

November 10, 2008

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 05000317/2008004 AND 05000318/2008004

Dear Mr. Spina:

On September 30, 2008, 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 October 17, 2008, 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 and one self-revealing finding of very low safety significance (Green). Both of these findings were determined to involve violations of NRC requirements. However, because the findings are of very low safety significance and the findings 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 these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; and the NRC Resident Inspector at CCNPP.

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 component of NRC's document system (ADAMS).

J. Spina

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Sincerely,

/RA/ Original Signed by:

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

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

Enclosure: Inspection Report 05000317/2008004 and 05000318/2008004
w/Attachment: Supplemental Information

cc w/encl:

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C. W. Fleming, Esq., Senior Counsel, Nuclear Generation
J. Gaines, Director, Licensing, CCNPP
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M. Griffen, Maryland Department of the Environment
W. Parren, President, Calvert County Board of Commissioners
R. Hickok, NRC Technical Training Center
S. Pattison, SLO (2)

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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.: 05000317/2008004 and 05000318/2008004

Licensee: Constellation Generation Group, LLC (Constellation)

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

Location: Lusby, MD

Dates: July 1, 2008 through September 30, 2008

Inspectors: Silas Kennedy, Senior Resident Inspector
Marlone Davis, Acting Senior Resident Inspector
Justin Hawkins, Project Engineer
Neil Perry, Senior Project Engineer
John Richmond, Senior Reactor Inspector
Manan Patel, Reactor Inspector
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Approved by: Glenn T. Dentel, Chief
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TABLE OF CONTENTS

SUMMARY OF FINDINGS	3
REPORT DETAILS.....	5
REACTOR SAFETY	5
1R01 Adverse Weather Protection	5
1R04 Equipment Alignment	6
1R05 Fire Protection.....	6
1R06 Flood Protection Measures	7
1R07 Heat Sink Performance	7
1R11 Licensed Operator Requalification Program	7
1R12 Maintenance Effectiveness	8
1R13 Maintenance Risk Assessments and Emergent Work Control	10
1R15 Operability Evaluations.....	11
1R18 Plant Modifications.....	11
1R19 Post-Maintenance Testing.....	12
1R22 Surveillance Testing.....	14
1EP6 Drill Evaluation	14
RADIATION SAFETY	15
2OS1 Access Control to Radiologically Significant Areas.....	15
2OS2 As Low As Reasonably Achievable (ALARA) Planning and Controls.....	15
OTHER ACTIVITIES (OA)	16
4OA1 Performance Indicator (PI) Verification.....	16
4OA2 Identification and Resolution of Problems.....	17
4OA5 Other Activities.....	18
4OA6 Meetings, Including Exit	19
ATTACHMENT: SUPPLEMENTAL INFORMATION	A-1
KEY POINTS OF CONTACT	A-1
LIST OF ITEMS OPENED, CLOSED AND DISCUSSED.....	A-1
LIST OF DOCUMENTS REVIEWED	A-1
LIST OF ACRONYMS	A-9

SUMMARY OF FINDINGS

IR 05000317/2008004, 05000318/2008004; 7/1/08 – 9/30/08; Calvert Cliffs Nuclear Power Plant (CCNPP), Units 1 and 2: Maintenance Effectiveness and Post-Maintenance Testing.

The report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Two Green findings were identified, both of which were determined to be non-cited violations (NCVs). The significance for 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.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

Green. The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," because Constellation did not promptly identify and correct a condition adverse to quality (CAQ) related to the Unit 1 No. 12 component cooling (CC) heat exchanger (HX) saltwater (SW) outlet control valve (1-CV-5208). Specifically, Constellation did not promptly identify and correct a degraded condition associated with the valve's positioner when 1-CV-5208 did not respond as expected during SW flow verifications on May 13, 2008. Consequently, on May 21, 2008, operators declared the valve inoperable because the valve went from full shut to full open with only 25 percent indicated on the controller. The valve responded erratically because the spindle for the valve's positioner corroded and would not rotate to control the position of the valve. The corrosion mechanism was due to SW leaking from the valve packing to the actuator housing and onto the positioner. Constellation entered this issue into their corrective action program (CAP) for resolution as IRE-031-916. The immediate corrective actions following the May 21, 2008 event included the removal, inspection, and refurbishment of the positioner. The planned corrective action includes a modification to prevent SW from leaking outside the actuator housing and to perform preventive maintenance activities to detect degradation of the SW control valve positioners.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating System cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems (i.e. component heat removal) that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the significance of this finding using Phase 2 and 3 analyses and determined that the finding is of very low safety significance (Green). This finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not thoroughly evaluate SW flow control valve issues (P.1.c per IMC 0305). (Section 1R12)

Green. A self-revealing, NCV of Technical Specification (TS) 5.4.1.a, "Procedures," was identified because Constellation did not adequately establish and maintain electrical maintenance procedures for 4 kV circuit breakers such that the procedures incorporated torque values and verification steps to ensure the adjustment setscrew for the trip armature was properly tightened. During a surveillance test, on June 21, 2008, the

adjustment setscrew backed out which prevented the 13 SRW pump breaker from opening. Constellation entered this issue into their CAP for resolution as IRE-032-517. The immediate corrective actions following the event included the replacement of the locking setscrew and trip coil. The planned corrective actions included the revision of maintenance orders and procedures to ensure that technicians perform peer verifications and check the tightness of the adjustment setscrew following maintenance activities.

This finding is more than minor because it is associated with the procedure quality attribute of the Mitigating System cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. 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 TS allowed outage time, and did not screen as potentially risk significant due to external events. This finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not implement and institutionalize operating experience (OE), including internal and external OE to change station processes, procedures, and training programs when similar issues of internal and external events occurred on 4 kV circuit breakers that involved inadequate maintenance procedures (P.2.b). (Section 1R19)

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Calvert Cliffs Unit 1 began the inspection period at 100 percent power. On July 26, 2008, operators reduced power to 79 percent to perform unplanned waterbox cleaning. Operators returned the unit to 100 percent power on July 27. On July 29, operators reduced power to 85 percent to conduct repairs on a main turbine control valve (CV-1). Operators returned the unit to 100 percent on July 30 once technicians completed repairs on the valve wiring. On August 2, 9, and 23, operators reduced reactor power to 85, 84, and 87 percent power for waterbox cleaning, respectively. After each reduction in power, operators returned the unit to 100 percent power the next day. On September 26, operators reduced power to 83 percent to perform main turbine valve testing. Operators returned the unit to 100 percent power 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 July 11, 2008, operators reduced power to 97 percent to conduct end-of-cycle moderator temperature coefficient testing. Operators returned the unit to 100 percent power on July 12. On July 17, 25, and August 16, operators reduced reactor power to 94, 84, and 85 percent power for waterbox cleaning, respectively. After each reduction in power, operators returned the unit to 100 percent power on July 17, 26, and August 17, respectively. On September 13, operators reduced power to 65 percent to perform main turbine valve testing and maintenance on the No. 22 steam generator feedwater pump. Operators returned the unit to 100 percent power on September 14. On September 27, operators reduced power to 92 percent to perform waterbox cleaning. Operators returned the unit to 100 percent power on September 28. 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 – One Sample)

Adverse Weather Protectiona. Inspection Scope

The inspectors reviewed the adverse weather preparations and mitigating strategies for the impending adverse weather condition (Tropical Storm Hanna). This review included an assessment of Constellation's implementation of Emergency Response Plan Implementation Procedure (ERPIP) 3.0, "Immediate Actions," Attachment 20, "Severe Weather," and administrative Emergency Preparedness (EP) Procedure EP-1-108, "Severe Weather Preparation." The inspectors verified that the operator actions specified in the associated procedures maintain readiness of essential equipment and systems to preclude weather induced initiating events. Additionally, prior to and during the adverse weather conditions, the inspectors performed field walkdowns of the control room and intake structure area to verify that equipment required for safe plant operation remained functional.

b. Findings

No findings of significance 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 applicable documents used for this inspection are located in the Attachment. The inspectors performed a partial walkdown for the following systems:

- No. 12 SRW system alignment due to maintenance on the No. 11 SRW pump;
- No. 21 high pressure safety injection (HPSI) train alignment due to maintenance on 23 HPSI train; and
- No. 21 turbine driven auxiliary feedwater (TDAFW) pump system alignment due to No. 22 TDAFW being unavailable for testing.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q – Five Samples)

a. Inspection Scope

The inspectors conducted a tour of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that 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 the fire plan. Documents reviewed are listed in the Attachment.

- Unit 1 SRW pump room, fire area 39, room 226.
- 2A emergency diesel generator (EDG) room, fire area 31, room 422.
- 1B EDG room, fire area 30, room 421.
- 2B EDG room, fire area 28, room 416.
- Fire pump house (FPH), yard, room FPH.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 – Three Samples)

a. Inspection Scope

The inspectors reviewed Constellations' flooding mitigation plans and equipment associated with internal flood events at CCNPP. The Engineering Standard Summary (ES)-001, "Flooding", the Updated Final Safety Analysis Report (UFSAR), and the Unit 1 and Unit 2 Total Risk Model Results described those internal flood events. The inspectors reviewed the documents and performed walkdowns of three areas that contain risk significant systems and components. The areas are as follows: 2A, 2B, and 1B EDG rooms 416, 421 and 422, respectively. The inspectors verified the condition of watertight doors, drain systems, penetrations in floors and walls, and safety-related instrumentation located in these areas.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (7111107A – One Samples)

a. Inspection Scope

The inspectors reviewed the performance test for the Unit 1 No. 12A and 12B SRWHX. The inspectors reviewed the performance data and evaluated the test acceptance criteria to ensure that 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 Regualification Program

Resident Inspector Quarterly Review (71111.11Q - One Sample)

a. Inspection Scope

On July 15, 2008, the inspectors observed a licensed operator requalification training scenario to assess operator performance and the adequacy of the licensed operator training program. The training scenario involved equipment failures, operator challenges, and security issues that required operators to implement the alarm response

manual, operating instructions, abnormal operating procedures, and their emergency action level criteria. The inspectors focused on high-risk operator actions performed during the implementation of abnormal and emergency operating procedures. 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 the oversight and direction provided by the shift manager were in accordance with Constellations' 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 structure, system, and component (SSC) classified as (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs classified as (a)(1). Documents reviewed are listed in the Attachment.

- U-4000-11 unit transformer due to a high oil temperature alarm.
- No. 12 CCHX SW outlet control valve (1-CV-5208) due to a degraded positioner.

b. Findings

Introduction. The inspectors identified a finding of very low safety significance (Green) associated with an NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," because Constellation did not promptly identify and correct a CAQ that affected the 12 CCHX SW outlet valve (1-CV-5208) positioner. Specifically, Constellation did not promptly identify and correct a degraded condition with the valve positioner when 1-CV-5208 did not respond properly during SW flow verifications.

Description. On May 13, 2008, the 12 CCHX SW outlet control valve (1-CV-5208) did not respond properly while operators were performing SW flow verifications for the 12 CC subsystem. Operators were adjusting the SW flow with the hand indicator controller (1-HIC-5208) in the control room when small adjustments of the HIC produced large system responses. The HIC output showed a different output for the desired flow-rate required. Operators initiated a condition report (IRE-031-677) and Maintenance performed a field walkdown but did not conduct any troubleshooting repairs or additional evaluations to address the condition at that time. Subsequently, on May 21, 2008, Operations declared the valve inoperable and entered an unplanned LCO because the valve went from full shut to full open with only a small percentage applied to the HIC.

The valve responded in this manner because the valve's positioner spindle corroded and would not rotate to control the valve position. The corrosion mechanism was due to SW leaking from the valve packing to the actuator housing and onto the positioner. The inspectors determined that Constellation failed to identify and correct the degraded condition of the valve positioner on May 13 before it resulted in an inoperable valve on May 21, 2008.

Additionally, the inspectors noted other instances of missed opportunities to identify and evaluate the degraded condition before operators declared the valve inoperable. As early as February of 2008, Component Engineering identified that the SW control valve's positioners had no preventive maintenance associated with them and that this limited their ability to detect positioner issues. On April 4, 2008, while performing an extent of condition review related to previous events with the saltwater outlet valves, Maintenance personnel noted that 1-CV-5208 had an active SW leak seeping through the actuator housing onto the positioner (IRE-030-810). However, the only corrective maintenance and troubleshooting actions were to adjust the packing and eliminate the leak. There was no evaluation performed to identify if the leak affected other parts of the valve or any discussion on performing maintenance on the positioner. The inspectors concluded that Constellation had opportunities to identify, evaluate, and correct the valve's positioner issue in a timely manner based on internal events and the similar condition that existed on May 13. Constellation entered this issue into their CAP for resolution as IRE-031-916. Immediate corrective actions following the May 21, 2008 issue included the removal, inspection, and refurbishment of the positioner. The planned corrective action includes a modification to prevent SW from leaking outside the actuator housing and to start performing preventive maintenance activities on the positioner.

The performance deficiency is that Constellation did not promptly identify and correct a CAQ associated with the valve's positioner when 1-CV-5208 did not respond as expected while operators were conducting SW flow adjustments with the HIC in the control room on May 13, 2008.

Analysis. This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating System cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems (i.e., component heat removal) that respond to initiating events to prevent undesirable consequences. The inspectors evaluated the significance of this finding in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations" and Appendix H, "Containment Integrity SDP," given the importance of the valve during normal, abnormal, and emergency operations in that this condition would affect safety related systems. The inspectors used a Phase 1, Phase 2, and Phase 3 SDP analyses. The Phase 1 required a Phase 2 evaluation because the finding represented an actual loss of a safety function of a single train for greater than its TS allowed outage time. The TS allowed outage time is 72 hours for a single train of component cooling water.

The inspectors used a fault exposure time of 96 hours because it is unknown when the actual loss of the safety function occurred for the valve between the period of May 13 through May 21. The inspectors conducted an internal events Phase 2 analysis for the core damage frequency (CDF) and large early release frequency (LERF) using the Risk-informed Inspection Notebook for CCNPP Units 1 and 2, revision 2.1a, dated January 23, 2008 in accordance with IMC 0609 Appendix A and Appendix H, respectively. From

a Phase 2 perspective, the inspectors used an initiating event of a loss of component cooling water (LCCW) and credited the recovery of the failed CCHX SW outlet valve (1-CV-5208). The finding resulted in a low to moderate CDF safety significance. The inspectors considered this highly conservative due to the exposure time in the SDP notebook. In accordance with IMC 0609 Appendix H, for large dry containments, only interfacing systems loss of coolant accident and steam generator tube ruptures are contributors for a change in LERF. Since this finding was only associated with LCCW, there was no change in LERF.

A senior reactor analyst conducted a Phase 3 Risk Assessment, to refine the Phase 2 analysis and to incorporate a more realistic exposure period and recovery credit. The analysis used an updated CCNPP SPAR model, Revision 3 plus, dated October 28, 2005. Based on the Phase 3 analysis, the finding represented and was determined to be very low safety significance (Green). The Phase 3 internal events analysis resulted in an increase in CDF of mid E-8 for the 96-hour exposure period. The dominant core damage sequence was a loss of DC11 with a failure of Reactor Coolant Pump seal integrity and failure of high-pressure recirculation. Since the refined analysis resulted in a delta CDF of less than 1E-7, no further review of external events was considered. This finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not thoroughly evaluate SW flow control valve issues. (P.1.c of IMC 0305)

Enforcement. 10 CFR Part 50, Appendix B, Criterion XVI, states, in part, that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected. Contrary to the above, on May 13, 2008, Constellation did not promptly identify and correct a degraded condition with the valve positioner. This resulted in an inoperable valve on May 21, 2008. Because this violation is of very low safety significance (Green) and Constellation entered this issue into their CAP as IRE-031-916, this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000317/2008004-01: Failure to identify and correct a degraded 12 CCHX SW outlet valve positioner in a timely manner).**

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – Five Samples)

a. Inspection Scope

The inspectors reviewed the following activities to verify that station personnel performed the appropriate risk assessments prior to removing equipment for work. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors compared the risk assessments and risk management actions performed by station procedure NO-1-117, "Integrated Risk Management," to the requirements of 10 CFR Part 50.65(a)(4), the recommendations of the Nuclear Management and Resources Council 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and approved station procedures. In addition, the inspectors assessed the adequacy of Constellation's identification and resolution of problems associated with maintenance risk assessments and emergent work activities. Documents reviewed are listed in the Attachment.

- Emergent maintenance on the 11A SRW HX on July 22, 2008.
- Planned maintenance on Unit 1 charging system on July 31, 2008.

- Emergent maintenance on the 22 TDAFW pump on August 13, 2008.
- Planned maintenance on the wide-range nuclear instrumentation ground issues on August 25, 2008.
- Emergent maintenance on the 12 CCHX SW outlet valve on August 28, 2008.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 – Four 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 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 LCO implications were properly addressed. Documents reviewed are listed in the Attachment.

- Gas voids in 22 shutdown cooling purification train and HPSI and chemical volume control system (CVCS) cross connect piping (IRE-032-841 and CR-2008-000595).
- Unit 1 pressurizer safety valve lifted high during as-found testing (IRE-033-089)
- Unit 1 auxiliary feedwater (AFW) pump room ventilation (CR-2008-000676).
- Degraded condition for the water suppression system fire water supply tanks (CR-2008-000077 and 136).

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18 – Two Samples)

a. Inspection Scope

The inspectors reviewed the plant modifications listed below to verify that the modification 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 temporary or permanent modification. This verification ensured that the system maintained its availability, reliability, and functional capability. The inspectors conducted walkdowns of accessible portions of the modification to verify that the proper configuration control was maintained to ensure that the plant was not placed in an unsafe condition. Documents reviewed are listed in the Attachment.

- A permanent modification installed to replace the 1A EDG heating ventilation and air conditioning fan F-10 and F-12 actuators.

- A temporary modification installed to jumper across a cell on the reserve battery.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 – Five Samples)

a. Inspection Scope

The inspectors reviewed post-maintenance tests included in the associated maintenance order (MO) 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. Documents reviewed are listed in the Attachment.

- Replaced individual control module for control element assembly (CEA) 35 (MO# 1200803987).
- Replaced trip coil on feeder breaker 52-1702 MCC 124 (MO #1200803986).
- Repaired broken lead on disconnect auxiliary switch 189-2441 due to the 23 SRW pump breaker failure to stop (MO# 2200803340).
- Performed corrective maintenance on the No. 13 SRW pump breaker (152-1111) 4-kilovolt (kV) General Electric (GE) Magne-Blast Circuit Breaker (MO #1200803289).
- Performed corrective maintenance on U-4000-11 transformer due to worn insulation around one fan motor wire (MO #1200805232).

b. Findings

Introduction. A Green, self-revealing NCV of TS 5.4.1.a, “Procedures,” occurred because Constellation did not establish and maintain adequate electrical maintenance procedures for the 4 kV circuit breakers. Specifically, Constellation did not have torque values or verification steps in the breaker overhaul and inspection procedures to tighten the setscrew for the trip armature bolt. As a result, the 13 SRW pump breaker (152-1111) failed to open during a surveillance test.

Description. During a surveillance test conducted on June 21, 2008, a self-revealing finding occurred when the 13 SRW pump breaker (152-1111) failed to open. Operators manually tripped the breaker locally in order to secure and remove the breaker from its cubical. When Constellation examined the breaker, they discovered that the adjustment setscrew for the trip armature had backed out and fallen into the cubical. This adjustment setscrew holds the trip shaft in place when it rotates after the trip coil energizes causing the breaker to open. Therefore, without this setscrew in place, the breaker cannot operate as designed. The inspectors reviewed the apparent cause evaluation, relevant CRs, maintenance work orders, breaker maintenance procedures, and other documents associated with this issue. The inspectors concluded that the electrical maintenance procedures, E-30, “4.16 kV Magne-Blast Circuit Breaker Overhaul

Procedure,” and FTE-51, “4 kV GE Magne-Blast Circuit Breaker Inspection,” did not provide adequate guidance to ensure that the setscrew for the trip armature bolt was properly tightened. Specifically, the procedures did not incorporate torque values or verification steps.

The inspectors also noted that previous events occurred in which Constellation did not use internal lessons learned. In particular, on October 18, 2007, the 21 condensate pump breaker (152-2207) failed to open. The apparent cause for this event was identical to the 13 SRW pump breaker issue in that the adjustment setscrew for the trip armature had backed out and fallen into the cubical. However, the extent of condition did not extend past the actual equipment failure or identify that another issue occurred three months prior to that event in which a mechanical maintenance procedure for the Fairbanks Morse EDG inspections did not contain vendor recommended torque values. As a part of the October 18, 2007 resolution, there was no extent of condition performed to review other maintenance procedures to identify common cause failures. The inspectors determined that Constellation had opportunities to implement and institutionalize internal OE to change station processes, procedures, and training programs. Constellation entered this issue into their CAP program for resolution as IRE-032-517 and IRE-032-993. Immediate corrective actions following the June 21, 2008 issue included an extent of condition review of the remaining safety-related 4.16 kV breakers to verify the critical clearances and tightness of the trip armature setscrew. The planned corrective action includes the revision of maintenance orders and procedures to ensure that technicians perform peer verifications and check the tightness of the locking setscrew.

The performance deficiency is that Constellation did not establish and maintain adequate maintenance procedures for the 4.16 kV Magne-Blast Circuit Breakers to incorporate torque values and verification steps for the breaker setscrew. This led to the 13 SRW pump breaker not opening on demand.

Analysis. This finding is more than minor because it is associated with the procedure quality attribute of the Mitigating System cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors evaluated the significance of this finding using Phase 1 of the IMC 0609, Appendix A, “Significance Determination of Reactor Inspection Findings for At-Power Situations.” 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. This finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not implement and institutionalize OE, including internal and external OE to change station processes, procedures, and training programs when similar internal and external events occurred on 4 kV circuit breakers that involved inadequate maintenance procedures (P.2.b of IMC 0305).

Enforcement. Technical Specification 5.4.1.a, “Procedures,” requires that written procedures be established and maintained for activities specified in Regulatory Guide 1.33. Regulatory Guide 1.33 includes written procedures for performing maintenance, which can affect the performance of safety-related equipment. Contrary to the above, prior to June 21, 2008, Constellation did not properly establish and maintain

maintenance procedures, E-30, "4.16 kV Magne-Blast Circuit Breaker Overhaul Procedure," and FTE-51, "4 kV GE Magne-Blast Circuit Breaker Inspection." Specifically, Constellation did not have torque values or verification steps in the breaker overhaul and inspection procedures to tighten the setscrew for the trip armature adjustment bolt. As a result, the breaker failed to open during a surveillance test. Because this issue is of very low safety significance (Green) and was entered into Constellation's CAP as IRE-032-517, this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000317/2007004-02: Failure to Establish and Maintain Adequate Procedures for 4 kV Circuit Breaker Maintenance)**

1R22 Surveillance Testing (71111.22 – Four 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. Documents reviewed are listed in the Attachment.

- STP-O-8A-1, Test of 1A DG and 11 4 kV bus loss of coolant incident sequencer.
- STP-O-65-2, HPSI and low-pressure safety injection (LPSI) check valve closure test.
- STP-O-29-1, Monthly CEA partial movement test.
- STP-O-5A-1, AFW quarterly surveillance.

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 September 23, 2008. 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 emergency response organization performance onsite and at 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.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01 - Eight samples)

a. Inspection Scope

The inspectors verified that Constellation properly implemented physical, administrative, and engineering controls for access to locked high radiation areas, and other radiologically significant areas during online activities. The inspectors reviewed the implementation of these controls against the criteria contained in 10 CFR 20, relevant TSs and Constellation's access control procedures.

The inspectors reviewed radiation work permits (RWPs) used to access high radiation areas in order to identify what work control instructions or control barriers had been specified. The inspectors also reviewed electronic personal dosimeter alarm set points (both integrated dose and dose rate) for conformity with survey indications and plant policy. Additionally, the inspectors observed the physical controls that were in place at the spent fuel pool (SFP) area and reviewed the programmatic controls for highly activated or contaminated materials (non-fuel) stored within the SFP.

The inspectors discussed the controls and procedures used for high radiation area and very high radiation area entries with members of Constellation's staff. The inspectors reviewed eight CRs for observable patterns traceable to similar causes of radiation worker errors. The inspectors also reviewed these CRs for radiation protection technician errors.

b. Findings

No findings of significance were identified.

2OS2 As Low As Reasonably Achievable (ALARA) Planning and Controls (71121.02 - Five samples)

a. Inspection Scope

The inspectors verified that Constellation properly implemented operational, engineering, and administrative controls to maintain personnel exposure as low as reasonably achievable (ALARA) for activities performed during routine plant operation. The inspectors reviewed the implementation of these controls against the criteria contained in 10 CFR 20, relevant TS, and Constellation's access control procedures.

The inspectors reviewed pertinent information regarding cumulative exposure history, current exposure trends, and current exposure status for the highest dose tasks for the spring refueling outage activities on Unit 1. The inspectors reviewed the ALARA check lists, in progress reviews, and post job reviews for these tasks. The inspectors also reviewed the site's 3-year rolling average dose and compared the site's average with industry's average. The inspectors verified that Constellation's ALARA program procedure and the RWP procedure included job estimating and tracking and reviewed the method for adjusting exposure estimates.

The inspectors reviewed the exposure results and monitoring controls employed by Constellation with respect to requirements of 10 CFR 20 for the one declared pregnant worker since January 2008.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator (PI) Verification (71151 – Ten Samples)

.1 Occupational Exposure Control Effectiveness (Two Samples)

a. Inspection Scope

The inspectors reviewed the implementation of Constellation's Occupational Exposure Control Effectiveness performance indicator (PI) Program. Specifically, the inspectors reviewed recent action reports, and associated documents, for occurrences involving locked high radiation areas, very high radiation areas, and unplanned exposures against the criteria specified in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," to verify that all occurrences that met the NEI criteria were identified and reported. The inspectors reviewed these PIs for the period of January 1, 2006 through December 31, 2007.

b. Findings

No findings of significance were identified.

.2 Radiological Effluent Technical Specification Offsite Dose Calculation Manual Radiological Effluent Occurrences (Two Samples)

a. Inspection Scope

The inspectors reviewed relevant effluent release reports for the period January 1, 2007 through December 31, 2007, for issues related to the public radiation safety PI that measures radiological effluent release occurrences that exceed specified limits for organ dose or gaseous effluents. The inspectors reviewed licensee event reports (LERs), and Constellation's corrective actions for liquid or gaseous effluent releases reported to the NRC.

b. Findings

No findings of significance were identified.

.3 Initiating Events (Six samples)

a. Inspection Scope

The inspectors reviewed Constellation's PI program to evaluate, collect and report information on the following Unit 1 and 2 PIs: 1) Unplanned Transients; 2) Unplanned Scrams; and 3) Unplanned Scrams with Complications. The inspectors reviewed these PIs for the period of April 2007 through June 2008. The inspectors used the guidance provided in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, to assess the accuracy of Constellation's collection and reporting of PI data. The inspectors reviewed LERs, monthly operating reports, CCNPP power history charts, NRC inspection reports, and operator narrative logs.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152 – One Sample)

.1 Reviews of Items Entered Into the Corrective Action Program (CAP)

a. Inspection Scope

The inspectors performed a daily screening of items entered into Constellation's CAP as required by inspection procedure 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 Annual Sample: Charging Pump Gas Binding

a. Inspection Scope

The inspectors performed an in-depth review of Constellation's apparent cause evaluation and corrective actions associated with CRs IRE-020-691 and IRE-014-945, gas binding of positive displacement charging pumps.

The inspectors assessed Constellation's problem identification threshold, cause analyses, extent of condition reviews, compensatory actions, and the prioritization and timeliness of Constellation's corrective actions to determine whether Constellation was appropriately identifying, characterizing, and correcting problems associated with this issue and whether the planned or completed corrective actions were appropriate. The inspectors compared the actions taken to the requirements of Constellation's CAP and 10 CFR 50 Appendix B. In addition, the inspectors performed field walkdowns, and interviewed the system engineer to assess the effectiveness of the implemented corrective actions. Specific documents reviewed are listed in the attachment to this report.

b. Findings and Observations

No findings of significance were identified. Constellation determined the most likely cause for gas binding of a positive displacement pump was gas coming out of solution inside one of the cylinders. The source of the gas-saturated solution was identified as infrequent or very small leakage past the discharge check valve of a standby charging pump. Constellation revised the system operating procedure to implement a pump venting strategy. The revised procedure provided instructions to determine whether additional corrective actions were necessary, such as check valve maintenance, or whether pump venting and heightened monitoring was sufficient to return the pump to service. The inspectors determined Constellation's overall response to the issue was commensurate with the safety significance. The inspectors determined that the actions taken were reasonable, based on a well-documented and thorough assessment, and multiple troubleshooting techniques.

The inspectors identified a weakness in Constellation's apparent cause evaluation in that the actions taken were not reviewed against the plant's probabilistic risk assessment to assess whether any of the identified alternative solutions might have been more effective at reducing overall risk.

4OA5 Other Activities

.1 Operation of an Independent Spent Fuel Storage Installation (ISFSI)

a. Inspection Scope

The inspectors observed a pre-job briefing to move a dry shielded canister (DSC) from the auxiliary building to the horizontal storage module (HSM). The inspectors reviewed the RWP, ALARA review, and radiological surveys for the task. The inspectors also reviewed the procedure for the task and observed its use during the task. The inspectors observed the radiation protection job coverage and controls used during the DSC movement to the HSM. The inspectors noted appropriate use of contamination, dose, and airborne controls and the appropriate selection and use of radiation protection portable instruments.

b. Findings

No findings of significance were identified.

.2 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.

.3 NRC Temporary Instruction 2515/176 – EDG TS Surveillance Requirements Regarding Endurance and Margin Testing

a. Inspection Scope

The objective of TI 2515/176 was to gather information to assess the adequacy of nuclear power plant emergency diesel generator endurance and margin testing as prescribed in plant-specific technical specifications (TS). The inspector(s) reviewed the licensee's TS, procedures, and calculations and interviewed licensee personnel to complete the TI. The information gathered while completing this TI was forwarded to the Office of Nuclear Reactor Regulation for further review and evaluation.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On October 17, 2008, the resident inspectors presented the inspection results to you and other members of your 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.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Constellation Personnel

J. Spina, Site Vice President
D. Bauder, Plant General Manager
B. Erdman, Radiological Engineering Supervisor
H. Evans, Radiation Protection Supervisor
K. Gould, General Supervisor, Radiation Protection
P. Jones, Senior Health Physicist
J. Lenhart, Radiation Protection Supervisor
S. Loper, System Engineer
D. McElhenry, System Engineer
C. Neyman, Licensing engineer
S. Ruble, Component Engineer
L. Williams, System Engineer
J. York, supervisor Radiation Protection

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

05000317/2008004-01	NCV	Failure to Identify and Correct a Degraded 12 CCHX SW Outlet Valve Positioner in a Timely Manner
05000317/2008004-02	NCV	Failure to Establish and Maintain Adequate Procedures for 4 kV Circuit Breaker Maintenance

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures and Instructions

EP-1-108, Severe Weather Preparation, Revision 0
ERPIP-3.0, Immediate Actions, Attachment 20, Severe Weather, Revision 41

Section 1R04: Equipment Alignment

Procedures

OI-3A-2, Safety Injection System Valve Alignment, Attachment 1, Revision 23
OI-15-1, Service Water System, Revision 44
OI-32A-2, Auxiliary Feedwater System, Revision 17

Drawings

60731SH0001, Safety Injection and Containment Spray System, Revision 78
60731SH0002, Safety Injection and Containment Spray System, Revision 44

60706SH0002, Service Water Cooling System, Revision 75
60583SH0001, Auxiliary Feedwater System (Steam), Revision 63

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 40
BG&E letter from Mr. A. E. Lundvall, Jr. to Mr. J. R. Miller (NRC) dated March 14, 1984
 "Request for Exemption from Fire Protection Requirements."
NRC letter from Mr. J. R. Miller to Mr. A. E. Lundvall, Jr. (BG&E) dated June 4, 1984, "Request
 for Exemption from Fire Protection Requirements."

1R06: Flood Protection Measures

Miscellaneous

RAN-99-008 Total, Calvert Cliffs PRA Unit 1 and Unit 2 Total Risk Model Results, Revision 1
ES-001, Flooding, Revision 1
M-90-183, Flood Height Resulting From a Pipe Break in the Emergency Diesel Generator
 Rooms, Revision 0

Section 1R07: Heat Sink Performance

Procedures

EN-1-125, Heat Exchanger Program, Revision 0
ETP 98-041R, 12A and 12B SRW HX Thermal Performance Test, Revision, 3

Condition Reports:

IRE-032-997
CR-2008-000654
CR-2008-000655

Miscellaneous

ES200800138-000 Thermal Performance Test Engineering Evaluation, Revision 0
CA04710, Evaluation Methodology for SRW Heat Exchangers, Revision 1
EPRI NP-7552, Heat Exchanger Performance Monitoring Guidelines, dated December 1991
Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment
 dated July 1989

Section 1R11: Licensed Operator Requalification Program

Procedures

NO-1-200, Control of Shift Activities, Revision 32

Section 1R12: Maintenance Effectiveness

Procedures

ER-1-103, Maintenance Rule Program Implementation, Revision 1
AOP-2A-1, Excessive Reactor Coolant Leakage, Revision 22
AOP-7A-1, Loss of Saltwater Cooling, Revision 14
EOP-05-1, Loss of Coolant Accident, Revision 22

Condition Reports

IRE-031-677
IRE-031-916
IRE-030-810
CR-2008-000684

Maintenance Orders

MO#1200802660
MO#1200802703
MO#1200801953
MO#1200802707

Miscellaneous

EC20080052-000, Install SW Valve Packing Leak Deflector, Revision 0
PEO-1-012-06-O-W, SW System Flow Verification, Revision 6
Maintenance Rule Risk Assessment Guideline, Revision 7

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

NO-1-117, Integrated Risk Management, Revision 19

Section 1R15: Operability Evaluations

Procedures

CNG-OP-1-01-1002, Conduct of Operability Determinations/Functionality Assessments,
Revision 0

Maintenance Orders

MO#1200803266

Condition Reports

IRE-032-841
IRE-033-089
CR-2008-000077
CR-2008-000136
CR-2008-000595
CR-2008-000676

Section 1R18: Plant Modifications

Procedures

MD-1, Modifications Program, Revision 3
CNG-CM-1.01-1003, Design Engineering and Configuration Control, Revision 0
CNG-NL-1.01-1011, 10CFR 50.59/10CFR 72.48 Applicability Determinations, Screenings, and Evaluations, Revision 0
STP-M-552, Reserve Battery Test, Revision 7

Condition Reports

CR-2008-000336

Maintenance Orders

MO#1200803935

Miscellaneous

EC20080124-000, TMOD-125V Battery 01 Jumper Cell 55 due to a Low Individual Cell Voltage, Revision 0
ES200100588-001, Replace the Existing 1A DG Fans F-10 and F-12 Actuators with a New Model, Revision 0

Section 1R19: Post-Maintenance Testing

Procedures

STP O-5A-2, Auxiliary Feedwater System Quarterly Surveillance Test, Revision 20
EN-4-108, ASME Inservice Testing of Power-Operated Valves and Manual Valves, Attachment 7, "Evaluation/Documentation of Stroke-Time Test Results During PMOT," Revision 2
E-30, 4.16 KV Magne-Blast Circuit Breaker Overhaul Procedure, Revision 3
FTE-51, 4KV General Electric Magne-Blast Circuit Breaker Inspection, Revision 18

Condition Reports

IRE-026-296
IRE-032-517
IRE-032-993
CR-2008-000853

Maintenance Orders

MO# 1200803987	MO# 1200604125	MO#1200803289
MO# 1200803986	MO# 22008003363	MO#2200704901
MO# 2200803340	MO# 1200805232	
MO# 1200703658	MO# 2200803363	

Miscellaneous

RPA-2007-1382
13 SRW Pump Risk Assessment due to 20 hours of exposure time
NRC Information Notice (IN) 98-38, Metal-Clad circuit Breaker Maintenance Issues Identified by NRC Inspections, dated October 15, 1998.

Section 1R22: Surveillance Testing

Procedures

STP-O-8A-1, Test of 1A DG and 11 4kV Bus LOCI Sequencer, Revision 27
STP-O-65-2, HPSI and LPSI Check Valve Closure Test, Revision 41
STP-O-29-1, Monthly CEA Partial Movement Test, Revision 14
STP-O-5A-1, AFW Quarterly Surveillance Test, Revision 21

Condition Reports:

CR-2008-000447

Maintenance Orders

MO# 2200302280
MO# 2200800461

Miscellaneous

ES200200115-000, Evaluate the Effects of Overpressurizing the HPSI Pump Suction Piping, Revision 1
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 41

Miscellaneous

Calvert Cliffs Emergency Response Drill Scenario
Calvert Cliffs Emergency Response Drill Manual
Calvert Cliffs ERO Facility Drill Critique

Section 2OS1: Access Control to Radiologically Significant Areas

Procedures

NO-1-110, Calvert Cliffs Key and Lock Control, Revision 7
NO-1-117, Integrated Risk Management, Revision 19
NO-1-120, Spent Fuel Pool (SFP) Activities, Revision 2
RSP 1-200, ALARA Planning and SWP Preparation, Revision 22
RPPG-01-004, Resin Transfer Surveys, Revision 0
SG-20A, BWC Steam Generator Primary Manway Cover Removal and Installation, Revision 4

Condition Reports

IRE-030-669	IRE-031-070
IRE-030-931	IRE-032-270
IRE-030-954	IRE-032-462
IRE-031-016	IRE-032-521

Section 2OS2: ALARA Planning and Controls

Procedures

NO-1-117, Integrated Risk Management, Revision 19

RSP-1-200, ALARA Planning and SWP Preparation, Revision 22
SG-20A, BWC Steam Generator Primary Manway Cover Removal and Installation, Revision 04

RWP and ALARA Checklists

2008-1000 2008-1311
2008-1003 2008-1016
2008-1010

ALARA Committee

January 9, 2008, ALARA Committee Meeting Agenda and Meeting Minutes
January 23, 2008, Unit 1 Refuel Outage Dose Challenge Minutes
2008-2012, ALARA Plan

Other

2008 ALARA Post-Outage Report

Section 40A1: Performance Indicator Verification

RWPs:

2008-0119 2008-1307
2008-1016 2008-1314
2008-1017 2008-1315
2008-1018 2008-1401
2008-1020 2008-1408
2008-1030

Documents

NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 5

Miscellaneous

Calvert Cliffs Unit 1 and Unit 2 Monthly PI Data
Calvert Cliffs Unit 1 Operator and Narrative Logs

Section 40A2: Identification and Resolution of Problems

Procedures

OI-2A, Chemical and Volume Control System Operations, Revision 52
STP O-65I-1, Charging Pump Discharge Check Valve Quarterly Operability Test, Revision 6
STP O-73D-1, Charging Pump Performance Test, Revision 13

Drawings

62730SH0001, Chemical & Volume Control System P&ID, Rev. 80
62730SH0002, Chemical & Volume Control System P&ID, Rev. 64

Condition Reports

IRE-020-691
IRE-014-945

Maintenance Orders and Completed Surveillances

STP-O-65I-1, Charging Pump Discharge Check Valve Quarterly Operability Test, dated 3/18/08
STP-O-73D-1, Charging Pump Performance Test, dated 2/9/08

Calculations, Engineering Analyses, and Design & Licensing Basis
Technical Requirements Manual Sections 15.1.2 & 15.1.3, Revision 13
ISTBD, IST Basis Document Section 9 - CVCS System, Revision 0

Miscellaneous

Chemical and Volume Control System-08, Charging Pump Valve Replacement, Revision 14
System Health Reports for Chemical & Volume Control System, First Quarter 2008
Maintenance Rule Scoping Document for System 41, Revision 26
Maintenance Rule Risk Assessment Guidance for System 41, Revision 5

Section 40A5: Other Activities

Procedures

FH-352, NUHOMS-32P DSC Loading and Unloading Procedure, Revision 0
ISFSI-03, ISFSI Loading NUHOMS-32P Dry Shielded Canister, Revision 6

Drawings

18002-0083SH0053, "Elementary Diagram EDG Breaker Tripping Signal and Cool Down Cycle," Revision 2
18002-0083SH0054, "Elementary Diagram Electronic Governor Paralleling and Stop Signals," Revision 5
18002-0083SH0070, Elementary Diagram Emergency Shutdown and Shutdown Due to Electrical Faults," Revision 4
18002-0083SH310, Elementary Diagram Set Ready to Load Signal Voltage/Frequency Faults," Revision 3
61086SH0084, "Schematic Diagram 4kV Unit Bus 17 Diesel Generator 1A Breaker 152-1703," Revision 4

Condition Reports

CR-2008-001205

RWP

2008-0156

Calculations

E-88-015, Diesel Generator Loading Calculations, Revision 3
E-92-046, Diesel Generator Voltage Profile, Revision 1

Completed Surveillance Procedures

STP O-4A-1, "A' Train Integrated Engineered Safety Features Test," Rev. 28 Completed 05/01/04, 03/25/06, and 03/10/08
STP O-4A-2, "A' Train Integrated Engineered Safety Features Test," Rev. 28 Completed 04/05/03, 03/10/05, and 03/20/07
STP O-4B-1, "B' Train Integrated Engineered Safety Features Test," Rev. 28 Completed 05/02/04, 03/30/06, and 03/08/08
STP O-4B-2, "B' Train Integrated Engineered Safety Features Test," Rev. 28 Completed 04/05/03, 03/11/05, and 03/27/07
STP O-8A-1, "Test of 1A DG and 11 4KV Bus LOCI Sequencer," Rev. 26 Completed 04/03/08, 06/07/08, and 07/06/08

STP O-8A-2, "Test of 2A DG and 11 4KV Bus LOCI Sequencer," Rev. 26 Completed 06/11/08,
07/13/08, and 08/10/08

STP O-8B-1, "Test of 1B DG and 11 4KV Bus LOCI Sequencer," Rev. 27 Completed 05/07/08,
05/26/08, and 06/20/08

STP O-8B-2, "Test of 2B DG and 11 4KV Bus LOCI Sequencer," Rev. 27 Completed 04/23/08,
05/16/08, and 06/21/08

Miscellaneous

SP-616, Emergency Diesel Generator 1A & 0C, Revision 7

SP-652, Upgraded Diesel Generators 1B, 2A, 2B, Revision 2

LIST OF ACRONYMS

ADAMS	Agency-Wide Documents Access and Management System
AFW	Auxiliary Feedwater
ALARA	As Low As Reasonable Achievable
CAP	Corrective Action Program
CAQ	Condition Adverse to Quality
CC	Component Cooling
CCNPP	Calvert Cliffs Nuclear Power Plant
CDF	Core Damage Frequency
CEA	Control Element Assembly
CFR	Code of Federal Regulations
CR	Condition Report
CVCS	Chemical Volume Control System
DSC	Dry Shielded Canister
EDG	Emergency Diesel Generator
EP	Emergency Preparedness
EPRI	Electric Power Research Institute
ERPIP	Emergency Response Plan Implementation Procedure
FPH	Fire Pump House
HIC	Hand Indicator Controller
HPSI	High Pressure Safety Injection Train
HSM	Horizontal Storage Module
HX	Heat Exchanger
IMC	Inspection Manual Chapter
ISFSI	Independent Spent Fuel Storage Installation
LCCW	Loss of Component Cooling Water
LCO	Limiting Condition for Operation
LER	Licensee Event Report
LERF	Large Early Release Frequency
LPSI	Low Pressure Safety Injection
MO	Maintenance Order
NCV	Non-cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OA	Other Activities
OE	Operating Experience
PI	Performance Indicator
RWP	Radiation Work Permit
SDP	Significance Determination Process
SFP	Spent Fuel Pool
SRW	Service Water
SSC	Structure, System and Component
SW	Saltwater
TDAFW	Turbine Driven Auxiliary Feedwater
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report