



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

November 8, 2007

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

**SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT - NRC INTEGRATED
INSPECTION REPORT 05000317/2007004 AND 05000318/2007004**

Dear Mr. Spina:

On September 30, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Calvert Cliffs Nuclear Power Plant (CCNPP) Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on October 16, 2007, with you and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one NRC-identified finding and two self-revealing findings of very low safety significance (Green). All of the findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region 1; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the CCNPP.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the

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Sincerely,

/RA/

Glenn Dentel, Chief
Projects Branch 1
Division of Reactor Projects

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

Enclosure: Inspection Report 05000317/2007004 and 05000318/2007004
w/Attachment: Supplemental Information

cc w/encl:

M. J. Wallace, President, Constellation Generation
J. M. Heffley, Senior Vice President and Chief Nuclear Officer
President, Calvert County Board of Commissioners
C. W. Fleming, Senior Counsel, Constellation Generation Group, LLC
J. Gaines, Director, Licensing
Director, Nuclear Regulatory Matters
R. McLean, Manager, Nuclear Programs
K. Burger, Esquire, Maryland People's Counsel
R. Hickok, NRC Technical Training Center
G. Aburn, SLO (2)

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- R. Hickok, NRC Technical Training Center
- G. Aburn, SLO (2)

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S. Kennedy, DRP, Senior Resident Inspector

M. Davis, DRP, Resident Inspector

C. Newgent, DRP, Resident OA

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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.: 05000317/2007004 and 05000318/2007004

Licensee: Constellation Generation Group, LLC (Constellation)

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

Location: Lusby, MD

Dates: July 1, 2007 through September 30, 2007

Inspectors: Silas Kennedy, Senior Resident Inspector
Marlone Davis, Resident Inspector
Harry Balian, Resident Inspector, Salem
James Krafty, Reactor Inspector
Manan Patel, Reactor Inspector
Daniel Schroeder, Senior Resident Inspector, Salem
Ron Rolph, Health Physicist
M. Kendra Klump, Nuclear Safety Professional Development
Program

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

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SUMMARY OF FINDINGS

IR 05000317/2007-004, 05000318/2007-004; 07/01/2007 - 09/30/2007; Calvert Cliffs Nuclear Power Plant, Units 1 and 2: Heat Sink Performance, Operability Determination, and Event Follow-up.

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

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion XI, Test Control, for Units 1 and 2 because Constellation did not incorporate acceptance limits contained in the design basis calculation into the thermal performance test procedure for the component cooling heat exchangers (CCHXs) or evaluate test results once the 11 CCHX exceeded the acceptance limits. The inspectors determined that the 11 CCHX exceeded the fouling factor for the tests performed in 2004 and 2006 but Constellation failed to evaluate those conditions for acceptability. Constellation's immediate corrective actions included performing an assessment to verify the operability of the 11 CCHX and entering this issue into the corrective action program (CAP).

The finding is greater than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and affects the cornerstone objective of ensuring the capability, availability, and reliability of the CCHXs to remove their design basis heat load under accident conditions. In addition, if left uncorrected, this finding would result in a more significant safety concern because the fouling factor for the 11 CCHX could exceed its acceptance limit prior to the next tube cleaning and cause the heat exchanger to become inoperable. The inspectors determined that the finding is of very low safety significance (Green) because the finding was confirmed not to result in a loss of operability. The finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not identify the issue in a timely manner in that the inadequate test procedure was not identified nor was a CR initiated once the limiting fouling factor was exceeded (P.1.a per IMC 0305). (Section 1R07)

- Green. A Green, self-revealing, NCV of Technical Specifications (TS) 5.4.1.a, "Procedures," was identified because Constellation did not establish and maintain emergency diesel generator (EDG) maintenance procedures

that incorporated appropriate torque values for the engine top cover bolts specified in the vendor technical manual. During a monthly surveillance of the Unit 1 1B EDG, oil leaked from multiple loose engine top cover bolts onto the exhaust manifold and resulted in a small fire. Constellation entered this issue into their CAP as IRE-024-616. The immediate corrective actions included tightening the cover bolts to the vendor recommended torque value and verifying the proper torque values for the remaining EDGs.

This finding was similar to Example 4.f of Appendix E to IMC 0612 in that it involved a lube oil leak and a fire hazard. The finding is greater than minor because it associated with the procedure quality attribute under the Mitigating System cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of the EDG to respond to initiating events to prevent undesirable consequences. Specifically, the loose engine cover bolts challenged the reliability of EDG and if left uncorrected, the inadequate EDG maintenance procedure could result in a more significant safety concern. The inspectors determined that the finding is of very low safety significance (Green) because the finding confirmed not to result in a loss of operability. This finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not implement and institutionalize operating experience (OE), including internal OE and vendor recommendations, through changes to station processes, procedures, and training programs (P.2.b per IMC 0305). (Section 1R15)

- Green. A Green, self-revealing, NCV of TS 3.3.1, "Reactor Protection System (RPS) Instrumentation," was identified because Constellation entered Modes 1 and 2 without the TS required number of linear range nuclear instrumentation (LRNI) channels operable. On April 2, 2007, while in Mode 1, during a Unit 2 reactor startup, operators noted that Channel C LRNI did not provide indication on the reactor protective system calibration and indication panel. Constellation determined that a technician error led to the incorrect installation of the circuit card that resulted in the inoperable LRNI channel and post-maintenance testing failed to identify the misplaced circuit card prior to the mode of applicability for the affected channel. Upon discovery of the inoperable LRNI channel, Constellation took immediate corrective action to bypass the inoperable channel in accordance with TS 3.3.1.A. and restored the circuit card to the correct location. Constellation entered this issue into the CAP for resolution.

This finding is greater than minor because it affects the configuration control attribute of the Mitigating System cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, proper reactor protection system capability was not maintained as required by TS. The inspectors determined that the finding was of very low safety significance (Green) because the finding is not a design or qualification deficiency, does not represent a loss of a system safety function or safety function of a single train, and does not screen as potentially risk significant due to external events. This finding has a cross-cutting aspect in the area of Human Performance because Constellation did not use human error prevention techniques, such as self and peer checking, and proper documentation of

activities, which resulted in the incorrect installation of a circuit card (H.4.a per IMC 0305). (Section 4OA3)

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Calvert Cliffs Unit 1 began the inspection period at 100 percent reactor power. On August 17, 2007, operators reduced power to 84 percent to perform main turbine valve testing and condenser waterbox cleaning. Operators returned the unit to 100 percent power on August 19. On September 22, operators reduced power to 93 percent to support the cleaning and inspection of additional waterboxes. Operators returned the unit to 100 percent power the same day and the unit remained at 100 percent power the remainder of the inspection period.

Calvert Cliffs Unit 2 began the inspection period at 100 percent reactor power. On August 24, 2007, operators reduced power to 84 percent to perform main turbine valve testing and waterbox cleaning. Operators returned the Unit to 100 percent power on August 26. On September 19, operators reduced power to 94 percent due to a dropped control element assembly (CEA) and returned the Unit to 100 percent power the same day once the CEA was restored. The Unit remained at 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - Two Samples)

Adverse Weather Conditions

a. Inspection Scope

The inspectors reviewed the adverse weather preparations and mitigating strategies for impending adverse weather conditions. This review included an assessment of the Emergency Preparedness (EP) Procedure EP-1-108, "Severe Weather Preparation," and the Emergency Response Plan Implementation Procedure (ERPIP) 3.0, "Immediate Actions," Attachment 20, "Severe Weather." The inspectors verified that the operator actions specified in the associated procedures maintain readiness of essential systems to preclude weather induced initiating events. The inspectors evaluated the readiness for the following impending adverse weather conditions:

- Thunderstorm warning on July 3, 2007; and
- Wind gusts of up to 70 mph and heavy rains on July 19, 2007.

b. Findings

No findings of significance were identified.

1R04 Equipment AlignmentPartial Walkdown (71111.04Q – Four Samples)a. Inspection Scope

The inspectors verified that selected equipment trains of safety-related and risk significant systems were properly aligned. 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 the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or potentially affect the availability of associated mitigating systems. The applicable documents used for this inspection are located in the Attachment. The inspectors performed a partial walkdown for the following activities:

- No. 11 CCHX during maintenance on the No. 12 CCHX;
- 0C EDG during maintenance on the 1A EDG;
- No. 13 auxiliary feedwater (AFW) motor driven train during maintenance on 12 AFW steam driven pump; and
- No. 23 high pressure safety injection (HPSI) pump during No. 22 HPSI pump surveillance.

b. Findings

No findings of significance were identified.

1R05 Fire Protection 71111.05Q - Nine Samples)a. Inspection Scope

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

- 2A EDG room, fire area 31, room 422;
- 1B EDG room, fire area 30, room 420;
- Unit 2 cable spreading room & cable chase, fire area 17, room 302/2C;
- Unit 1 AFW pump room, fire area 42, room 603;
- Unit 2 AFW pump room, fire area 43, room 605;
- Unit 2 main transformers (U-22000-21 & 22), fire area – yard;
- Unit 1 and 2 service transformers U-4000-12 & 22, fire area – yard;
- No. 12 emergency core cooling system (ECCS) pump room, fire area 3, room 118; and
- No. 11 ECCS pump room, fire area 4, room 119.

b. Findings

No findings of significance were identified.

1R06 Flood Protection (71111.06 - One Sample)

a. Inspection Scope

The inspectors reviewed flood protection measures associated with external flood events. These events were described in the Calvert Cliffs' Updated Final Safety Analysis Report (UFSAR) and the Individual Plant Examination of External Events (IPEEE). The inspectors walked down risk significant areas at the site that included the turbine building and the 1A diesel generator building. The inspectors evaluated the integrity of watertight doors, floor drains and penetrations for these selected areas. The inspectors also walked down external drains identified by the IPEEE to verify their ability to mitigate the effects of external flood events.

b. Findings

No findings of significance were identified.

1R07 Heat Sink (7111107A - One Sample)

a. Inspection Scope

The inspectors reviewed the test data and evaluated the test acceptance criteria for completed thermal performance tests for the CCHXs to ensure that design basis requirements were satisfied. The inspectors also evaluated existing heat transfer capabilities based on completed flow verification test results to ensure that specific safety functions could be performed in accordance with design specifications. The inspectors also reviewed Calvert Cliffs' periodic maintenance methods to verify that they conformed to the guidelines delineated in Electric Power Research Institute Report NP-7552, "Heat Exchanger Performance Monitoring Guidelines." Additional documents reviewed are listed in the Attachment.

b. Findings

Introduction: The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion XI, Test Control, for Units 1 and 2 because Constellation did not incorporate acceptance limits contained in the design basis calculation into the thermal performance test procedure for the CCHXs or evaluate test results once the 11 CCHX exceeded the acceptance limits.

Description: The inspectors reviewed the results of eight single tube thermal (STT) tests performed for both Unit 1 and 2 CCHXs for the last five years. The STT is the test method that Constellation has used since 2002 to verify the thermal performance of the CCHXs in accordance with their response to Generic Letter 89-13, Service Water Systems Problems Affecting Safety-Related Equipment. The inspectors noted that the Engineering Test Procedure (ETP)

01-004R, Single Tube Thermal Performance Testing, did not incorporate acceptance limits (fouling factor) contained in the design basis calculation for CCHXs thermal performance. In the February 2004 and January 2006 tests on the 11 CCHX, the inspectors observed that the calculated fouling factor (0.00110 and 0.00187, respectively), exceeded the limiting fouling factor (0.00105) determined in Calculation M 93 41, CCHXs. The calculation stated an evaluation should be performed if the calculated fouling factor exceeded the limiting fouling factor to verify that the CCHX would be able to remove the design heat load under accident conditions. The inspectors determined that Constellation did not conduct an evaluation for either test. As a result, the inspectors questioned the basis for operability of the 11 CCHX. Constellation performed an assessment to verify the operability of the 11 CCHX and entered this issue into their CAP (IRE-025-461 and IRE-024-596). The inspectors noted that Constellation missed several opportunities to identify that the STT test procedure did not contain acceptance limits and that Constellation did not initiate a CR once the limiting fouling factor was exceeded.

The performance deficiency is that the STT test procedure did not contain acceptance limits and Constellation did not evaluate the results of the test to ensure that the CCHXs were capable of removing their design basis heat loads under accident conditions.

Analysis: The finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the capability, availability, and reliability of the 11 CCHX to remove its design heat load under accident conditions. In addition, if left uncorrected, this finding would result in a more significant safety concern because the fouling factor for the 11 CCHX could exceed its acceptance limit prior to the next tube cleaning and cause the heat exchanger to become inoperable. In accordance with NRC IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," the inspectors conducted a Phase 1 SDP screening. The inspectors determined that the finding was of very low safety significance because the finding did not result in a loss of operability. The finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not identify the issue in a timely manner in that the inadequate test procedure was not identified nor was a CR initiated once the limiting fouling factor was exceeded (P.1.a per IMC 0305).

Enforcement: 10 CFR 50, Appendix B, Criterion XI, Test Control, requires, in part, that test procedures demonstrate that structures, systems, and components (SSC) will perform satisfactorily in service, incorporate requirements and acceptance limits contained in applicable design documents and that test results be documented and evaluated to ensure that test requirements have been satisfied. Contrary to the above, from September 2002 until August 10, 2007, Constellation's STT test procedure did not contain acceptance limits and the results of the test were not evaluated to ensure that the CCHXs were capable of removing the design basis heat load under accident conditions. Because this violation is of very low safety significance and Constellation entered the issue into their CAP (IRE-025-461 and IRE-024-596), this violation is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy.

(NCV 05000317, 05000318/2007004-01: Lack of Acceptance Limits for Thermal Performance Testing of Component Cooling Water Heat Exchangers)

1R11 Licensed Operator Requalification (71111.11Q - One Sample)

a. Inspection Scope

On August 23, 2007, the inspectors observed licensed operator requalification training scenarios to assess operator performance and the adequacy of the licensed operator training program. The scenario involved a simulated seismic event with an anticipated transient without scram (ATWS) while at full power. The simulated earthquake also caused a small break loss of coolant accident, a fire in the turbine building, a fire involving the P-13000-2 service transformer, and a large saltwater (SW) system leak in the service water system pump room. The inspectors focused on high-risk operator actions performed during implementation of emergency operating procedures (EOP), entry into abnormal operating procedures, and classification of the events related to seismic, fire and ATWS issues. The inspectors evaluated the clarity and formality of communications, the completion of appropriate actions in response to alarms, the performance of timely control board operations and manipulations, and the oversight and direction provided by the shift manager. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q - Three Samples)

a. Inspection Scope

The inspectors reviewed the samples listed below for items such as: 1) appropriate work practices; 2) identifying and addressing common cause failures; 3) scoping in accordance with 10 CFR 50.65(b) of the maintenance rule (MR); 4) characterizing reliability issues for performance; 5) trending key parameters for condition monitoring; 6) recording unavailability for performance; 7) classification and reclassification in accordance with 10 CFR 50.65(a)(1) or (a)(2); and 8) appropriateness of performance criteria for SSCs classified as (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs classified as (a)(1). Documents reviewed are listed in the Attachment.

- Unit 2 pressurizer code safety relief valve lifted low
- 1B EDG exhaust manifold fire
- Unit 1 service water heat exchangers suspected air in-leakage

b. Findings

No findings of significances were identified.

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

a. Inspection Scope

The inspectors reviewed the following activities to verify that station personnel performed the appropriate risk assessments prior to removing equipment for work. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors compared the risk assessments and risk management actions performed by station procedure NO-1-117, "Integrated Risk Management," to the requirements of 10 CFR 50.65(a)(4), the recommendations of the Nuclear Management and Resources Council 93-01, Revision 2, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and approved station procedures. In addition, the inspectors assessed the adequacy of Constellation's identification and resolution of problems associated with maintenance risk assessments and emergent work activities. Documents reviewed are listed in the Attachment.

- Planned maintenance on No. 21 and No. 24 4.16 kilovolt (kV) under-voltage relay functional test during the week of July 9, 2007
- 1A EDG emergent work due to a failed piston during the week of July 30, 2007
- Placement and removal of the reserve battery to and from No. 11 DC bus for planned maintenance during the week of August 13, 2007
- No. 12 charging pump out of service for emergent repairs due to excessive seal leakage on August 19, 2007
- Unit 2 wide range nuclear instrument out of service for emergent repairs due to channel failure on August 26, 2007
- No. 12 AFW steam driven pump out of service due to emergent maintenance during the week of August 27, 2007

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - Five 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. Documents reviewed are listed

in the Attachment. The inspectors performed field walkdowns, interviewed personnel, and reviewed the following items:

- 1A EDG piston failure (OD# 07-005);
- 0C station blackout diesel generator functional assessment due to the cylinder operating temperature exceeding surveillance acceptance criteria (FA# 07-003);
- 1B EDG lube oil leak (OD# 07-006);
- No. 11 SW pump discharge check valve leak (OD# 07-010); and
- No. 12 and No. 21 AFW steam driven pump speed control issue (OD# 07-008 and OD# 07-009).

b. Findings

Introduction. A Green, self-revealing, NCV of TS 5.4.1.a, "Procedures," was identified because Constellation did not establish and maintain EDG maintenance procedures that incorporated appropriate torque values for the engine top cover bolts specified in the vendor technical manual.

Description. During a surveillance test conducted on August 12, 2007, a self-revealing finding was identified when a small fire ignited on the 1B EDG exhaust manifold. The 1B EDG was approximately 1 hour and 20 minutes into a monthly surveillance run and at full load for 17 minutes when the fire occurred. Lube oil leaked from multiple loose engine top cover bolts onto the exhaust manifold and resulted in the fire. Operators extinguished the flames with a carbon dioxide fire extinguisher. The small fire lasted approximately six minutes. The surveillance test was terminated and the EDG was unloaded and shut down. Constellation personnel examined the engine top cover and discovered that 15 of the 122 bolts were loose, at less than the 40 – 55 ft-lbs torque values, specified by the vendor. These bolts were tightened to 55 ft-lbs and all engine top cover bolts on all of the Fairbanks Morse EDGs on site (1B, 2A, and 3B) were verified to be within the vendor-specified torque values. The 1B EDG was returned to an operable status after completion of satisfactory post-maintenance testing.

The inspectors determined that Constellation Procedure EDG-20, "Fairbanks Morse Diesel Generator Inspection," did not have torque requirements for the engine top cover bolts. The procedure did not reference or incorporate the torque values of 40 – 55 ft-lbs recommended by the "Fairbanks Morse Engine Technical Manual," BG&E Document Number 12-310-168. Constellation entered this deficiency into their CAP as issue report IRE-024-616. In addition, the inspectors noted internal lessons learned concerning similar events related to this issue. For example, in February 2007, Constellation discovered two loose bolts on the 1B EDG top cover. Constellation tightened the loose bolts but did not recognize the need to ensure that the bolts were tightened to the vendor's recommended value or update the EDG maintenance procedure.

The performance deficiency is that Constellation did not maintain an adequate maintenance procedure for the EDG. This led to an oil leak from loose top cover bolts and resulted in a small fire.

Analysis. This finding was similar to Example 4.f of Appendix E to IMC 0612 in that it involved a lube oil leak and a fire hazard. The finding is greater than minor because it associated with the procedure quality attribute under the Mitigating System cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of the EDG to respond to initiating events to prevent undesirable consequences. Specifically, the loose engine cover bolts challenged the reliability of EDG and if left uncorrected, the inadequate EDG maintenance procedure could result in a more significant safety concern. The inspectors evaluated the significance of this finding using SDP Phase 1 of IMC 0609, Appendix A. The inspectors determined that the finding was of very low safety significance (Green) because the finding did not result in a loss of operability. This finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not implement and institutionalize OE, including internal OE and vendor recommendations, through changes to station processes, procedures, and training programs (P.2.b per IMC 0305).

Enforcement. Technical Specification 5.4.1, “Administrative Controls,” requires that written procedures be established and maintained for activities specified in Regulatory Guide 1.33. Regulatory Guide 1.33 includes written procedures for performing maintenance, which can affect the performance of safety-related equipment. Contrary to these requirements, prior to August 12, 2007, Constellation did not properly establish and maintain maintenance procedure, EDG-20, “Fairbanks Morse Diesel Generator Inspection.” Specifically, EDG-20 did not contain vendor recommended torque values for the engine top cover bolts. As a result, the engine top cover flange leaked lube oil, which led to a fire on the 1B EDG exhaust manifold. Because this issue is of very low safety significance (Green) and entered into Constellation’s CAP (IRE-024-616), this violation is being treated as a NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000317/2007004-02: Failure to Maintain Adequate Procedures for EDG Maintenance)**

1R19 Post-Maintenance (71111.19 – Five Samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that were potentially affected by the maintenance activity, that the acceptance criteria in the procedure were consistent with information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data, to verify that the test results adequately demonstrated restoration of the affected safety functions. Documents reviewed are listed in the Attachment.

- No. 21 steam generator main feed isolation valve MOV-4516 blown fuse (MO #2200703198)
- 1A EDG A4 cylinder repair (MO #1200703073)
- Unit 2 reactor trip breakers replacement (MO #2200700469)

- No. 21 AFW steam driven pump hand controller (MO #2200704530)
- No. 12 AFW steam driven pump governor replacement (MO #2200704530)

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 – Six Samples)

a. Inspection Scope

The inspectors observed and/or reviewed the surveillance tests listed below associated with selected risk-significant SSCs to determine whether the testing adequately demonstrated the ability to perform its intended safety function. The inspectors also verified that proper test conditions were established as specified in the procedures, no equipment preconditioning activities occurred, and that acceptance criteria had been satisfied. The documents reviewed during this inspection are listed in the Attachment.

- STP-M-220G-2, No. 21 & 24 4kV undervoltage relay functional test
- STP-O-8A-2, 2A DG and 4kV bus No. 21 loss-of-coolant incident sequencer test
- STP-M-212D-1, channel “D” reactor protective system functional test
- STP-M-200-2, reactor trip breaker functional test
- STP-O-073I-2, No. 22 HPSI pump quarterly in service test
- STP-O-029-2, CEA free movement test

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23 - Two Samples)

a. Inspection Scope

The inspectors reviewed temporary modifications to verify that safety systems did not depart from the design basis and system established criteria. The inspectors reviewed the associated 10 CFR 50.59 screening against the system design bases documentation, including the UFSAR and TS. The inspectors walked down each modification to verify that proper configuration control was maintained to ensure continued system operability. In addition, the inspectors verified that Constellation controlled the modification in accordance with the requirements of procedure MD 1-100, “Temporary Alterations.”

- TA-2-07-017, No. 22 emergency core cooling system (ECCS) pump room air cooler basket strainer drain line repair
- TA-2-07-0018, No. 21 shutdown cooling heat exchanger component cooling water outlet valve opened with instrument air isolated

b. Findings

No findings of significance were identified.

2. **RADIATION SAFETY**

Cornerstone: Occupational Radiation Safety

2OS1 Access Control To Radiological Significant Areas (71121.01 - Twelve Samples)

a. Inspection Scope

Plant Walk Downs and Radiation Work Permits (RWP) Reviews

The inspectors reviewed RWPs (called special work permits (SWP) at Constellation) used to access high radiation areas. The inspectors verified that appropriate work control instructions or control barriers had been specified. The inspectors reviewed electronic personal dosimeter alarm set points (both integrated dose and dose rate) for conformity with survey indications and plant policy.

The inspectors examined the licensee's physical and programmatic controls for highly activated or contaminated materials (non-special nuclear materials (SNM)) stored within the spent fuel pools (SFP). The inspectors interviewed the staff member charged with the responsibility for controlling non-SNM in the SFP. The inspectors also reviewed procedures controlling the movement of non-SNM in and out of the SFP.

Problem Identification and Resolution

The inspectors reviewed the licensee's self-assessments, audits and special reports related to the access control program since the last inspection and determined if identified problems were entered into the CAP for resolution.

The inspectors reviewed corrective action reports related to access controls and high radiation area radiological incidents that have occurred since the last inspection. The inspectors interviewed staff and reviewed documents to determine if the follow-up activities were effective and timely. The inspectors reviewed the follow-up actions taken for the resolution of two NCVs from a previous inspection report.

The inspectors evaluated whether the licensee's self-assessment activities were identifying and addressing repetitive deficiencies or significant individual deficiencies.

The inspectors reviewed documentation for all PI events since the last inspection and determined if any of these events involved dose rates >25 R/hr at 30 centimeters or >500 R/hr at one meter. No events met this criteria. The inspectors also determined there were no unintended exposures >100 mrem total effective dose equivalent.

High Risk Significant, High Dose Rate (HDR) and Very High Radiation Area (VHRA) Controls

The inspectors discussed HDR-HRA and VHRA controls and procedures with the Radiation Protection Manager. There have been no procedural changes since the last inspection.

The inspectors discussed the controls in place for special areas that have the potential to become VHRA during certain plant operations with a first-line health physics supervisor and a radiation protection technician having responsibility during off normal hours.

The inspectors toured all accessible entrances to locked high radiation areas (HRA) to verify adequate posting and locking of all entrances.

Radiation Worker Performance & Radiation Protection Technician Proficiency

The inspectors reviewed radiological problem reports since the last inspection associated with radiation worker and radiation protection technician errors.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

Inspection Planning

The inspectors reviewed information regarding collective exposure history, current exposure trends and on going or planned activities in order to assess current performance and exposure challenges.

The inspectors reviewed site-specific procedures associated with maintaining occupational exposures as low as reasonably achievable (ALARA).

Radiological Work Planning

The inspectors obtained a list of work activities ranked by actual exposure that were completed during the last outage. The three highest exposure activities were: scaffold/insulation activities, reactor coolant system (RCS) H/L nozzle replacement, and minor maintenance activities.

The inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements to determine whether the licensee has established procedures, engineering and work controls based on sound radiation protection principles to achieve occupational exposures that are ALARA.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation (71121.03 - One Sample)

a. Inspection Scope

Radiation Protection Technician Instrument Use

The inspectors verified that radiation detection instruments staged for use had current calibrations and were source checked for the day. The inspectors observed a radiation protection technician select the appropriate instrument for HRA entry and perform a self-verification to ensure the instrument operability.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151 - Ten 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 PIs were reviewed for the period of April 2006 through June 2007. The inspectors used the guidance provided in Nuclear Energy Institute (NEI) 99-02, Revision 4, "Regulatory Assessment Performance Indicator Guideline" to assess the accuracy of Constellation's collection and reporting of PI data. The inspectors reviewed Licensee Event Reports (LER), monthly operating reports, CCNPP power history charts, NRC inspection reports and operator narrative logs.

b. Findings

No findings of significance were identified.

.2 Barrier Integrity

a. Inspection Scope

The inspectors reviewed Constellation's PI program to evaluate, collect and report information on Unit 1 and 2 RCS specific activity PIs. The performance indicators were reviewed for the period of September 2006 through June 2007. The inspectors used the guidance provided in NEI 99-02, Revision 4, "Regulatory Assessment Performance Indicator Guideline" to assess the accuracy of Constellation's collection and reporting of PI data. The inspectors reviewed RCS

chemistry sample analyses, completed surveillance test, operator narrative logs, and NRC inspection reports and web data.

b. Findings

No findings of significance were identified.

.3 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors reviewed implementation of the Licensee's Occupational Exposure Control Effectiveness PI Program. Specifically, the inspectors reviewed condition reports, and associated documents, for occurrences involving locked HRAs, VHRAs, and unplanned exposures against the criteria specified in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 4, to verify that all occurrences that met the NEI criteria were identified and reported as PIs.

b. Findings

No findings of significance were identified.

.4 RETS/ODCM Radiological Effluent Occurrences

a. Inspection Scope

The inspectors reviewed relevant effluent release reports for the last four quarters for issues related to the public radiation safety PI, which measures radiological effluent release occurrences that exceed 1.5 mrem/qtr whole body or 5.0 mrem/qtr organ dose for liquid effluents; 5 mrad/qtr gamma air dose, 10 mrad/qtr beta air dose, and 7.5 mrad/qtr for organ dose for gaseous effluents.

b. Findings

No findings of significance were identified.

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

.1 Review of Items Entered Into the CAP

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

.2 Annual Sample: Unit 1 Automatic Reactor Trip Due to Main Turbine Malfunction

a. Inspection Scope

The inspectors completed a sample review regarding Constellation's evaluation and corrective actions for the Unit 1 manual reactor trip on December 12, 2006, due to loss of load while replacing two circuit cards on the turbine control system. CR IRE-018-885, and related CRs were selected for detailed review to ensure that the full extent of the issue was understood and adequately addressed in the station's CAP. These reports documented Constellation's apparent cause analysis and identified corrective actions, both short and long term, to prevent recurrence. The inspectors also reviewed station procedures, performed a system walkdown, and interviewed station personnel to review how Constellation's corrective action process will prevent similar events.

b. Findings and Observations

No findings of significance were identified. The inspectors reviewed Constellation's CAP procedure and identified that the December 12, 2006, manual reactor trip condition required a category I root analysis. Constellation station personnel conducted an apparent cause evaluation (ACE) (category II), and an evaluation of the risk assessment on the maintenance activity on the turbine control system. Inspectors identified that improvements could be made to the process for assigning appropriate categorization to conditions or occurrences (IRE-024-855). In this case, the inspectors determined that Constellation's ACE did identify the cause of the condition and assigned the appropriate corrective actions.

.3 Annual Sample: Review of Operator Work-Arounds

a. Inspection Scope

The inspectors performed an in-depth review of work-arounds for Unit 1 & 2 in accordance with IP 71152. This included an evaluation of the cumulative effects of documented work-arounds, field walk-downs to determine potential undocumented work-arounds, review of CRs, and control room walk-downs. The evaluation followed the guidelines in 71152 paragraph 03.02 b and assessed potential work-arounds not evaluated by station personnel, work-arounds that have been formalized as long-term corrective actions, and work-arounds that increase the potential for human performance errors.

b. Findings and Observations

No findings of significance were identified. The inspectors determined that operator work-arounds were classified, tracked, and assessed in accordance with Constellation's procedures.

.4 Annual Sample: Unit 2 Pressurizer Code Safety Valve Low Lift

a. Inspection Scope

The inspectors reviewed Constellation's actions associated with an unexpected response of a pressurizer code safety valve during an automatic reactor trip. On November 16, 2006, Unit 2 reactor automatically tripped from full power due to an unexpected closure of the main turbine valves during a tagout of an offsite power supply. One of two safety valves simmered (approximately three minutes) based on acoustic monitoring indications. The inspectors reviewed the ACE for the code safety valve and conducted interviews with engineering personnel to determine if corrective actions have been effective.

b. Findings and Observations

On November 16, 2006, Unit 2 automatically tripped due to high pressurizer pressure during the performance of a clearance order to support scheduled maintenance. As a result of the trip, one of two pressurizer code safety valve simmered (approximately three minutes) based on acoustic monitoring indications. Constellation sent the code safety valve to Wyle labs for analysis. The as-found setpoint was 2414 psia versus a required TS value of 2475 psia. Constellation determined that the low set point was due to degraded threads on the bonnet and compression screw. The inspectors identified concerns with the ACE. Constellation wrote condition report IRE-025-193 and plan on revising the ACE. This issue is unresolved pending the inspectors' review of the revised ACE to determine if there is a performance deficiency associated with the setting of the pressurizer safety valves. **(URI 05000318/2007004-04, Unit 2 Pressurizer Safety Valve Low Lift Setting)**

4OA3 Event Followup (71153 - One Sample)

.1 1A EDG Tripped on High Crankcase Pressure

a. Inspection Scope

On July 28, 2007, the 1A EDG automatically tripped on high crankcase pressure during its monthly surveillance. Operators declared the 1A EDG inoperable and entered an unplanned 14 day TS action statement. Constellation determined that the apparent cause was due to an overheated piston on the A4 cylinder of the 1A1 engine. Constellation formed an issue response team to determine the reason for the overheated piston and the repairs necessary to return the 1A EDG to service. Following approximately six days of troubleshooting, Constellation determined that the cause of the overheated piston was epoxy from the lube oil filter that entered the oil nozzles used to provide cooling to the cylinder head. All of the lube oil filters were removed, inspected, and replaced. Constellation conducted an extent of condition review of the remaining EDGs. Following repair of the 1A EDG and a satisfactory post-maintenance test, Constellation restored the 1A EDG to operable status on August 7, 2007. The inspectors reviewed the troubleshooting plan and operability determination, observed portions of the post-maintenance test, and discussed corrective actions and repair activities with Constellation personnel. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

.2 (Closed) Licensee Event Report (LER) 05000318/2007001-00, Channel C Linear Range Nuclear Instrument Inoperable During Startup

a. Inspection Scope

On April 2, 2007, while in Mode 1, during a Unit 2 reactor startup, operators noted that Channel C LRNI did not provide indication on the reactor protective system calibration and indication panel. Constellation determined that a technician error led to the incorrect installation of the circuit card that resulted in the inoperable LRNI channel and post-maintenance testing failed to identify the misplaced circuit card prior to the mode of applicability for the affected channel. Upon discovery of the inoperable LRNI channel, Constellation took immediate corrective action to bypass the inoperable channel in accordance with TS 3.3.1.A. and restored the circuit card to the correct location. The inspectors reviewed the LER and ACE associated with this self-revealing event to determine if a performance deficiency existed and to verify that the root cause and corrective actions related to the event were adequate.

b. Findings

Introduction. A Green, self-revealing, NCV of TS 3.3.1, "Reactor Protection System Instrumentation," was identified because Constellation entered Modes 1 and 2 without the TS required number of LRNI channels operable.

Description. On April 2, 2007, while in Mode 1 during a Unit 2 reactor startup, operators noted that Channel C LRNI did not provide indication on the reactor protective system calibration and indication panel. This condition was observed as operators increased reactor power to 6.7 percent. Troubleshooting determined that a circuit card was in the wrong slot on the circuit board, resulting in an inoperable condition for Channel C LRNI. Constellation determined that this condition was created during the 2007 refueling outage while conducting maintenance on the Channel C LRNI power supply. Constellation determined that a technician error led to the incorrect installation of the circuit card that resulted in the inoperable LRNI channel. Specifically, the technician did not comply with MN-1-134, Conduct of Electrical and Control Maintenance, that required use of a "Lifted Wire, Jumper, Termination, Slidelink" record. In addition, Constellation determined that post-maintenance testing (PMT) failed to find the misplaced circuit card prior to the mode of applicability for the affected channel. Upon discovery of the inoperable LRNI channel, Constellation took immediate corrective action to bypass the inoperable channel in accordance with TS 3.3.1.A. and restored the circuit card to the correct location. Additional planned corrective actions include revisions to the PMT guideline to ensure that the appropriate PMTs are identified.

The performance deficiency associated with this finding is the incorrect installation of the LRNI drawer circuit card, which led to an inoperable RPS instrumentation channel.

Analysis. This finding is greater than minor because it affects the configuration control attribute of the Mitigating System Cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, proper reactor protection system capability was not maintained as required by TS. The inspectors evaluated the significance of this finding using SDP Phase 1 of IMC 0609, Appendix A. The inspectors determined that the finding was of very low safety significance (Green) because the finding is not a design or qualification deficiency, does not represent a loss of a system safety function or safety function of a single train, and does not screen as potentially risk significant due to external events. This finding has a cross-cutting aspect in the area of Human Performance because Constellation did not use human error prevention techniques, such as self and peer checking, and proper documentation of activities, which resulted in the incorrect installation of a circuit card (H.4.a per IMC 0305).

Enforcement. TS 3.3.1 requires four channels of LRNI be operable in Modes 1 and 2. Contrary to this, on April 1, 2007, Constellation entered Modes 1 and 2 with one LRNI channel inoperable without meeting the associated action of TS 3.3.1.A, which states, "place the affected bistable trip unit in bypass or tripped within 1 hour." Constellation continued in Modes 1 and 2 for approximately 11 hours prior to discovery of the inoperable channel. This violation has been determined to be of very low safety significance and entered into Constellation's CAP (IRE-021-855). Therefore, this violation is being treated as a NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000318/2007004-03: Inoperable LRNI Channel Due to Incorrect Circuit Card Installation)**

4OA6 Meetings, Including Exit

Exit Meeting Summary

On October 16, 2007, the resident inspectors presented the inspection results to Mr. James A. Spina and other members of his staff who acknowledged the findings. The inspectors asked Constellation whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT: SUPPLEMENTAL INFORMATION

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

J. Spina, Site Vice President
 J. Pollock, Plant General Manager
 P. Beavers, Engineering Supervisor
 D. Bodine, System Engineer
 B. Dansberger, Radiation Protection Supervisor
 S. Dean, Operations Manager
 K. Dougherty, System Engineer
 B. Erdman, ALARA Supervisor
 M. Flaherty, Engineering Manager
 P. Furio, Licensing Supervisor
 J. Gaines, Licensing Director
 J. Gines, Principal Consultant
 K. Gould, Radiation Protection Manager
 K. Greene, Senior Engineer
 S. Henry, Engineering Supervisor
 J. Jerald, Root Cause Evaluator
 C. Jones, Operations
 K. LeBarron, System Engineering
 D. Murphy, Engineering Supervisor
 K. Nguyen, System Engineering
 K. Robinson, Maintenance Manager
 T. Riti, Operations
 B. Scott, Design Engineering
 A. Simpson, Senior Licensee Engineer
 R. Wyvill, Radiation Protection Supervisor
 M. Yox, Licensing

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSEDOpen

05000318/2007004-04	URI	Unit 2 Pressurizer Safety Valve Low Lift Setting (Section 4OA2)
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Opened and Closed

05000317/2007004-01	NCV	Failure to Maintain Adequate Procedures for EDG Maintenance (Section 1R15)
05000317/318/2007004-02	NCV	Lack of Acceptance Limits for Thermal Performance Testing of Component Cooling Water Heat Exchangers (Section 1R07)
05000318/2007004-03	NCV	Inoperable LRNI Channel Due to Incorrect

Circuit Card Installation (Section 40A3)

Closed

05000318/2007-001-00	LER	Channel C Linear Range Nuclear Instrument Channel Inoperable During Startup (Section 40A3)
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Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures and Instructions

Emergency Preparedness (EP)-1-108, Severe Weather Preparation, Attachment 3,
Severe Weather Preparation Checklist Operations, Rev. 0
Emergency Response Plan Implementing Procedures 3.0, Immediate Actions,
Attachment 20, Severe Weather, Rev. 39

Miscellaneous

Operator Control Room Logs

Section 1R04: Equipment Alignment

Procedures and Instructions

MN-1-203, Scaffold Control, Rev. 17
CNG-MN-1.01-1005, Scaffold Control, Rev. 0
MN-1-100, Conduct of Maintenance, Rev. 24
OI-3A, Safety Injection and Containment Spray, Rev. 23
OI-21C, 0C Diesel Generator, Rev. 20
NO-1-205, Locked Valves, Rev. 12
SD-036A/B, Auxiliary Feedwater System Description, Rev. 4
OI-16, Component Cooling System, Rev. 31

Drawings

60731SH0001, Safety Injection & Containment Spray Systems, Rev. 78
60583SH0002, Auxiliary Feedwater System (Condensate), Rev. 1

Condition Reports

IRE-025-006
IRE-025-071

Miscellaneous

UFSAR, Section 6.3, Safety Injection System, Rev. 36
UFSAR, Section 10.3, Auxiliary Feedwater System, Rev. 36
TS 3.5.2, Emergency Core Cooling System, Amendment 237 and 211

TS 3.7.3, Auxiliary Feedwater System, Amendment 237 and 211
Control Room Logs

Section 1R05: Fire Protection

Procedures

SA-1-100, Fire Prevention, Rev. 13
SA-1-102, Fire Protection/Appendix R Compensatory Actions, Rev. 2
FP-0002, Fire Hazards Analysis Summary Document, Rev. 0
CNG-CA-1.01-1010, Use of Operating Experience, Rev. 0
STP-0-08B-1, (Including Pre-Job Brief Checklist) Test of 1B DG and 14 4kV Bus LOCI
Sequencer, Rev. 26
EDG-20, Fairbanks Morse Diesel Generator Inspection, Rev. 1

Miscellaneous

Operability Determination Associated with IRE-024-616
Fairbanks Morse Engine Technical Manual, Doc. No. 12-310-168
0-013-20-O-M, Protected Area Fire Extinguisher Fire Inspection, Rev. 2

Work Orders

MO #1200602004
MO #0200601916
MO #1200701711
MO #2200303760
MO #1200703191

Condition Reports

IRE-020-415
IRE-022-050
IRE-024-616
IRE-024-619

Miscellaneous

UFSAR, Section 8.4.1, Fairbanks Morse Emergency Diesel, Rev. 36
TS 3.8.1, Electrical Power Systems, Amendment 237 and 211
Control Room Logs

Section 1R06: Flood Protection Measures

Miscellaneous

RAN: 97-031, Calvert Cliffs Individual Plant Examination of External Events (IPEEE)
Summary Report, dated August 27, 1997
UFSAR, Section 2.0, Site and Environment, Rev. 36

Section 1R07: Heat Sink Performance

Procedure

ETP-01-004R, Single Tube Thermal Performance Testing for 11 & 12 CCHX, Rev. 0
EN-1-327, Service Water Reliability Program (Generic Letter 89-13), Rev. 3

Condition Reports

IRE-023-988
IRE-024-596
IRE-025-461

Miscellaneous

Eddy Current Examination and Condition Assessment of CCNPP Number 12 CCHX in October 2005
Single Tube Thermal Testing White Paper
BGE Letter, Final Response to Generic Letter 89-13 "Service Water System Problems Affecting Safety-Related Equipment (TAC Nos. M73978 and M73979)", dated 6/30/94

Section 1R11: Licensed Operator Regualification Program

Procedures

EPOP-12, Simulator Operating Examination for the Licensed Operator Training Program at the Calvert Cliffs Nuclear Power Plant, Rev. 0
AOP-7A, Loss of Saltwater Cooling, Rev. 14
EOP-0, Post-trip Immediate Actions, Rev. 9
EOP-5, Loss of Coolant Accident, Rev. 22
ERPIP 3.0, Attachment 20, Immediate Actions, Rev. 39

Section 1R12: Maintenance Effectiveness

Procedures

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

Condition Reports

IRE-024-616

Miscellaneous Documents

Calvert Cliffs Nuclear Power Plant (CCNPP) MR Scoping Document, Revision 26
(A)(3) Periodic Assessment of Maintenance Rule Program, Calvert Cliffs Nuclear Power Plant, October 2004 through September 2006

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

NO-1-117, Integrated Risk Management, Rev. 19

Condition Reports

IRE-024-931
IRE-023-433
IRE-023-021
IRE-024-779
IRE-024-762
IRE-024-724
IRE-024-719
IRE-025-071

Miscellaneous

MRRAG, Maintenance Rule Risk Assessment Guideline, Rev. 7
UFSAR, Section 10.3, Auxiliary Feedwater, Rev. 36
TS 3.3.3.1, RPS Instrumentation-Operating, Amendment 237 and 211
QSS Week 0733, Risk Evaluations
QSS Week 0734, Risk Evaluations
QSS Week 0735, Risk Evaluations
Control Room Logs

Section 1R15: Operability Evaluations

Procedures

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

Condition Reports

IRE-024-616
IRE-024-619
IRE-024-980
IRE-025-246
IRE-024-286
IRE-025-194
IRE-025-071

Drawings

60808SH002, Circulating Saltwater Cooling System, Rev. 104

Work Orders

MO #1200703191

Miscellaneous

UFSAR, Section 9.5.2.3, Saltwater System, Rev. 36
TRM 15.4.3, ASME Code Class 1, 2 and 3 Components, Rev. 11
SD-012, Saltwater System Description, Rev. 6
TS 3.7.7, Saltwater System, Amendment 237 and 211
Control Room Logs

Section 1R19: Post-Maintenance Testing

Procedures

MN-1-101, Control of Maintenance Activities, Rev. 33
NO-1-208, Nuclear Operations (NO) Post Maintenance Testing, Rev. 12
MN-1-201, Post-Maintenance Test Definitions and the Control of PMT Matrix Modules,
Rev. 0
MN-PMTG, Post Maintenance Testing Guide, Rev. 0
FTE-57, Reactor Trip Circuit Breaker Maintenance, Rev. 14
2Q01/TCB, CCNPP Protective Relay Setting Sheet, Reactor Trip Switchgear TCB-8
STP-0-5A-2, Auxiliary Feedwater System Quarterly Surveillance Test, Rev. 19

Condition Reports

IRE-025-194
IRE-025-216

Work Orders

MO #2200700469
MO #2200704530
MO #1200703073
MO #1200503094
MO #2200703198
MO #2200703295
MO #2200704530

Miscellaneous

UFSAR, Section 10.3, Auxiliary Feedwater, Rev. 36
SD-036A/B, Auxiliary Feedwater System Description, Rev. 4
TS 3.7.3, Auxiliary Feedwater, Amendment 237 and 211
Control Room Logs

Drawings

60583SH0001, Auxiliary Feedwater System (Steam), Rev. 61
60583SH0002, Auxiliary Feedwater system (Condensate), Rev. 1

Section 1R22: Surveillance Testing

Procedures

STP-M-200-2, Reactor Trip Circuit Breaker Functional Test, Rev. 13
STP-O-073I-2, HPSI Pump and Check Valve Quarterly Operability Test, Rev. 10
STP-O-8A-2, Test of 2A DG and 4kB Bus 21 LOCI Sequencer, Rev. 25
STP-M-212D-1, Channel D Reactor Protective System Functional Test, Rev. 7
STP-O-029-2, Control Element Assembly (CEA) Free Movement Test, Rev. 13

Condition Reports

IRE-025-399
IRE-025-439
IRE-025-457
IRE-023-905
IRE-023-909
IRE-023-911

Miscellaneous

IST Basis Document, Safety Injection System, Section 14, Rev. 0
UFSAR, Section 6.3, Safety Injection System, Rev. 36
Calvert Cliffs Nuclear Power Plant Technical Specifications, Amendment 237 and 211
Shift Turnover Information Sheet for 8/8/07 and 8/9/07
TS 3.5.2, Emergency Core Cooling System, Amendment 237 and 211
QSS Week 0736, Integrated Work Schedule
Control Room Logs

Drawings

62731SH0001, Safety Injection & Containment Spray Systems, Rev. 72

Section 1R23: Temporary Plant Modifications

Procedures

MD-1-100, Temporary Alterations, Revision 13

Condition Reports

IRE-025-594
IRE-025-342
IRE-025-470
IRE-025-472 and associated operability determination

Miscellaneous

TA-2-07-017, No. 22 emergency core cooling system pump room air cooler basket
strainer drain line repair, Rev. 0
TA-2-07-018, No. 21 shutdown cooling heat exchanger component cooling water outlet
valve opened with instrument air isolated, Rev. 0

Section 20A1: Access Control To Radiologically Significant Areas

Procedures

NO-1-110, Calvert Cliffs Key and Lock Control, Rev. 7
RP-1-100, Radiation Protection, Rev. 8
RP-1-101, ALARA, Rev. 4
RSP-1-104, Area Posting and Barricading, Rev. 20
RSP-1-200, ALARA Planning and SWP Preparation, Rev. 22

Condition Reports

IRE-010-005	IRE-021-055	IRE-022-146
IRE-010-870	IRE-021-260	IRE-022-307
IRE-019-861	IRE-021-331	IRE-022-371
IRE-020-980	IRE-021-695	IRE-022-626

IRE-022-664	IRE-022-747
IRE-023-320	
IRE-023-780	

Self-Assessments

SA200200153	2007-003	2007-006
2007-001	2007-004	2007-007
2007-002	2007-005	

Special Work Permits

2007-2000	2007-2030	2007-2374
2007-2002	2007-2307	2007-2400
2007-2006	2007-2311	2007-2401
2007-2010	2007-2314	2007-2411
2007-2016	2007-2353	2007-2420
2007-2018	2007-2373	2007-2423

Section 20A2: ALARA Planning and ControlsProcedures

NO-1-110, Calvert Cliffs Key and Lock Control, Rev. 7
 RP-1-100, Radiation Protection, Rev. 8
 RP-1-101, ALARA, Rev. 4
 RSP-1-104, Area Posting and Barricading, Rev. 20
 RSP-1-200, ALARA Planning and SWP Preparation, Rev. 22

Condition Reports

IRE-010-005	IRE-021-331	IRE-022-664
IRE-010-870	IRE-021-695	IRE-022-747
IRE-019-861	IRE-022-146	IRE-023-320
IRE-020-980	IRE-022-307	IRE-023-780
IRE-021-055	IRE-022-371	
IRE-021-260	IRE-022-626	

Self-Assessments

SA200200153	2007-002	2007-005
2007-001	2007-003	2007-006
	2007-004	2007-007

Special Work Permits

2007-2000	2007-2030	2007-2374
2007-2002	2007-2307	2007-2400
2007-2006	2007-2311	2007-2401
2007-2010	2007-2314	2007-2411
2007-2016	2007-2353	2007-2420
2007-2018	2007-2373	2007-2423

ALARA Plan 2008-2012

Section 2OS3: Radiation Monitoring InstrumentationCondition Reports

IRE-010-005	IRE-021-331	IRE-022-664
IRE-010-870	IRE-021-695	IRE-022-747
IRE-019-861	IRE-022-146	IRE-023-320
IRE-020-980	IRE-022-307	IRE-023-780
IRE-021-055	IRE-022-371	
IRE-021-260	IRE-022-626	

Special Work Permits

2007-2000	2007-2030	2007-2374
2007-2002	2007-2307	2007-2400
2007-2006	2007-2311	2007-2401
2007-2010	2007-2314	2007-2411
2007-2016	2007-2353	2007-2420
2007-2018	2007-2373	2007-2423

Section 4OA1: Performance Indicator VerificationProcedures and Instructions

CP-204, Specification and Surveillance Primary Systems, Revision 28

Condition Reports

	IRE-021-260
IRE-012-365	IRE-021-331
IRE-012-376	IRE-021-695
IRE-017-740	IRE-022-146
IRE-017-749	IRE-022-307
IRE-010-005	IRE-022-371
IRE-010-870	IRE-022-626
IRE-019-861	IRE-022-664
IRE-020-980	IRE-022-747
IRE-021-055	IRE-023-320
	IRE-023-780

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Special Work Permits

2007-2000	2007-2030	2007-2374
2007-2002	2007-2307	2007-2400
2007-2006	2007-2311	2007-2401
2007-2010	2007-2314	2007-2411
2007-2016	2007-2353	2007-2420
2007-2018	2007-2373	2007-2423

Section 4OA2: Identification and Resolution of Problems

Procedures

ETP-05-005, Unit 1 Main Turbine Controls Acceptance Testing, Rev. 0
OI-43C, Unit 1 Main Turbine Performance Evaluation Checks, Rev. 23
CNG-CA-1.01-1005, Apparent Cause Evaluation, Rev. 1
Operation Administrative Policy (OAP) 04-01, Managing Operator Impacts, dated
February 26, 2004

Condition Reports

IRE-018-680
IRE-018-885
IRE-018-921
IRE-018-923

Miscellaneous

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Section 4OA3: Event Followup

Procedures

STP-O-8A-1, Test of 1A DG and 11 4kV Bus LOCI Sequencer
CNG-CA-1.01-1004, Category I Root Causal Analysis, Rev. 1

Condition Reports

IRE-021-843
IRE-021-855
IRE-024-286

Work Orders

MO #1200703073

MO#2200702434

Miscellaneous

Complex Troubleshooting, Attachment 3, Troubleshooting Data Sheet

SACM Diesel Vendor Manual

Licensee Event Report 2007-001-00, Channel C Linear Nuclear Instrument Inoperable during Startup, dated May 29, 2007

Control Room Logs

Operator Logs

LIST OF ACRONYMS

ACE	Apparent Cause Evaluation
ADAMS	Agency-Wide Documents Access and Management System
AFW	Auxiliary Feedwater
ALARA	As Low As Reasonably Achievable
ATWS	Anticipated Transient Without Scram
CAP	Corrective Action Program
CCHX	Component Cooling Heat Exchanger
CCNPP	Calvert Cliffs Nuclear Power Plant
CEA	Control Element Assembly
CR	Condition Report
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedures
EP	Emergency Preparedness
ERPIP	Emergency Response Plan Implementation Procedure
ETP	Engineering Test Procedure
GL	Generic Letter
HDR	High Dose Rate
HPSI	High Pressure Safety Injection
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IPEEE	Individual Plant Examination of External Events
IR	Issue Report
kV	Kilovolt
LER	Licensee Event Report
LRNI	Linear Range Nuclear Implementation
MR	Maintenance Rule
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
OE	Operating Experience
OI	Operating Instructions
PARS	Publicly Available Records
PI	Performance Indicator
RCS	Reactor Coolant System
RETS	Radiological Effluent Technical Specification
RPS	Reactor Protection System

RWP	Radiation Work Permit
SDP	Significance Determination Process
SNM	Special Nuclear Material
SFP	Spent Fuel Pool
SSC	Structures Systems and Components
STT	Single Tube Thermal Testing
SW	Saltwater
SWP	Special Work Permit
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
VHRA	Very High Radiation Area