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

January 26, 2010

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

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT - NRC INTEGRATED INSPECTION REPORT 05000317/2009005 AND 05000318/2009005

Dear Mr. Gellrich:

On December 31, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Calvert Cliffs Nuclear Power Plant (CCNPP) Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on January 8, 2010, 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). These findings were determined to involve violations of NRC requirements. However, because the findings are of very low safety significance and because they are entered into your corrective action program (CAP), the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region 1, the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Calvert Cliffs. In addition, if you disagree with the characterization of any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region 1, and the NRC Resident Inspector at CCNPP. The information you provide will be considered in accordance with Inspection Manual Chapter (IMC) 0305.

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Sincerely,

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

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

Enclosure: Inspection Report 05000317/2009005 and 05000318/2009005
w/Attachment: Supplemental Information

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Sincerely,
/RA/

Glenn T. Dentel, Chief
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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.:	05000317/200905 and 05000318/2009005
Licensee:	Constellation Energy Nuclear Group, LLC
Facility:	Calvert Cliffs Nuclear Power Plant, Units 1 and 2
Location:	Lusby, MD
Dates:	October 1, 2009, through December 31, 2009
Inspectors:	N. Perry, Senior Resident Inspector M. Davis, Resident Inspector D. Johnson, Resident Inspector D. Silk, Senior Operations Engineer S. Barr, Senior Emergency Preparedness Specialist K. Young, Senior Reactor Inspector J. Hawkins, Project Engineer R. Rolph, Health Physicist
Approved by:	Glenn T. Dentel, Chief Reactor Projects Branch 1 Division of Reactor Projects

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SUMMARY OF FINDINGS

IR 05000317/2009005, 05000318/2009005; 10/1/09 – 12/31/09; Calvert Cliffs Nuclear Power Plant (CCNPP), Units 1 and 2: Flood Protection Measures, and Identification and Resolution of Problems.

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

Cornerstone: Mitigating Systems

- Green: The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," because Constellation did not correctly translate the internal flooding design basis review for the saltwater (SW) pump pit compartments into specifications, procedures and instructions. Specifically, Constellation did not translate design basis flooding considerations and provisions as described in their internal plant flooding design evaluation into procedures and instructions to assure that the SW pumps would not be submerged during normal operating conditions. As a result, the 21 SW pump pit flooded on December 10, 2008. Constellation entered this issue into their corrective action program (CAP) for resolution as condition reports (CR)-2009-006077, CR-2009-009030 and CR-2010-00167. The immediate corrective action included initiating a CR to document some of the design considerations and provisions needed to prevent the SW pump pit compartments from flooding. The planned corrective actions included developing a preventive maintenance instruction to perform periodic maintenance on the floor drains located in the pump pit compartments and to perform an engineering evaluation to document all of the design provisions to demonstrate the flooding protection of the SW pumps.

  The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of the SW system, which responds to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, Constellation did not maintain adequate design control to prevent a dry SW pump pit from flooding during normal operating conditions, which affected the 21 SW pump availability and reliability. The inspectors determined that the finding is of very low safety significance because it is not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train greater than its Technical Specification (TS) allowed outage time, and did not screen as potentially risk significant due to external events. The inspectors did not assign a cross-cutting aspect to this finding because the inspectors determined that the performance deficiency was a result of a latent issue in that the internal flooding design basis review occurred in May of 1991. Therefore, the inspectors concluded that this did not reflect current performance. (Section 1R06)

Cornerstone: Emergency Preparedness

- Green: The inspectors identified a Green NCV of 10 CFR 50.54(q), "Conditions of Licenses," because Constellation did not properly maintain the conditions of the CCNPP Emergency Plan. Specifically, Constellation did not implement timely changes to the Emergency Plan and its implementing procedures when the CCNPP Technical Specifications (TSs) were changed in 2001, allowing core alterations to be performed with the containment outage door (COD) open. Constellation entered this issue into their corrective action program (CAP) for resolution as condition report (CR)-2009-004951. Constellation's corrective actions included revising site procedures to provide for the monitoring and measuring any post-fuel handling incident (FHI) release which may occur through the open containment equipment hatch and COD during refueling activities.

  The finding is more than minor because it affected the Emergency Response Organization (ERO) performance attribute of the Emergency Preparedness (EP) Cornerstone to ensure that Constellation is capable of implementing adequate measures to protect the public health and safety in the event of a radiological emergency. In accordance with IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process," the inspectors determined that the finding is of very low safety significance (Green). Specifically, the inspectors utilized IMC 0609, Appendix B, Section 4.9 and Sheet 1, "Failure to Comply," and determined that the failure to comply with an aspect of the Emergency Plan related to dose assessment (10 CFR 50.47(b)(9)) was a risk-significant planning standard (RSPS) problem; but it was not a RSPS functional failure of the Calvert Cliffs dose assessment process. This was not a degraded RSPS function because Calvert Cliffs maintained good procedures and practices for assessing unmonitored releases in the event of an on-site radiological event that provided assurance that this performance deficiency ultimately would not have affected the outcome of protecting the health and safety of the public or of station personnel. The inspectors did not assign a cross-cutting aspect to this finding because the inspectors determined that the performance deficiency was a result of a latent issue in that the inadequate review of the change occurred in 2001. Therefore, the inspectors concluded that this did not reflect current performance. (Section 4OA2)

- Green: The inspectors identified a Green NCV of 10 CFR 50.54(q), "Conditions of Licenses," because Constellation did not properly maintain the conditions of the CCNPP Emergency Plan. Specifically, Constellation did not implement timely changes to the Emergency Plan and its dose assessment implementing procedures when CCNPP transitioned from the NUREG-0654 emergency action level (EAL) scheme to the NUMARC NESP-007 EAL scheme in 1993. The change in the EAL schemes resulted in additional site area emergency (SAE) and general emergency (GE) classification levels based on effluent monitor radiation levels. When these new EALs were added, Constellation did not revise their Emergency Response Plan Implementing Procedure (ERPIP)-821 to consider the radiation levels, which would exist at the SAE and GE thresholds. The specific concern involved the inability to take the compensatory measures when the wide range noble gas monitor (WRNGM) was out of service; manual radiation readings could not be taken near the WRNGM due to the radiation levels which could exist at the SAE and GE conditions. Constellation entered this issue into their corrective action program (CAP) for resolution as condition report (CR)-2009-003720. Constellation's corrective actions included: the installation of a radiation meter at the 10-

meter distance from the main stack that was remotely readable; revision of emergency Response Plan Implementing Procedure (ERPIP)-821 to account for the current Calvert Cliffs EAL thresholds; and the performance of a human performance investigation to provide for additional corrective actions to assure that plant changes are evaluated for impact and necessary changes to the emergency plan and its implementing procedures.

The finding is more than minor because it affected the Emergency Response Organization (ERO) performance and procedure quality attributes of the Emergency Preparedness (EP) Cornerstone to ensure that Constellation is capable of implementing adequate measures to protect the public health and safety in the event of a radiological emergency. In accordance with IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process," the inspectors determined that the finding is of very low safety significance (Green). Specifically, the inspectors utilized IMC 0609, Appendix B, Section 4.9 and Sheet 1, "Failure to Comply," and determined that the failure to comply with an aspect of the Emergency Plan related to dose assessment (10 CFR 50.47(b)(9)) was an RSPS problem; but it was not a RSPS functional failure of the CCNPP dose assessment process. This was not a degraded RSPS function because Calvert Cliffs EAL scheme has redundant EALs that provided assurance that this performance deficiency ultimately would not have affected the outcome of protecting the health and safety of the public or of station personnel. This finding has a cross-cutting aspect in the area of identification and resolution of problems because the WRNGM has failed in the past (including as recently as December 2008 and May 2009), yet Constellation did not appropriately evaluate the proposed compensatory actions in a manner to assure the dose assessment function was not negatively affected. Specifically, the provisions of the ERPIP-821 sampling procedure had repeatedly been relied upon, but in fact were not able to satisfy the dose assessment functions required by the CCNPP Emergency Plan (P.1.c of IMC 0305). (Section 4OA2)

Other Findings

- Violations of very low safety significance or Severity Level IV, that were identified by the licensee, have been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and the licensee's corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Calvert Cliffs Unit 1 began the inspection period at 100 percent power. On October 15, 2009, operators reduced power to 95 percent to clean condenser waterboxes. Operators returned the unit to 100 percent power on October 17. On October 24, operators reduced power to 84 percent to conduct main turbine valve testing. Operators returned the unit to 100 percent power on the same day. The unit remained at 100 percent power for the remainder of the inspection period.

Calvert Cliffs Unit 2 began the inspection period at 100 percent power. On December 12, 2009, operators reduced power to 83 percent to conduct main turbine valve testing. Operators returned the unit to 100 percent power on the same day. The unit remained at 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01 – One Sample)

a. Inspection Scope

The inspectors performed a review of cold weather preparations before the onset of the cold weather season to evaluate the site's readiness for seasonal susceptibilities. This review included an assessment of Nuclear Operations Program Procedure NO-1-119, "Seasonal Readiness." The inspectors assessed the effectiveness of the site's cold weather readiness program to ensure that the selected systems would remain functional and available for a plant shutdown during cold weather conditions as required by Technical Specifications (TSs). The inspectors selected the 2B emergency diesel generator (EDG) and the saltwater (SW) system for this review. 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. The inspectors also discussed the protective measures applicable to the systems with control room operators, the seasonal readiness coordinator, and the system engineer.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial Walkdown (71111.04Q – Two Samples)

a. Inspection Scope

The inspectors conducted partial walkdowns to verify equipment alignment of selected risk significant systems. The inspectors reviewed plant documents to determine the correct system and power alignments, as well as the required positions of critical valves

and breakers. The inspectors verified that Constellation had properly identified and resolved equipment alignment problems that could cause initiating events or potentially affect the availability of associated mitigating systems. The inspectors performed a partial walkdown of the following systems:

- 2B EDG due to planned maintenance on the 21 SW header; and
- 23 motor driven auxiliary feedwater (MDAFW) pump due to planned maintenance on the 21 and 22 steam driven auxiliary feedwater (SDAFW) pumps.

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 service water (SRW) system to identify any discrepancies between the existing equipment lineup and the specified lineup. During the walkdown, the inspectors used system drawings and operating instructions (OIs) to verify proper equipment alignment and the operational status. The inspectors reviewed open work orders (WOs) 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 – 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 Constellation's administrative procedures; the fire detection and suppression equipment was available for use; passive fire barriers were maintained in good material condition; and compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with Constellation's fire plan.

- 1B EDG room, fire area 30, room 421;
- Unit 1 12 emergency core cooling system (ECCS) pump room, fire area 3, room 118;
- Unit 2 21 ECCS pump room, fire area 1, room 101; and
- Unit 1 SRW pump room, fire area 39, room 226.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 – One Sample)

a. Inspection Scope

The inspectors performed a review of selected risk significant plant areas to verify that the flooding mitigation plans and equipment were consistent with design requirements and the risk analysis assumptions. The inspectors reviewed design features and procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors reviewed the plant internal flooding analyses and design documents, including the Updated Final Safety Analysis Report (UFSAR), engineering calculations, and abnormal operating procedures. The specific documents reviewed are listed in the Attachment to this report. In addition, the inspectors reviewed drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression system or the circulating water system. The inspectors conducted a review of CRs with respect to previous flood related issues identified in the corrective action program (CAP) to verify the adequacy of the corrective actions. The inspectors also conducted partial walkdowns of selected plant areas to assess the adequacy of watertight doors and to verify that drains and sumps were clear of debris and sump pumps were operating properly. The risk significant plant areas selected were as follows:

- Underground bunker/vault manholes; and
- Additionally, the inspectors completed a review of an unresolved item (URI) 05000318/2009004-01, Saltwater Pump Pit Flooding Event.

b. Findings

Introduction: The inspectors identified a finding of very low safety significance (Green) associated with an non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, "Design Control," because Constellation did not correctly translate the flooding design basis review for the SW pump pit compartments into specifications, procedures and instructions. Specifically, Constellation did not correctly translate the design basis flooding considerations and provisions as described in the internal plant flooding design evaluation into procedures and instructions for the SW pump pits to assure that the SW pumps would not be submerged during normal operating conditions.

Description: On December 10, 2008, operators observed several feet of water in the 21 SW pump pit compartment. Operators secured the 21 SW pump, pumped down the water, and requested maintenance personnel to evaluate and perform repairs as necessary. Following the flooding event, maintenance personnel identified a clogged floor drain in the SW pump pit, degraded packing gland bolts, and a failed radial bearing. The inspectors reviewed the initial CR, the maintenance work activity, and the internal plant flooding design evaluation. The inspectors questioned if the flooding event caused the lower radial bearing failure since Constellation did not include this degraded condition in their CAP. The inspectors also questioned the validity of the flooding analysis because the evaluation stated that the SW pump pits have design

considerations and provisions to ensure that the pumps would not be submerged. The inspectors concluded that the situation surrounding the flooding event needed further review and investigation, and as such treated this issue as an unresolved item in the third quarter of 2009 in order to determine if a performance deficiency associated with design control existed.

During the subsequent review, the inspectors requested additional supporting information to support the operability basis of the SW pumps operating in a submerged environment and for the failed radial bearing, since the design review performed in May 1991 did not address this issue. Constellation initiated CR-2009-006077 and evaluated the affects of potential intake flooding on the SW pump bearings. Constellation concluded that there is reasonable expectation that the SW pumps would continue to perform their design function following a submerged condition and stated that it is unlikely that the SW pump bearings would catastrophically fail due to grease contamination from flooding. Constellation based this conclusion on vendor and manufacturer technical feedback, and the original design basis review conducted in May of 1991. The design basis review conducted in May of 1991 also reviewed potential flooding sources, and any provisions made to prevent the SW pump pits from flooding. However, Constellation had not translated these provisions into any procedure or instruction. The inspectors noted that maintenance personnel identified a clogged drain that contributed to the flooding event. However, the inspectors identified that there were no procedures or instructions that maintained the SW pump pit drains free of debris. The inspectors determined that Constellation did not maintain adequate design control to prevent the SW pump pits from flooding. As a result, the 21 SW pump pit flooded on December 10, 2008. Constellation entered this issue into their CAP for resolution as CR-2009-009030 and CR-2010-00167. The immediate corrective action included initiating a CR to document some of the design considerations and provisions needed to prevent the SW pump pit compartments from flooding. The planned corrective actions included developing a preventive maintenance instruction to perform periodic maintenance on the floor drains located in the pump pit compartments and to perform an engineering evaluation to document all of the design provisions to demonstrate the flooding protection for the SW pumps.

Analysis: The performance deficiency is that Constellation did not translate the design basis review for the SW pump pit compartments into procedures and instructions to prevent flooding of the 21 SW pump pit during normal operating conditions as stated in Attachment 1, "Internal Plant Flooding Design evaluation," of ES-001. Specifically, Constellation did not translate the design basis flooding considerations and provisions into procedures and instructions to assure that the SW pumps would not be submerged during normal operating conditions. As a result, the 21 SW pump pit flooded on December 10, 2008. The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of the SW system, which respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, Constellation did not maintain adequate design control to prevent a dry SW pump pit from flooding during normal operating conditions, which resulted in additional maintenance unavailability and potential reliability challenges for the 21 SW pump. The inspectors evaluated this finding using IMC 0609 Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings." The inspectors determined that the finding is of very low safety significance because it is not a design or qualification deficiency, did

not represent a loss of a safety function of a system or a single train greater than its TS allowed outage time, and did not screen as potentially risk significant due to external events. The inspectors did not assign a cross-cutting aspect to this finding because the inspectors determined that the performance deficiency was a result of a latent issue in that the internal flooding design basis review occurred in May of 1991. Therefore, the inspectors concluded that this did not reflect current performance.

Enforcement: 10 CFR 50, Appendix B, Criterion III, "Design Control," states, in part, "measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in 50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled." Contrary to the above, from May 1991 to December 2009, Constellation did not translate the design basis review as stated in Attachment 1 of ES-001 into procedures and instructions to prevent flooding of the 21 saltwater pump pit during normal operating conditions. Because this violation is of very low safety significance (Green) and Constellation entered the issue into their CAP (CR-2009-009030 and CR-2010-00167), this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000317 & 318/2009005-01: Inadequate Design Control Associated with the Flooding of a Saltwater Pump Pit)**

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

a. Inspection Scope

The inspectors reviewed the thermal performance test and inspection activities for the 11A SRW heat exchanger (HX). The inspectors reviewed the performance data and evaluated the test acceptance criteria to ensure that the design basis requirements were satisfied. The inspectors evaluated the heat transfer capabilities based on completed flow verification tests to ensure that specific safety functions could be performed in accordance with design specifications. The inspectors also reviewed Constellation's periodic maintenance methods to verify that they conformed to the guidelines delineated in Electric Power Research Institute (EPRI) Report NP-7552, "Heat Exchanger Performance Monitoring Guidelines."

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

.1 Resident Inspector Quarterly Review (71111.11Q - One Sample)

a. Inspection Scope

On October 13, 2009, the inspectors observed a licensed operator requalification scenario to assess operator performance and the adequacy of the licensed operator-training program. The scenario involved equipment malfunctions and operator challenges that required operators to implement the alarm response manual, OIs, abnormal operating procedures (AOPs), emergency operating procedures (EOPs), and emergency action level (EAL) criteria. The inspectors focused on high-risk operator actions performed during the implementation of AOPs and EOPs. The inspectors verified the clarity and formality of communications, the completion of appropriate operator actions in response to alarms, the performance of timely control board operations and manipulations, and that the oversight and direction provided by the shift manager were in accordance with Constellation's administrative and technical procedures.

b. Findings

No findings of significance were identified.

.2 Biennial Review (71111.11 - One Sample)

a. Inspection Scope

The following inspection activities were performed using NUREG 1021, Revision 9, "Operator Licensing Examination Standards for Power Reactors," Inspection Procedure Attachment 7111111, "Licensed Operator Requalification Program," Appendix A, "Checklist for Evaluating Facility Testing Material," Appendix B, "Suggested Interview Topics," and Appendix C, "Checklist for Evaluating Plant-Referenced Simulators Operating Under 10 CFR 55.46(c) and (d)."

The inspectors conducted a review of recent operating history documentation found in inspection reports, Constellation's CAP, and the most recent NRC plant issues matrix. The inspectors reviewed specific events from the Constellation CAP that indicated possible training deficiencies, to verify that Constellation appropriately addressed the issue. The inspectors also consulted the senior resident inspector to gain insights regarding Constellation's operator performance.

The inspectors reviewed dynamic simulator exams and job performance measures for the week of November 16, 2009, to verify quality and quantitative attributes. The inspectors also observed the administration of the operating tests during the week of November 16, 2009. These observations included assessment of facility evaluations of crews and individual performance during the operating tests. The inspectors reviewed the written examinations for this week and the previous week of November 9, 2009, to assess examination quality. The inspectors also verified that there was an appropriate level of overlap among the operating and written examinations administered during this exam cycle.

On January 5, 2010, the inspectors reviewed the results of the annual operating tests and the written exam for 2009 to verify if the pass to failure rates were consistent with the guidance of NUREG-1021, Revision 9, and IMC 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)". The review verified the following:

- Crew pass rates were greater than 80% (pass rate was 100%);
- Individual pass rates on the dynamic simulator test were greater than 80% (individual pass rate was 100%);
- Individual pass rates on the written examination were greater than 80% (pass rate was 97.6%);
- Individual pass rates on the job performance measures of the operating exam were greater than 80% (pass rate was 98.8%); and
- More than 75% of the individuals passed all portions of the exam (96.5% of the individuals passed all portions of the examination).

In addition, the inspectors reviewed the remediation plans for a crew and individual failures on operating exams, and written exam failures during 2007 and 2008 to assess the effectiveness of the remedial training. The inspectors interviewed four operators (two senior reactor operators and two reactor operators), five instructors and two training managers to obtain feedback on their training program and the quality of training received or provided. The inspectors also observed simulator performance and fidelity during the operating exams of the week of November 16, 2009, for conformance to the reference plant control room. Additionally, the inspectors verified that the required simulator testing was completed and met the applicable criteria.

The inspectors reviewed Constellation's program to implement the guidance of ANSI/ANS-3.4-1983, "Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power." The inspection emphasized Constellation's method for conducting tactile testing of their operators. The inspectors reviewed twelve medical examinations for compliance with their license conditions. The inspectors reviewed four license reactivations for compliance with NRC regulations.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q – Two Samples)

Quarterly Review

a. Inspection Scope

The inspectors reviewed the maintenance effectiveness of the samples listed below for the following: 1) appropriate work practices; 2) identifying and addressing common cause failures; 3) scoping in accordance with 10 CFR 50.65(b) of the maintenance rule; 4) characterizing reliability issues for performance; 5) trending key parameters for condition monitoring; 6) recording unavailability for performance; 7) classification and reclassification in accordance with 10 CFR 50.65(a)(1) or (a)(2); and 8) appropriateness

of performance criteria for structures, systems, and components (SSCs) classified as (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs classified as (a)(1).

- Engineered safety features actuation system (ESFAS) (CR 2009-002150); and
- SDAFW pump governor local speed control knob (CR-2009-008940).

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- Planned maintenance on the 21 SW header with the 2A EDG, 22A SRW HX, and 'A' train of the ECCS out of service on October 7, 2009; and
- Planned maintenance on the 13 MDAFW pump and the 13 condensate booster pump on December 11, 2009.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 – Two Samples)

a. Inspection Scope

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

- 21 SW pump discharge check valve 2-SW-107 (CR-2009-007249); and
- Unit 1 and 2 containment spray pumps (OD 09-007).

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18 – Two samples)

a. Inspection Scope

The inspectors reviewed the plant modifications listed below to verify that the modifications did not affect the safety functions of systems that are important to safety. The inspectors verified that the system design and licensing bases did not degrade due to the modifications to ensure that the system maintained its availability, reliability, and functional capability. The inspectors conducted walkdowns of accessible portions of the modifications to verify that Constellation personnel maintained the proper configuration control to ensure that the plant was not placed in an unsafe condition and that the modifications were implemented in accordance with Constellation procedures.

- A permanent modification to replace the containment sump level loop power supplies; and
- A temporary modification to disable the alarm function from the 12 main steam isolation valve hydraulic pressure switch and rewire the alarm to the pressure indicator.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure 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.

- 1B EDG circuit board replacement (WO #C020072161 and #C120081620);
- 13 SW pump replacement (WO # C120085646);
- Unit 2 reactor protection system (RPS) channel 'B' fuse replacement (WO #C90720618); and
- 11 SDAFW pump local speed control knob adjustment (WO #C90726575).

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 – Two 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.

- 13 SW pump quarterly operability test (STP-O-73A-1); and
- Inservice test of the 1A EDG (STP-O-8A-1).

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

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

a. Inspection Scope

During the period of December 7 to 9, 2009, the inspectors conducted the following activities to verify that Constellation properly implemented physical, administrative, and engineering controls for access to locked high radiation areas, and other radiologically significant areas. The inspectors reviewed the implementation of these controls against the criteria contained in 10 CFR 20, relevant TSs and Constellation's access control procedures.

During job performance observations, the inspectors verified the adequacy of radiological controls, such as: required surveys, radiation protection job coverage, and contamination controls. The inspectors observed radiation protection technician performance with respect to radiation protection work requirements. The inspectors also observed radiation worker performance with respect to stated radiation protection work requirements. The inspectors verified that radiation workers were aware of the significant radiological conditions in their workplace, their radiation work permit (RWP) precautions, and that their performance took into consideration the level of radiological hazards present.

The inspectors reviewed Constellation's self-assessments, audits, and CRs related to the access control program since the last inspection to determine if Constellation

identified problems and entered the issues into their CAP. The inspectors reviewed fifteen CRs related to access control to ensure follow-up actions were conducted in a timely and effective manner.

b. Findings

No findings of significance were identified.

2OS2 As Low As Reasonably Achievable (ALARA) Planning and Controls (71121.02 – Two Samples)

a. Inspection Scope

During the period December 7 to 9, 2009, the inspectors conducted the following activities to verify that the licensee was properly implementing operational, engineering, and administrative controls to maintain personnel exposure as ALARA. The inspectors reviewed the implementation of these controls against the criteria contained in 10 CFR 20, relevant TSs and Constellation's ALARA procedures.

The inspectors reviewed pertinent information regarding cumulative exposure history, current exposure trends, and current exposure status for ongoing operational activities. The inspectors reviewed the site's three-year rolling average dose and compared the site's average with the industry's average. The inspectors verified that Constellation's ALARA program procedure and the RWP procedure included job estimating and tracking. In addition, the inspectors reviewed the status and historical trends of source terms.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

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

.1 Initiating Events

a. Inspection Scope

The inspectors reviewed Constellation's PI program to evaluate, collect, and report information on the following Unit 1 and 2 PIs: 1) Unplanned Transients; 2) Unplanned Scrams; and 3) Unplanned Scrams with Complications. The inspectors reviewed these PIs for the period of July 2008 through September 2009. The inspectors used the guidance provided in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment PI Guideline," to assess the accuracy of PI data collected and reported. The inspectors reviewed the Licensee Event Reports (LERs), monthly operating reports, power history charts, NRC inspection reports, and operator narrative logs.

b. Findings

No findings of significance were identified.

.2 Mitigating Systems

NRC Integrated Inspection Report 05000317/2009002 and 05000318/2009002, Section 4OA1, documented one sample for inspection of the Safety System Functional Failures Performance Indicators for Units 1 and 2. The report should have indicated two samples.

.3 Radiological Effluent Technical Specifications / Offsite Dose Calculation Manual Radiological Effluent Occurrences

a. Inspection Scope

The inspectors reviewed relevant effluent release reports for the period October 1, 2008, through October 31, 2009, for issues related to the public radiation safety PI that measures radiological effluent release occurrences that exceed specified limits for organ dose or gaseous effluents. The inspectors reviewed LERs, and Constellation's corrective actions for liquid and gaseous effluent releases reported to the NRC.

b. Findings

No findings of significance were identified.

.4 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors reviewed the implementation of Constellation's Occupational Exposure Control Effectiveness PI Program. Specifically, the inspectors reviewed recent action reports, and associated documents, for occurrences involving locked high radiation areas, very high radiation areas, and unplanned exposures against the criteria specified in NEI 99-02, to verify that Constellation identified and reported all occurrences that met the NEI criteria. The inspectors reviewed these PIs for the period of January 1, 2009, through December 31, 2009.

b. Findings

No findings of significance were identified.

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

.1 Reviews of Items Entered Into the CAP

a. Inspection Scope

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

b. Findings

No findings of significance were identified.

.2 Annual Sample: Review of Calvert Cliffs Unit 2 –ESFAS, "B" Logic Loss-of-Coolant Incident (LOCI)/Shutdown Sequencer Failures

a. Inspection Scope

The inspectors selected CRs IRE-032-513 and 2009-002150 as problem identification and resolution samples for a detailed follow-up review. CR IRE-032-513 documented on June 21, 2008, the Unit 2 ESFAS "B" logic LOCI/shutdown sequencer failed a surveillance test because the timing steps occurred faster than expected (2.5 – 3.0 seconds for each step instead of 4.5 – 5.5 seconds for each step). CR 2009-002150 documented on March 10, 2009, the Unit 2 ESFAS "B" logic LOCI/shutdown sequencer failed a surveillance requirement because it did not restore the 23 MDAFW pump to the 4 kilo volt (kV) Bus 24 within the surveillance time requirements of between 18.0 to 21.0 seconds. During the surveillance, the MDAFW pump was restored to the 4 kV Bus 24 in 23.6 seconds. For both issues, Constellation determined the EDGs would have performed their safety functions. Constellation determined that the most likely cause of the Unit 2 ESFAS "B" logic LOCI/shutdown sequencer to fail its surveillance test on June 21, 2008, was a timing circuit component failure and age related component degradation of the sequencer modules. Constellation determined that the most likely cause of the Unit 2 ESFAS "B" logic LOCI/shutdown sequencer failure during its surveillance test on March 10, 2009, was failure of a sequencer circuit, failure of the time delay pick-up relay in the starting logic of the 23 MDAFW pump, and lack of appropriate post modification testing of newly installed sequencer circuit modules. An additional cause was age related component degradation of the sequencer components. The sequencer modules are unique to Calvert Cliffs Nuclear Power Plant (CCNPP). The manufacturer of the modules no longer fabricates or supports them and is no longer in business. The sequencer modules were manufactured approximately twenty-five years ago and have been refurbished at least once by another vendor prior to returning them to the warehouse storage or to service.

The inspectors assessed Constellation's problem identification threshold, cause analyses, extent of condition reviews, operability determinations, and the prioritization and timeliness of corrective actions to determine whether Constellation was

appropriately identifying, characterizing, and correcting problems associated with these issues and whether the planned or completed corrective actions were appropriate to prevent recurrence. Additionally, the inspector performed walkdowns of the ESFAS LOCI/shutdown sequencers at CCNPP to assess if abnormal conditions existed. The inspectors also interviewed cognizant plant personnel regarding the identified issues and implemented corrective actions.

b. Findings and Observations

No findings of significance were identified. The inspectors did not identify any performance deficiencies, violations or past operability concerns. The inspectors determined that Constellation properly implemented their corrective action process regarding the initial discovery of the above issues. The CR packages were complete and included cause evaluations, operability determinations, extent of condition reviews, use of operating experience, corrective actions and planned corrective actions. Additionally, the elements of the condition reports were detailed and thorough. Corrective actions and planned corrective actions appeared appropriate to prevent recurrence of the identified issues. The inspector determined that corrective actions for both CRs included replacing the failed components, revising the appropriate post maintenance operability test procedure to ensure adequate testing of the sequencer, performing post maintenance operability testing (PMOT) to ensure operability of the newly installed sequencer modules, and returning the newly installed Unit 2 ESFAS "B" logic LOCI/shutdown sequencer to service. Additionally, Constellation sent the failed sequencer modules to a vendor for failure analysis and repair/refurbishment. The vendor had not completed the failure analysis or refurbished the sequencer module for the March 10, 2009, failure at the time of this inspection. The final failure analysis and refurbished sequencer module are expected to be returned to the CCNPP in January 2010. The results of this analysis may require additional corrective actions to ensure reliable sequencer module operation. The delay getting results from the March 10, 2009, failure is due to Constellation's delay of over six months in sending the module to the vendor; Constellation personnel initiated CR-2009-009084 to address this issue. The inspectors noted that the sequencer modules are stored and operated in mild environments, tested monthly and during outages, and there have been no subsequent failures of the sequencer modules. The inspectors also noted that the licensee has backup sequencer modules available should an in service sequencer module fail. Long-term corrective actions included developing new sequencer modules and pursuing a digital upgrade. Constellation plans to perform corrective actions effectiveness reviews when all corrective actions are complete.

.3 Annual Sample Review: Review of Initial Dose Assessment with the Containment Outage Door (COD) Opened and Review of Wide Range Noble Gas Monitor (WRNGM) Compensatory Actions

a. Inspection Scope

The inspectors reviewed Constellation's evaluation and corrective actions associated with the following two issues. Documents reviewed for this inspection activity are listed in the Supplemental Information attachment to this report.

Initial Dose Assessment with the COD Opened.

This issue was initially discussed in NRC inspection report 05000317 and 05000318/2009003. In that report, the inspectors opened URI 05000317/318/2009003-03, "Initial Dose Assessment with the Containment Outage Door Opened." Since March 2001, when the NRC approved a change to their TS, Calvert Cliffs has been allowed to conduct fuel handling and core alterations with the containment equipment hatch open, provided that the newly installed COD is capable of being closed under administrative control. The inspectors questioned whether Constellation had measures in place to account for a potential radioactive release through the COD if a fuel handling incident (FHI) were to occur in containment with the equipment hatch and COD open. The item was left unresolved pending further review of Constellation's methods used to obtain an initial dose assessment during a FHI with the COD open, to determine if there was a performance deficiency associated with the issue.

During this inspection, the inspectors reviewed Constellation's evaluation and corrective actions associated with CR-2009-004951. The inspectors also: reviewed the history of Constellation's dose assessment practices and procedures since the TS had been implemented; reviewed the Calvert Cliffs UFSAR accident analyses; interviewed site chemistry/radiation protection and emergency preparedness personnel; and reviewed several containment closure drills conducted over the past two years.

WRNGM Compensatory Actions.

This issue was initially discussed in NRC inspection report 05000317 and 05000318/2009003. In that report, the inspectors opened URI 05000317/318/2009003-02, "Wide Range Noble Gas Monitor Compensatory Actions." In May 2009, the Unit 2 plant main vent WRNGM failed, and Constellation wrote a functionality assessment to address the condition and provide for compensatory actions. Those actions included the use of Emergency Response Plan Implementing Procedure (ERPIP)-821, "Accidental Radioactivity Release Monitoring and Sampling Methods," and taking a hand-held radiation monitor measurement on the auxiliary building roof at a point 10 meters from the plant main vent. The inspectors questioned the ability to take such a measurement due to the postulated radiation field which would exist on the auxiliary building roof under certain accident conditions. The item was left unresolved pending Constellation's review of the ERPIP-821 assumptions and the determination if there was a performance deficiency associated with the issue.

The inspectors reviewed Constellation's evaluation and corrective actions associated with the issue, including CR-2009-003720, the apparent cause evaluation performed per that CR, and a Fleet Nuclear Fuels memorandum written to determine if the licensee's compensatory actions could have been successful. The inspectors reviewed: Constellation procedures for emergency radiation protection and for radiation monitoring equipment operation; maintenance and availability records for the WRNGM; and chemistry technician training and drill records. The inspectors also interviewed chemistry technicians and supervisors, fuels engineers, and emergency planning staff.

b. Findings and Observations

The inspectors identified two NCVs of 10 CFR 50.54(q), both due to Constellation's failure to maintain the Calvert Cliffs emergency plan in accordance with the requirements of planning standard 10 CFR 50.47(b)(9), Dose Assessment.

Review of Initial Dose Assessment with the COD Opened

Introduction: The inspectors identified a Green NCV of 10 CFR 50.54(q), "Conditions of Licenses," because Constellation did not properly maintain the conditions of the Calvert Cliffs Emergency Plan. Specifically, Constellation did not implement timely changes to the Plan and its implementing procedures when the Calvert Cliffs TSs were changed in 2001, allowing core alterations to be performed with the COD open.

Description: Planning Standard 10 CFR 50.47(b)(9) requires adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use. 10 CFR 50, Appendix E, Section IV.B, requires that the means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials be described. NUREG-0654/FEMA-REP-1, Section II.I, specifies evaluation criteria by which the staff, in the absence of a licensee proposed alternative, evaluates the licensee's compliance with planning standard 50.47(b)(9). This section states, in part, that each licensee have methods and techniques for determining the magnitude of the release based on plant parameters and effluent monitors.

In March 2001, the NRC approved a Calvert Cliffs TS change to modify the conditions of containment closure during core alterations and fuel handling at Calvert Cliffs Units 1 and 2. A new COD was installed on the outside of the equipment hatch opening to provide for quicker closure, improve safety when the hatch is open, and to allow more flexibility when staging material in the Containment Building during a refueling outage. In conjunction with this change, Constellation conducted an analysis of the design basis FHI and concluded that since the safety analysis assumed that any release is unfiltered via the containment personnel air lock to the plant main vent, the analysis would still be valid even if the personnel air lock and the COD are open at the same time. The inspectors determined that, with the new TS provisions, a release could occur through the open COD and that site procedures had not been revised to assure that this pathway was monitored.

The inspectors concluded that since there were no formalized measures in place to monitor a potential release through the COD, the initial and subsequent dose projections would be based only on that part of the release that was going through the main vent. The Calvert Cliffs UFSAR analysis of a FHI in containment, with the equipment hatch and COD open for the duration of the incident, shows that the thyroid dose at the site boundary could exceed the protective action guidelines. The lack of real-time monitoring of such a release could result in an unnecessary delay in attaining an accurate dose assessment, and thereby delaying adequate offsite dose projections. Constellation's corrective actions included revising site procedures to provide for the monitoring and measuring of any post-FHI release which may occur through the open containment hatch and COD during refueling activities.

Analysis: The performance deficiency associated with this finding involved Constellation not having an adequate method in use for monitoring and assessing an actual or potential offsite release as a result of a FHI inside containment with the COD open, thereby failing to completely meet the standards in 10 CFR 50.47(b)(9). Constellation's corrective actions included revising site radiation protection and emergency planning procedures to require the presence of adequate monitoring equipment at the COD opening in containment to provide accurate real-time measurement of any potential release through that opening.

The inspectors determined that Constellation did not implement timely measures to provide for the monitoring of a potential release when the site license was modified to allow refueling activities with the COD open. The finding was more than minor because it affected the Emergency Response Organization Performance attribute of the emergency Preparedness (EP) Cornerstone to ensure that the licensee is capable of implementing adequate measures to protect the public health and safety in the event of a radiological emergency.

In accordance with IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process," the inspectors determined the finding to be of very low safety significance (Green). Specifically, the inspectors utilized IMC 0609, Appendix B, Section 4.9 and Sheet 1, "Failure to Comply," and determined that the failure to comply with an aspect of the Emergency Plan related to dose assessment (10 CFR 50.47(b)(9)) was a risk-significant planning standard (RSPS) problem; but it was not a RSPS functional failure of the Calvert Cliffs dose assessment process. The lack of formal requirements for monitoring a potential COD pathway release notwithstanding, the inspectors determined that Calvert Cliffs has maintained good procedures and practices for assessing unmonitored releases in the event of an on-site radiological event. This was not a degraded RSPS function because these capabilities provided assurance that this performance deficiency ultimately would not have affected the outcome of protecting the health and safety of the public or of station personnel.

The performance deficiency had no cross-cutting aspects. Based on information developed during the inspection, the inspectors concluded that the most significant contributing factor to the performance deficiency was the inadequate review of the potential emergency planning impact of the 2001 TS amendment. Although Constellation had a reasonable opportunity to identify this issue during the initial TS change process, and again during the license amendment request for the alternate source term in 2005-2007, the inspectors concluded that no reasonable opportunity for identification existed during the recent performance period. Therefore, the inspectors concluded that this did not reflect current performance and there are no cross-cutting aspects associated with this finding.

Enforcement: 10 CFR 50.54(q) requires, in part, that a licensee "shall follow and maintain in effect emergency plans which meet the standards in 10 CFR 50.47(b) and the requirements in Appendix E of this part."

10 CFR 50.47(b)(9) requires, in part, that "adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use."

Contrary to the above, from March 2001 to October 2009, Constellation did not have an adequate method or equipment in place for assessing and monitoring an actual or potential offsite consequence of a radiological emergency associated with a FHI inside containment with the COD open. As a result, this could have resulted in an unnecessary delay in obtaining an adequate dose assessment, which would be necessary to validate emergency action level declarations and make appropriate protective action recommendations. By failing to meet the requirements of 10 CFR 50.47(b)(9), Constellation was in violation of 10 CFR 50.54(q) for not properly maintaining the conditions of the Emergency Plan. Because this finding is of very low safety significance, and because it was entered into Constellation's CAP as CR-2009-004951, this violation is being treated as a NCV, consistent with Section VI.A of the NRC Enforcement Policy. **(NCV 005000317 & 318/2009005-02: Failure to Provide for Adequate Dose Assessment with the COD Open)**

Review of WRNGM Compensatory Actions

Introduction: The inspectors identified a Green NCV of 10 CFR 50.54(q), "Conditions of Licenses," because Constellation did not properly maintain the conditions of the Calvert Cliffs Emergency Plan. Specifically, Constellation did not implement timely changes to the Plan and its dose assessment implementing procedures when Calvert Cliffs transitioned from the NUREG-0654 EAL scheme to the NUMARC NESP-007 EAL scheme in 1993. The change in EAL schemes resulted in additional site area emergency (SAE) and general emergency (GE) classification levels based on effluent monitor radiation levels. When these new EALs were added, Constellation did not revise ERPIP-821 to consider the radiation levels which would exist at the SAE and GE thresholds. The specific concern involved the inability to take the compensatory measures when the wide range noble gas monitor (WRNGM) was out of service; manual radiation readings could not be taken near the WRNGM due to the radiation levels which could exist at the SAE and GE conditions.

Description: Planning Standard 10 CFR 50.47(b)(9) requires the use of adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition. 10 CFR 50, Appendix E, Section IV.B, requires a description of the means used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials. NUREG-0654/FEMA-REP-1, Section II.I, specifies evaluation criteria by which the staff, in the absence of a licensee proposed alternative, evaluates the licensee's compliance with planning standard 50.47(b)(9). This section states that each licensee have methods and techniques for determining: (1) the source term of releases of radioactive material; (2) the magnitude of the release based on plant parameters and effluent monitors; and, (3) the relationship between these releases and onsite and offsite exposures and contamination.

In 1993, Constellation implemented the NUMARC NESP-007 EAL scheme, which added new event classifications at the SAE and GE level based on effluent monitoring radiation levels. ERPIP-821 provides for the monitoring and sampling of radioactive releases when dedicated effluent monitors are out of service. On May 4, 2009, the Unit 2 WRNGM failed, and Constellation wrote a functionality assessment to address the degraded condition of the WRNGM and to provide compensatory measures for the monitoring of any releases through the main stack vent. Those compensatory measures

included obtaining hand-held radiation monitor measurements at a point 10 meters from the stack and converting that reading to a release rate, which could be compared to the thresholds in the applicable EAL table. The inspectors determined the most limiting accident for the use of this compensatory action was a design basis FHI in the spent fuel pool, and they questioned whether a radiation protection technician would be able to get close enough to the main stack to obtain the radiation monitor measurements.

Constellation's investigation of the inspectors' concerns was accomplished through condition report CR-2009-003720, and concluded that for the design basis accident radiation levels 10 meters from the stack would be 640 Rem/hour at the SAE threshold and 6400 Rem/hour at the GE threshold. Either of these radiation levels would preclude the use of ERPIP-821 to obtain the required measurement of a release through the main stack, thereby preventing the satisfaction of the requirements of 10 CFR 50.47(b)(9).

Analysis: The performance deficiency associated with this finding was Constellation's failure to consider the impact of the EAL scheme change in 1993 on the ability to implement the Calvert Cliff emergency plan procedures. As a result, the Calvert Cliffs staff was unable to perform accident condition dose assessments per the requirements of 10 CFR 50.47(b). Constellation's corrective actions included: the installation, in August 2009, of a radiation meter at the 10-meter distance from the main stack that was remotely readable; the revision of ERPIP-821 to account for the current Calvert Cliffs EAL thresholds; and the performance of a human performance investigation to provide for additional corrective actions to assure that plant changes are evaluated for impact and necessary changes to the emergency plan and its implementing procedures.

The inspectors determined that Constellation did not make the required changes to their accidental radioactivity release monitoring methods when new EALs were implemented that added SAE and GE declarations based on effluent radioactive release rates. The finding was more than minor because it affected the Emergency Response Organization Performance attribute of the EP Cornerstone to ensure that the licensee is capable of implementing adequate measures to protect the public health and safety in the event of a radiological emergency.

In accordance with IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process," the inspectors determined the finding to be of very low safety significance (Green). Specifically, the inspectors utilized IMC 0609, Appendix B, Section 4.9 and Sheet 1, "Failure to Comply," and determined that the failure to comply with an aspect of the Emergency Plan related to dose assessment (10 CFR 50.47(b)(9)) was an RSPS problem; but it was not a RSPS functional failure of the Calvert Cliffs dose assessment process. The inability to determine the release rate through the main stack when the WRNGM is out of service was a failure to comply with the regulations; however, the inspectors determined that the Calvert Cliffs EAL scheme has redundant EALs based on onsite and offsite radiation monitoring that would result in equivalent SAE and GE classifications for the postulated accident events. This was not a degraded RSPS function because these capabilities provided assurance that this performance deficiency ultimately would not have affected the outcome of protecting the health and safety of the public or of station personnel.

The performance deficiency has a cross-cutting aspect in the area of identification and resolution of problems because the WRNGM has failed in the past (including as recently

as December 2008 and May 2009), yet Constellation did not appropriately evaluate the proposed compensatory actions in a manner to assure the dose assessment function was not negatively affected. Specifically, the provisions of the ERPIP-821 sampling procedure had repeatedly been relied upon, but in fact were not able to satisfy the dose assessment functions required by the CCNPP Emergency Plan [P.1(c)].

Enforcement: 10 CFR 50.54(q) requires, in part, that a licensee "shall follow and maintain in effect emergency plans which meet the standards in 10 CFR 50.47(b) and the requirements in Appendix E of this part."

10 CFR 50.47(b)(9) requires, in part, that "adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use."

Contrary to the above, from June 1993 to August 2009, Constellation did not have an adequate method or equipment in place, under certain accident conditions, for assessing and monitoring an offsite release through the plant main vent when the WRNGM was out of service. Specifically, compensatory measures for when the WRNGM was failed (manual radiation readings taken near the WRNGM) could not be obtained in all cases. As a result, this could have resulted in an unnecessary delay in obtaining an adequate dose assessment, which would be necessary to validate EAL declarations and to make appropriate protective action recommendations. By failing to meet the requirements of 10 CFR 50.47(b)(9), Constellation was in violation of 10 CFR 50.54(q) for not properly maintaining the conditions of the Emergency Plan. Because this finding is of very low safety significance, and because it was entered into Constellation's CAP as CR-2009-003720, this violation is being treated as a NCV, consistent with Section VI.A of the NRC Enforcement Policy. **(NCV 005000317 & 318/2009005-03: Failure to Provide for Adequate Compensatory Measures with the Wide Range Noble Gas Monitor Out of Service)**

.4 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 issues and closely related issues, but also considered the results of daily inspector corrective action screenings. The review included issues documented in performance indicators, system health reports, corrective WOs, assessment reports, temporary modifications, and maintenance rule assessments. The inspectors' review considered the six-month period of July through December 2009, although some examples expanded beyond those dates when the scope of the trend warranted. The inspectors also discussed trends and potential trends with appropriate station personnel. The inspectors reviewed in detail an identified declining trend with safety tagging errors. This review included an apparent cause evaluation and discussions with operations management.

b. Findings

No findings 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. Regarding the declining trend with safety tagging errors, the inspectors concluded that plant management was aware of the issue, had taken appropriate interim corrective actions and was evaluating long term corrective actions.

.5 Annual Sample Review of a Potential Emerging Trend in NRC Inspection Findings with Cross-Cutting Issues in the Area of Human Performance - Resource

a. Inspection Scope

This inspection focused on Constellation's evaluation and resolution of an emerging trend in the number of human performance cross-cutting issues associated with NRC inspection findings. Specifically, in 2009, three NRC inspection findings were identified as having cross-cutting aspects in the area of human performance - resources because Constellation did not provide complete, accurate, and up-to date procedures that were adequate to assure nuclear safety. Constellation initiated a CR and performed an apparent cause evaluation to assess these issues. The inspectors selected this emerging trend for review based on the number of recent inspection findings with cross-cutting issues in the area of human performance – resources.

The inspectors reviewed Constellation's CRs, apparent cause evaluation, proposed interim corrective actions, and the long-term plan for permanent corrective actions associated with addressing the emerging trend in human performance. The inspectors also interviewed plant personnel.

b. Findings

No findings of significance were identified. The inspectors concluded that Constellation exhibited a proactive approach to addressing causes related to the human performance issues. Constellation provided training to maintenance supervisors and staff emphasizing procedure adherence and maintaining a questioning attitude while performing procedures. In addition, Constellation planned to review maintenance and surveillance procedures to ensure the procedures contain up-to date and accurate information. The inspectors determined that Constellation had taken short term and long term corrective actions to address the identified emerging trend.

4OA3 Followup of Events and Notices of Enforcement Discretion (71153 – One Sample)

.1 Unit 2 Loss of RPS Channel

a. Inspection Scope

The inspectors observed control room operator response to an unexpected loss of power for Unit 2 "B" channel of RPS on December 3, 2009. The inspectors responded to the control room and observed operators implementing the applicable abnormal operating procedure (AOP) and the appropriate TS action statements. The loss of the RPS channel resulted in the plant being in an increased susceptibility for a plant trip, and also in a short term TS shutdown action statement. Operations and maintenance personnel quickly developed and implemented an action plan to repair the failed channel. The inspectors observed briefings conducted prior to any work to verify they

were detailed, and focused on personnel and plant safety. Communications between work groups were thorough and crisp. The inspectors observed troubleshooting and the subsequent restoration activities from the control room.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors performed observations of security force personnel and activities to ensure that the activities were consistent with site security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours. These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

.2 (Closed) Severity Level IV NCV NRC Investigation Report No. 1-2008-050, Information Technology Analyst (ITA) Failure to Disclose Prior Criminal History to Gain Unescorted Access Authorization (UAA) (92702)

This severity level IV NCV identified on July 8, 2009, stated that contrary to 10 CFR 50.34(c) and the CCNPP Physical Security Plan, a former ITA deliberately failed to disclose elements of his criminal history when applying for UAA at CCNPP. This violation was documented in a July 8, 2009, NRC letter to CCNPP. CCNPP determined that the event occurred because the provisions within NEI 03-01, "Nuclear Power Plant Access Authorization Program," used to determine trustworthiness and reliability were not properly applied. This was evident in that the security access procedure, used by the reviewing official, did not identify the expectation to consider the psychologist report and comments, which lead directly to granting the ITA UAA prior to the discovery of potentially disqualifying information. To correct this performance deficiency, several corrective actions were implemented including: communicating the requirements in NEI 03-01 to access investigators that require a review of the psychologist report prior to determination of authorizing UAA, verifying all PADS reports were reviewed to ensure validity and accuracy of the information, issuing Operating Experience (OE) for this event, updating the security procedures and the security access guideline to accurately reflect the NEI 03-01 guidance, and performing a self-assessment of the Security Access Standard to identify vague or interpretive guidance in other processes. Additionally, the CAP opened an action to track and complete an effectiveness review of the security background investigator's training material and reviewing official process to evaluate trustworthiness and reliability based on the accumulation of all information, including the psychologist report prior to authorizing UAA.

The inspectors reviewed the corrective actions outlined in the August 21, 2009, Apparent Cause Evaluation, and CCNPP's review of previous industry OE dated October 2, 2009. The inspectors concluded that the root cause analysis was thorough and complete. Additionally, corrective actions taken were appropriate and timely. This violation is closed. **(NCV 05000317 & 318/2009005-04: Information Technology Analyst Failure to Disclose Prior Criminal History to Gain Unescorted Access Authorization)**

.3 (Closed) URI 05000318/2009004-01 Saltwater Pump Pit Being Flooded

The inspectors opened a URI in NRC IR 05000318/2009004 to review the design considerations and provisions to ensure that the SW pumps would not be submerged, and to determine if a performance deficiency associated with design control existed. This item was resolved as a Green NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," and documented in this report in Section 1R06. This URI is closed.

.4 (Closed) URI 05000317/318/2009003-02 Wide Range Noble Gas Monitor Compensatory Actions

The inspectors opened a URI in NRC IR 05000318/2009003 to review the compensatory measure of taking a hand-held radiation monitor measurement on the auxiliary building roof at a point 10 meters from the plant main vent under certain accident conditions. This item was resolved as a Green NCV of 10 CFR 50.54(q) and documented in this report in Section 4OA2. This URI is closed.

.5 (Closed) URI 05000317/318/2009003-03 Initial Dose Assessment with the Containment Outage Door Opened

The inspectors opened a URI in NRC IR 05000318/2009003 to review Constellation's methods used to obtain an initial dose assessment during a FHI with the COD open, to determine if there was a performance deficiency associated with the issue. This item was resolved as a Green NCV of 10 CFR 50.54(q) and documented in this report in Section 4OA2. This URI is closed.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On January 8, 2010, the resident inspectors presented the inspection results to Mr. George H. Gellrich and other members of licensee staff who acknowledged the findings. The inspectors asked Constellation whether any of the material examined during the inspection should be considered proprietary. There was no proprietary information identified.

4OA7 Licensee-Identified Violations

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

During Constellation's root cause investigation, performed in response to a White emergency preparedness finding documented in NRC Inspection Report Nos. 05000317/2008502, 0500318/2008502, they identified the following violation of very low safety significance (Severity Level IV), which meets the criteria of Section VI of the NRC Enforcement Policy, for being dispositioned as a non-cited violation (NCV). 10 CFR 50.54(q) states in part, "A licensee authorized to possess and operate a nuclear power reactor shall follow and maintain in effect emergency plans which meet the standards in §50.47(b) and the requirements in Appendix E of this part. The nuclear power reactor licensee may make changes to these plans without Commission approval only if the changes do not decrease the effectiveness of the plans and the plans, as changed, continue to meet the standards of §50.47(b) and the requirements of Appendix E to this part." 10 CFR 50.47(b)(4) states in part, "A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee..." Contrary to the above, the licensee decreased the effectiveness of their emergency plan as a result of revising classifiable conditions in three emergency action levels (EALs) and did not request Commission approval. The three EAL deviations were:

- The 0C diesel generator (DG) is required to support safe shutdown as defined in NEI 99-01, Revision 4, EALs, yet the 0C DG Building was omitted from the Calvert Cliffs EALs as a Safe Shutdown Area;
- NEI 99-01, Revision 4, requires an EAL for high radiation levels in areas requiring continuous occupancy, yet the Calvert Cliffs EALs omitted the Central Alarm Station and the Secondary Alarm Station; and,
- NEI 99-01, Revision 4, requires an EAL for the inability to maintain the plant in a Cold Shutdown given an unplanned event that results in a reactor coolant system pressure increase, yet the Calvert Cliffs EALs did not provide the EAL at the defined 10 psig pressure increase threshold.

Constellation addressed these issues, including corrective actions, in condition report IRE-027-361.

Changing an emergency plan resulting in a decrease in effectiveness (DIE) of the plan without prior Commission approval impacts the NRC's ability to perform its regulatory function and is therefore processed through traditional enforcement, as specified in Section IV.A.3 of the Enforcement Policy, issued April 18, 2005. In accordance with Enforcement Policy Supplement VIII, this violation is appropriately characterized as Severity Level IV because, although these three EALs could not have been implemented as approved, the NRC determined proper declaration would have been made based on redundant EALs or based on co-existing conditions, and planning standard 10 CFR 50.47(b)(4) was met. None of the affected EALs involved a classification higher than the Alert level. These changes directly affected the planning standard for assessment capability at Calvert Cliffs, but this problem was isolated to three EALs and was not indicative of a functional problem with the EAL scheme. Because this violation was of

very low safety significance, was not repetitive or willful, and was entered into the licensee's corrective action program, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy.

ATTACHMENTS: SUPPLEMENTAL INFORMATION

ATTACHMENT 1

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Constellation Personnel

J. Spina, Site Vice President
D. Trepanier, Plant General Manager
J. Beasley, Engineering Supervisor
D. Bodine, Engineering
L. Clark, Physician's Assistant
B. Dansberger, Radiation Protection Supervisor
J. Delgado, System Engineering
M. Draxton, Training Manager
J. Dsouza, Chemistry
B. Ficke, Site Director of Emergency Preparedness
J. Gaines, System Engineering
J. Jaeger, Principal Operations Training Specialist
C. Jones, General Supervisor Operations Training
J. Jones, Fleet Director of Emergency Preparedness
A. Kelly, Supervisor, Continuing Training
E. Kreahling, Systems Engineer
L. Larragoite, Fleet Manager of Emergency Preparedness
N. Lavato, Principal Operations Training Specialist
S. Loeper, Systems Engineer
M. McMahon, Systems Manager
C. Neyman, Licensing
S. Sanders, Site General Supervisor of Chemistry
A. Simpson, Principal Engineer, Licensing
C. Walker, Simulator Testing Specialist
J. York, General Supervisor, Chemistry

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

05000317/318/2009005-01	NCV	Inadequate Design Control Associated with the Flooding of a Saltwater Pump Pit (Section 1RO6)
05000317/318/2009005-02	NCV	Failure to Provide for Adequate Dose Assessment with the Containment Outage Door Open (Section 4OA2)
05000317/318/2009005-03	NCV	Failure to Provide for Adequate Compensatory Measures with the Wide Range Noble Gas Monitor Out of Service (Section 4OA2)

05000317/318/2009005-04	NCV	Information Technology Analyst Failure to Disclose Prior Criminal History to Gain Unescorted Access Authorization (Section 4OA5)

Closed

05000318/2009004-01	URI	Saltwater Pump Pit Being Flooded (Section 1R06)
05000317/318/2009003-02	URI	Wide Range Noble Gas Monitor Compensatory Actions (Section 4OA2)
05000317/318/2009003-03	URI	Initial Dose Assessment with the Containment Outage door Opened (Section 4OA2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures
NO-1-119, Seasonal Readiness, Revision 5
OAP-92-9, Cold Weather Operations, Change 7
OI-2B-2, 2B Diesel Generator, Revision 19
OI-38A, Screen Wash System, Revision 23
OI-22L, Intake Structure Ventilation System, Revision 1

Work Orders
WO# C020090720

Miscellaneous
GS-SO Night Orders dated 10/20/2009
Pre-Winter Assessment of Seasonal Readiness dated 11/19/2009

Section 1R04: Equipment Alignment

Procedures
OI-15-1, Service Water System, Revision 44
OI-21B-2, 2B Diesel Generator, Revision 19
OI-32A, Auxiliary Feedwater System, Revision 17

Drawings
DWG# 60706SH0001, Service Water Cooling System - Turbine Area, Revision 52
DWG# 60706SH0002, Service Water Cooling System, Auxiliary Building and Containment, Revision 75
DWG# 60717SH0001, Well Water, Pretreated Water, Demineralized Water and Condensate Storage System, Revision 97
DWG# 62583SH0002, Auxiliary Feedwater System (Condensate), Revision 1

Miscellaneous
System Description # 11, Service Water, Revision 4

Section 1R05: Fire Protection

Procedures
FP-0002, Fire Hazards Analysis Summary Document, Revision 0
SA-1, Fire Protection Program, Revision 6
SA-1-100, Fire Prevention, Revision 14

Miscellaneous
Calculation CA02243, Combustion Loading Analysis Report, Revision 1
Fire Fighting Strategies Manual, Revision 0
UFSAR Section 9.9, Calvert Cliffs Power Plant Fire Protection Program, Revision 39

Section 1R06: Flood Protection Measures

Procedures
OI-29-1, Saltwater System, Revision 64

Condition Reports

IR3-042-672	CR-2009-005375
CR-2008-002770	CR-2009-006011
CR-2009-006077	CR-2009-008346
CR-2009-009030	CR-2009-008496
CR-2010-00167	

Work Orders
WO#C020080459
WO#C020090503

Miscellaneous
ES-001, Flooding, Revision 3
Reptask 01020002, Inspect Underground Conduit Manholes and Manhole Pumps

Section 1R07: Heat Sink

Procedures
CNG-AM-1.01-1016, Heat Exchanger Program, Revision 0
EN-1-125, Heat Exchanger Program, Revision 0
EN-1-327, Service Water Reliability Program, Revision 4
OI-29-1, Saltwater System, Revision 64

System Health Reports
Unit 1 Saltwater System Q3 2009 System Health Report
Unit 1 Service Water System Q3 2009 System Health Report

Miscellaneous
EPRI-NP-7552, Heat Exchanger Performance Monitoring Guidelines, December 1991

Section 1R11: Licensed Operator Requalification Program

Scenarios

OP-1, Revision 11	OP-31, Revision 5
OP-6, Revision 12	OP-52, Revision 0
OP-17, Revision 8	

Job Performance Measures

AOP-3G-7F	AOP-9A-29	OI-32B-1
AOP-3G-9F	AOP-7B-2	ERPIP-3-6
AOP-3G-10	EOP-0-13F	ERPIP-3-12
AOP-9A-17	NEOP-301-3	

Safety-Related Condition Reports

CR-2009-006839	CR-2009-003566	CR-2009-008232
CR-2009-002629	CR-2009-005947	IRE-027-571
CR-2009-002910	CR-2009-007726	IRE-0310-345

Simulator-Related Documents

Simulator Configuration Manual

Annual Tests: ANS 1E Steady State Data Comparison, 11/26/2008; ANS 1D Steady State 100% Heat / Mass Balance, 3/23/2009; ANS 1B Steady State 50% Heat / Mass Balance, 11/9/2009

Normal Evolution Test: ANS 3C Turbine Startup and Generator Synchronization, 12/19/2008

Malfunction Tests: MS003 MSIV stuck at 90% open,7/9/2007; CD001 Loss of Condenser Vacuum, 7/25/2008; NI008 Power Range channel detector output fails low, 10/24/2008; CVCS007 Tube Rupture in Non-Regenerative HX, 9/14/2009; RCS001 RCS Cold Leg 12B Rupture,10/22/2009

Transient Tests: ANS 2D Simultaneous Trip of All RCPs, 3/5/2009; ANS 2F Main Turbine Trip from 12% Power, 3/5/2009; ANS 2H LOCA with Loss of Offsite Power, 1/9/2009; ANS 2J Slow RCS Depress via PORV or Safety with ECCS Disabled, 3/6/2009; ANS 2L Steam Generator Tube Rupture – 1.5 Tubes, 1/9/2009

Simulator CRs: CR-2008-001767,CR-2008-002186, CR-2009-003078

Other Inspection-Related Documents

IR 05000317 & 318/2008007

ANSI/ANS-3.4-1983, Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear PowerLicensed Operator Requalification Training Program Manual, Revision 7

TR-1-104, Security of NRC Operator Licensing Exams, Revision 501

CNG-TR-1.01-1013, Licensed Operator Requalification Exam Program, Revision 0

Medical Procedure 101, Procedure for Licensed Operator Physicals, Revision C, Change 2

Lesson Plans: Event Free Scenario 08-01; Event Free Seminar 09-02; LOR-202-7EF-SO8 AOP 7E, 7F, EOP-8; CCNP-LOR-2009-064 Generic Letter 2008-01

NO-1-105, Medical and Behavioral Observation Requirements for All Operators, Revision 6

Section 1R12: Maintenance Effectiveness

Procedures

ER-1-103, Maintenance Rule Program Implementation, Revision 4

CNG-AM-1.01-1023, Maintenance Rule Program, Revision 0

Condition Reports
CR 2009-002150
CR-2009-008940

Miscellaneous
CCNPP Maintenance Rule Scoping Document, Revision 30

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

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

Section 1R15: Operability Evaluations

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

Condition Reports
CR-2009-007249
CR-2009-007250
CR-2009-007252

Miscellaneous
OD 09-007

Section 1R18: Plant Modifications
Procedures
MD-1, Modification Program, Revision 3
MD-1-100, Temporary Alterations, Revision 14

Drawings
DWG# 87309SH0004, Electrical Diagram Panel 2C09, Revision 18
DWG# 87309SH0015, Loop Diagram Containment sump Level 2LT4145, Revision 4

Work Orders
WO #C220070599

Miscellaneous
ECP-09-000039
UFSAR, Section 10.1

Section 1R19: Post-Maintenance Testing

Procedures
CNG-CA-1.01-1000, Corrective Action Program, Revision 2
CNG-MN-4.01-1008, Pre/Post Maintenance Testing, Revision 0
STP-O-73A-1, Saltwater Pump and Check Valve Quarterly Operability Test, Revision 19
STP-M-654C-1B, Shutdown Relay Logic Testing on the 1B Diesel Generator, Revision 0

Work Orders
WO #C120085646
WO #C90726575
WO #C020072161

Section 1R22: Surveillance Testing

Procedures
EN-4-102, ASME Pump and Valve Inservice Testing Program Requirements, Revision 6
EN-4-104, Surveillance Testing, Revision 6
EN-4-107, ASME Inservice Testing of Pumps, Revision 1
STP-O-73A-1, Saltwater pump and check valve quarterly operability test, Revision 19
STP O-8A-1, Test of 1A DG and 11 4KV Bus LOCI Sequencer, Revision 27

Section 2OS1: Access Control to Radiologically Significant Areas

Procedures
NO-1-110, Calvert Cliffs Key and Lock Control, Revision 8
RSP 1-200, ALARA Planning and SWP Preparation, Revision 23

Condition Reports

CR-2009-005516	CR-2009-006111	CR-2009-006164
CR-2009-006564	CR-2009-006759	CR-2009-007074
CR-2009-007274	CR-2009-007412	CR-2009-007608
CR-2009-007727	CR-2009-008132	CR-2009-008134
CR-2009-008160	CR-2009-008204	CR-2009-008857

Audits and Assessments
Self Assessment, "Gamma Sensitive Tool Monitors"
Self Assessment, "Half Body Beta Monitors"
Self Assessment, "Gamma Portal Monitors"

Section 2OS2: ALARA Planning and Controls

Procedures
RSP 1-200, ALARA Planning and SWP Preparation, Revision 23

Section 4OA1: Performance Indicator Verification

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

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

Section 4OA2: Identification and Resolution of Problems

Procedures
CNG-CA-1.01-1000, Corrective Action Program, Revision 00200
CNG-CA-1.01-1004, Root Cause Analysis, Revision 00300

CNG-CA-1.01-1005, Apparent Cause Evaluation, Revision 00200
DOOR-01, Opening and Closing of Containment Outage Door, Revision 00401
ERPIP-107, Chemistry Shift Technician, Revision 6
ERPIP-108, Interim Radiation Protection, Revision 00300
ERPIP-821, Accidental Radioactivity Release Monitoring and Sampling Methods, Revision 5
ERPIP-822, Initial Dose Assessment Calculation Methods, Revision 00403
NO-1-114, Containment Closure, Revision 01600
OI-35, Radiation Monitoring System, Revision 28
OI-48, Wide Range Noble Gas Monitor, Revision 11
OMG-06, ORT Job Path Manager Qualification Guideline, Revision 11

Condition Reports

CR-2009-002150	CR-2009-004951	CR-2009-009084
CR-2009-003720	CR-2009-006187	IRE-032-513

Work Orders
2200802745
2200901338

Miscellaneous
System Number 048 (ESFAS), Maintenance Rule Scoping Document, Revision 29
08070440, Root Cause Analysis, Sequencer Module Assembly, 1628-1076, Revision A
423959, Purchase Order to Refurbish Sequencer Module Assembly
Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment No. 242 to Renewed Facility Operating License No. DPR-53, and Amendment No. 216 to Renewed Facility Operating License No. DPR-69, Calvert Cliffs Nuclear Power Plant, Inc., Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, Docket Nos. 50-317 and 50-318
UFSAR Section 14.18.3.1, Fuel Handling Incidents, Revision 55
Technical Paper: Response to a FHI Inside Containment with release out the COD
Fleet Nuclear Fuels Nuclear Analysis Unit Memorandum, ERPIP-821 Attachment 1 Alternate Release Rate Method Adequacy for a Fuel Handling Accident, dated 6/24/2009

Completed Surveillance Procedures
STP O-4B-2, B Train Integrated Engineered Safety Features Test, Revision 24, completed 4/6/03
STP O-4B-2, B Train Integrated Engineered Safety Features Test, Revision 26, completed 3/11/05
STP O-4B-2, B Train Integrated Engineered Safety Features Test, Revision 27, completed 3/29/07
STP O-4B-2, B Train Integrated Engineered Safety Features Test, Revision 29, completed 3/10/09
STP O-08B-2, Test of 2B DG and 4 kV Bus 24 LOCI Sequencer, Revision 26, completed 6/21/08
STP O-08B-2 (PMOT), Test of 2B DG and 4 kV Bus 24 LOCI Sequencer, Revision 26, completed 6/21/08 and 3/12/09
STP O-08B-2, Test of 2B DG and 4 kV Bus 24 LOCI Sequencer, Revision 26, completed 7/26/09, 8/16/09.9/13/09, and 10/11/09

Drawings
12723-0289SH0002, Sequencer Module Assembly & Details, Revision 1
61001SH0001, Electrical Main Single Line Diagram, Revision 42

61001SH0002, Diesel Generator Project Electrical Main Single Line Diagram, Revision 6
63005SH0001, Meter and Relay Diagram, 4 kV System, Unit Busses 21 and 24, Revision 32
61058, Logic Diagram Engineered Safety Features Actuation System, Revision 36
61058ASH0001, Logic Diagram Engineered Safety Features Actuation System, Revision 49
61403SH0109D, System Flow Sheet LOCI Sequencers, Revision 3

Licensing Documents
Calvert Cliffs Nuclear Power Plant Technical Specifications, Units 1 & 2
Calvert Cliffs Updated Final Safety Analysis Report, Units 1 & 2

System Health Reports
U2 ESFAS (System 048) System Health Report, 4/1/09 – 6/30/09
U2 ESFAS (System 048) System Health Report, 7/1/09 – 9/30/09

Section 4OA3: Followup of Events and Notices of Enforcement Discretion

Miscellaneous
CR-2009-008722
Technical Specifications

Section 4OA5: Other Activities

Procedures
CNG-CA-1.01-1000, Corrective Action Program, Revision 00200
CNG-CA-2.01-1000, Snapshot Self-Assessment Report of the Security Access "Safeguards" Standard, Revision 00100

Condition Reports
CR 2009-004948
CR 2009-004958 (Tier 1 Apparent Cause Evaluation)

Miscellaneous
HSIN-NS 2009-077, Security Access, U.S. NRC NCV dated August 26, 2009
NEI 03-01, Nuclear Power Plant Access Authorization Program
NEI 03-05, Personnel Access Data System (PADS)
NRC IN 01-07, Unescorted Access Granted on Bases of Incomplete and/or Inaccurate Information
NRC Letter to Constellation Energy Regarding NRC Investigation Report 1-2008-050 Calvert Cliffs Nuclear Power Plant, dated July 8, 2009

LIST OF ACRONYMS

ADAMS	Agency-Wide Documents Access and Management System
ALARA	As Low As Reasonably Achievable
AOP	Abnormal Operating Procedure
CAP	Corrective Action Program
CCNPP	Calvert Cliffs Nuclear Power Plant
CFR	Code of Federal Regulations
COD	Containment Outage Door
CR	Condition Report
EAL	Emergency Action Level
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedure
EPRI	Electric Power Research Institute
ERPIP	Emergency Response Plan Implementing Procedure
ESFAS	Engineered Safety Feature Actuation System
FHI	Fuel Handling Incident
GE	General Emergency
HX	Heat Exchanger
IMC	Inspection Manual Chapter
ITA	Information Technology Analyst
kV	Kilo Volt
LOCI	Loss-of-Coolant Incident
MDAFW	Motor Driven Auxiliary Feedwater
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OE	Operating Experience
OI	Operating Instruction
PARS	Publicly Available Records
PI	Performance Indicator
PMOT	Post Maintenance Operability Testing
RPS	Reactor Protection System
RSPS	Risk-Significant Planning Standard
RWP	Radiation Work Permit
SAE	Site Area Emergency
SDAFW	Steam Driven Auxiliary Feedwater
SDP	Significance Determination Process
SRW	Service Water
SSCs	Structures, Systems and Components
SW	Saltwater
TS	Technical Specification
UAA	Unescorted Access Authorization
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
WO	Work Order
WRNGM	Wide Range Noble Gas Monitor