed the adverse weather preparation and mitigating strategies before the onset of hot weather operations and the high grid loading summer season. This review included an assessment of Nuclear Operations Administrative Procedure NO-1-119, "Seasonal Readiness." The inspectors assessed the effectiveness of Constellation's preparations for hot weather and grid related stress conditions to evaluate the site's readiness for seasonal susceptibilities. Risk-significant systems affected by hot weather and grid related stresses were selected for review. The review included the service water (SRW) system, component cooling (CC) system, and the 2B emergency diesel generator (EDG). The inspectors also performed a partial walkdown of the onsite (480V) and offsite (500 kilovolt (kV)) electrical systems. The inspectors interviewed control room operators and system engineers to ensure protective measures applicable to these risk-significant systems were available. This inspection satisfied two inspection samples for review of risk-significant systems during seasonal susceptibilities and grid related stress conditions. Documents reviewed are listed in the Attachment.

##### b. Findings

No findings of significance were identified.

#### 1R04 Equipment Alignment (71111.04)

##### .1 Partial Walkdown (71111.04Q – Four 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:

- No. 21 SRW header due to planned maintenance on the No. 22 SRW header;
- No. 21 CC system due to planned maintenance on the No. 22 CC heat exchanger (HX);
- No. 22 steam generator (SG) manual isolation valves due to planned maintenance on the SG surface blowdown control valves; and
- No. 12 CC system due to emergent maintenance on the No. 11 saltwater (SW) CCHX inlet valve (1-CV-5160).

b. Findings

No findings of significance were identified.

.2 Complete Walkdown (71111.04S – One Sample)

a. Inspection Scope

The inspectors performed a complete system walkdown of the Unit 1 and 2 AFW pump room emergency ventilation systems to identify any discrepancies between the existing equipment lineup and the specified lineup. During the walkdown, the inspectors used system drawings and operating instructions (OIs) to verify proper equipment alignment and the operational status. The inspectors reviewed open maintenance orders (MOs) on the system for any deficiencies that could affect the ability of the system to perform its safety function. Inspectors also reviewed unresolved design issues such as temporary modifications, operator workarounds, and items tracked by plant engineering to assess their collective impact on system operation. Additionally, the inspectors reviewed the condition report (CR) database to verify that equipment alignment problems were being identified and appropriately resolved.

b. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion XI, “Test Control,” for Units 1 and 2 because Constellation did not establish an adequate test program to assure that the AFW pump room emergency ventilation system would perform satisfactorily in service. Specifically, the performance evaluations used to determine the equipment performance of the safety-related AFW emergency ventilation system did not incorporate the requirements and acceptance limits contained in the UFSAR.

Description: During a review of the AFW pump room emergency ventilation system, the inspectors had concerns about the ventilation system configuration. In response to this concern, Constellation initiated a condition report (CR-2008-002293) and measured the AFW pump room emergency ventilation flow rates to evaluate the system configuration. The results of the tests revealed that the flow rates were less than the design requirement stated in the UFSAR. The UFSAR states, in part, that the emergency ventilation system can circulate 2,000 cubic feet per minute (CFM) of air between the



mechanical equipment room at Elevation 5'0" of the Auxiliary Building and the AFW pump room at Elevation 12'0" of the Turbine Building. However, Constellation found that the flow rates for both trains of the AFW pump room emergency ventilation cooling system were significantly less than the nominal design flow rate of 2,000 CFM. The inspectors reviewed the results of the flow tests and identified that the monthly performance evaluation used to determine the equipment performance of the emergency ventilation fans did not incorporate the requirements contained in the UFSAR. The inspectors noted that the performance evaluation only checked for the fans running with some amount of air supplied to the AFW pump room with no acceptance criteria. The inspectors determined that a performance deficiency existed in that Constellation did not establish an adequate test program to assure that the safety-related AFW pump room emergency ventilation cooling system would perform satisfactorily in service.

Constellation entered this issue into their CAP as CR-2008-002833 and conducted an operability review to evaluate all the safety-related AFW pump room equipment required to support the AFW system during an emergency shutdown of the plant. Constellation performed a re-analysis of the AFW pump room heat up computer model with the degraded flow rate condition and determined that the peak room temperature would not exceed a maximum of 144.9 degrees Fahrenheit (°F) during a design-basis accident (DBA). This calculated peak room temperature was within the vendor's limiting temperature condition for operation of the air-cooled bearings for the TDAFW pumps, which were the most limiting components in the AFW pump room. Constellation concluded, in consultation with the vendor, that the air-cooled bearings of the TDAFW pumps would remain operable with a maximum room temperature of up to 150°F during a DBA.

Based on the information developed during the inspection, the inspectors noted that Constellation determined that the most likely cause was an initial construction setup issue in that the ventilation fans were not designed for the expected system resistance in the ductwork. The inspectors determined that the performance deficiency was the result of a latent issue and Constellation did not have a reasonable opportunity to identify the problem since the performance evaluation only focused on the fans running with some amount of airflow and that there were no failed performance evaluations identified. The planned corrective actions for this issue included the installation of larger ventilation fans to obtain the required flow rate and to create a preventive maintenance task to measure the airflow for each emergency ventilation fan on a periodic basis.

Analysis: The inspectors determined that a performance deficiency existed in that Constellation did not establish an adequate test program to assure that the safety-related AFW pump room emergency ventilation system would perform satisfactorily in service. Specifically, the performance evaluation did not contain acceptance limits, which resulted in Constellation not recognizing that the AFW pump room emergency ventilation system did not meet the design requirements stated in the UFSAR. The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of the AFW system, which responds to initiating events to prevent undesirable consequences (i.e., core damage). Additionally, the finding is similar to example 3.i in Appendix E of IMC 0612, in that the facility was not consistent with the UFSAR and required that an analysis be re-performed to ensure that accident analysis requirements were met. The inspectors evaluated this finding using

IMC 0609 Attachment 4, “Phase 1 – Initial Screening and Characterization of Findings.” The inspectors determined that the finding is of very low safety significance (Green) because it is not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train greater than its TS allowed outage time, and did not screen as potentially risk significant due to external events. Since the performance deficiency was determined to be the result of a latent issue and does not reflect current performance, no cross-cutting aspect is assigned.

**Enforcement:** 10 CFR Part 50, Appendix B, Criterion XI, “Test Control,” states, in part, “a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents.” Contrary to this requirement, on January 23, 2009, the inspectors identified that Constellation did not establish an adequate test program to assure that the safety-related AFW pump room emergency ventilation system would perform satisfactorily in service. Specifically, the performance evaluation did not contain acceptance limits contained in the UFSAR, which resulted in Constellation not recognizing that the AFW pump room emergency ventilation system did not meet the design requirements stated in the UFSAR. Because this violation is of very low safety significance (Green) and Constellation entered this issue into their CAP for resolution as CR-2008-002833, this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000317/318/2009003-01: Inadequate Test Control associated with the Safety-Related Auxiliary Feedwater Pump Room Emergency Ventilation System)**

1R05 Fire Protection (71111.05Q – Five Samples)

Fire Protection Tours

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 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 fan equipment pump room, fire area 14, room 225.
- Unit 2 cable spreading room, fire area 16, room 306.
- Unit 1 cable spreading room, fire area 17, room 302.
- Unit 2 east piping penetration room, fire area 11, room 310.
- 0C (station blackout) diesel generator building, fire area EDG0C, rooms SB202 and SB102.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A – One Sample)

a. Inspection Scope

The inspectors reviewed the thermal performance test and inspection activities for the No. 22 CCHX. The inspectors reviewed the performance data and evaluated the test acceptance criteria to ensure that the design basis requirements were satisfied. The inspectors evaluated the heat transfer capabilities based on completed flow verification tests to ensure that specific safety functions could be performed in accordance with design specifications. The inspectors also reviewed Constellation's periodic maintenance methods to verify that they conformed to the guidelines delineated in Electric Power Research Institute (EPRI) Report NP-7552, "Heat Exchanger Performance Monitoring Guidelines."

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

Resident Inspector Quarterly Review (71111.11Q - One Sample)

a. Inspection Scope

On May 19, 2009, the inspectors observed a licensed operator requalification scenario to assess operator performance and the adequacy of the licensed operator-training program. The scenario involved equipment malfunctions, operator challenges, and security issues that required operators to implement the alarm response manual, OIs, abnormal operating procedures (AOPs), emergency operating procedures (EOPs), and emergency action level (EAL) criteria. The inspectors focused on high-risk operator actions performed during the implementation of AOPs and EOPs. 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 of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q – Two Samples)

Quarterly Review

a. Inspection Scope

The inspectors reviewed the maintenance effectiveness of the samples 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 structures, systems, and components (SSCs) classified as (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs classified as (a)(1).

- No. 22 SW pump differential pressure in the action range (CR-2009-002962).
- Unit 2 wide range noble gas monitor (WRNGM) high range detector indicating erratically (CR-2009-003436).

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – Six 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 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.

- Emergent risk assessment due to the No. 23 condensate booster pump tripping on low suction pressure on April 2, 2009.
- Planned maintenance on the No. 22 SW pump on April 7, 2009.
- Emergent risk assessment due to the No. 11 CCHX inlet valve failure to stroke in the open position on May 28, 2009.
- Planned maintenance on the No. 11 instrument air compressor on April 29, 2009.
- Planned maintenance on the 1A EDG on May 11, 2009.
- Emergent risk assessment due to the 0C EDG turbocharger high exhaust temperature issue on June 15, 2009.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 – Seven Samples)

a. Inspection Scope

The inspectors reviewed operability evaluations and/or 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 Inspection Manual 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 the following items:

- Unit 2 WRNGM reading lower than expected count rates (CR-2009-003436/FA-09-003);
- 1A EDG output breaker over-current protective relay timing setting low (CR-2009-003574);
- Unit 2 pressurizer safety valve temperature profiles are higher than the specified range (CR-2009-003660/OD-09-006);
- Unit 1 reactor protection system received spurious trip of channel B for trip unit 10 (axial shape index) (CR-2009-003950);
- Unit 1 SW isolation valve 1-SW-158 is experiencing corrosion due to SW leak (CR-2009-003943);
- 1A EDG possible failure to evaluate all loads at the maximum frequency (CR-2009-003933); and
- Unit 1 SW check valve 1-SW-103 inoperable due to a leak in the seat (CR-2009-004108).

b. Findings

Introduction: The inspectors identified an unresolved item (URI) associated with the compensatory actions for having the WRNGM out of service.

Description: On May 4, 2009, the Unit 2 WRNGM failed. Constellation wrote a functionality assessment to address the degraded condition of the WRNGM being out of service for greater than 7 days. The inspectors reviewed the functionality assessment and questioned the ability of operators to implement the compensatory actions stated in the assessment. Compensatory actions included taking a hand held radiation monitor measurement on the Auxiliary Building roof at a line marked 10 meters from the plant main vent. ERPIP-821, "Accidental Radioactivity Release Monitoring, and Sampling Methods," gives guidance on taking the measurement and converting the radiation measurement to a release rate. The release rate is compared to the values in EAL Table A.3-1, "Effluent Monitor Classification Thresholds for Effluent Monitors," and is used to calculate a dose projection which is compared to the values in EAL Table A.3-2, "Dose Projection/Environment Measurement Classification Thresholds," to determine if an EAL classification threshold is met.

Using the conversion factor in ERPIP-821 Attachment 1 and the information in the EAL Table A.3-1, the inspectors determined that the radiation levels on the auxiliary building roof may be too high for radiation protection technicians to take the hand held radiation monitor measurement. If the radiation levels were too high, then Constellation would not be able to implement the compensatory actions for the WRNGM being out of service. This would affect the ability of the emergency response organization (ERO) to make an

appropriate EAL declaration. The inspectors determined that a design basis fuel-handling incident (FHI) at the spent fuel pool (SFP) area is the accident of most concern because there are no redundant EAL initiating conditions higher than an ALERT declaration. Therefore, the ERO would have to rely upon dose projection calculations to determine if the EAL declaration would need to be escalated and/or for the appropriate EAL classification to be declared. Interim corrective actions include an installed portable monitor with remote monitoring capabilities to perform the initial dose assessment when the WRNGM is out of service.

This item is unresolved pending further review and investigation of the re-analysis such that the inspectors can determine if there is a performance deficiency associated with this issue. The inspectors need to review Constellation's conversion factor used in ERPIP-821 and the conversion factor used in any re-analysis to determine if Constellation has adequate methods and equipment in place for assessing and monitoring a design basis FHI at the SFP area when the WRNGM is out of service. **(URI 05000317/318/2009003-02, Wide Range Noble Gas Monitor Compensatory Actions)**

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.

- A temporary modification to isolate instrument air (1-IA-1302) to valve (1-CV-5163) in order to fail it in its safe position (open) (EC-20080288-00).
- A permanent modification to change the fan sheaves and motors for the AFW pump room emergency ventilation fans (EC-20090055-00).

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 – Seven 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 was 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.

- Replaced the engineering safety feature actuation signal under voltage sensor on channel ZD for bus 11 (MO #1200204937).
- Returned the No. 12B SRW HX after a full plate cleaning (MO #1200803718).
- No. 23 and 24 containment air coolers inlet valve relay inspection and tests (MO #2200604196).
- Adjusted the control flow damper for No. 12 emergency core cooling system (ECCS) pump room exhaust fan (MO #1200803754).
- Overhauled the No. 22 SW pump (MO #2200801890).
- Adjusted the mechanical stops and packing for No. 11 CCHX SW inlet control valve (1-CV-5160) (WO #C90463613).
- 0C EDG overhaul inspection and troubleshooting of the turbocharger exhaust temperature element (WO #C90467246).

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 – Five 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 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 had been satisfied.

- Unit 1 ECCS pump room ventilation system monthly test (STP-O-11-1).
- Unit 1 functional testing of the No. 11 4kV bus protective relays (FTE-59).
- Unit 1 safety injection system valve operability test (STP-O-65Q-1).
- Unit 2 test of 2A EDG and the No. 21 4kV bus loss of coolant incident (LOCI) sequencer (STP-O-8A-2).
- Unit 2 SW pump and check valve quarterly operability inservice test (STP-O-73A-2).

b. Findings

No findings of significance were identified.

**Cornerstone: Emergency Preparedness (EP)**

1EP6 Drill Evaluation (71114.06 – One Sample)

a. Inspection Scope

The inspectors observed an EP drill on May 19, 2009. This EP drill focused on equipment failures, operator challenges, and security issues that could typically exist

during a complicated plant trip. The inspectors observed the ERO performance onsite and at the Joint Information Center/Emergency Operations Facility. The inspectors verified that the classification, notification, and protective action recommendations were accurate and timely. Additionally, the inspectors assessed the ability of Constellation's evaluators to address operator performance deficiencies identified during the exercise.

Additionally, the inspectors conducted a review of the emergency response plan and associated implementation procedures for a fuel handling incident in the SFP area and containment.

b. Findings

Introduction. The inspectors identified a URI associated with the emergency response plan implementing procedures (ERPIPs) for a FHI in the Containment Building.

Description. In January 2001, Constellation submitted a license amendment request to modify the conditions of containment closure during core alterations/fuel handling for Units 1 and 2. A new containment outage door assembly was installed on the outside of the equipment hatch opening to provide for a quicker closure, improve safety when the door is open, and allow more flexibility when staging material in the Containment Building during an outage. In support of this amendment request, Constellation conducted an analysis of the design basis FHI. Constellation concluded that since the existing safety analysis assumed the radioactive release is unfiltered via the personnel air lock to the plant main vent, the analysis will also apply to the containment outage door and is not changed if both the personnel airlock and the containment outage door are open at the same time. In conjunction with the NRC's approval of the amendment request in March 2001, Constellation updated Chapter 14.18 of the UFSAR to include the assumption that the containment outage door/equipment hatch will remain open for the duration of the FHI in Containment. Thus, the radioactivity release point could be through the containment outage door and/or through the plant main vent. In a review of associated ERPIPs for a FHI in containment, the inspectors questioned the measures in place to account for a potential release path through the containment outage door. Specifically, the potential release through the containment outage door may be unaccounted for until field monitoring is conducted later during the event. The inspectors noted that the initial dose projection is used to support initial EAL declarations and to make protective action recommendations if warranted by projected radiological conditions at the site's boundary.

This item is unresolved pending further review and investigation of stated methods used to obtain an initial dose assessment during a FHI with the containment outage door open such that the inspectors can determine if there is a performance deficiency associated with this issue. The inspectors need to complete the review of Constellation's evaluation to determine if the stated methods, systems, and equipment for assessing and monitoring the potential release through the containment outage door are adequate.  
**(URI 05000317/318/2009003-03, Initial Dose Assessment with the Containment Outage Door Opened)**

2. **RADIATION SAFETY**

**Cornerstone: Public Radiation Safety**



## 2PS2 Radioactive Material Processing and Transportation

### a. Inspection Scope (71122.02 -Six Samples)

During the period of June 15 to 19, 2009, the inspectors conducted the following activities to verify that CCNPP's radioactive material processing and transportation program complies with federal regulations. The inspectors reviewed shipment documentation and observed work activities.

#### Inspection Planning and System Walkdown

The inspectors reviewed the CCNPP UFSAR description of the radioactive waste processing system. The inspectors reviewed the most recent radiological release report for information on the type and amount of radioactive waste disposed.

The inspectors verified that the scope of CCNPP's audit program meets the requirements of NRC regulations. The inspectors walked down the radioactive material processing system to ensure it was as described in the UFSAR and in the process control plan. The inspectors also reviewed the reactor coolant waste evaporator equipment to verify if administrative controls were in place, which require that all preventative maintenance be performed prior to placing the equipment in use.

#### On-Site Inspection

The inspectors reviewed the current processes for transferring radioactive waste into shipping/disposal containers to determine if appropriate waste stream mixing and sampling procedures and methodology for waste concentration averaging provided representative samples of the waste product for the purpose of waste classification.

The inspectors reviewed documentation for five radioactive shipments, the associated waste stream 10 CFR Part 61 analysis results, and the scaling factors used to calculate the activities for hard to detect isotopes. The inspectors reviewed CCNPP's program to ensure that waste stream composition data accounts for changing operational parameters and thus remains valid between the annual or biennial sample analyses. The inspectors noted that each resin liner is sampled separately and therefore is well within the sampling requirements.

The inspectors reviewed the radioactive shipment documentation for compliance with NRC and Department of Transportation requirements. The inspectors reviewed the packaging and preparation for shipment of a reactor coolant pump motor. The inspector also reviewed the paperwork and had discussions with the driver. The inspectors observed radiation workers and questioned the radiation workers to determine if they were knowledgeable of shipping regulations.

#### Problem Identification and Resolution

The inspectors reviewed quality assurance audits, self-assessments, and six CRs related to the radioactive material processing and transportation program performed since the last inspection. The inspectors also reviewed the corrective action evaluations written against the associated CRs.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES (OA)**

4OA1 Performance Indicator (PI) Verification

Barrier Integrity (71151 – Four Samples)

a. Inspection Scope

The inspectors reviewed Constellation's reactor coolant system (RCS) activity and RCS leakage PIs for Units 1 and 2. The inspectors reviewed the PIs for the period of April 2008 through March 2009. The inspectors used the guidance provided in NEI 99-02, "Regulatory Assessment PI Guideline," to assess the accuracy of PI data collected and reported. The inspectors reviewed RCS chemistry sample analyses, control room logs of daily measurements for RCS gross leakage and compared that information to data reported by the PI. Additionally, the inspectors observed surveillance activities that determined the RCS identified leakage rate, and chemistry personnel taking and analyzing an RCS sample.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152 – Two Samples)

.1 Reviews of Items Entered Into the CAP

a. Inspection Scope

The inspectors performed a daily screening of items entered into Constellation's CAP as required by IP 71152, "Identification and Resolution of Problems." The review facilitated the identification of potentially repetitive equipment failures or specific human performance issues for follow-up inspection. This was accomplished by reviewing the description of each new CR and attending screening meetings.

b. Findings

No findings of significance were identified.

.2 Semi-Annual Review

a. Inspection Scope

The inspectors performed a semi-annual review to identify trends that might indicate the existence of a more significant safety issue. The review focused on repetitive equipment and corrective maintenance issues but also considered the results of daily inspector corrective action screenings. The review included issues documented in system health

reports, corrective MOs, assessment reports, temporary modifications, and maintenance rule assessments. The inspectors' review considered the six-month period of January to June 2009, although some examples expanded beyond those dates when the scope of the trend warranted. The inspectors also discussed trends and potential trends with appropriate station personnel.

b. Findings and Observations

No findings or observations of significance were identified. Although the inspectors identified several trends or potential trends during the semi-annual review, plant personnel were aware of these and had initiated corrective actions as necessary.

.3 Annual Sample: SW System Valves and Actuators

a. Inspection Scope

This inspection was conducted to assess Constellation's evaluation and resolution of challenges associated with the degradation of several butterfly valves and associated actuators in the SW cooling system. Specifically, valves in the SW systems of both units had been subject to corrosion, stem leakage and actuator failures that resulted in failures of inservice testing (IST) time requirements and, in some cases, failure of the valve to operate as required.

The inspectors reviewed Constellation's CRs, apparent cause evaluations, and root cause reports associated with the valve failures. The inspectors also interviewed plant personnel, and reviewed performance data including IST test results, weekly valve cycling records and operator logs to evaluate the performance of the components prior to and after corrective actions were taken to address degrading valve performance. This review was done to evaluate the effectiveness of Constellation's actions and determine if Constellation had promptly corrected adverse conditions when identified. In addition, the inspectors walked down SW system valves in Unit 1 and Unit 2 to assess the material condition of the valves, and observe the modifications performed on the valves as part of the corrective actions previously completed. Finally, the inspectors reviewed the long-term actions planned by Constellation to address remaining deficiencies.

b. Findings and Observations

No findings of significance were identified. The inspectors concluded that Constellation appropriately evaluated the cause of the degrading performance of the SW system valves and actuators, both individually and collectively, and several corrective actions were taken to address degrading valve performance. The inspectors noted that Constellation identified that most of the operational challenges occurred on the valves where the actuators were mounted under the valve. The inspectors found that Constellation had taken appropriate short term corrective actions to prevent this configuration from impacting valve performance and had plans to rotate those valves and actuators to an upright orientation.

The inspectors also confirmed that Constellation was adequately monitoring and trending relevant valve parameters and had taken corrective action to address degrading valve/actuator performance when negative performance trends were identified.

Constellation's evaluation identified that loose packing on newly installed titanium valves had contributed to the degradation of valves stems and actuators. They determined that this was caused by insufficient procedural guidance related to supplying appropriate torque values for the packing gland followers. These procedural deficiencies were corrected through procedure changes and training. The inspectors determined that several Constellation work processes should have addressed this problem prior to valve degradation. These processes included requirements in Constellation's design control process, work order process, and appropriate use of the CAP when torque deficiencies were identified in the field. Prior to the failure of valve 1-CV-5208 in 2008, Constellation had installed 15 titanium valves in the SW system beginning in 2005 but procedural deficiencies were not identified until after the valve failed (documented in IR 2008-004 as an NCV).

4OA3 Followup of Events and Notices of Enforcement Discretion (71153 – Two Samples)

.1 (Closed) Licensee Event Report (LER) 05000317/2008002-00, Pressurizer Safety Valve Setpoint High Lift Due to Low Torque and Misalignment

During scheduled testing at an offsite vendor facility on July 25, 2008, Constellation identified that one of the two-pressurizer safety valves as-found lift setting measured higher than the value allowed by TS. Constellation personnel had removed the valve from service during the previous refueling outage and sent the valve to a testing lab to determine the as-found lift setpoint and to refurbish the internals. The vendor technician initially concluded that the high lift was due to low torque of an inlet nozzle and indications of internal valve misalignment. However, a subsequent apparent cause evaluation determined that the apparent cause was due to excessive drift and Constellation revised the LER to update the cause of the event. The inspectors reviewed this LER and documented the findings of the revised LER in Section 4OA3.2 of this report. This LER is closed.

.2 (Closed) LER 05000317/2008002-01, Pressurizer Safety Valve Setpoint High Due to Excessive Drift

On July 25, 2008, during as-found testing, Constellation identified that one of the two pressurizer safety valves lift setting was 50 pounds per square inch higher than the value allowed by TS. Constellation personnel removed the valve from service during the previous refueling outage and sent it to a testing lab to refurbish the valve and determine the as-found lift setpoint. Constellation concluded that because the lift point exceeded the TS limit, Unit 1 had operated during the previous operating cycle with an inoperable valve for longer than the allowed TS action time and, therefore, had violated the TS.

An examination of the valve determined that there was some misalignment of the valve internals and the valve nozzle was not at the required torque setting. Additionally, the inspection found that there was some degradation of the valve internal components. As a result of the inspection, Constellation concluded that the most likely cause of the high lift setpoint was drift of the setpoint due to the degraded internal components. Additionally, Constellation evaluated the operability of the valves currently installed in Units 1 and 2. Based on in this review, Constellation concluded that all the valves were set up and installed correctly and that they were operable. Finally, Constellation

determined that although the valve setpoint was above the allowed TS limit, it still was capable of performing its safety function.

The inspectors reviewed Constellation's actions associated with this event report. The inspectors also reviewed the setpoint test data prior to installation into the system, the test procedure for adequacy, and the vendor's assessment of the issue. In addition, the inspectors evaluated the performance history of these safety valves and found that the performance of the valve was generally good and the appropriate maintenance and testing had been performed. Therefore, the inspectors did not identify a performance deficiency associated with this event. However, the failure to meet TS limiting condition of operation (LCO) 3.4.10 was a violation as discussed in Section 4OA7 of this report.

#### 4OA5 Other Activities

##### .1 Quarterly Resident Inspector Observations of Security Personnel and Activities

###### a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with Constellation's security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspectors' observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status reviews and inspection activities.

###### b. Findings

No findings of significance were identified.

##### .2 Independent Spent Fuel Storage Installation (ISFSI) Radiological Controls and Activities

###### a. Inspection Scope

The inspectors evaluated the effectiveness of Constellation's processes and procedures for controlling radiological activities at the ISFSI. The inspectors reviewed the As Low As Reasonably Achievable plans and radiation work permits (RWPs) used for ISFSI activities. The inspectors walked down the ISFSI area and interviewed Constellation personnel. The inspectors verified the condition of postings and dose rates and reviewed a printout of the RWP entries for the ISFSI to verify that dose per entry was within prescribed procedure limits. Additionally, the inspectors reviewed surveys from the most recent transfer of a dry cask to the ISFSI storage pad. The inspectors also reviewed six CRs related to this inspection activity.

###### b. Findings

No findings of significance were identified.

.3 (Closed) URI 05000317/318/2009002-00 Auxiliary Feedwater Pump Emergency Ventilation Low Flow

The inspectors opened a URI in NRC IR 05000317/318/2009002 to review the inputs and assumptions used in an evaluation to determine if the degraded flow rate condition adversely affected the Mitigating System cornerstone objective to ensure the availability, reliability, and capability of the TDAFW pumps. This item was resolved as a Green NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," and documented in this report in Section 1R04. This URI is closed.

In addition, this URI was inadvertently listed as URI 05000317/318/2009002-03 in IR 2009-002. The revised tracking number is URI 05000317/318/2009002-00.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On July 15, 2009, the resident inspectors presented the inspection results to Mr. James Spina and other members of licensee staff who acknowledged the findings. The inspectors asked Constellation whether any of the material examined during the inspection should be considered proprietary. There was no proprietary information identified.

4OA7 Licensee-Identified Violations

The following violation of very low safety 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.

CCNPP TS LCO 3.4.10, "Pressurizer Safety Valves," states, in part, that two pressurizer safety valves shall be operable. Contrary to this, from March 2006 to March 2008 one of the two pressurizer safety valves installed in Unit 1 was set above the TS limit and, therefore, was inoperable. Constellation identified the deficiency following the refueling outage while testing the valve as part of the relief valve-testing program. Constellation entered this issue in their CAP under IRE-033-089. This violation was of very low safety significance because the valve would have opened for the events credited to mitigate incidents in the Phase 2 notebooks such that it satisfied the bounding maximum vessel pressure calculations.

ATTACHMENTS: SUPPLEMENTAL INFORMATION

**ATTACHMENT 1****SUPPLEMENTAL INFORMATION****KEY POINTS OF CONTACT**Constellation Personnel

J. Spina, Site Vice President  
 D. Trepanier, Plant General Manager  
 R. Cable, Radwaste Shipping Technician  
 B. Dansberger, Radiation Protection Supervisor  
 S. Dean, Manager, Operations  
 M. Flaherty, Manager, Engineering Services  
 J. Gaines, Director, Licensing  
 K. Gould, General Supervisor, Radiation Protection  
 A. Henni, Senior Design Engineer  
 L. Larragoite, Manager, Nuclear Safety and Security  
 J. Lenhart, Radiation Protection Supervisor  
 C. Neyman, Licensing Engineer  
 J. Pruitt, Radwaste Shipping Technician  
 S. Saunder, General Supervisor, Chemistry  
 A. Simpson, Principle Engineer, Licensing  
 J. Wynn, Senior System Engineer  
 J. York, Supervisor Radiation Protection

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

05000317/318/2009003-02	URI	Wide Range Noble Gas Monitor Compensatory Actions (Section 1R15)
05000317/318/2009003-03	URI	Initial Dose Assessment with the Containment Outage Door Opened (Section 1EP6)

Opened and Closed

05000317/318/2009003-01	NCV	Inadequate Test Control Associated with the Auxiliary Feedwater Pump Room Emergency Ventilation System (Section 1R04)
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Closed

05000317/2008002-00	LER	Pressurizer Safety Valve Setpoint High Lift Due To Low Torque Misalignment (Section 4OA3.1)
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05000317/2008002-01	LER	Pressurizer Safety Valve Setpoint High Due to Excessive Drift. (Section 4OA3.2)
05000317/318/2009002-00	URI	Auxiliary Feedwater Pump Emergency Ventilation Low Flow (Section 4OA5.3)

### LIST OF DOCUMENTS REVIEWED

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

##### Procedures

NO-1-119, Seasonal Readiness, Revision 2  
 OI-15-1, Service Water System, Revision 62  
 OI-28, Operation of 500 kV Switchyard System, Revision 15  
 OI-27D-1, Station Power 480 Volt System, Revision 5  
 AOP-7I-1, Loss of 4kV, 480V, or 208/120V Instrument Bus Power, Revision 23  
 AOP-7M, Major Grid Disturbance, Revision 1

##### Condition Reports

CR-2009-002769

##### Miscellaneous

SA200900026, Pre-Summer Assessment of Seasonal Readiness dated 3/26/2009  
 Seasonal Readiness Status Sheet, dated 5/20/2009

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

##### Procedures

OI-8A-2, Steam Generator System, Revision 23  
 OI-15-1, Service Water System, Revision 62  
 OI-16-1, Component Cooling System, Revision 32  
 OI-16-2, Component Cooling System, Revision 32  
 OI-22B, Auxiliary Building, and Waste Processing Area Ventilation, Revision 11  
 OI-32A-2, AFW System, Revision 17  
 STP O-5A-1, Auxiliary Feedwater System Quarterly Surveillance Test, Revision 20

##### Condition Reports

CR-2008-000676	IR4-013-440	CR-2009-001821
CR-2008-002293	IRE-018-149	
CR-2008-002833	IRE-026-124	
CR-2008-003041	CR-2009-000650	
CR-2009-000305	CR-2009-001769	

##### Maintenance Orders/Work Orders

MO #1200805965

##### Drawings

60710SH0001, Component Cooling System, Revision 43  
 60722SH0001, Auxiliary Building Ventilation Room, Revision 59  
 60723SH0002, Ventilation Systems: Containment, Turbine and Penetration Rooms, Revision 57



60327SH0001, Heating and Ventilation System Auxiliary Building Unit 1 Plan at EL 5'-0",  
Revision 24

60722SH0002, Auxiliary Building Ventilation System Details, Revision 44

60722SH0003, Auxiliary Building Ventilation System, Revision 10

#### Calculations and Specifications

DE10250, AFW Pump Room High Ambient Temperatures, and their effect on the AFW pump  
Operability, Revision 1

Calculation Number M-94-150, Post LOCA Auxiliary Building Temperatures with Loss of Offsite  
Power, Revision 1

Calculation Number CA04467, AFW Pump Room transient temperature analyses under App. R  
fire/ non-LOOP, LOCA/LOOP, Appendix R fire/LOOP and SBO scenarios, using  
GOTHIC code, Revision 1

#### Miscellaneous

Engineering Standard ES-014, Summary of Ambient Environmental Service Conditions,  
Revision 04

PE-1-36-1-O-M, Run 11 and 12 AFW Emergency Vent Fans per OI-32A-1, Section 6.16,  
Revision 2

OD-006, Unit 1 and 2 AFW Pump Room Emergency Ventilation Flow, Revision 4

Spec 6750-M-243-5, Buffalo Forge Performance Curves, Revision 1

Spec 6750-M-243-1, Buffalo Forge Fabrication Data Sheet, Revision 1

### **Section 1R05: Fire Protection**

#### Procedures

SA-1, Fire Protection Program, Revision 6

FP-0002, Fire Hazards Analysis Summary Document, Revision 0

#### Miscellaneous

Fire Fighting Strategies Manual, Revision 0

Calculation CA02243, Combustion Loading Analysis Report, Revision 1

UFSAR Section 9.9, Calvert Cliffs Power Plant Fire Protection Program, Revision 39

### **Section 1R07: Heat Sink**

#### Procedures

EN-1-125, Heat Exchanger Program, Revision 0

#### Maintenance Orders/Work Orders

MO #2200902862, Perform Eddy Current Test

#### Drawings

60710SH0001, Component Cooling System, Revision 43

12045-0002, Tube Layout, Revision 0

#### Calculations

CA06924, CCHX Single Tube Thermal Performance Testing (2002 – 2006), Revision 0

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

Procedures

Emergency Response Drill Scenario  
NO-1-200, Control of Shift Activities, Revision 32

**Section 1R12: Maintenance Effectiveness**

Procedures

ER-1-103, Maintenance Rule Program Implementation, Revision 1

Condition Reports

CR-2009-002962  
CR-2009-002116  
CR-2009-003436

Miscellaneous

CCNPP Maintenance Rule Scoping Document, Revision 28

**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

Procedures

Maintenance Rule Risk Assessment Guideline, Revision 7  
NO-1-117, Integrated Risk Management, Revision 19

Condition Reports

CR-2009-004290  
CR-2009-004210

**Section 1R15: Operability Evaluations**

Procedures

CNG-OP-1-01-1002, Conduct of Operability Determinations/Functionality Assessments,  
Revision 0  
NDE-5710-CC, Section XI Visual Examination (VT-2) for Leakage, Revision 8  
ERPIP-821, Accidental Radioactivity Release Monitoring and Sampling Methods, Revision 5  
ERPIP-3.0, Immediate Actions, Attachment 1, Emergency Action Level Criteria, Revision 42

Condition Reports

CR-2009-003436	CR-2009-003574
CR-2009-003660	CR-2009-003950
CR-2009-003943	CR-2009-003933
CR-2009-004108	

Miscellaneous

FA-09-003, Functionality Assessment for the Unit 2 Wide Range Noble Gas Monitor (2-RIC-5415), Revision 0  
OD-09-006, Operability Determination for the Unit 2 Pressurizer Safety Valves, Revision 1  
NEI 99-01, Methodology for Development of Emergency Action Levels, Revision 4  
DE10341, ERPIP-821 Attachment 1 Alternate Release Rate Method Adequacy for a Fuel Handling Accident, Revision 0

**Section 1R18: Plant Modifications**

Procedures

MD-1, Modification Program, Revision 3  
MD-1-100, Temporary Alterations, Revision 14

Miscellaneous

EC-20080288-000, Isolate Instrument Air (1-IA-1302) to valve (1-CV-5163) in order to fail it in its safe position (open), Revision 0  
EC-20090055-000, Change the Fan Sheaves and Motors for the AFW Pump Room Emergency Ventilation Fans, Revision 0

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

Procedures

STP O-9A-2, AFAS Equipment Response Time Test, Revision 10  
STP O-73A-2, Saltwater Pump and Check Valve Quarterly Operability Test, Revision 16  
STP O-65N-1, 11 Saltwater subsystem Valve Quarterly Operability Test, Revision 51  
STP O-65M-1, Steam Generator Blowdown Valve Quarterly Operability Test, Revision 4  
STP I-546-1, ECCS Pump Room Exhaust Filter Test (HEPA), Revision 7  
STP-O-11-1, ECCS pump room ventilation system monthly test, Revision 3  
Pump-3, Saltwater Pump Overhaul, Revision 6  
Pump-3A, Saltwater Pump Removal and Replacement, Revision 1

Condition Reports

CR-2009-004290  
CR-2009-003905  
CR-2009-003931

Maintenance Orders/Work Orders

MO #1200204937	MO #2200801890
MO #1200803718	WO #C90467246
MO #2200604196	WO #C90463613
MO #1200803754	

Miscellaneous

IST Basis Document, Steam Generator Bottom Blowdown Valves, Revision 0

**Section 1R22: Surveillance Testing**

Procedures

STP-O-73A-2, Saltwater pump and check valve quarterly operability test, Revision 16  
STP-O-11-1, ECCS pump room ventilation system monthly test, Revision 3  
FTE-59, Functional testing of the No. 11 4kV bus protective relays, Revision 5  
STP-O-65Q-1, Safety injection system valve operability test, Revision 51  
STP-O-8A-2, Test of 2A EDG and the No. 21 4kV bus LOCI sequencer, Revision 26

Miscellaneous

Third-Ten-Year-Plan (ISTPP), Pump and Valve Inservice Testing (IST) Program Third-Ten-Year Interval, Revision 2

## **Section 1EP6: Drill Evaluation**

### Procedures

ERPIP-3.0, Immediate Actions, Attachment 1, Emergency Action Level Criteria, Revision 42  
ERPIP-107, Chemistry Shift Technician, Revision 6  
ERPIP-821, Accidental Radioactivity Release Monitoring and Sampling Methods, Revision 5  
ERPIP-822, Initial Dose Assessment Calculation Methods, Revision 00403  
AOP-6D, Fuel Handling Incident, Revision 16  
AOP-6D, Fuel Handling Incident Basis Document, Revision 14

### Miscellaneous

Calvert Cliffs Emergency Response Drill Scenario  
Calvert Cliffs Emergency Response Drill Manual  
Calvert Cliffs ERO Facility Drill Critique  
NEI 99-01, Methodology for Development of Emergency Action Levels, Revision 4

## **Section 2PS2: Radioactive Material Processing and Transportation**

### Condition Reports

CR-2008-001048	CR-2009-003040
CR-2009-000654	CR-2009-003510
CR-2009-000791	CR-2009-004116
CR-2009-000794	

### Procedures

CH-1-109, Preparation and Shipment of Radioactive Material and Radioactive Waste, Revision 0  
CH-1-110 Process Control Program, Revision 0  
CP-617, Shipment of Radioactive Material General Requirements, Revision 0  
CP-618, Packaging for Shipment or Transportation of Radioactive Material, Revision 1  
CP-631, CNS 8-120A Cask Handling Procedure, Revision 1  
CP-632, CNS 8-120B Cask Handling Procedure, Revision 2  
OI-17E, Reactor Coolant Waste Evaporator Operation, Revision 20

### Audits, Assessments and Reports

2007-0028, Quality Assessment Report  
2008-104, Q & PA Report  
SA-2008-00001, Snapshot Self-Assessment

### Radioactive Shipment Records

2008-14, Class C, 334 Curies  
2009-07, Class, 1.48 Curies  
2009-48, SCO-II, 0.0298 Curies  
2009-50, LSA-I, 0.1 Curies  
2009-56, Class C, 321 Curies

## **Section 4OA1: Performance Indicator Verification**

### Procedure

STP-O-027-1, Reactor Coolant System Leakage Evaluation, Revision 20

STP-O-027-2, Reactor Coolant System Leakage Evaluation, Revision 18  
CP-204, Specification and Surveillance Primary Systems, Revision 31  
AOP-6A, Abnormal Reactor Coolant Chemistry/Activity, Revision 10

Miscellaneous Records & Reports

Measurements – Sample points, Analysis, and Sample data for RCS, dated June 2008 through May 2009.

**Section 4OA2: Identification and Resolution of Problems**

Procedures

CNG-CA-1.01-1000, Corrective Actions Program, Revision 01  
CNG-CA-1.01-1004, Root Cause Analysis, Revision 02  
OI-16, Component Cooling System, Revision 032  
OI-29, Saltwater System, Revision 63

Condition Reports

CR-2008-000664                      CR-2008-002234  
CR-2008-002648                      CR-2009-000435  
CR-2008-002321, Category I Root Causal Analysis, Trend of Saltwater Valve Reliability  
IRE-024-616  
IRE-032-517  
IRE-032-993

Drawings

60708SH0002, Circulating Salt Water Cooling System, Revision 108

Miscellaneous

Bay Water Temperature Plot, 9/1/2008 to 12/1/2008  
IST Basis Document, Section 15, Saltwater System  
Operators Narrative Logs 2008-09-17 to 2008-11-12  
1-CV-5208 IST results 2/15/2008 to 11/29/2008  
1-CV-5208 Open Stroke Times 11/15/2008 to 11/29/2008  
Calvert Cliffs Updated Final Safety Analysis Report, Revision 37  
SP-0584A, Safety Related Pneumatic Control Wafer Type Butterfly Valves, Revision 12

**Section 4OA3: Event Followup**

Procedures

NR-0S417-0412, Repair Plan and Report – General Requirements, February 28, 2005

Condition Reports

CR IRE 033-089

Miscellaneous

LER 05000317/2008002, Pressurizer Safety Valve Setpoint High Due to Low Torque and Misalignment, Revision 0  
LER 05000317/2008002, Pressurizer Safety Valve Setpoint High Due to Excessive Drift, Revision 1  
Dresser Certificate of Performance, dated February 28, 2005  
51564-1, Wyle Laboratories Certified Test Report, February 21, 2005

PRAER No. C2-2008-7, PRA Evaluation, dated August 28, 2008  
ML091960223, Power Reactor Correspondence

**Section 4OA5: Other Activities**

Condition Reports

CR-2008-002730	CR-2008-002737
CR-2008-002731	CR-2009-002563
CR-2008-002736	CR-2009-0036234

Other

RWP 2008-0156  
ALARA Review Checklist 2008-0156

**LIST OF ACRONYMS**

ADAMS	Agency-Wide Documents Access and Management System
AFW	Auxiliary Feedwater
CAP	Corrective Action Program
CC	Component Cooling
CCHX	Component Cooling Heat Exchanger
CCNPP	Calvert Cliffs Nuclear Power Plant
CFR	Code of Federal Regulations
CR	Condition Report
EAL	Emergency Action Level
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
ERO	Emergency Response Organization
ERPIP	Emergency Response Plan Implementing Procedure
FHI	Fuel Handling Incident
HX	Heat Exchanger
IMC	Inspection Manual Chapter
ISFSI	Independent Spent Fuel Storage Installation
IST	Inservice Testing
kV	Kilovolt
LCO	Limiting Condition for Operation
LER	Licensee Event Report
MO	Maintenance Order
NEI	Nuclear Energy Institute
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
OI	Operating Instruction
PARS	Publicly Available Records
RWP	Radiation Work Permit
SFP	Spent Fuel Pool
SSC	Structure, System, Component
SRW	Service Water
SW	Saltwater
TDAFW	Turbine Driven Auxiliary Feedwater
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
WO	Work Order
WRNGM	Wide Range Noble Gas Monitor