



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

August 1, 2008

EA-08-179

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 05000317/2008003 AND 05000318/2008003 AND
EXERCISE OF ENFORCEMENT DISCRETION**

Dear Mr. Spina:

On June 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 July 11, 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 two NRC-identified findings of very low safety significance (Green). Both of these findings were determined to involve violations of NRC requirements. Additionally, a Licensee-identified violation, which was determined to be of very low safety significance, is listed in the report. However, because the findings are of very low safety significance and 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; and the NRC Resident Inspector at the CCNPP.

In addition, the inspectors reviewed the circumstances associated with the reactor coolant system (RCS) pressure boundary leakage from a pressurizer heater sleeve identified during the 2008 Unit 1 refueling outage (RFO). Although this issue constitutes a violation of NRC requirements, in that any RCS pressure boundary leakage at power constitutes a violation, the NRC concluded that CCNPP's actions did not contribute to the degraded condition, and the matter was not within the licensee's control. As a result, the NRC did not identify a performance deficiency. Based on these facts, I have been authorized, after consultation with the Office of Enforcement, and the Regional Administrator, to exercise enforcement discretion in accordance with Section VII.B.6 of the Enforcement Policy and refrain from issuing enforcement for this

violation. A regional Senior Risk Analyst reviewed the risk associated with the issue and determined that the condition was of very low safety significance.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS).

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Sincerely,

/RA by James W. Clifford For/

David C. Lew, Director
Division of Reactor Projects

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

Enclosure: Inspection Report 05000317/2008003 and 05000318/2008003
w/Attachment: Supplemental Information

cc w/encl:

M. Wallace, Vice-Chairman, Constellation Energy
H. Barron, President, CEO, & Chief Nuclear Officer, Constellation Energy Nuclear Group, LLC
W. Parren, President, Calvert County Board of Commissioners
C. Fleming, Esquire, Sr. Counsel – Nuclear Generation Group, LLC
J. Gaines, Director, Licensing, Calvert Cliffs Nuclear Power Plant
S. Gray, Program Manager, Power Plant Assessment Program, Maryland Department of Natural Resources
K. Burger, Esquire, Maryland People's Counsel
P. Birnie, Esquire, Co-Director, Maryland Safe Coalition
R. Hickok, NRC Technical Training Center
L. Larragoite, Manager, Nuclear Safety and Security, Calvert Cliffs Nuclear Power Plant
G. Detter, Manager, Nuclear Safety and Security, Constellation Energy
M. Griffen, Maryland Department of the Environment
S. Pattison, SLO (2)

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OFFICE	RI/DRS		RI/ORR		RI/DRP
NAME	CCahill/CGC		RSummers/RJS		DLew/JWC For
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Distribution w/encl:

S. Collins, RA
M. Dapas, DRA
D. Lew, DRP
J. Clifford, DRP
S. Williams, RI OEDO
J. Lubinski, NRR
D. Pickett, PM, NRR
G. Dentel, DRP
N. Perry, DRP
S. Kennedy, DRP, Senior Resident Inspector
M. Davis, DRP, Resident Inspector
C. Cahill, DRS
R. Summers, ORA
C. Newgent, DRP, Resident OA
Region I Docket Room (with concurrences)
ROPreportsResource@nrc.gov

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-317, 50-318

License Nos.: DPR-53, DPR-69

Report No.: 05000317/2008003 and 05000318/2008003

Licensee: Constellation Generation Group, LLC (Constellation)

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

Location: Lusby, MD

Dates: April 1, 2008 through June 30, 2008

Inspectors: Silas Kennedy, Senior Resident Inspector
Marlone Davis, Resident Inspector
Joseph G. Schoppy, Jr., Senior Reactor Inspector
Ronald G. Rolph, Health Physicist
Andrew Rosebrook, Project Engineer

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

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SUMMARY OF FINDINGS

IR 05000317/2008003, 05000318/2008003; 4/1/08 – 6/30/08; Calvert Cliffs Nuclear Power Plant, Units 1 and 2: Equipment Alignment and Followup of Events and Notices of Enforcement Discretion.

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 a finding of very low safety significance associated with an NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," because Constellation did not correctly translate the design basis maximum expected temperature for the west penetration rooms into the specification for the safety related 480 volt (V) motor control centers (MCCs) located on the 45 foot elevation of the auxiliary building of Units 1 and 2. As a result, Constellation did not recognize that the postulated loss of coolant accident (LOCA) temperature exceeded the design temperature limit for the MCCs. Constellation's immediate corrective action included entering this condition into their corrective action program (CAP) and de-rating the MCCs to ensure the operability of the MCCs would be maintained during a design basis event. The planned corrective actions include a re-analysis of the maximum expected room temperature for the west penetration rooms.

The finding is more than minor because it is similar to example 3.i. in Appendix E of IMC 0612 in that the facility was not consistent with the Updated Final Safety Analysis Report (UFSAR) and the actual specification of the MCCs required that accident analysis calculations be re-performed to ensure that requirements were met. The finding is associated with the design control attribute of the Mitigating Systems cornerstone. The finding is of very low safety significance because the finding is a design or qualification deficiency confirmed not to result in a loss of operability per "Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessments." (Section 1R04)

Cornerstone: Emergency Preparedness

- Green. The inspectors identified an NCV of 10 CFR 50.47(b)(4) and Appendix E to 10 CFR 50, Sections IV.B and IV.C because Constellation did not have a clear method to assess and determine the bay water level such that the emergency action level (EAL) classification process would declare an Unusual Event (UE) or Alert in a timely manner. Following a lower than normal tide event which caused high debris loading across the trash racks, the inspectors determined that operators did not have adequate procedure guidance in place and readily available indication to determine

actual bay water level. Constellation entered this issue into their CAP for resolution and took actions to establish compensatory measures to monitor the bay water level pending the development of permanent corrective actions.

The inspectors determined that this finding is more than minor because it is associated with the Emergency Preparedness cornerstone attributes of procedure quality and equipment, and affects the cornerstone objective to ensure that Constellation is capable of implementing adequate measures to protect the health and safety of the public in the event of an emergency. Specifically, the lack of procedural guidance and readily available indication increases the likelihood of Constellation not being able to make an EAL classification in a timely manner based on bay water level to protect the saltwater pumps and other equipment needed for safe shutdown. The finding is of very low safety significance because the finding did not result in a loss or degraded Risk-Significant Planning Standard (RSPS) Function. It is also similar to examples of green findings in Appendix B of section 4.4 in IMC 0609 in that the EAL classification process would not declare any Alert or Notification of UE that should be declared. This finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not thoroughly evaluate problems associated with bay water level measurement such that the resolution addresses causes and extent of conditions, as necessary (P.1.c per IMC 0305) (Section 4OA3.4)

B. Licensee-Identified Violations

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 corrective action (IRE-025-517) are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Calvert Cliffs Unit 1 began the inspection period returning to 100 percent reactor power after completing repairs on a root isolation valve associated with the No. 11 steam generator. The unit reached 100 percent reactor power on April 1, 2008. On June 6, operators reduced power to 83 percent to perform main turbine valve testing. Operators returned the unit to 100 percent power on June 7. 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 reactor power. On May 30, 2008, operators reduced power to 65 percent to perform main turbine valve testing and to complete repairs on the lube oil pump of the No. 22 steam generator feedwater pump. Operators returned the unit to 100 percent power on May 31. 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)a. Inspection Scope

The inspectors reviewed the adverse weather preparation and mitigating strategies before the onset of hot weather operations. 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 intake structure, saltwater system, 500-kilovolt (kV) system, and 1A emergency diesel generator (EDG) operations. The inspectors performed a partial walkdown of the onsite and offsite 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 one inspection sample for review of risk-significant systems during seasonal susceptibilities. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment.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 applicable documents used for this inspection are located in the Attachment. The inspectors performed a partial walkdown for the following systems:

- 2A EDG while the 2B EDG was out of service due to planned maintenance;
- No. 11 component cooling heat exchanger (CCHX) system alignment due to emergent maintenance on the No. 12 CCHX saltwater outlet valve positioner;
- No. 23 high pressure safety injection (HPSI) pump alignment due to maintenance on the No. 21 HPSI pump; and
- 1B EDG while the 1A EDG was out of service due to planned maintenance.

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 safety-related 480V systems to identify any discrepancies between the existing equipment lineup and the specified lineup. During the walkdown, system drawings and operating instructions (OI) were used to verify proper equipment alignment and 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. 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 finding of very low safety significance associated with an NCV of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” because Constellation did not correctly translate the design basis maximum expected temperature for the west penetration rooms into the specification for the safety related 480V motor control centers (MCCs) located on the 45 foot elevation of the auxiliary building of Units 1 and 2. As a result, Constellation did not recognize that the postulated loss of coolant accident (LOCA) temperature exceeded the design temperature limit for the MCCs.

Description. On April 16, 2008, the inspectors conducted a walkdown of the safety related 480V MCCs located in the auxiliary building of Units 1 and 2. The 480V MCCs are located on the 45 foot elevation in the west penetration rooms adjacent to containment. The inspectors noted that there is no safety related cooling located in the west penetration rooms and questioned the ability of the MCC to perform its safety related function following a design basis event. Constellation determined that the design temperature limit of the MCC is 120 degrees Fahrenheit (°F) based on the original

equipment specification and that the expected penetration room temperature is 130°F following a LOCA. The postulated design basis LOCA temperature is established in Engineering Standard ES-014, "Summary of Ambient Environmental Services Conditions" and in Table 9-18 of the CCNPP UFSAR. Based on this information, the inspectors concluded that the design temperature limit of the MCCs could be exceeded during a design basis event such as a LOCA. Constellation initiated CR IRE-031-765 and conducted an operability review to evaluate the MCC's performance at the higher temperature. Using Institute of Electrical and Electronics Engineers guidelines, Constellation calculated that the MCCs could be loaded up to 518 amps continuously at 130°F without adversely impacting performance. Thus, the 480V MCCs were temporarily de-rated from 600 amps to 518 amps. The inspectors noted that the worst case maximum expected load on the MCCs during a postulated LOCA is 409 amps. The inspectors determined that the operability of the MCCs would be maintained during a design basis event because the maximum expected load is less than the de-rated value. Constellation's long-term corrective action includes a re-analysis of the maximum expected room temperature for the west penetration rooms.

The performance deficiency is that Constellation did not correctly translate the design basis maximum expected temperature into the original specification (1970's) for the safety related 480V MCCs.

Analysis. The finding is more than minor because it is similar to example 3.i. in Appendix E of IMC 0612 in that the facility was not consistent with the UFSAR and the actual specification of the MCCs required that accident analysis calculations be re-performed to ensure that accident analysis requirements were met. The finding is associated with the design control attribute of the Mitigating Systems cornerstone. The inspectors evaluated the significance of this finding using SDP Phase 1 of IMC 0609, Appendix A. The inspectors determined that the finding is of very low safety significance (Green) because the finding is a design or qualification deficiency confirmed not to result in loss of operability per "Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessment."

Enforcement: 10 CFR 50, Appendix B, Criterion III, "Design Control," states, in part, that measures shall be established to ensure that the design basis for structures, systems, and components (SSCs) are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, on April 16, 2008, the inspectors identified that Constellation did not correctly translate the design basis maximum accident temperature for the west penetration room into the specification for the safety related 480V MCCs. As a result, Constellation did not recognize that the postulated LOCA temperature exceeded the design temperature limit of the MCCs. Because this violation is of very low safety significance (Green) and Constellation entered the issue into their CAP (IRE-031-765), this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000317&318/2008003-01: Inadequate Design Control Associated with the Safety Related 480V MCCs)**

1R05 Fire Protection (71111.05).1 Fire Protection Tours (71111-05Q – Four 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 the Constellation's administrative procedures; fire detection and suppression equipment was available for use; that passive fire barriers were maintained in good material condition; and that compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with the licensee's fire plan. Documents reviewed are listed in the Attachment.

- Unit 1 west electrical penetration room, fire area 32, room 423;
- Unit 1 east electrical penetration room, fire area 33, room 429;
- No. 21 fuel oil storage tank (FOST), fire area yard, outside yard; and
- Unit 1 27' switchgear room, fire area 19, room 317.

b. Findings

No findings of significance were identified.

.2 Fire Protection - Drill Observation (71111.05A - One Sample)

The inspectors observed a fire brigade scenario conducted on April 17, 2008, that involved the No. 11 fuel oil storage tank dike area. The inspectors observed the brigade members donning protective equipment, transitioning to the scene of the simulated fire, and fighting the simulated fire. The inspectors also observed the fire brigade leader performing an assessment of the fire, evaluating the need for off-site assistance, communicating with team members and the control room supervisor, and directing the actions of the brigade to extinguish the fire. The inspectors verified that fire brigade actions were in accordance with Constellation's fire fighting strategies. Following the drill, the inspectors reviewed the post drill debriefing conducted between the assessment team and the fire brigade members.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (7111107A – One Sample)a. Inspection Scope

The inspectors reviewed the performance test for the 2A EDG jacket water cooler. The inspectors reviewed the performance data and evaluated the test acceptance criteria to ensure that design basis requirements were satisfied. The inspectors also 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 May 6, 2008, the inspectors observed a licensed operator regualification training scenario to assess operator performance and the adequacy of the licensed operator training program. The training scenario involved instrument and component failures that required operators to implement the alarm response manual, OIs, and abnormal operating procedures (AOPs). The failures were associated with turbine malfunctions, a stuck control element assembly, and loss of all feedwater. The inspectors focused on high-risk operator actions performed during implementation of AOPs, emergency operating procedures, and classification of the scenario. The inspectors verified that the clarity and formality of communications, the completion of appropriate 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 NO-1-200, "Control of Shift Activities."

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q – Three Samples)

Quarterly Review

a. Inspection Scope

The inspectors reviewed the samples listed below for items such as: 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 (MR); 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 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.

- Unit 1 pressurizer heater sleeve penetration leakage.
- No. 12 main steam isolation valve.
- No. 13 service water (SRW) pump circuit breaker (1BKR152-1111).

b. Findings

No findings of significances were identified.

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

a. Inspection Scope

The inspectors reviewed the following activities to verify that 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.

- Planned maintenance on the No. 11 4kV unit transformer (U-4000-11) on April 17, 2008.
- Planned maintenance associated with reactor protection system (RPS) functional test on May 6, 2008.
- Emergent maintenance on the 12 CCHX saltwater outlet valve (1CV5208) positioner on May 22, 2008.
- Planned maintenance associated with MJ switch testing on the 11 4kV bus on June 3, 2008.
- Planned maintenance associated with No. 22 saltwater pump maintenance on June 12, 2008.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 – Eight 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 technical specification

(TS) limiting condition for operation (LCO) implications were properly addressed. Documents reviewed are listed in the Attachment.

- 0C station blackout diesel generator (DG) failed battery charger (FA No. 08-002).
- Containment air coolers (CAC) thermal overload circuit following a LOCA or main steam line break.
- 2A EDG room outside exhaust damper degraded condition (IRE-030-493).
- No. 11 shutdown cooling heat exchanger component cooling outlet valve stroked fast in the alert range (IRE-032-052).
- No. 21 125-volt direct current battery bus bars with lead plating worn away (IRE-032-016).
- Safety related 480-volt alternate current MCCs design temperature limit could be exceeded during postulated LOCA (IRE-031-765).
- Unit 1 containment tendons normalize liftoff values below expected predicted force (IRE-032-140).
- Non-conservative TS for LCO 3.5.5 due to the amount of trisodium phosphate volume being less than calculated (IRE-032-435).

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18 – Two Samples)

a. Inspection Scope

The inspectors reviewed plant modifications listed below to verify that the modifications did not affect the safety functions of systems important to safety. The inspectors reviewed the associated 10 CFR 50.59 screening against the system design bases documentation, including the UFSAR and TS, to ensure that the system performance capability had not been degraded by the modification. The inspectors walked down each modification to verify that proper configuration control was maintained to ensure that the plant was not placed in an unsafe condition. Documents reviewed are listed in the Attachment.

- 0C DG temporary battery charger.
- Unit 1 and Unit 2 CAC thermal overload circuit permanent plant modification.

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 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. Documents reviewed are listed in the Attachment.

- No. 12 saltwater pump motor insulation resistance testing (MO #1200703732).
- No. 11 SRW pump vibration monitoring (MO #1200701260).
- No. 11 condensate storage tank auxiliary feedwater (AFW) pump suction valve repair (MO #1200703663).
- No. 12 CCHX saltwater outlet valve (1CV5208) positioner (MO #200802660 repair).
- No. 21 HPSI replacement of cyclone separators for the pump's seal cooling line (MO #2200801412).
- 1A EDG slow and fast starts following planned maintenance (MO #1200703873).
- No. 21 CAC SRW outlet valve repair (MO #2200801442).

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 – Seven Samples)

a. Inspection Scope

The inspectors observed and/or reviewed the surveillance tests listed below associated with selected risk-significant SSCs to determine whether the testing adequately demonstrated the ability 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-008B-1, test of 1B DG and 14 kV bus loss of coolant incident sequencer.
- STP-M-152, station battery weekly check.
- STP-O-027-2, RCS leakage evaluation.
- STP-M-663-1, Unit 1 containment tendon surveillance – full scope examination.
- STP-M-666-2, Unit 2 containment tendon surveillance – visual examination and grease testing.
- STP-O-73B-1, service water pump quarterly inservice test (IST).
- STP-M-171-1, personnel airlock gasket seal test.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety, Public Radiation Safety

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03 – Nine Samples)

a. Inspection Scope

During the period of May 19 - 23, 2008, the inspectors conducted the following activities to evaluate the operability and accuracy of radiation monitoring instrumentation and the adequacy of the respiratory protection program relative to maintaining and issuing self-contained breathing apparatus (SCBA). Implementation of these programs was reviewed against the criteria contained in 10 CFR 20, applicable industry standards, and Constellation's procedures.

The inspectors reviewed the UFSAR to identify area, process, and emergency monitors that are installed at Calvert Cliffs for the protection of workers. The inspectors selected hand-held radiation instruments, air monitors, contamination monitors, and electronic dosimeters currently in use in the plant, and reviewed the calibration records for those instruments. The inspectors reviewed the maintenance records, safety interlock checks, and current calibration source activity/dose rate determinations for the Shepard Model 89 instrument calibrator.

The inspectors evaluated Constellation's program for assuring quality in the radiation monitoring instrumentation and respiratory protection programs by reviewing a departmental self-assessment, audit reports and ten CRs related to radiation instrumentation, SCBA's, and the monitoring of plant radiation levels to determine if problems were identified in a timely manner and appropriate corrective actions were taken to resolve the related issues.

The inspectors observed instrument use by radiation protection technicians to verify the adequacy of pre-use checks. The inspectors verified the currency of calibration due dates and daily source checks for several instruments in the field. The inspectors observed a technician performing source checks on a variety of instruments and calibrations on several other instruments.

The inspectors observed the technician perform an inspection for six SCBAs staged for use in the control room and reviewed associated surveillance records. The inspectors also observed the fire protection specialist perform an inspection of a fire brigade SCBA. The inspectors observed a simulation of filling an SCBA air bottle from each of the two air compressor units. The sample results for breathing air, used to refill the SCBA tanks, were reviewed to confirm that air quality met CGA-G-7.1-1997 Grade E standards.

The inspectors evaluated the adequacy of the respiratory protection program regarding the issuance of SCBAs to workers. Training and qualification records for licensed operators, radiation protection technicians, and fire brigade members required to wear SCBAs, in the event of an emergency, were reviewed.

b. Findings

No findings of significance were identified.

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01 – Nine Samples)

a. Inspection Scope

During the period of June 16 - 20, 2008, the inspectors conducted the following activities to ensure that Constellation was properly maintaining the liquid and gaseous effluent processing systems and controlling abnormal releases when radiation monitors are out of service. The inspectors also conducted the activities to verify that the Quality Control Program for effluent sampling and analysis for releases are adequately quantified and evaluated.

Inspection Planning

The inspectors reviewed the most current Radiological Effluent Release Report to verify that the program was implemented as described in Radiological Effluent Technical Specification/Offsite Dose Calculation Manual (RETS/ODCM) and reviewed the report for significant changes to the ODCM and to radioactive waste system design and operation. The inspectors evaluated anomalous results reported in the current Radiological Effluent Release Report to ensure they were adequately resolved. The inspectors reviewed RETS/ODCM to identify the effluent radiation monitoring systems and its flow measurement devices; reviewed effluent radiological occurrence performance indicator incidents for onsite follow-up; and reviewed Constellation's self assessments, audits, and licensee event reports (LERs) that involved unanticipated offsite releases of radioactive material.

On-Site Inspection

The inspectors walked down the major components of the gaseous and liquid release systems (e.g., radiation and flow monitors, demineralizers, filters, tanks, and vessels) to observe current system configuration with respect to the description in the UFSAR including ongoing activities and equipment material condition.

The inspectors reviewed two liquid and one gaseous discharge permits, including the projected doses to members of the public. The inspectors observed the routine sample collection and analysis for the continuous release of radioactive particulates, iodine, and noble gas from the Unit 1 plant vent. The inspectors also observed the sample collection, analysis, and release permits generated for the miscellaneous waste monitor tank discharge. The observations were performed to verify that appropriate treatment equipment is used and that radioactive effluents are processed and released in accordance with RETS/ODCM requirements.

The inspectors reviewed the records of any abnormal releases or releases made with inoperable effluent radiation monitors and reviewed Constellation's actions for these releases to ensure an adequate defense-in-depth was maintained against an unmonitored, unanticipated release of radioactive material to the environment.

The inspectors reviewed Constellation's understanding of the location of underground piping and construction of underground pipes, tanks, and structures that contain radioactive contaminated liquid. The inspectors evaluated the capabilities of Constellation to detect spills or leaks and identify groundwater radiological contamination.

The inspectors reviewed records of instrument calibrations performed since the last inspection for each point of discharge effluent radiation monitor and flow measurement device and reviewed completed system modifications and the current effluent radiation monitor alarm setpoint value for agreement with RETS/ODCM requirements.

The inspectors reviewed surveillance test results and methodology that Constellation uses to determine the vent flow rates and verified that the flow rates are consistent with RETS/ODCM or UFSAR values. The inspectors also reviewed calibration records of radiation measurement (i.e., counting room) instrumentation associated with effluent monitoring and release activities. The inspectors reviewed the inter-laboratory comparison results to ensure the quality of radiological effluent sample analysis.

Problem Identification and Resolution

The inspectors reviewed Constellation's self-assessments, audits, and special reports related to the radioactive gaseous and liquid effluents program and processing systems. The inspectors reviewed twenty-four CRs related to the radioactive gaseous and liquid effluents program and processing systems to ensure follow-up actions were conducted in a timely and effective manner.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES (OA)**

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

Barrier Integrity

a. Inspection Scope

The inspectors reviewed Constellation's RCS activity and RCS leakage performance indicators (PIs) for Units 1 and 2. The inspectors reviewed the PIs for the period of April 2007 through March 2008. The inspectors used the guidance provided in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guidance," to assess the accuracy of PI data collected and reported. The inspectors reviewed RCS chemistry sample analyses, control room logs of daily measurements of RCS gross leakage and compared that information to data reported by the performance indicator. Additionally, the inspectors observed a chemistry technician obtain and analyze an RCS sample and surveillance activities that determined the RCS identified leakage rate.

b. Findings

No findings of significance were identified.

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

.1 Reviews of Items Entered Into the CAP

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.

.2 Annual Sample: No. 22 Turbine Driven AFW Pump Oil Foaming Issue

a. Inspection Scope

This inspection focused on Constellation's problem identification, evaluation, and resolution concerning an oil foaming issue associated with the No. 22 turbine-driven auxiliary feedwater pump (TDAFWP). During their March 2007 refueling outage (RFO), Constellation installed a forced oil lubrication system on No. 22 TDAFWP to supplement the oil slinger rings to improve system reliability. Constellation had previously implemented this modification on the three other TDAFWPs (Nos. 11, 12, & 21) during previous RFOs. During post-modification testing on March 17, 2007, operators aborted the test due to oil level oscillations and foaming. On March 18, operators lowered the oil level to the bottom of the marked band and completed a retest with no foaming. Subsequently, operators completed a short duration surveillance run and a 4 hour confidence run on March 29 with no foaming noted. However, on March 31 while in Mode 3 following the RFO, operators identified oil foaming in the outboard bearing reservoir during an operability surveillance (STP-05A-2). In response, operators tripped the No. 22 TDAFWP, declared the system inoperable, and initiated a corrective action issue report (IRE-021-806). Constellation established interim compensatory measures, performed an operability determination and engineering evaluation, and conducted system troubleshooting.

The inspectors selected the TDAFWP oil foaming issue for review based on the risk significance of the TDAFW system and the relative importance of oil lubrication in ensuring the reliability and availability of the TDAFWPs. The inspectors reviewed Constellation's associated troubleshooting results, apparent cause evaluation, extent of condition review, and short and long-term corrective actions. The inspectors conducted several walkdowns of the Unit 1 and Unit 2 TDAFWPs to assess material condition, design control measures, and configuration control. The inspectors also interviewed plant personnel; directly observed a TDAFWP forced oil mock-up demonstration run; and reviewed procedures, TDAFWP surveillances, oil analysis and trending, related industry operating experience (OE), and the vendor manual. In addition, the inspectors reviewed the Calvert Cliffs' TS and UFSAR to ensure that Constellation operated and maintained the TDAFWPs as required. Documents reviewed are listed in the attachment.

b. Findings and Observations

No findings of significance were identified.

Due to the risk importance of the AFW pumps and the complexity of the issue, Constellation established a High Impact Team (HIT) to determine the cause of the oil foaming. The HIT team consisted of a multi-disciplined cross-section of system and component engineers, mechanical supervisors, and industry experts. The Constellation HIT team determined that the apparent cause was air entrainment without adequate venting. Based on analysis and troubleshooting, engineering's associated operability determination established an interim, more-restrictive oil level band to ensure continued operability of the No. 22 TDAFWP while awaiting a permanent fix. Initially in September 2007, engineering proposed a modification to install permanent vents in the TDAFWP oil sump reservoir to resolve the issue. Before implementing this modification, in January 2008, engineering initiated a review of their causal analysis and constructed a mock-up of the TDAFWP forced oil system to test the validity of their analyses and the effectiveness of their intended fix. Based on further analysis, system troubleshooting, and several mock-up runs, in June 2008, engineering concluded that venting of the sump reservoir or drain lines would not resolve the problem. Based on their additional analysis and testing, engineering recommended that all four bearing inspection caps on the turbine lube oil bearing housings be vented with breather filters and that the oil sight glasses be appropriately marked (high enough to ensure adequate ring submergence but low enough to preclude foaming). Constellation planned to implement these corrective actions on all four TDAFWPs in the near future (within several months vice waiting until the next RFO).

The inspectors noted that operators had restored the No. 22 TDAFWP operability within several hours following the March 31, 2007, foaming issue and did not experience any subsequent operational impacts due to foaming since that time (except for two minor foaming issues during planned troubleshooting in June 2007). Based on log reviews and system walkdowns, the inspectors determined operators adequately maintained TDAFWP oil level within the band directed by engineering and that the more restrictive operating band for No. 22 TDAFWP did not represent an undue operator burden. In addition, the inspectors noted that engineering demonstrated a good questioning attitude and appropriate engineering rigor in the development, operation, and analysis of the forced oil mock-up system. Engineering's effective use of the mock-up allowed them to balance AFW system unavailability and reliability and precluded an apparent unnecessary intrusive system modification (installing vents on the reservoir and/or drain lines). The inspectors concluded that Constellation had taken appropriate action in accordance with station procedures, NRC MR requirements, and their CAP. The inspectors determined that engineering's associated apparent cause evaluation and subsequent follow-up evaluation was sufficiently thorough and based on the best available information, troubleshooting, sound engineering judgment, and relevant industry OE. In general, Constellation's assigned corrective actions were aligned with the apparent causal factors, adequately tracked, appropriately documented, and completed as scheduled.

.3 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 2008, 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.

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

.1 (Closed) LER 05000318/2007-002-00, Dual Containment Spray (CS) Train Inoperability Due to Latent Valve Failure

On September 14, 2007, 21 CS train was found to be inoperable during surveillance testing due to a failed shutdown cooling heat exchanger component cooling outlet valve. The cause of the failure was determined to be a broken woodruff key between the valve actuator and the valve stem. Constellation conducted a review of plant computer data and determined that the woodruff key most likely failed on September 7, 2007, but was not recognized by the operators. This resulted in a period of approximately 207 hours when one train was inoperable and the associated TS limiting condition should have been entered. Upon discovery of the failed valve on September 14, 2007, Constellation immediately entered the appropriate TS and took action to restore the CS train to an operable status. Constellation determined that the operators did not recognize the failure of the valve on September 7, 2008, due to a lack of operator's knowledge of Masonellian valve design and latent procedure weaknesses. Additional corrective action planned or completed includes training of operators on design of Masoneilan valves, updating surveillance procedures to utilize all available redundant indication when operating and restoring systems, and conducting a failure analysis on the failed woodruff key.

This finding is more than minor because it affected the human performance attribute of the Mitigating System cornerstone to ensure the availability, reliability, and capability of the CS system that responds to initiating events to prevent undesirable consequences. The Phase 1 worksheets in IMC 0609, "Significance Determination Process," were used to conclude that a Phase 2 analysis was required because the finding represents an actual loss of safety function of a single train for greater than its TS allowed outage time (7 days). Utilizing CCNPP Phase 2 pre-solved table for exposure times between 3 and 30 days yields a Green result for the inoperable CS train. This Licensee-identified finding involved a violation of Calvert Cliffs Unit 1 and Unit 2 TS 3.6.6, "Containment Spray and Cooling System." The enforcement aspects of this finding are discussed in Section 4OA7 of this report. This LER is closed.

.2 (Closed) LER 05000317/318/2006-005-01, Startup Rate Trip Bypass Removal Function Below Setpoint

On December 17, 2006, the RPS Rate of Change of Power-High trip function did not enable at the TS required value of 12 percent rated thermal power. This condition rendered the automatic bypass removal feature inoperable for one or more channels of

RPS for Units 1 and 2. The inspectors reviewed the original LER in NRC IR 05000317/318/2007002 and identified an NCV and several performance issues. As a result, Constellation submitted a revised LER. The inspectors reviewed the revised LER and did not identify any findings of significance or violations of NRC requirements. Constellation documented this issue in their CAP as IRE-019-028. This LER is closed.

.3 (Closed) LER 05000317/2008-001-00, Pressure Boundary Leakage Caused by Primary Water Stress Corrosion Cracking (PWSCC)

On February 25, 2008, dry boric acid was noted on pressurizer heater sleeve C-2 indicating reactor coolant leakage. The leakage was detected during the pressurizer heater sleeve bare metal visual examination which is performed every RFO per the Alloy 600 Program Plan and the Boric Acid Corrosion Control Program. Subsequent ultrasonic examination confirmed the existence of an axial flaw. All other pressurizer heater sleeves were inspected with no additional findings. The licensee determined that the most likely cause of the leak is PWSCC. The heater sleeve was repaired by installing an approved mechanical nozzle seal assembly clamp at heater sleeve location C-2 on the Calvert Cliffs Unit 1 pressurizer prior to restart of Unit 1 from the 2008 RFO. Additional corrective actions planned include repair/replacement of all Unit 1 Pressurizer Heater Sleeves by 2012, which will eliminate their susceptibility to PWSCC. This preventive action was established due to similar events discussed in LERs 318/89-007 and 317/94-003.

Calvert Cliffs Unit 1 had several pressurizer heater sleeve failures in 1990 and another in 1994. In 1994, the heater sleeves were nickel plated in Unit 1 to mitigate the known failure mechanism. Between 1994 and 2008 there were no failures identified. Constellation had conducted visual inspections each RFO and formally committed to the NRC to continue these inspections in response to NRC Bulletin 2004-01. Constellation had developed an inspection schedule and approved contingency repair technique for the 2006 and 2008 refueling outages. In addition, a long-term replacement strategy to replace the pressurizer heater sleeves during the 2010 and 2012 RFOs had been planned and approved. Due to the programs put in place for enhanced monitoring, repair contingency and planned replacement of the pressurizer heater sleeves, no performance deficiency was identified.

An immediate event notification report was made pursuant to 10 CFR 50.72(b)(3)(ii)(A). CCNPP TS LCO 3.4.13, "Reactor Coolant System Operational Leakage," which allows no pressure boundary leakage while in Modes 1 through 4. The discovery of pressure boundary leakage, although in Mode 5, indicates that the flaw existed in Mode 1 most likely for a period longer than the 6-hour completion time allowed under Condition 3.4.13.B.

This event did not result in any actual nuclear safety consequences. The risk associated with the issue was determined using IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings." The inspectors screened the issue and determined that RCS leakage was considered a LOCA initiator and was evaluated using the Initiating Event Criteria in Attachment 4. Assuming worst-case degradation, the leakage would not result in exceeding the TS limit for unidentified RCS leakage (1 gpm) nor would the leakage have likely affected other mitigation systems resulting in a total loss of their safety function. As a result, this issue screens as very low safety significance (Green).

Because this issue is of very low safety significance and because the inspectors concluded that the RCS pressure boundary leak resulted from an equipment failure that was not avoidable by the implementation of reasonable quality measures or management controls, the NRC has decided to exercise enforcement discretion in accordance with VII.B.6 of the NRC Enforcement Policy and refrain from issuing enforcement action for the violation of TS (EA-08-179). This LER is closed.

4. Intake Level Monitoring Issues

a. Inspection Scope

The inspectors reviewed Constellation's response to excessive debris on a set of trash racks in the intake combined with a lower than normal tide on January 3, 2008. The inspectors discussed the event with Constellation management, operations, engineering, and maintenance personnel to gain an understanding of the conditions surrounding the bay water level. The inspectors reviewed the EAL scheme and technical basis document to assess the EAL entry criteria and the threshold of low bay water level conditions as well as internal flooding events that could be a precursor to a more serious event.

b. Findings

Introduction. The inspectors identified a finding of very low safety significance associated with an NCV of 10 CFR Part 50.47(b)(4) and Appendix E to 10 CFR 50, Sections IV.B and IV.C because Constellation did not have a clear method to assess and determine the bay water level such that the EAL classification process would declare an Unusual Event (UE) or Alert in a timely manner.

Description. During a system walkdown of the intake structure on January 3, 2008, a system engineer observed a high differential pressure (delta P) across a set of trash racks of 19 to 21 inches. The high delta P across the trash racks was due to high debris loading across the trash racks caused by a lower than normal tide with high sustained winds from the north. At this time, the traveling screens located downstream of the trash racks experienced a normal delta P of less than six inches. Because the traveling screen delta P was normal, there was no alarm in the control room for operators to consider taking some type of action. Nevertheless, at the time of occurrence, the system engineer requested that an operator measure the bay water level downstream of the traveling screen. The measurement taken was minus 3 foot 3 inches mean sea level (MSL). Constellation entered this issue into their CAP as CR IRE-028-089. The inspectors reviewed this CR and noted that there was no procedure to direct the operator to perform this measurement unless operators entered into an AOP after receiving a traveling screen high delta P alarm with the trash rack delta P greater than 12 inches. Therefore, the inspectors concluded that the procedural guidance to monitor bay water level was inadequate.

The inspectors also noted that this particular measurement was 3 inches from an EAL classification declaration. The EAL criteria for the intake bay water level for an UE and an Alert are less than minus 3 foot 6 inches MSL and minus 6 foot 0 inches MSL, respectively. Operations normally measures bay water level downstream of the traveling screens from the intake concrete walking level to the bay surface with a weighted tape

measure. Operations perform this measurement once a quarter during the saltwater pump quarterly test and visually observe the delta P across the trash racks once per day. The inspectors questioned whether the measurement taken was a true representation of the actual bay water level since it was behind only one traveling screen and the fact that CCNPP does not have bay water level instrumentation. Following discussions with Operations and reviewing the EAL Technical Basis Document, the inspectors determined that there was no clear method to determine the bay water level to support an EAL declaration because the measurement taken was not a true representation of the actual bay water level.

The performance deficiency is that Constellation did not have a clear method to assess and determine the bay water level such that the EAL classification process would declare an Unusual Event or Alert in a timely manner. Following the January 2008 event, Constellation initiated CR IRE-028-089. However, Constellation did not fully evaluate and address the performance deficiency. Constellation has since entered this NRC identified issue into their CAP (CR IRE-032-546) and developed compensatory measures to monitor the bay water level pending the development of permanent corrective actions.

Analysis. The finding is greater than minor because it is associated with the Emergency Preparedness cornerstone attributes of equipment and procedure quality, and affects the cornerstone objective to ensure that Constellation is capable of implementing adequate measures to protect the health and safety of the public in the event of an emergency. Specifically, the lack of procedural guidance and readily available indication increases the likelihood of Constellation not being able to make an EAL classification in a timely manner based on bay water level to protect the saltwater pumps and other equipment needed for safe shutdown. Using APP B of IMC 0609, the finding is of very low safety significance because the finding did not result in a loss or degraded Risk-Significant Planning Standard (RSPS) Function. It is also similar to examples of green findings in Appendix B of section 4.4 in IMC 0609 in that the EAL classification process would not declare any Alert or Notification of UE that should be declared. This finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not thoroughly evaluate problems associated with bay water level measurement such that the resolution addresses causes and extent of conditions, as necessary. (P.1.c per IMC 0305)

Enforcement. Title 10 CFR Part 50.54(q) requires that the facility licensee follow and maintain in effect emergency plans which meet the standards in 10 CFR 50.47(b). 10 CFR 50.47(b)(4) requires, in part, that emergency response plans include a standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters. The emergency classification and action level scheme required to be used by the nuclear facility licensee, and state and local response plans, rely on information provided by facility licensees for determinations of minimum initial offsite response measures.

Contrary to the above, prior to January 2008, Constellation did not have a clear method to assess and determine the bay water level, a facility system parameter, such that the EAL classification process would declare an UE or Alert in a timely manner. Constellation developed compensatory measures to monitor the bay water level pending the development of permanent corrective actions. Because this violation is of very low safety significance (Green) and Constellation entered this into their CAP as

IRE-032-546, this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000317&318/2008003-02: Inadequate Measures to Implement EALs for Low Bay Water Level)**

4OA5 Other Activities

.1 (Closed) URI 05000317/2008002-01, Unit 1 RCS Pressurizer Pressure Boundary Leakage

This unresolved item was opened in NRC IR 05000317/2008002 to complete an evaluation of a Licensee-identified RCS pressure boundary leakage condition. This issue was resolved in accordance with NRC Enforcement Policy and discussed in Section 4OA3.3 of this report. This URI is closed.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On July 11, 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.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the Licensee and is a violation of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a NCV:

- CCNPP TS LCO 3.6.6, "Containment Spray and Cooling System", states, in part, that two CS trains and two containment cooling trains shall be operable. That is with one CS train inoperable, restore the CS train to an operable status within 72 hours. Contrary to this, from September 7, 2007, to September 14, 2007, one CS train was inoperable and Constellation did not restore the CS train to an operable status within 72 hours. Constellation entered this issue in their CAP under IRE-025-517. This finding is of very low safety significance based on a SDP Phase 2 screening utilizing CCNPP Phase 2 pre-solved table for exposure times between 3 and 30 days for one inoperable train of CS.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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

J. Spina, Site Vice President
 D. Bauder, Plant General Manager
 A. Buck, Fire Protection Specialist
 K. Bourroughs, Technical Supervisor Chemistry
 R. Conley, Principle Engineer, Systems
 S. Dean, Manager, Operations
 H. Evans, Radiation Protection Supervisor
 K. Gould, General Supervisor, Radiation Protection
 B. Haller, Supervisor, E & C Systems Engineering
 W. Holston, Training Manager (Acting Plant Manager)
 J. Kilpatrick, Principal Engineer, Design Engineering
 E. Krehling, System Engineer
 J. Lenhart, Radiation Protection Supervisor
 D. Lenker, Supervisor, Design Engineering
 C. Neyman, Licensing Engineer
 T. Riti, General Supervisor, Operations
 S. Sanders, General Supervisor Chemistry
 A. Simpson, Principle Engineer, Licensing
 B. Stark, Principal Engineer, Design Engineering
 J. York, Supervisor Radiation Protection

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

05000317/318/2008003-01	NCV	Inadequate Design Control Associated with The Safety Related 480V MCCs (Section 1R04)
05000317/318/2008003-02	NCV	Inadequate Measures to Implement EALs for Low Bay Water Level (Section 4OA3.4)

Closed

05000318/2007-002-00	LER	Dual Containment Spray Train Inoperability Due to Latent Valve Failure (Section 4OA3.1)
05000317/318/2006-005-01	LER	Startup Rate Trip Bypass Removal Function Below Setpoint (Section 4OA3.2)
05000317/2008-001-00	LER	Pressure Boundary Leakage Caused by Primary Water Stress Corrosion Cracking (4OA3.3)

05000317/2008002-01 URI Unit 1 Reactor Coolant System Pressurizer
Pressure Boundary Leakage (Section 4OA5)

Discussed

05000317/318/2007-002-03 NCV Failure to Recognize That One or More Channels
of The High-Rate-Of-Change Trip Function Was
Inoperable (Section 4OA3.2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

NO-1-119, Seasonal Readiness, Revision 2
OI-29-1, Saltwater System, Revision 62
OI-28, 500 kV Switchyard System, Revision 15

Miscellaneous

Pre-Summer Assessment of Seasonal Readiness dated 2/20/08

Section 1R04: Equipment Alignment

Procedures

OI-3A-2, Safety Injection and Containment Spray, Revision 23
OI-16-1, Component Cooling System, Revision 32
OI-22B, Auxiliary Building and Waste Processing Area Ventilation, Revision 11
OI-27D-1, Station Power 480 Volt System, Revision 5

Condition Reports

IRE-031-765

Drawings

60710SH0001, Component Cooling System, Revision 43
60722SH0001, Auxiliary Building Ventilation Room, Revision 59
60723SH0002, Ventilation Systems: Containment, Turbine and Penetration Rooms, Revision 57
60731SH0001, Safety Injection and Containment Spray System, Revision 80
60731SH0003, Safety Injection and Containment Spray System, Revision 27

Calculations and Specifications

Calculation Number M-94-150, Post LOCA Auxiliary Building Temperatures with Loss of Offsite
Power, Revision 1
Specification No. 6750-E-0007, Specification for 480 Volt Motor Control Center, Revision 7
Specification No. ES199501715, Motor Control Center Replacement Units and Starters,
Revision 9

Miscellaneous

Engineering Standard ES-014, Summary of Ambient Environmental Service Conditions,
Revision 04
480V Motor Control Centers System Health Report

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 Performance

Procedures

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

Condition Reports

IRE-031-297

Drawings

60727SH0001, Diesel Generator Cooling Water, Starting Air, Fuel, &, Lube Oil, Diesel 2A,
Revision 60

Miscellaneous

PM Basis 239, Emergency Diesel Generators Heat Exchangers, Revision 0
Reptask ID#20242087

Section 1R11: Licensed Operator Requalification Program

Procedures

OP-24, Simulator Operating Examination, Revision 7
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

IRE-029-507
IRE-030-277
IRE-030-999
IRE-032-515
IRE-032-517

Maintenance Orders

MO#1200604181
MO#1200801411
MO#1200803293

MO#1200803289

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

Section 1R15: Operability Evaluations

Procedures

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

Drawings

61076SH0011E, Schematic Diagram Containment Cooling Fan 13, Revision 2

Condition Reports

IRE-030-493
IRE-032-052
IRE-032-016
IRE-031-765

Miscellaneous

FA No. 08-002, Functionality Assessment for 0C DG Battery Charger Failure, Revision 0
Event Notification 44131, Wolf Creek – Analysis Indicates Containment Coolers May Not Have
Automatically Started in Slow Speed Following A Postulated Main Steam Line Break

Section 1R18: Plant Modifications

Procedures

MD-1, Modification Program, Revision 3
MD-1-100, Temporary Alterations, Revision 14
OI-5A, Containment and Cavity Cooling, Revision 16

Drawings

61076SH0011E, Schematic Diagram Containment Cooling Fan 13, Revision 2

Miscellaneous

Temporary Alteration No. 1-08-0016, 0CHGR17 has Failed and 0BATT15 Requires Charging to
Maintain Operability
VTD-J127-1014, Containment Cooler Operators Handbook, Revision 1
VTD-J127-1131, Containment Cooler Installation and Maintenance, Revision 0
PM Basis 725, Primary Containment H&V, Revision 0

Section 1R19: Post-Maintenance Testing

Maintenance Orders

MO#2200801442
MO#1200703732
MO#1200701260
MO#1200703663
MO#1200802660
MO#2200801412
MO#1200703873

Section 1R22: Surveillance Testing

Procedures

STP-O-008B-1, Test of 1B DG and 14 kV Bus Loss of Coolant Incident Sequencer, Revision 27
STP-M-152, Station Battery Weekly Check, Revision 6
STP-O-027-2, Reactor Coolant System Leakage Evaluation, Revision 17
STP-M-663-1, Unit 1 Containment Tendon Surveillance – Full Scope Examination, Revision 10
STP-M-666-2, Unit 2 Containment Tendon Surveillance – Visual Examination and Grease Testing, Revision 0
STP-O-73B-1, Service Water Pump Quarterly Test (IST), Revision 11
STP-M-171-1, Personnel Airlock Gasket Seal Test, Revision 15

Section 2OS3: Radiation Monitoring Instrumentation and Other Protective Equipment

Procedures

ITEC-607, Calibration of Eberline EC4-X Portable Area Monitor with the DA1-6 GM Detector, Revision 0
ITEC-611, Calibration of Eberline PIC-6A/B Survey Meter, Revision 1
ITEC-612, Calibration of Eberline E-520 Survey Meter, Revision 1
ITEC-613, Calibration of Eberline/Automess 6112B (Analog) Teletector, Revision 0
ITEC-614, Calibration of Eberline RM-14 Radiation Monitor and GM Detectors, Revision 1
ITEC-618, Calibration of Eberline Ion Chamber Models RO-2 and RO-2A, Revision 2
ITEC-657, Calibration of Eberline Ion Chamber Model RO-20, Revision 1
ITEC-664A, Calibration of Eberline Radiation Monitor Model E-600, Revision 1
ITEC-656, Calibration of the Buck Simple Sampler Pump Model S.S., Revision 1
PHP-3-301, Internal Dose Calculations, Revision 3
RSP 1-102, Pre-Operational Checks of the Portable Survey Instruments, Revision 19
RSP 1-107, Personnel Contamination Assessment/Decontamination, Revision 00800
RSP 3-215, Electronic Personal Dosimeter Calibration Check, Revision 2

Calibration Records

Shepard Model 89 Calibration
6112B (Serial No. 37383, 115251)
AMP-100 (Serial No. 5005-153, 505-169)
AMP-200 (Serial No. 7702-006)
Electronic Dosimeter Calibration (Serial Nos. 6664, 7023, 7304, 7312, 7338, 7401, 8845)
E-520 (Serial No. 1006)
E-600 (Serial No. 1133)
Hande Count (Serial No. 354)
PCM-1B (Serial No. 421, 429)
PCM-2 (Serial No. 506)
PIC-6B (Serial No. 2174)

PM-7 (Serial No. 203, 501, 468)
 PRS-2 (Serial No. 371)
 RM-14 (Serial No 4428, 4978, 7500, 8731, 9171)
 RO-20 (Serial No. 0594)
 SAC-4 (Serial No. 1257)
 SAM (Serial No. 102, 235)
 S.S. (Serial No. 60378)
 RO-2/2A (Serial No. 3463, 3692, 3956, 5137)

Condition Reports

IRE-028-256	IRE-028-588	IRE-029-672	IRE-030-796
IRE-028-285	IRE-028-759	IRE-029-807	
IRE-028-358	IRE-029-066	IRE-030-144	

SCBA Nos

Cylinder No./Regulator No. 19/30, 612/93, 630/23, 1/54, 780/60
 Fire Protection Pack #5

Miscellaneous Records & Reports

Self-Assessment, SA AIT No. 2008-001
 Quality & Performance Assessment Report No. 2008-040
 Radiation Protection "Individual" Business Function Self Assessment
 Unit 1, Radiation Monitoring System Health Report, 1st Quarter 2008
 Unit 1, Radiation Monitoring System Health Report, 2nd Quarter 2008
 Unit 2, Radiation Monitoring System Health Report, 1st Quarter 2008
 Unit 2, Radiation Monitoring System Health Report, 2nd Quarter 2008

Section 2PS1: Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

Procedures

CP-615, Plant Main Vent Releases, Revision 5
 CP-224, Monitoring Radioactivity in Systems Normally Uncontaminated, Revision 15
 CP-428, Miscellaneous Primary and Secondary System Sampling and Chemical Addition, Revision 02100
 STP-M-462-1, Main Vent Stack Flow Measurement, Revision 1
 STP-M-462-2, Main Vent Stack Flow Measurement, Revision 1
 STP-M-567-0, Gaseous and Liquid Waste Discharge Radiation Monitors Calibration Check, Revision 4

Condition Reports

IRE-019-403	IRE-023-283	IRE-024-943	IRE-028-280	IRE-030-732
IRE-019-796	IRE-023-852	IRE-025-344	IRE-028-565	IRE-031-216
IRE-022-292	IRE-024-547	IRE-026-531	IRE-028-829	IRE-031-905
IRE-023-040	IRE-024-556	IRE-028-101	IRE-029-626	IRE-031-914
IRE-023-048	IRE-024-661	IRE-028-256	IRE-030-622	

Audits, Assessments and Reports

SA200600175, Table Top Review of CP-604
 SA200700086, Annual Compliance Based Assessment of Radioactive Effluents Technical Specifications (RETS) Procedures and Program Requirements

CHE-07-01-C, QA Audit, Chemistry

Miscellaneous Records & Reports

Calvert Cliffs' Groundwater Protection Action Plan, Revision 3, 1/29/08
Groundwater Protection Initiative, Detailed Action Plan, 4/18/07
Radiation Monitoring System, System Description, Revision 3, 8/06

Section 40A1: Performance Indicator Verification

Procedure

STP-O-027-1, Reactor Coolant System Leakage Evaluation, Revision 19
STP-O-027-2, Reactor Coolant System Leakage Evaluation, Revision 17
CP-204, Specification and Surveillance Primary Systems, Revision 31
CP-828, Determination of E-Bar, Revision 0.
AOP-6A, Abnormal Reactor Coolant Chemistry/Activity, Revision 10

Condition Reports

IRE-029-394

Miscellaneous Records & Reports

Measurements – Sample points, Analysis, and Sample data for RCS, dated June 2007 through May 2008.

Section 40A2: Identification and Resolution of Problems

Procedures

2C04-ALM, Auxiliary Feedwater and Computer Alarm Manual, Revision 41
OI-32A, Unit One Auxiliary Feedwater System, Revision 21
OI-32A, Unit Two Auxiliary Feedwater System, Revision 17

Condition Reports

IRE-019-797	IRE-022-279	IRE-026-692	IRE-032-503
IRE-019-389	IRE-023-142	IRE-028-238	
IRE-019-574	IRE-023-747	IRE-031-928	
IRE-021-251	IRE-025-182	IRE-032-359	
IRE-021-269	IRE-025-269	IRE-032-360	
IRE-021-806	IRE-025-452	IRE-032-361	
IRE-021-821	IRE-026-533	IRE-032-362	

Completed Surveillances

STP O-5A-1, Auxiliary Feedwater System Quarterly Surveillance Test, Dated 6/2/08
STP O-5A-2, Auxiliary Feedwater System Quarterly Surveillance Test, Dated 12/11/07, 1/4/08, 2/23/08 and 6/8/08

Engineering Evaluations

AFW Forced Oil Modification Mock-Up and Troubleshooting Results and Recommendations, Dated 6/3/08
AIT #IR200600154, Quality of Vendor Supplied Engineering Apparent Cause Evaluation, Revision 1
AIT #IR200700067 ms1, 22 AFW Pump Oil Foaming Apparent Cause Evaluation, Dated 9/25/07
AIT #IR200700067 ms1A, Functional Failure of 22 AFW Pump Turbine Maintenance Rule (a)(1) Action Plan, Dated 10/22/07

ES200100565, AFW Forced Oil Modification, Revision 5
ES200700252, AFW Turbine Driven Pump Oil Level Adjustment, Revision 0
OD# IRE-021-806/07-004, 22 AFW Pump Turbine, Revision 2

Miscellaneous

1200802540, 12 AFW Turbine Troubleshooting Control Form, Dated 5/22/08
12083-0044SH0001, Pedestal – Governor End Bearing, 4 Ring Glands, Revision 0
22 AFW Turbine Forced Oil Mock-Up, Revision 0
22 AFW PP TURB Oil Sample Report, Dated 6/17/08
AFW PP #22 Oil Sample Trend Report, Dated 12/5/06 – 12/4/07
OB-2008-01019, 12 AFW Pump Oil Level Troubleshooting Plan, Dated 2/17/08
Unit 1 and Unit 2 AUX Feedwater System Health Report (Q1-2008)
VTM 12083-010 0801 S-1, Steam Generator, Auxiliary Feed Pump Terry Turbine

Operating Experience

NRC Information Notice 86-14, Supplement 2: Overspeed Trips of AFW, HPCI and RCIC Turbines, Dated 8/26/91
NRC Information Notice 94-84: Air Entrainment in Terry Turbine Lubricating Oil System, Dated 12/2/94
NRC Information Notice 2008-09: Turbine-Driven Auxiliary Feedwater Pump Bearing Issues, Dated 5/22/08
Calvert Cliffs Unit 1 NRC Inspection Report 50-317/01-009, Dated 8/24/01

Maintenance Orders

MO#1200800682

Section 40A3: Event Followup

Procedures

MN-3-123, Boric Acid Corrosion Control Program
ALM-2C13-1, SRW and Misc Station Services Alarm Manual, Revision 53
AOP-7L-1, Circulating Water / Intake Malfunctions, Revision 10
OI-14A-1, Circulating Water System, Revision 19
OI-29-1, Saltwater System, Revision 60
STP-O-73A-1, Saltwater Pump and Check Valve Quarterly Operability Test, Revision 16
ERPIP 3.0, Immediate Actions, Attachment 1, Emergency Action Level Criteria, Revision 39

Condition Reports

IRE-029-507
IRE-030-999
IRE-028-089
IRE-027-799
IRE-032-546

Maintenance Orders

MO#0200702292

Miscellaneous

Licensee Event Report 317/2008-001, Pressure Boundary Leakage Caused by Primary Water Stress Corrosion Cracking, Revision 0
Calvert Cliffs Technical Specifications, Section 3.4.13, RCS Operational Leakage

CCNPP Outside Operator Log Sheet, Intake Structure (Outside), Revision 18
 AOP-7L-1/2, Circulating Water / Intake Malfunctions Basis Document, Revision 8
 99-01-EAL-TB, Emergency Action Level Technical Basis Document, Revision 0
 IR 200800038

LIST OF ACRONYMS

ADAMS	Agency-Wide documents Access and Management System
AFW	Auxiliary feedwater
AOP	Abnormal operating procedure
CAC	Containment air cooler
CAP	Corrective action program
CCHX	Component cooling heat exchanger
CCNPP	Calvert Cliffs Nuclear Power Plant
CR	Condition report
CS	Containment spray
Delta P	Differential pressure
DG	Diesel generator
EAL	Emergency action level
EDG	Emergency diesel generator
EPRI	Electric Power Research Institute
FOST	Fuel oil storage tank
gpm	gallons per minute
HPSI	High pressure safety injection
HIT	High impact team
IMC	Inspection Manual Chapter
IR	Inspection report
IST	Inservice test
kV	Kilovolt
LER	Licensee event report
LCO	Limiting condition for operation
LOCA	Loss of coolant accident
MCC	Motor control center
MO	Maintenance order
MR	Maintenance rule
MSL	Mean sea level
NCV	Non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OE	Operating experience
OI	Operating instructions
PARS	Publicly Available Records
PI	Performance indicator
PWSCC	Primary water stress corrosion cracking
RCS	Reactor coolant system
RETS/ODCM	Radiological effluent technical specification/offsite dose calculation manual
RFO	Refueling outage
RPS	Reactor protection system
RSPS	Risk-Significant Planning Standard
SCBA	Self contained breathing apparatus

SDP	Significance determination process
SRW	Service water
SSC	Structure, system, and component
TDAFWP	Turbine-driven auxiliary feedwater pump
TS	Technical specification
UE	Unusual Event
UFSAR	Updated Final Safety Analysis Report
V	Volt
°F	Fahrenheit