



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
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May 8, 2008

Mr. 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 05000317/2008002 AND 05000318/2008002**

Dear Mr. Spina:

On March 31, 2007, 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 April 9, 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 three NRC-identified findings of very low safety significance (Green). All of the findings involved violations of NRC requirements. 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 any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region 1; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the CCNPP.

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Sincerely,

/RA/

Glenn Dentel, Chief
Projects Branch 1
Division of Reactor Projects

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

Enclosure: Inspection Report 05000317/2008002 and 05000318/2008002
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-317, 50-318

License Nos.: DPR-53, DPR-69

Report No.: 05000317/2008002 and 05000318/2008002

Licensee: Constellation Generation Group, LLC (Constellation)

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

Location: Lusby, MD

Dates: January 1, 2008 through March 31, 2008

Inspectors: Silas Kennedy, Senior Resident Inspector
Marlone Davis, Resident Inspector
Ronald Rolph, Health Physicist Inspector
Jeffery Kulp, Reactor Inspector
Thomas Burns, Reactor Inspector

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

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SUMMARY OF FINDINGS

IR 05000317/2008002, 05000318/2008002; 1/1/08 - 3/31/08; Calvert Cliffs Nuclear Power Plant, Units 1 and 2: Maintenance Risk Assessments; Operability Evaluations; and Refueling Outage Activities.

The report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Three Green findings were identified, all of which were determined to be NCVs. The significance for most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 609, "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: Initiating Events

- Green. The inspectors identified an NCV of Technical Specifications (TS) 5.4.1.a, "Procedures," because Constellation did not establish and maintain adequate procedures to vent the reactor vessel head (RVH). On February 25, 2008, operators drained the Unit 1 reactor vessel in preparation for removal of the RVH. When the RVH vent line was disconnected, the reactor coolant level unexpectedly decreased approximately 1 foot. Constellation determined that the unexpected change in level was most likely due to a RVH void that developed while draining the reactor coolant system (RCS) following the emptying of the steam generator tubes with compressed air. The inspectors identified that Constellation did not establish and maintain adequate procedures for venting a RVH void that may occur during draining of the RCS. Immediate corrective actions included restoring the reactor vessel level and entering this issue into their corrective action program (CAP) for resolution.

This finding is more than minor because it is associated with the procedure quality attribute of the Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown operations. Specifically, the inadequate procedures for venting the RVH increased the likelihood of the loss of RCS level control and consequently a loss of decay heat removal initiating event. The inspectors determined that this finding is of very low safety significance because a quantitative assessment was not required since the loss of RCS level control did not occur during mid-loop operations. The inspectors determined that this finding has a cross-cutting aspect in the area of human performance because Constellation did not ensure that the procedures for draining and venting the RCS were complete and accurate (H.2.c per IMC 0305). (Section 1R20)

Cornerstone: Mitigating Systems

- Green. The inspectors identified an NCV of 10 CFR Part 50.65 (a)(4) because Constellation did not assess and manage the increase in risk that resulted from maintenance activities on the alternate feeder breaker for the No. 21 4kV safety bus. On December 5, 2007, operators removed the 2A emergency diesel generator

(EDG) from service in preparation for maintenance on the No. 21 4kV bus alternate feeder breaker. However, probabilistic risk analysis (PRA) services personnel were not aware that this maintenance activity affected the ability of the 2A EDG to load on the No. 21 4kV safety bus. As a result, the unavailability of the 2A EDG was not included as part of the risk assessment. Constellation reassessed the risk associated with this maintenance activity and entered this issue into their CAP. Planned corrective action included a re-evaluation of how Constellation models the impact of the work performed on the No. 21 4kV bus alternate feeder breaker and similar breakers.

The finding is more than minor because Constellation's risk assessment did not consider risk significant structures, systems, and components (SSCs) (i.e. 2A EDG) that were unavailable during the maintenance activity. The finding is associated with the configuration control attribute of the Mitigating Systems 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 inspectors determined that the finding is of very low safety significance because the incremental core damage probability (ICDP) was less than $1.0E-6$. This finding has a cross-cutting aspect in the area of human performance, because Constellation did not appropriately plan and incorporate risk insights in work activities associated with the No. 21 4kV alternate feeder breaker maintenance (H.3.a). (Section 1R13)

- Green. The inspectors identified a finding of very low safety significance associated with an NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because Constellation did not adequately implement scaffolding control requirements contained in MN-1-203, "Scaffold Control." Specifically, Constellation did not perform engineering evaluations for scaffolding constructed within the minimum allowed distance of safety-related equipment. Constellation entered this issue into their CAP for resolution, took prompt actions to correct the scaffolds, and provided evaluations to assess the affect of the scaffold on the equipment. The evaluations determined that the scaffolds did not adversely affect the plant equipment.

The inspectors determined that this finding is more than minor, because it is similar to example 4.a in Appendix E of IMC 0612 in that Constellation routinely did not perform evaluations for scaffolds constructed within the minimum allowed distance of safety related equipment. It is associated with the external factors and equipment performance attributes of the Mitigating Systems 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 the finding is not a design or qualification deficiency, did not represent a loss of a safety function, and did not screen as potentially risk significant due to external events. This finding has a cross-cutting aspect in the area of human performance because Constellation did not effectively communicate expectations regarding work practices to workers who constructed scaffolding or to supervisors that routinely monitor these activities to follow procedural requirements (H.4.b). (Section 1R15)

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Calvert Cliffs Unit 1 began the inspection period at 100 percent reactor power. On February 22, 2008, operators conducted a reactor shutdown to support a planned refueling outage (RFO). Following the RFO on March 13, operators returned Unit 1 to 100 percent power. On March 28, operators performed a shutdown to repair a steam leak on a root isolation valve for a feedwater level transmitter associated with the No. 11 steam generator. At the end of the inspection period, operators were in the process of returning Unit 1 to 100 percent power.

Calvert Cliffs Unit 2 began the inspection period at 100 percent reactor power. On March 21, 2008, operators reduced power to 83 percent to perform main turbine valve testing. Operators returned the unit to 100 percent power on March 22. 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 for Constellation's response to a tornado watch that occurred on March 04, 2008. 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.

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. Documents reviewed are listed in the Attachment.

The inspectors performed a partial walkdown for the following systems:

- No. 11 emergency core cooling system (ECCS) train while the No. 12 ECCS train was out-of-service (OOS) for planned maintenance;
- No. 22 low pressure safety injection (LPSI) train while the No. 21 ECCS train was OOS for planned maintenance;
- No. 13 auxiliary feedwater (AFW) pump while the No. 11 and No. 12 AFW pumps were OOS for planned maintenance; and
- Unit 1 RCS instrumentation during the RFO.

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

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q – Seven Samples)

a. Inspection Scope

The inspectors conducted a tour of accessible portions of fire areas to assess Constellation's control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and related compensatory measures when required. The inspectors assessed the material condition of fire suppression and detection equipment to determine whether any conditions or deficiencies existed that could impair the availability of the equipment. The applicable documents used for this inspection are listed in the Attachment. The inspectors performed a walkdown of the following areas:

- Unit 2 main steam penetration room, fire area 11, room 309;
- Unit 1 battery room, fire area 16A, room 301;
- East-west hallway by the ECCS pump room, fire area 10, room 100;
- Unit 1 45' elevation, fire area turbine building (TB), rooms 800 and 801;

- Unit 2 45' elevation, fire area TB, rooms 800 and 803;
- Unit 1 main transformer, fire area yard; and
- Unit 1 containment (CNMT), fire area CNMT, room 230.

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI) (IP 71111.08 - One Sample)

a. Inspection Scope

The purpose of this inspection was to assess the effectiveness of Constellation's ISI program for monitoring degradation of the RCS boundary, risk significant piping system boundaries, and the containment boundary. The inspectors assessed the ISI activities using the criteria specified in the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI and applicable NRC regulatory requirements.

The inspectors selected a sample of nondestructive examination (NDE) activities for review and evaluation for compliance with the requirements of ASME Section XI. Additionally, the inspectors selected samples of modifications, repairs, and replacement activities that involved use of the welding process on pressure boundary risk significant systems. The sample selection was based on the inspection procedure objectives, risk significance, and availability. Specifically, the inspectors focused on components and systems where degradation would result in a significant increase in risk of core damage and required the use of welding processes to affect the repair/replacement. The inspectors reviewed examination procedures, personnel qualifications, and examination test results. This sample includes the review of nondestructive tests performed on dissimilar metal welds that were direct attachments to the pressurizer. The inspectors reviewed samples of examination reports and CRs initiated during ISI examinations to evaluate Constellation's effectiveness in the identification and resolution of problems.

The inspectors reviewed the procedures used to perform visual examinations for indications of boric acid leaks from pressure retaining components including control element drive mechanism connections above the reactor vessel head.

The inspectors reviewed a sample of CRs initiated as a result of the inspections performed in accordance with Constellation's boric acid control program. The inspectors selected CRs that identified inactive leak locations (no active leaks were identified) which could result in degradation of safety significant components. The inspectors reviewed eight CRs shown on Attachment 1 that identified dry boric acid crystal deposits identified through plant walkdowns performed during and after plant shutdown.

During the visual examination of the Unit 1 pressurizer bottom head, an inactive leak (dried boric acid crystals) had been identified at heater sleeve penetration "C2" in the pressurizer bottom head and documented in CR IRE-029-507. The inspectors reviewed the ultrasonic examination procedure to be used to locate and characterize the source of the leakage. The results of this ultrasonic test indicated the flaw was in the heater sleeve and contained within the pressurizer bottom wall thickness with an axial orientation. The planned corrective action was installation of a mechanical nozzle seal

assembly (MNSA), which sealed the annular opening between the nozzle and the pressurizer bottom head and maintained the geometry of the nozzle in a fixed configuration during all anticipated loadings. The inspectors reviewed the installation procedures for the attachment of the MNSA to the pressurizer bottom head and the penetration sleeve.

The inspectors reviewed operability evaluations and corrective actions provided for the selected CRs to determine if the actions specified were consistent with the requirements of the ASME Code and 10 CFR 50, Appendix B, Criterion XVI.

The inspectors performed a review of nondestructive test results of two locations where dissimilar metal welds had been at the pressurizer surge nozzle and a hot leg drain nozzle on the RCS. These welds were subjected to the mechanical stress improvement process (MSIP), which was used to enhance weld resistance to cracking. This process had been applied during the eighteenth refueling outage (2006). The inspectors reviewed results of examinations performed on these welds before and after application of the MSIP to determine if any indications were detected.

The steam generators at Calvert Cliffs, Unit 1, were installed in 2002 with a baseline eddy current tube inspection prior to being placed in service. Tube inspection was subsequently performed on 100 percent of the tubes in 2004. No tube inspection was performed in 2006. Steam generator tube inspection was performed this outage on 50 percent of the tubes in each steam generator (No. 11 and No.12). Tube selection for was based on a review of the 2006 inspection results and industry operating experience. The examination plan specified that 100 percent of the tube length be examined. Tubes were selected from locations defined as critical areas of the tube bundle within each generator where tube degradation was noted during the 2004 inspection. Specifically, tube wear in the fan bar region at the tube U bend in the top of the generator was anticipated and the location was defined as a critical area to be inspected. The inspectors reviewed the examination plan to confirm that the tube selections were from the areas defined as critical and the tubes were inspected for the full tube length.

The inspectors reviewed plant specific steam generator design information, tube inspection criteria, tube plugging criteria, and plans for the identification and disposition of new degradation mechanisms. The inspectors reviewed the plans for the control and monitoring of foreign objects and the performance of integrity assessments if tube flaws were identified. The inspectors also reviewed previous inspection data to assure that areas identified with active degradation mechanisms were included in the current inspection plan.

The inspectors evaluated the implementation of the steam generator inspection program by interviewing data management personnel, acquisition personnel, data analysts and resolution analysts. The inspectors interviewed Constellation's independent qualified data analyst, and reviewed selected samples of eddy current data and analysis of tubes within the No.11 and No. 12 steam generators.

The inspectors further evaluated implementation of the steam generator program by observation of Constellation's performance of portions of the 50 percent bobbin inspection sample of selected tubes for the entire length of the tubes in each generator.

The inspectors selected three Examination Technique Specification Sheets for review of site-specific inspection techniques. The inspectors reviewed the qualification results of essential variables used to demonstrate the capability of the eddy current tests to detect existing and potential degradation mechanisms.

The inspectors reviewed the eddy current test data for four tubes selected from steam generator No. 11 and four tubes from generator No. 12. The sample selected representative tubes, which exhibited localized wear predominately in the fan bar regions (upper head at the U bend location). The inspectors selected the following tubes:

<u>Steam Generator A11</u>		<u>Steam Generator A12</u>	
<u>Row</u>	<u>Column</u>	<u>Row</u>	<u>Column</u>
78	94	40	16
116	86	104	82
117	79	111	89
126	114	134	84

The inspectors performed observation of three NDE activities in process and reviewed documentation and examination reports for an additional two NDE that included both volumetric and surface examinations, as follows:

1. Ultrasonic Test (UT), volumetric examination, pipe to valve 1-MOV-4516, weld No. 16-FW-1202-1A (observed).
2. Ultrasonic Test (UT), volumetric examination, pressurizer surge line, nozzle to safe end, weld 12-PSL-13.
3. Magnetic Particle Test (MT), surface examination, pipe to valve 1-MOV-4516, weld 16-FW-1202-1A (observed).
4. Liquid Penetrant Test (PT), surface examination, integral attachment to pipe support, weld 3-PS-1001-R-21, H-11.
5. Visual test (VT-1 and VT 3), visual examination of reactor pressure vessel internals (observed).

The inspectors also reviewed documentation of MO 1200503494 used to modify pipe supports on three Unit 1 steam generator blow down lines and MO 1200703393 used to affect the repair of through wall leakage of saltwater pump discharge check valve (1CKVSW-103). These two repair/modification activities required the development of an ASME Section XI repair plan and use of welding processes to complete the repairs. The inspectors also reviewed a third work order for the installation of a mechanical nozzle seal assembly (MO 1200800084) on the Unit 1 pressurizer heater sleeve penetration "C2". No welding was required for the installation of this clamp, but an ASME Section XI repair plan was necessary for this installation. The inspectors reviewed the ASME Section XI repair plan, replacement material, weld procedure specifications and qualifications, welder qualifications, weld filler metals, specified non-destructive tests, acceptance criteria and post work testing for each activity, as applicable.

The inspectors reviewed the visual examination results of the containment liner to evaluate the results for compliance with the requirements of ASME Section XI, IWE (requirements for Class MC and metallic liners of Class CC components). In addition, the inspectors performed a walkdown of various locations within the containment to evaluate the condition of the coating.

In addition, the inspectors reviewed a sample of CRs listed in the Attachment that identified flaws and other nonconforming conditions discovered during this outage to verify if the nonconforming conditions identified were reported, characterized, evaluated and appropriately dispositioned and entered into the CAP.

b. Findings

The inspectors determined that additional inspection was required for the inactive leak on the heater sleeve penetration in the pressurizer bottom head. Technical Specifications 3.4.13 "RCS Operational Leakage," states that RCS operational leakage shall be limited to no pressure boundary leakage in Modes 1 through 4. Contrary to this requirement, on February 25, 2008, Constellation identified RCS deposits indicated that the sleeve welds had been leaking during the previous operating cycle. The penetration sleeves are part of the RCS pressure boundary. The leak was discovered during scheduled visual examination of the pressurizer head penetration area. Constellation entered this issue into their CAP (CR IRE-029-507) to complete a cause analysis and reportability review. An unresolved item (URI) has been opened to track this issue pending review of Constellation's evaluation to determine if a performance deficiency exists. **(URI 05000317/2008002-01. Unit 1 Reactor Coolant System Pressurizer Pressure Boundary Leakage).**

1R11 Licensed Operator Regualification Program

Resident Inspectors Quarterly Review (71111.11Q - One Sample)

a. Inspection Scope

On February 13, 2007, the inspectors observed licensed operator regualification training for shutdown scenarios to assess operators' performance and the adequacy of the licensed operator regualification training program. The shutdown scenarios involved a reduction to 20 percent reactor power, performance of a manual shutdown of the Unit, cooldown and depressurization of the RCS, entry into reduced inventory, and lower mode operations with a variety of malfunctions. The inspectors focused on high-risk operator actions performed during implementation of shutdown operating procedures, entry into abnormal operating procedures, and classification of events related to loss of RCS inventory and shutdown cooling issues. The inspectors evaluated 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. Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - Two 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 SSCs 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 to this report.

- Unit 1 containment particulate radiation monitors.
- Unit 1 narrow range RCS level instrumentation 1-LI-4138, ultrasonic level transmitter.

b. Findings

No findings of significances were identified.

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

a. Inspection Scope

The inspectors reviewed the following activities to verify that 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 against station procedure NO-1-117, "Integrated Risk Management," 10 CFR Part 50.65(a)(4), Nuclear Management and Resources Council 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 2 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 activities on the movement of control element assembly no. 6 for Unit 2 on January 4, 2008.
- Planned maintenance on the removal and reinstallation of control power fuses for the Unit 1 service water (SRW) control valves on January 11, 2008.
- Planned maintenance on the Unit 1 'B' train of ECCS on January 16, 2008 .
- Planned maintenance on the Unit 2 'B' train of ECCS on January 22, 2008.

- Planned maintenance on the 23 saltwater pump and 21 LPSI pump on February 11, 2008 .
- Planned maintenance on the 21 4kV bus lockout relay on February 15, 2008.

b. Findings

Introduction. The inspectors identified a finding of very low safety significance associated with an NCV of 10 CFR Part 50.65 (a)(4) because Constellation did not assess and manage the increase in risk that resulted from maintenance activities on the alternate feeder breaker for the No. 21 4kV safety bus.

Description. On December 5, 2007, operators removed the 2A EDG from service in preparation for maintenance on the No. 21 4kV bus alternate feeder breaker. The inspectors noted that the 2A EDG was not included as part of the risk assessment and questioned its accuracy. PRA services personnel initiated CR IRE-027-483 to investigate the potential inadequate risk assessment. The inspectors determined that during the maintenance activity, technicians tested switchgear relays and switches that prevented the ability of the 2A EDG to automatically load on its safety bus. The maintenance activity took approximately 30 minutes. The inspectors determined that PRA services were not aware of the impact of the alternate feeder breaker maintenance activity on the 2A EDG. In addition, the operators and maintenance technicians were not aware that PRA services were crediting the 2A EDG as being available. As a result, there were no risk management actions in place when the alternate feeder breaker work took place. The inspectors concluded that the risk assessment on December 5, 2007, was inadequate, because it did not account for the unavailability of the 2A EDG. This is contrary to the requirements of 10 CFR Part 50.65(a)(4), which requires that “the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities.” Corrective actions planned included re-evaluation of how Constellation models the impact of the work performed on the No. 21 4kV bus alternate feeder breaker and similar breakers.

Following this event, the inspectors identified two additional examples where Constellation did not risk assess risk significant equipment. The inspectors identified that the Unit 2 risk assessment conducted on February 11, 2008, was inadequate, because that the No. 23 saltwater pump maintenance activity was not included as part of the risk assessment. Also, the inspectors noted that the Unit 1 risk assessment for February 15, 2008, was inadequate, because it did not include the unavailability of one train of the high-pressure safety injection (HPSI) system during the performance of STP-065A-1, “CVCS Valve Quarterly Test.” A portion of this test required that one train of the HPSI system be isolated for stroke time testing of a motor operated valve. Constellation entered these additional issues into their CAP as IRE-029-282, IRE-029-123, and IRE-029-320.

The performance deficiency is that Constellation did not perform an adequate risk assessment for the No. 21 4kV bus alternate feeder breaker maintenance.

Analysis. Using IMC 0612, “Power Reactor Inspection Reports,” Appendix B, Section 3, Item 5(a), the finding is greater than minor, because Constellation’s risk assessment did not consider risk significant SSCs (i.e., 2A EDG) that were unavailable during the maintenance activity. The 2A EDG is considered risk significant because it is identified as such in Table 2 of the NRC’s Phase 2 Significance Determination Process notebook

for Calvert Cliffs. The finding is associated with the configuration control attribute of the Mitigating Systems cornerstone. In accordance with NRC IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," the inspectors determined that the finding was of very low safety significance (Green) because the incrementally core damage probability was less than 1.0E-6. This finding has a cross-cutting aspect in the area of human performance, because Constellation did not appropriately plan and incorporate risk insights in work activities associated with the No. 21 4kV alternate feeder breaker maintenance (H.3.a).

Enforcement: 10 CFR Part 50.65 (a)(4) states, that the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on December 5, 2007, the risk assessment did not include the unavailability of the 2A EDG associated with the maintenance activity on the No. 21 alternate feeder breaker. Because this violation is of very low safety significance (Green) and Constellation entered the issue into their CAP (IRE-027-483), this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000317&318/2008002-02: Inadequate Risk Assessment Associated with the 2A EDG)**

1R15 Operability Evaluations (71111.15 – Six Samples)

a. Inspection Scope

The inspectors reviewed operability determinations to verify that the operability of systems important to safety were properly established and that affected components or systems remained capable of performing their intended safety function. The inspectors reviewed the selected operability determinations to verify they were performed in accordance with NO-1-106, "Functional Evaluation - Operability Determination," and QL-2-100, "Issue Reporting and Assessment". Documents reviewed are listed in the Attachment to this report.

- No. 12 steam generator feedwater flow pressure transmitter indication problems (IRE-027-985/FA-08-001).
- Unit 1 reactor protection system (RPS) degraded test circuit (IRE-028-705).
- No. 21 component cooling heat exchanger (CCHX) saltwater inlet and outlet valves, exceeding limiting stroke time closure (IRE-028-903/904/OD-08-001).
- No. 11 CCHX temperature control bypass valve failure (IRE-029-157).
- No. 12 control room heating, ventilation, and air conditioning oil return valve leakage (IRE-030-623).
- Unit 1 and 2 containment air coolers (CAC) fusible link plate doors not fully opening due to scaffolding (IRE-030-707).

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 V, "Instructions, Procedures, and Drawings," because Constellation did not adequately implement scaffolding control requirements contained in MN-1-203, "Scaffold Control." Specifically, Constellation did not perform engineering evaluations and for scaffolding constructed within the minimum allowed distance of safety-related equipment.

Description: On March 8, 2008, during a closeout of containment after the Unit 1 RFO, operators identified that scaffolding constructed adjacent to the CACs blocked the CACs fusible link doors from fully opening. The doors open automatically at high temperatures to provide cooling from the CAC to assist in maintaining the containment pressure below the design value. The inspectors determined that contrary to MN-1-203, there was no engineering evaluation performed to evaluate the clearance deficiency of the constructed scaffold. Also, the inspectors identified that Constellation did not perform a post-operability review of this issue and a similar issue on Unit 2 in March 2007 to determine if the permanently installed scaffolding would have prevented the Unit 1 and Unit 2 CACs from performing their safety related function. A later engineering evaluation determined that the as-found configuration did not affect the availability of the CACs from performing their safety related function.

In addition, the inspectors determined that Constellation routinely did not perform engineering evaluations to evaluate the clearance deficiency of the scaffolding constructed within the minimum allowed distance of safety-related equipment. On February 20, 2008, the inspectors conducted a walk-down of scaffolding constructed in the Unit 1 ECCS pump room and identified that a scaffold pole was in direct contact with safety-related piping of the No. 11 shutdown cooling heat exchanger. This condition was contrary to the scaffold control procedure, MN-1-203. Constellation corrected the scaffolding pole arrangement, requested an evaluation to assess the effects of the scaffold on the safety-related equipment, and performed an extent of condition walk-down of other safety-related equipment in the auxiliary building. As a part of the walk-down, Constellation's personnel identified additional examples of scaffolding in direct contact with safety-related piping with no evaluation noted in the MO. These additional examples included scaffolding in contact with LPSI suction piping, component cooling inlet piping, and service water piping.

The inspectors continued to walk-down plant areas before and during the Unit 1 RFO and identified additional issues with scaffolds after Constellation completed its extent of condition review. Some of the issues included no evaluations for scaffolding near or touching the containment liner, scaffolding touching the No. 21 CS pump suction valve (2-SI-311), and scaffolding constructed within the minimum allowed distance of a safety injection valve (SI-4144). Subsequent evaluations performed determined that the scaffolds did not adversely affect the plant equipment.

The performance deficiency is that Constellation did not adequately implement scaffolding control requirements in MN-1-203. Specifically, Constellation did not perform evaluations for scaffolds located within the minimum allowed distance of safety-related equipment.

Analysis: The inspectors determined that this finding is more than minor because it is similar to example 4.a in Appendix E of IMC 0612, in that Constellation routinely did not perform evaluations for scaffolds constructed within the minimum allowed distance of safety related equipment. This finding is associated with the external factors and equipment performance attributes of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. 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 finding is of very low safety significance, because the finding is not a design or qualification deficiency, did not represent a loss of a safety function, and did not screen as potentially risk significant due to external events. The finding has a crosscutting aspect in the area of human performance in that the Constellation did not effectively communicate expectations regarding work practices to workers constructing scaffolding or to supervisors who routinely monitor these activities to follow procedural requirements (H.4.b).

Enforcement: 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires that activities affecting quality shall be prescribed by documented procedures of a type appropriate to the circumstances and shall be accomplished in accordance with these procedures. Constellation's maintenance procedure MN-1-203, "Scaffold Control," Section 5.2.A, is a procedure affecting quality that establishes the minimum clearance between scaffolds and plant equipment. This procedure states, in part, that if scaffolding must be less than the established minimum clearance, then evaluate the condition and document the results in the MO. Contrary to the above, prior to March 8, 2008, Constellation did not perform evaluations and note the results in the MO for all scaffolding constructed within the minimum allowed distance of safety-related equipment. Because this issue is of very low safety significance (Green) and Constellation entered this issue into their CAP as IRE-029-326 and IRE-029-850, this violation is being treated as a NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000318 and 05000319/2008002-03: Did Not Implement Scaffolding Procedure Requirement)**

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

a. Inspection Scope

The inspectors reviewed the seven 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 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 of this report.

- 1A EDG inboard turbocharger bearing oil change due to discoloration (MO#1200704900).
- 4kV bus 21 alternate feeder breaker maintenance (MO#2200501613).
- 11 CS pump motor maintenance (MO#1200700557 and MO#1200700847).
- 21 CCHX saltwater outlet and inlet valve solenoid replacements (MO#2200701311 and 2200700826).
- 21 LPSI inlet valve maintenance (MO#2200604011).
- 14 CAC motor replacement (MO#1200204239).
- 12B Reactor coolant pump (RCP) motor swap and seal replacement (MO#1200604936).

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20 – Two Samples)

.1 Unit 1 Refueling Outage

a. Inspection Scope

The inspectors reviewed the operational, maintenance, and scheduling activities prior to and during the Unit 1 nineteenth refueling outage (1RFO19) to evaluate Constellation's ability to assess and manage outage risk. Prior to the outage, the inspectors reviewed the outage plan and the risk assessment of the schedule. During the outage, the inspectors examined the following activities: shutdown of the plant; cool-down; drain down to the reactor vessel flange and mid-loop conditions; fuel handling operations; heat-up; and rise to full power operations. The inspectors reviewed applicable procedures, observed control room activities, conducted walkdowns, and interviewed key personnel. The inspectors also conducted periodic outage reviews of the following items: clearance activities; RCS instrumentation; electrical power configuration; shutdown cooling system operation; spent fuel pool cooling system operation; inventory control measures; reactivity control measures; and containment closure requirements. The inspectors evaluated the activities against TS requirements, site procedures, and other applicable guidance and requirements. Documents reviewed are listed in the Attachment of this report.

b. Findings

Introduction: The inspectors identified a finding of very low safety significance associated with an NCV of TS 5.4.1.a, "Procedures," because Constellation did not establish and maintain adequate procedures to vent the reactor vessel head (RVH). This resulted in the reactor vessel level unexpectedly decreasing approximately 1 foot from the expected range after draining the steam generator tubes.

Description: On February 25, 2008, operators drained the Unit 1 reactor vessel to an indicated level of approximately 42.1 feet in preparation for removal of the RVH. When the RVH vent line was disconnected, the reactor vessel level unexpectedly decreased approximately 1 foot to a level of 41.3 feet. Operators responded by adding 1700 gallons of water to restore the reactor coolant level to the expected range. Constellation determined that the unexpected change in level was most likely due to a RVH void that developed while draining the RCS following the emptying of the steam generator tubes with compressed air. The air void developed under the RVH during draining and caused the static pressure under the head to increase. Because the level indicator measurement is relative to differential pressure, the higher static pressure resulted in an inaccurate indication of RCS water inventory.

The inspectors determined that sections 6.5 and 6.6 of OI-1A, "Reactor Coolant System and Pump Operations," were inadequate because the procedure did not contain adequate steps to vent the RVH and address possible voids. Operators vented the RVH using the reactor head vents following a reactor vessel level monitoring system (RVLMS) alarm on the previous shift. However, the air was not fully vented which allowed air to

remain trapped until the reactor head vent line was removed. The inspectors noted that a similar event occurred in February 2002. Constellation determined that the cause of the February 2002 event was a poor reactor vessel vent tubing layout that contributed to the development of a loop seal during venting and hindered the venting process via the reactor head vents. However, the inspectors determined that Constellation did not complete the recommended corrective action to establish an alternate vent path other than the reactor head vents and incorporate this new path into the procedure. In addition, the inspectors determined that Constellation did not have adequate steps in OP-7, "Shutdown Operations," to detect a void while draining the reactor vessel. There is a note in section 6.2 of OP-7 that states, "After blowing steam generator tubes, formation of an air void in the reactor vessel head is expected during draining." However, OP-7 did not require the RVLMS to be in service (or provided other means to detect a void) during reactor vessel draining with the RVH installed. The inspectors determined that Constellation removed the RVLMS from service three hours prior to completing the draining of the reactor vessel to the target level. As the draining continued, there were no means in place to detect a void under the RVH. As a result, operators were unaware of the void until after the RVH vent line flange was disconnected. Immediate corrective actions included restoring the reactor vessel level and entering this issue into their CAP for resolution.

The performance deficiency is that Constellation did not establish and maintain adequate procedures for venting an RVH void, which occurred during draining of the reactor vessel, and led to an unexpected change in reactor vessel water level.

Analysis: The inspectors determined that this finding was more than minor because it was associated with the procedure quality attribute of the Initiating Events cornerstone and it affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown operations. Specifically, the inadequate procedures for venting the RVH increased the likelihood of the loss of RCS level control and consequently a loss of decay heat removal initiating event. The inspectors evaluated the significance of this finding using IMC 0609, Appendix G, "Shutdown Operations SDP," Attachment 1, Checklist 3 and Figure 1. The inspectors determined that this finding was of very low safety significance (Green) because it did not require a quantitative assessment since the loss of RCS level control did not occur during mid-loop operations. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance because Constellation did not ensure that the procedures for draining and venting the RCS were complete and accurate (H.2.c).

Enforcement: Technical Specification 5.4.1.a requires that written procedures be established, implemented, and maintained for activities described in Appendix A of Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)." Specifically, Section 3 of RG 1.33, Appendix A, "Instructions for energizing, filling, venting, draining, startup, shutdown, and changing modes of operation should be prepared, as appropriate, for the following systems," includes the RCS. Contrary to the above, the inspectors identified in February 2008, that OP-7 and OI-1A, did not have adequate instructions for venting an RVH void, which occurred while draining the RCS. This issue was entered into Constellation CAP as IRE-029-511 for resolution. (**NCV 05000317&318/2008002-04, Inadequate Procedures for Draining and Venting the Reactor Coolant System**).

.2 Unit 1 Forced Outage Due to Steam Leak on the 11 Steam Generator Transmitter Isolation Valve

a. Inspection Scope

On March 28, 2008, at approximately 9:55 p.m., operators started a manual shutdown of Unit 1 to investigate a steam leak determined to be from a root isolation valve (1-FW-1503) located inside containment on one of the No. 11 steam generator level transmitters. The inspectors reviewed the troubleshooting plan and subsequent repair plan for a seal weld leak between the body and bonnet of the valve. The inspectors observed portions of the shutdown, control of the plant in a hot standby condition, and portions of the start-up activities. The inspectors also reviewed applicable site procedures, observed control room activities, and interviewed key personnel. Documents reviewed are listed in the Attachment of this report.

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. The documents reviewed are listed in the Attachment to this report.

- STP-O-29-2, CEA partial movement test.
- STP-O-8B-2, Test of 2B diesel generator and 24 4kV bus loss of coolant incident sequencer.
- STP-O-65N-2, Saltwater subsystem valve quarterly operability test.
- STP-O-65G-1, Component cooling valve quarterly operability test.
- STP-O-67H-1, Safety injection tank check valve stroke test.
- STP-O-108D-1, Containment penetration local leak rate test.
- STP-O-55A-1, Containment closure verification.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01 - Twelve Samples)

a. Inspection Scope

During the period February 25 to 29, 2008, the inspector conducted the following activities to verify that Constellation was properly implementing physical, administrative, and engineering controls for access to locked high radiation areas, and other radiologically significant areas during RFO activities. The inspectors reviewed the implementation of these controls against the criteria contained in 10 CFR Part 20, Constellation's TS, and procedures.

The inspectors reviewed radiation work permits (RWP) for high radiation areas and examined the specified work control instructions and/or control barriers. The inspectors reviewed electronic personal dosimeter alarm set points (both integrated dose and dose rate) for conformity with survey indications and plant policy.

Based on the schedule of work activities, the inspectors selected three jobs being performed in radiation areas, airborne radioactivity areas, or high radiation areas (<1 R/hr) for observation. The jobs were as follows: steam generator manway removal; reactor disassembly; containment sump modifications. The inspectors reviewed radiological job requirements, RWP requirements and work procedure requirements. The inspectors also observed job performance with respect to these requirements.

During job performance observations the inspectors verified the adequacy of radiological controls such as required surveys, radiation protection job coverage (including audio and visual surveillance for remote job coverage), and contamination controls. The inspectors also observed radiation worker performance with respect to site procedure requirements. The inspectors verified that radiation workers were aware of the significant radiological conditions in their workplace, their RWP precautions, and that their performance took into consideration the level of radiological hazards present.

During job performance observations, the inspectors observed radiation protection technicians' performance with respect to radiation protection work requirements. The inspectors verified that they were aware of the radiological conditions in their workplace and the RWP controls/limits, and that their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities. The inspectors observed actions taken by the radiation protection staff during steam generator manway removal on the evening shift of February 26, 2008 and the subsequent surveys performed inside the steam generator.

The inspectors reviewed RWPs for airborne radioactivity areas with the potential for individual worker internal exposures of >50 mrem Committed Effective Dose Equivalent (CEDE) [20 DAC-hrs]. The inspectors verified barrier integrity and engineering controls performance (e.g., high efficiency particulate air ventilation (HEPA)) system operation).

The inspectors reviewed and assessed the adequacy of Constellation's internal dose assessment for any actual internal exposure greater than 50 mrem CEDE. Through February 29, 2008, no uptakes of this magnitude had occurred.

The inspectors reviewed Constellations' self-assessments, audits, and special reports related to the access control program since the last inspection to determine if identified problems are entered into the CAP. The inspectors reviewed six CRs related to access control to ensure follow-up actions were conducted in a timely and effective manner.

With radiation protection technicians and supervision, the inspectors discussed the controls in place for special areas that were or had the potential to become very high radiation areas during certain plant operations. The inspectors verified the key controls and verified the integrity of locks to locked high radiation areas.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02 - Nine Samples)

a. Inspection Scope

During the period February 25 to 29, 2008, the inspectors conducted the following activities to verify that Constellation was properly implementing operational, engineering, and administrative controls to maintain personnel exposure as low as reasonable achievable (ALARA) for activities performed during routine plant operation. Implementation of these controls was reviewed against the criteria contained in 10 CFR Part 20, applicable industry standards, and Constellation's procedures.

The inspectors reviewed pertinent information regarding cumulative exposure history, current exposure trends, and current exposure status for ongoing RFO activities. The inspectors reviewed five dose intensive outage tasks: Scaffold activities; reactor path minor maintenance; minor maintenance for balance of plant; reactor coolant pump minor maintenance; and containment emergency sump modification. The inspectors reviewed the site's 3-year rolling average dose and compared the site's average to the industry's average. The inspectors verified that Constellation's ALARA program procedure and the RWP procedure include job estimating and tracking.

The inspectors reviewed the status and historical trends of source terms. The addition of zinc to the RCS and the induced crud burst during shut down has resulted in decreased dose rates in containment.

The inspectors reviewed ALARA evaluations for the five dose intensive outage tasks and compared the current actual dose with the estimates. The inspectors reviewed three in progress sub-tasks: steam generator manway removal; nozzle dam installation; and incore detector removal. The inspectors compared the current dose for each task with the estimates. The inspectors also performed job site observations to verify workers were using the posted low dose rate waiting areas when waiting for other evolutions to complete and that radiation protection technicians were actively involved in keeping unproductive workers out of higher dose rate areas. The inspectors verified that radiation workers demonstrated an ALARA philosophy.

The inspectors reviewed audits, self-assessments, and the 2007 fourth quarter quarterly report to verify identified problems are put into the CAP. The inspectors reviewed elements of Constellation's CAP related to implementing the ALARA program to determine if problems were being entered into the program for timely resolution. Four CRs related to dose/dose rate alarms, programmatic dose challenges, and the effectiveness in predicting and controlling worker dose were reviewed.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

During the period February 25 to 29, 2008, the inspectors conducted the following activities to evaluate the operability and accuracy of radiation monitoring instrumentation. Implementation of this program was reviewed against the criteria contained in 10 CFR Part 20, applicable industry standards, and Constellation's procedures.

The inspectors selected several hand-held radiation instruments, air monitors, contamination monitors, and electronic dosimeters currently in use in the plant. The inspectors verified the calibration due dates and source check response for in use hand-held radiation instruments and contamination monitors. The inspectors also verified calibration due dates for in use portable air monitors and electronic dosimeters.

The inspectors evaluated Constellation's program for assuring quality in the radiation monitoring instrumentation by reviewing five CRs related to radiation instrumentation to determine if problems were identified in a timely manner and appropriate corrective actions were taken to resolve the related issues.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

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

a. Inspection Scope

The inspectors reviewed Constellation's submittal of the Safety System Functional Failures (SSFF) performance indicators (PIs) for Units 1 and 2. The inspectors reviewed the PIs for the period of January 2007 through December 2007. These dates account for the previous four quarters reported in licensee event reports, maintenance rule records, and maintenance work orders that prevented, or could have prevented, the fulfillment of a safety function. The inspectors used the guidance provided in NEI 99-02 to assess the accuracy of PI data collected and reported. The inspectors reviewed

Constellation's PI data and plant records associated with the SSFF PI that also included operator logs and system health reports.

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

a. Inspection Scope

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

b. Findings

No findings of significance were identified.

.2 Annual Sample: Containment Particulate Radiation Monitors Degraded Condition

a. Inspection Scope

The inspectors performed an in-depth review of Constellation's evaluation and corrective actions associated with containment particulate radiation monitors, which have been out of service for the past two years. The inspectors reviewed the potential impact on nuclear safety and risk to verify that Constellation had taken corrective actions commensurate with the significance of the issue. The corrective actions were reviewed to ensure that the full extent of the issue was identified, an appropriate evaluation was performed, and appropriate corrective actions were specified, prioritized and implemented. The inspectors evaluated these actions against the requirements of Constellation's CAP and 10 CFR Part 50, Appendix B. Additionally, the inspectors interviewed Constellation's personnel with respect to the effectiveness of the implementation of these corrective measures.

b. Findings and Observations

No findings of significance were identified. The inspectors noted that the corrective actions associated with the containment particulate radiation monitors are reasonable. The inspectors identified that the containment particulate radiation monitors are listed in the Maintenance Rule Risk Assessment Guideline (MRRAG) as being risk significant. However, Constellation had not risk assessed the radiation monitors for the last two years. The inspectors discussed this with PRA services who later determined that the containment particulate radiation monitors are not risk significant, because there are other means of leak detection. PRA services initiated action to update the MRRAG and generated a CR (IRE-027-483).

40A3 Event Followup (71153 – One Sample)Unit 1 Unusual Event (UE) due to high RCS activitya. Inspection Scope

On February 23, 2008, plant operators declared an UE at Calvert Cliffs Unit 1 due to elevated reactor coolant activity that exceeded the EAL declaration limit. At the time of the event, Unit 1 was in a shutdown condition and preparing to start an RFO. Constellation terminated the UE at 10:35 a.m. on February 23, 2008, after four consecutive RCS activity samples showed a downward trend and were within the EAL declaration limit. Constellation determined that the high RCS activity was due to one or more degraded fuel assemblies. The inspectors discussed the event with Constellation's personnel to gain an understanding of the event and to assess applicable follow-up actions. The inspectors reviewed operator actions taken in accordance with Constellation's emergency procedures and reviewed the results of the activity samples to verify that actions operators actions were reasonable. The inspectors also reviewed the initial notification to the NRC to verify that it met the guidance specified in NUREG-1022, "Event Reporting Guidelines" and 10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors."

b. Findings

No findings of significance were identified.

40A5 Other Activities.1 Temporary Instruction (TI) 2515/166 - Pressurized Water Reactor Containment Sump Blockage (NRC Generic Letter 2004-02)a. Inspection Scope

The inspectors performed the inspection in accordance with Temporary Instruction (TI) 2515/166, Pressurized Water Reactor Containment Sump Blockage (NRC Generic Letter 2004-02), Revision 1. The TI was developed to support the NRC review of activities in response to NRC Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Sump Recirculation at Pressurized Water Reactors (PWR)." Specifically, the inspectors verified the implementation of the modifications and procedure changes were consistent with the proposed actions in Constellation's GL response. The inspectors reviewed a sample of the licensing and design documents to verify that they were either updated or in the process of being updated to reflect the modifications. The inspectors performed a walk-down of the strainer installation to verify it was performed in accordance with the approved design change package. The inspectors observed Constellation's final acceptance and foreign material inspection of the sump. Additionally, the inspectors verified that work was in progress to remove and replace calcium silicate insulation in containment that could be dislodged during a loss-of-coolant accident. Finally, the inspectors verified that there were no choke-points not accounted for by Constellation's calculations that could prevent water from reaching the recirculation sump during a design basis accident.

Evaluation of Inspection Requirements:

The TI requires the inspectors to evaluate and answer the following questions:

- Did the licensee implement the plant modifications and procedure changes committed to in their GL 2004-02 response?

The inspectors verified that actions implemented by Constellation as described in their response to GL 2004-02 were complete as it related to the installation of the sump screen. Additionally, the inspectors found that procedures to programmatically control potential debris generation sources were updated. The inspectors noted that the sump surface area that was installed had a slightly smaller surface area than was discussed in the GL response. The inspectors noted that Constellation had not completed downstream effects evaluation or the effects of chemical precipitants on the strainer head loss at the time of the inspection. The inspectors further noted that the debris generation and transport analyses were under revision based upon the results of walkdowns of containment and other work scheduled during the current RFO. Constellation intended to update the Calvert Cliff's GL 2004-02 response to reflect these changes once the supporting analyses and revisions are completed.

- Has the licensee updated its licensing basis to reflect the corrective actions taken in response to GL 2004-02?

The inspectors verified that changes to the facility or procedures, as described in the Updated Final Safety Analysis Report, which were identified in the Constellation's GL 2004-02 response, were reviewed and documented in accordance with 10 CFR Part 50.59. The inspectors also verified that Constellation had obtained NRC approval prior to implementing those changes that required such approval as stated in 10 CFR Part 50.59. Finally, the inspectors verified that Constellation intended to update the Calvert Cliffs Unit 1 licensing bases once all the ongoing analyses are completed to reflect the final modification and associated procedure changes taken in response to GL 2004-02.

The TI will remain open to allow for the review of portions of the GL 2004-02 response that have not been completed. Specifically, Constellation had not completed their downstream effects analysis or chemical precipitant analysis. Constellation's previously completed debris generation analysis and debris transport analysis were under revision. The results of these analyses had the potential to impact the final size of the strainer, licensing basis, operating procedures and programmatic procedures. Therefore, the inspection will be considered incomplete until the analyses are completed and the impact evaluated. Constellation had an approved extension until June 30, 2008 to complete these analyses.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On April 9, 2008, the resident inspectors presented the inspection results to James Spina and other members of his 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
 M. Beckman, Manager, Maintenance
 A. Drake, Principle Engineer
 S. Dean, Manager, Operations
 B. Erdman, Radiological Engineering Supervisor
 H. Evans, Radiation Protection Supervisor
 M. Flaherty, Manager, Engineering
 D. Frye, General Supervisor, Outage Management
 J. Gaines, Manager, Licensing
 B. Getty, Supervisor, Quality Performance Assessment
 K. Gould, Manager, Radiation Protection
 W. Holston, Manager, Training Department
 J. Huber, Senior Reactor Operator
 M. Jones, Manager, Performance Improvement
 J. Lenhart, Radiation Protection Supervisor
 S. Reichard, Licensing Engineer
 T. Riti, General Supervisor, Shift Operations
 A. Simpson, Principle Engineer, Licensing
 J. Swailes, Senior Project Manager, Containment Sump Project
 J. Wright, Director, Project Management
 J. York, Radiation Protection Supervisor
 M. Yox, Senior Engineer, Licensing

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

05000317/2008002-01	URI	Unit 1 Reactor Coolant System Pressurizer Pressure Boundary Leakage (Section 1RO8)
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Opened and Closed

05000317&318/2008002-02	NCV	Inadequate Risk Assessment Associated with the 2A Emergency Diesel Generator (Section 1R13)
05000317&318/2008002-03	NCV	Did Not Implement Scaffolding Procedure Requirement (Section 1R15)
05000317&318/2008002-04	NCV	Inadequate Procedures for Draining and Venting the Reactor Coolant System (Section 1R20)

Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

ERPIP - 3.0, Immediate Actions, Attachment 20, Severe Weather, Revision 40
EP-1-108, Severe Weather Preparation, Revision 0

Section 1R04: Equipment Alignment

Procedures

OI-3A-1, Safety Injection and Containment Spray, Revision 21
OI-3A-2, Safety Injection and Containment Spray, Revision 23
OI-1A-1, Reactor Coolant System and Pump Operation, Revision 29
OI-21A-2, 2A Diesel Generator, Revision 18

Drawings

60583SH0002, Auxiliary Feedwater System, Revision 1
60731SH0001, Safety Injection and Containment Spray System, Revision 79
60731SH0002, Safety Injection and Containment Spray System, Revision 45
60731SH0003, Safety Injection and Containment Spray System, Revision 26

Condition Reports

IRE-018-901

Maintenance Orders

1200604873

Miscellaneous

SD-052, Safety Injection and Containment System, Revision 3
Safety Injection and Containment Spray System Health Report

Section 1R05: Fire Protection

Procedures

SA-1, Fire Protection Program, Revision 6
FP-0002, Fire Hazards Analysis Summary Document, Revision 0

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IRE-029-138
IRE-029-293

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 1R08: Inservice Inspection ActivitiesCondition Reports

IRE-029-403 IRE-029-412
 IRE-029-406 IRE-029-415
 IRE-029-411 IRE-025-338
 IRE-029-507 IRE-029-432
 IRE-029-416

Examination Procedures

NDE-5110-CC, Dry Powder AC Yoke Magnetic Particle Examination of Nuclear Components and Welds, Revision 4
 NDE-5210-CC, Color Contrast Liquid Penetrant Examination of Nuclear Components and Welds, Revision 5
 NDE-5712-CC, Visual Examination (VT-1) of Pressure Retaining Bolting, Revision 5
 NDE-5717-CC, Visual Examination (VT-1) of Class 3 Integral Attachment Welds, Revision 1
 CNG-AM-1.01-1006, Qualification of Nondestructive Examination Personnel, Procedures and Equipment, Revision 1
 NDE-5401-CC, Ultrasonic Instrument Linearity, Verification, Revision 2
 NDE-5411-CC, Ultrasonic Examination of Ferritic Welds, Revision 3
 NDE-5412-CC, Ultrasonic Examination of Austenitic Welds, Revision 3
 NDE-5423-CC, Ultrasonic Examination of Dissimilar Metal Piping Welds, Implements Performance Demonstration Initiative PDI-UT-10, Revision 2
 NDE-5711-CC, Visual Examination (VT-3) of Component Supports and Integral Attachments, Revision 6
 MN-3-123, Boric Acid Corrosion Control Program, Revision 001
 CNG-AM-1.01-1013, Fleet Administrative Procedure Boric Acid Corrosion Control Program, Revision 0

Examination Technique Specification Sheets (Steam Generator Tube Exam)

ETSS 1, Bobbin Standard ASME Code Examination, Revision 1
 ETSS 2, Rotating Probe 3 coil Diagnostic Exams, Revision 0
 ETSS 3, Rotating Probe 1 coil Diagnostic Exams, Revision 0
 ETSS 27907.1, Detection of 45 Degree Tapered Wear Volumetric Indications
 ETSS 96004.1, Wear at Tube Supports, Anti-Vibration Bars, Vertical and Diagonal Straps
 ETSS 96910.1, Detection of mechanically induced wear at broached tube support plates
 51-5060684-001, Qualified Eddy Current Examination Techniques for CCNPP Unit 1 & 2

Examination Reports

CC08-IV-195,199, Reactor Vessel Internals, Core Barrel and Fuel in place, VT-1 and VT-3, System 064-A WO 1200603959
 CC08-IU-015, Pipe to Valve, UT, System 045, 16-FW-1202-1A, WO 1200702209, 16" dia, 0.844 Wall
 CC08-IP-012, Integral Attachment, PT, System 064, 3-PS-1001-R-21, H-11, WO 12000702207
 CC08-IM-002, Pipe to Valve, MT, System 045, 16-FW-1202-1A, WO 1200702209
 CC08-IU-014, Pipe to Elbow, UT, System 045, 16-FW-1218-10, WO 1200702213
 CC08-IU-017, Nozzle to Safe End, UT, System 064, 12-PSL-13, WO 1200702221
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Maintenance Orders

1200503494
1200703393
1200800084

Welding Procedures

WPS P45-T/LH, Manual gas tungsten arc welding (GTAW) and shielded metal arc welding (SMAW) of AL-6XN P45 to P45
WPS P1-LH(AW), SMAW of P1 to P1 carbon steel
PQR 90-01, Procedure Qualification Record for WPS P45-T/LH
PQR 5,9,27 etc., Procedure Qualification Record for WPS P1-LH

Miscellaneous

CNG-AM-1.01-1006, Qualification of Nondestructive Examination Personnel and Procedures and Equipment, Revision 1
51-9069274-000, Steam Generator Degradation Assessment, Spring 2008

Section 1R11: Licensed Operator Requalification Program

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LOR-202-3B-S-08, Shutdown Operations, Revision 0
NO-1-200, Control of Shift Activities, Revision 32
NO-1-103, Conduct of Lower Mode Operations, Revision 25

Section 1R12: Maintenance Effectiveness

Procedures

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

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IRE-007-423
IRE-008-760
IRE-028-759

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60738SH0001, Area and Process Radiation Monitoring System

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2200701330
2200702306
1200800994

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Maintenance Rule Scoping Document, Revision 26
(a)(3) Periodic Assessment of Maintenance Rule Program, dated October 2004 through September 2006

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

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Maintenance Rule Risk Assessment Guideline, Revision 7

NO-1-117, Integrated Risk Management, Revision 19
STP-O-065A-1, CVCS Valve Quarterly Test, Revision 9
OI-2A-2, 2A Diesel Generator, Revision 18
FTE-51A, 4KV General Electric Cubicle Inspection, Revision 2
FTE-59, Periodic Maintenance, Calibration, and Functional Testing of Protective Relays,
Revision 5

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IRE-027-483 IRE-029-320
IRE-029-282 IRE-029-158
IRE-029-123

Maintenance Order

MO# 2200501613, Inspect Breaker 152-2115 and Controls per EPM04001

Section 1R15: Operability Evaluations

Procedures

CNG-OP-1-01-1002, Conduct of Operability Determinations/Functionality Assessments,
Revision 0
STP-M-212E-1, Reactor Protective System Matrix Functional Test, Revision 3
CNG-MN-1.01-1005, Scaffold Control, Revision 1
MN-1-203, Scaffold Control, Revision 17

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Drawing 60723SH0004, Control Room and Cable Spreading Room HVAC, Revision 51

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IRE-025-472 IRE-029-157 IRE-029-326
IRE-030-183 IRE-030-707 IRE-029-144
IRE-030-623 IRE-030-183 IRE-029-095
IRE-028-705 IRE-021-813 IRE-029-213
IRE-027-985 IRE-029-850

Miscellaneous

OD-07-012, 21 SDCHX Component Cooling Outlet Control Valve, Revision 0
DE08312, Post Operability Review for IRE-030-183, Revision 0
ES200400686-000, Establish requirements for scaffold erection/installation in safety related
area, Revision 2

Section 1R19: Post-Maintenance Testing

Procedures

MN-1-101, Control of Maintenance Activities, Revision, 33
MN-1-201, Post-Maintenance Test Definitions and the Control of PMT Matrix Modules, Revision
0
NO-1-208, Nuclear Operations Post Maintenance Testing, Revision 12

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1200704900 1200204239
2200501613 1200604936

2200604011 1200700557
2200700826 1200700847
2200701311

Section 1R20: Refueling and Outage Activities

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NO-1-103, Conduct of Lower Mode Operations, Revision 25
NO-1-200, Control of Shift Activities, Revision 32
NO-1-104, Containment Access, Revision 15
OP-2, Plant Startup from Hot Standby to Minimum Load, Revision 43
OP-3, Normal Power Operation, Revision 43
OP-4, Plant Shutdown from Power Operation to Hot Standby, Revision 16
OP-7, Shutdown Operations, Revision 39
OP-7, Shutdown Operations, Revision 42
OI-1A-1, Reactor Coolant System and Pump Operations, Revision 29
PSTP-02, Initial Approach to Criticality and Low Power Physics Testing Procedure, Revision 20

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IRE-029-485 IRE-029-512
IRE-029-498 IRE-075-135
IRE-029-511

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60729SH0001, Reactor Coolant System, Revision 77
60729SH0002, Reactor Coolant System, Revision 26

Miscellaneous

Refuel Outage Scripts and Contingency Plans
Generic Letter 88-17, Loss of Decay Heat Removal, dated October 17, 1988
NUMARC 91-06, Guidelines for Industry Actions to Assess Shutdown Management

Section 1R22: Surveillance Testing

Procedures

STP-O-108-1, Containment Penetration Local Leak Rate Test (LLRT), Revision 4
STP-O-67H-1, Safety Injection Tank Check Valve Stroke Test, Revision 3
STP-O-65N-2, Saltwater Subsystem Valve Quarterly Operability Test, Revision 3
STP-O-65G-1, Component Cooling Valve Quarterly Operability Test, Revision 8
STP-O-55A-1, Containment Closure Verification, Revision 36
STP-O-29-2, Control Element Assembly (CEA) Partial Movement Test, Revision 14
STP-O-8B-2, Test of 2B Diesel Generator and 24-4kV Bus Loss of Coolant Incident Sequencer,
Revision 26

Section 20S1: 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
RPS-1-200, ALARA Planning and SWP Preparation, Revision 22

RP-1-100, Radiation Protection, Revision 8
 SG-20A, BWC Steam Generator Primary Manway Cover Removal and Installation, Revision
 00300

Condition Reports

IRE-028-052 IRE-028-951
 IRE-028-231 IRE-028-957
 IRE-028-859 IRE-029-025

Audits and Assessments

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Section 20S2 ALARA Planning and Controls

Procedures

NO-1-110, Calvert Cliffs Key and Lock Control, Revision 7
 NO-1-117, Integrated Risk Management, Revision 19
 RPS-1-200, ALARA Planning and SWP Preparation, Revision 22
 RP-1-100, Radiation Protection, Revision 8
 SG-20A, BWC Steam Generator Primary Manway Cover Removal and Installation, Revision
 00300

Condition Reports

IRE-028-269 IRE-028-906
 IRE-028-665 IRE-029-007

Audits and Assessments

2008-001, Snapshot Self-Assessment, "Assessment of the Chemistry/Access Area HVAC
 Equipment Corrective Maintenance for 2006 and 2007"
 2007-013, Self-Assessment Topic

Miscellaneous

January 23, 2008, Unit 1 Refueling Outage Dose Challenge

Section 20S3: Radiation Monitoring Instrumentation and Protective Equipment

Condition Reports

IRE-027-753 IRE-027-820
 IRE-027-770 IRE-028-285

Instruments Observed

<u>Model</u>	<u>Serial #</u>	<u>Model</u>	<u>Serial #</u>	<u>Model</u>	<u>Serial #</u>
RM-14	998	RO2A	3957	AMS4	193
RM-14	1919	RO2A	3807	AMS4	1453
RO-2	3469	RO20	0623	AMS4	1454

<u>Model</u>	<u>Serial #</u>
AMS4	1715
AMS4	1455
RO2A	3692

Section 40A1: Performance Indicator Verification

LER 2007-002, Dual Containment Spray Train Inoperability Due to Latent Valve Failure,
Revision 0
Unit 1 Safety System Failure Rate Indicator
Unit 2 Safety System Failure Rate Indicator

Section 40A2: Identification and Resolution of Problems

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OI-35, Radiation Monitoring System, Revision 27
STP-O-33-1, Containment Atmosphere RMS Monthly Test, Revision 4
STP-M-568-2, Containment Atmosphere Radiation Monitoring Channel Calibration, Revision 4
CNG-AM-1.01-1000, Equipment Reliability, Revision 0

Drawings

Drawing 60723SH0004, Control Room and Cable Spreading Room HVAC, Revision 51

Condition Reports

IR1-005-834	IRE-027-184
IRE-006-463	IRE-007-423
IRE-007-420	IRE-008-845

Maintenance Orders

2200701330

Miscellaneous

Regulatory Guide 1.45, Reactor Coolant Pressure Boundary Leakage Detection Systems,
Revision 0, dated May 1973
Area and Process Radiation Monitoring System Health Report

Section 40A3: Event Followup

Procedures

ERPIP - 3.0, Immediate Actions, Attachment 1, Emergency Action Level Criteria, Revision 40
CNG-NL-1.01-1004, Regulatory Reporting, Revision 0

Condition Reports

IRE-029-394

Miscellaneous

NUREG-1022, Event Reporting Guidelines, Revision 2

Section 40A5: Other Activities

Procedures

CNG-MN-1.01-1001, Foreign Materials Exclusion, Revision 200
MN-3-100, Safety Related and Controlled Protective Coatings, Revision 6
NO-1-104, Containment Access, Revision 15
NO-1-107, Ownership of Plant Areas, Revision 12

OP-6, Pre-Startup Checkoff, Revision 52
STP-M-661-1, Containment Emergency Sump Inspection, Revision 4

Condition Reports (* indicates CR resulting from this inspection)

IRE-001-073	IRE-029-771
IRE-029-447	IRE-029-971
IRE-029-642	IRE-030-084*
IRE-029-706	IRE-030-090*

Drawings

103.134.950.500, Debris Interceptor, Revision 0
15960-0001SH0002, Instructions to Install Anchor Plates, Revision 0
15960-00225SH0001, Strainer Module for Row A, B & C, Revision 0
15960-00235SH0001, Cartridge 200mm, Revision 0
15960-0024SH0001, Cartridge 200mm Pockets, Revision 0
15960-0077SH0001, Calvert Cliffs Unit 1 CCI Strainer Layout, Revision 0
15960-0109SH0009, Cartridge Cover Sealing List, Revision 0
15960-0111SH0001, Cartridge 200mm Clamping Inlet Plate, Revision 0
15960-0111SH0002, Cartridge 200mm Clamping Inlet Plate, Revision 0
91098SH001, Pressurizer Relief Valve Piping Inside Containment, Revision 14
91098SH002, Pressurizer Relief Valve Piping Inside Containment, Revision 10
FSK-MP-0582SH0001, Steam Generator #11 Bottom Blowdown to Isolation Valve, Revision 21
FSK-MP-06555SH0001, Steam Generator #12 Bottom Blowdown Piping and Supports,
Revision 12
FSK-MP-1449, Pressurizer No. 11 Pressurizer Safety Relief Valves, Revision 12
FSK-MP-2725, Comp Cooling R. Valve Discharge to CNMT Trench, Revision 2
FSK-MP-2726, Comp Cooling R. V. Valve Discharge to CNMT Trench, Revision 2
FSK-MP-2727, Component Cooling R. V. Disch. to CNMT Trench, Revision 3
FSK-MP-2728, Component Cooling R. V. Disch. to CNMT Trench, Revision 2
FSK-MP-579, Steam Generator #12 Surface Blowdown to Isolation Valve, Revision 17
FSK-MP-580 SH 1, Steam Generator #12 Surface Blowdown to Isolation Valve, Revision 14
FSK-MP-581-E, Pressurizer Safety & Relief Valve Piping, Revision 18

Calculations

CA03771, Determination of Minimum Water Level in Containment during Containment Sump Recirculation, Revision 2
CA04079, Comparison of Available and Required NPSH for the Safety Injection and Containment Spray Pumps During Post-RAS Operation, Revision 0
CA06485, Prediction of the LOCA Debris Loads on the Containment Sump Strainer, Revision 1
CA06768, Structural Analysis of Replacement Sump Strainer and Support Structure, Revision 0

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Updated Final Safety Report Section 6.3: Safety Injection System, Revision 39
SA-096.039, CCI Report Studies and Calculations: Strainer Area, Revision 0
C1-B7, Unit 1 Pressurizer Doghouse
ES200400048-003, Replace Existing Unit 1 Sump Strainer with Expanded Capacity Design,
Revision 0
ES200600137, RFO Containment Coatings Walkdown for 2006, Revision 0
Constellation Letter: "Request for Additional Information -- Request for Extension for Completion of Activities Related to Generic Letter 2004-02," dated December 20, 2007

Constellation Letter: "Update of Response to Generic Letter 2004-02, Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors," dated September 20, 2007

Constellation Letter: "Revision to Generic Letter 2004-02 Response," dated May 2, 2007

Constellation Letter: "Request for Extension for Completion of Activities Related to Generic Letter 2004-02," dated December 10, 2007

NRC Letter: "Extension for Completion of Activities Related to Generic Letter 2004-02, Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized Water Reactors, Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 (TAC Nos. MC4672 and MC4673)," dated December 27, 2007

Constellation Letter: "Update of Response to Generic Letter 2004-02, Potential Impact of Debris Blockage on Emergency Recirculation during Design Basis Accidents at Pressurized-Water Reactors," dated June 30, 2006

NRC Letter: "Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 - Amendment Re: Revised Containment Sump Surveillance Requirement to Verify Strainer Integrity," dated December 27, 2007

Work Orders

1200503494

1200702230

LIST OF ACRONYMS

ADAMS	Agency-Wide Documents Access and Management System
AFW	auxiliary feedwater
ALARA	as low as reasonably achievable
ASME	American Society of Mechanical Engineers
CAC	containment air coolers
CAP	Corrective Action Program
CCHX	component cooling heat exchanger
CCNPP	Calvert Cliffs Nuclear Power Plant
CEDE	committed effective dose equivalent
CFR	Code of Federal Regulations
CNMT	containment
CR	condition report
CS	containment spray
DRP	Division of Reactor Projects
EAL	emergency action level
ECCS	emergency core cooling system
EDG	emergency diesel generator
EP	emergency preparedness
ERPIP	emergency response plan implementation procedure
GL	generic letter
GTAW	manual gas tungsten arc welding
kV	kilovolt
HEPA	high efficiency particulate air ventilation
HPSI	high-pressure safety injection system
ICDP	incremental core damage probability
ISI	inservice inspection
IMC	inspection manual chapter
LPSI	low pressure safety injection
MNSA	mechanical nozzle seal assembly
mrem	millirem
MRRAG	Maintenance Rule Risk Assessment Guideline
MSIP	mechanical stress improvement process
MT	magnetic particle test
NCV	non-cited violation
NDE	non-destructive examination
NRC	Nuclear Regulatory Commission
MO	maintenance order
OI	operating instruction
OOS	out of service
PARS	Publicly Available Records
PI	Performance Indicator
PRA	probabilistic risk analysis
PT	liquid penetrant test
PWR	pressurized water reactors
RCS	reactor coolant system
RFO	refueling outage
RPS	reactor protection system
RVH	reactor vessel head

RVLMS	reactor vessel level monitoring system
RWP	radiation work permit
SDP	significance determination process
SMAW	shielded metal arc welding
SRW	service water
SSC	structures, systems, and components
SSFF	safety system functional failures
TB	turbine building
TI	temporary instruction
TS	technical specifications
URI	unresolved item
UT	ultrasonic test
VT	visual examination