

August 1, 2007

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

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT - TRIENNIAL FIRE  
PROTECTION INSPECTION REPORT 05000317/2007009 AND  
05000318/2007009 AND EXERCISE OF ENFORCEMENT DISCRETION

Dear Mr. Spina:

On June 29, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed a triennial fire protection team inspection at your Calvert Cliffs Nuclear Power Plant Units 1 and 2. The enclosed report documents the inspection results which were discussed on June 29, 2007, with Mr. J. Pollock, Plant General Manager, 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. The scope of the inspection was reduced in accordance with Inspection Procedure 71111.05TTP, issued on May 9, 2006, because you are in the transition to a fire protection program that meets the requirements specified in National Fire Protection Association (NFPA) Standard 805, Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants.

Based on the results of this inspection, one finding of significance was identified. However, the NRC is not taking enforcement action for this issue because the criteria for exercising discretion specified in the NRC Enforcement Policy, "Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues" (10 CFR 50.48), have been satisfied.

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

Mr. J. Spina

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Sincerely,

**/RA/**

Marsha K. Gamberoni, Director  
Division of Reactor Safety

Docket Nos. 50-317  
50-318

License Nos. DPR-53  
DPR-69

Enclosure: NRC Inspection Report 05000317/2007009 and 05000318/2007009

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cc w/encl:

M. J. Wallace, President, Constellation Generation

J. M. Heffley, Senior Vice President and Chief Nuclear Officer

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C. W. Fleming, Senior Counsel, Constellation Generation Group, LLC

J. Gaines, Director, Licensing

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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. 05000317/2007009, 05000318/2007009

Licensee: Constellation Generation Group, LLC (Constellation)

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

Location: Lusby, MD

Dates: June 11 - 29, 2007

Inspectors: L. Scholl, Senior Reactor Inspector, DRS  
A. Patel, Reactor Inspector, DRS  
M. Patel, Reactor Inspector, DRS  
T. Sicola, Reactor Inspector, DRS

Approved by: John F. Rogge, Chief  
Engineering Branch 3  
Division of Reactor Safety

Enclosure

## SUMMARY OF FINDINGS

IR 05000317/2007009, 05000318/2007009 on 06/11 - 06/29/ 2007, Calvert Cliffs Nuclear Power Plant, Units 1 and 2; Triennial Fire Protection Team Inspection, Fire Protection.

This report covered a two-week triennial fire protection team inspection by four Region I specialist inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Constellation has committed to converting the Calvert Cliffs fire protection program to one which meets 10 CFR 50.48(c), National Fire Protection Association (NFPA) Standard 805. As a result of NRC enforcement policy changes applicable to plants in the process of transitioning to NFPA 805, one issue was identified and documented in this inspection report but is subject to enforcement discretion.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

None

## REPORT DETAILS

### Background

This report presents the results of a triennial fire protection inspection conducted in accordance with NRC Inspection Procedure (IP) 71111.05TTP, "Fire Protection - NFPA 805 Transition Period (Triennial)." The objective of the inspection was to assess whether Constellation has implemented an adequate fire protection program and that post-fire safe-shutdown capabilities have been established and are being properly maintained at the Calvert Cliffs Nuclear Power Plant, Units 1 and 2. The following fire areas (FAs) were selected for detailed review based on risk insights from the Individual Plant Examination (IPE)/Individual Plant Examination of External Events (IPEEE):

- Fire Area 17
- Fire Area 19
- Fire Area 31
- Fire Area 34
- Fire Area TB.

Section 71111.05-05 of IP 71111.05TTP specifies a minimum sample size of three fire areas. Inspection of these five areas fulfills the procedure completion criteria. The inspection team evaluated the licensee's fire protection program (FPP) against applicable requirements which include plant Technical Specifications, Operating License Condition 2.E, NRC Safety Evaluations, 10 CFR 50.48 and 10 CFR 50 Appendix R. The team also reviewed related documents that include the Updated Final Safety Analysis Report (UFSAR), the Fire Hazards Analysis (FHA) and the Interactive Cable Analysis (Post-Fire Safe Shutdown Analysis) for both Units 1 and 2.

Specific documents reviewed by the team are listed in the attachment.

### **1. REACTOR SAFETY**

#### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### 1R05 Fire Protection

#### .01 Post-Fire Safe Shutdown From Outside Main Control Room (Alternative Shutdown) and Normal Shutdown

#### a. Inspection Scope

#### Methodology

The team reviewed the safe shutdown analysis, operating procedures, piping and instrumentation drawings (P&IDs), electrical drawings, the UFSAR and other supporting documents to verify that hot and cold shutdown could be achieved and maintained from outside the control room for fires that rely on shutdown from outside the control room. This review included verification that shutdown from outside the control room could be performed both with and without the availability of offsite power. Plant walkdowns were

Enclosure



also performed to verify that the plant configuration was consistent with that described in the safe shutdown and fire hazards analyses. These inspection activities focused on ensuring the adequacy of systems selected for reactivity control, reactor coolant makeup, reactor decay heat removal, process monitoring instrumentation and support systems functions. The team verified that the systems and components credited for use during this shutdown method would remain free from fire damage.

Similarly, for fire areas that utilize shutdown from the control room, the team verified that the shutdown methodology properly identified the components and systems necessary to achieve and maintain safe shutdown conditions.

### Operational Implementation

The team verified that the training program for licensed and non-licensed operators included alternative shutdown capability. The team also verified that personnel required for safe shutdown using the normal or alternative shutdown systems and procedures are trained and available onsite at all times, exclusive of those assigned as fire brigade members.

The team reviewed the adequacy of procedures utilized for post-fire shutdown and performed an independent walk through of procedure steps to ensure the implementation and human factors adequacy of the procedures. The team also verified that the operators could be reasonably expected to perform specific actions within the time required to maintain plant parameters within specified limits. Time critical actions which were verified included restoration of alternating current (AC) electrical power, establishing the remote shutdown panel, and establishing decay heat removal.

Specific procedures reviewed for alternative shutdown, including shutdown from outside the control room, included the following:

- AOP-9B Safe Shutdown Due to a Severe Cable Spreading Room Fire, Rev. 15
- AOP-9J Safe Shutdown Due to a Severe Fire in Room 317 Unit 1 Switchgear Room 27', Rev. 14
- AOP-9Q Safe Shutdown Due to a Severe Fire in Room 430 Unit 1 Switchgear Room 45', Rev. 9

The team reviewed manual actions to ensure that they could be implemented in accordance with plant procedures in the time necessary to support the safe shutdown method for each fire area. The team verified that the licensee had identified operator manual actions for post-fire safe-shutdown and had plans in place to assess them as part of the plant wide risk evaluation for transition to NFPA 805, Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition. The team also reviewed the periodic testing of the alternative shutdown transfer capability and instrumentation and control functions to ensure the tests are adequate to ensure the functionality of the alternative shutdown capability.

b. Findings

Introduction. The team identified a violation of very low safety significance regarding the adequacy of post-fire safe shutdown procedures. This issue was determined to satisfy the criteria specified for the exercise of enforcement discretion for plants in the transition to a fire protection program that meets the requirements of 10 CFR 50.48(c), National Fire Protection Association Standard NFPA 805.

Description. The team reviewed plant safe shutdown procedures to verify that time critical actions could be performed within the time specified in supporting calculations and engineering analyses. Pressurized Water Reactor Owners Group (PWROG) evaluation, WCAP-16175-P, "Model for Failure of RCP Seals Given Loss of Seal Cooling in CE NSSS Plants," concluded that operation of reactor coolant pumps (RCPs) beyond 20 minutes without seal cooling is assumed to result in seal failure. During a severe fire in the control room or cable spreading room, the control room is evacuated and component cooling water (CCW) could subsequently be lost due to fire effects, necessitating timely stopping of the RCPs. During a review of times recorded during procedure walkthroughs by plant operators, the inspectors noted that the time to trip the RCPs routinely exceeded 20 minutes. As a result of this observation, additional procedure walkdowns of AOP-9A were performed by licensed operators and focused primarily on the portion of the procedure associated with tripping the RCPs. The results of one performance was that the pumps were tripped at 21 minutes and fifteen seconds after leaving the control room, i.e. in excess of the time available based on the PWROG study.

10 CFR 50, Appendix B, Criterion V (Procedures), requires, in part, that activities affecting quality shall be prescribed by procedures of a type appropriate to the circumstances and shall be accomplished in accordance with these procedures. Contrary to this requirement, procedures AOP-9A, "Control Room Evacuation and Safe Shutdown Due to a Severe Control Room Fire," and AOP-9B, "Safe Shutdown Due to a Severe Cable Spreading Room Fire," did not identify tripping the RCPs upon a loss of CCW as a time critical action nor did they ensure the RCPs were tripped promptly to avoid a potential seal failure. Constellation's failure to properly proceduralize the timely securing of RCPs following certain initiating events to prevent a subsequent RCP seal failure was a performance deficiency. In response to this issue, the licensee entered the deficiency in the corrective action program by initiating condition report IRE-023-627 and promptly implemented compensatory actions. The team noted that restoration of auxiliary feedwater and charging flow were clearly delineated in the procedures and were accomplished in times that prevent steam generator dryout or loss of pressurizer level.

Analysis. This performance deficiency is more than minor because it affected the procedure quality attribute of the barrier integrity cornerstone objective to provide reasonable assurance that the reactor coolant systems boundary remains functional. The licensee entered this performance deficiency into their corrective action program (CR IRE-023-627) and implemented compensatory measures to provide additional guidance to the control room operators. The team viewed these actions as appropriate

until this issue is fully resolved as part of the licensee's National Fire Protection Association (NFPA) Standard 805 implementation program. The licensee completed a detailed risk evaluation of this condition and concluded that this issue was of very low risk significance (Green). This evaluation was reviewed by a Region I Senior Risk Analyst (SRA) who agreed with the licensee's risk assessment. The SRA concluded that the licensee's risk evaluation inputs and assumptions were appropriately conservative and bounding, based upon the available information.

Enforcement. Although the performance deficiency involves a violation of 10 CFR 50, Appendix B, Criteria V; no enforcement action will be taken for this issue because the criteria of NRC Enforcement Policy, "Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)," were satisfied. Specifically, although the NRC identified the concern, it is likely that the licensee would have identified and corrected this issue as part of the transition to NFPA 805, the issue was entered into the corrective action program, compensatory measures were implemented in a reasonable time commensurate with the risk significance, the issue was not likely to have been previously identified by routine licensee efforts, and the violation was not willful.

.02 Protection of Safe Shutdown Capabilities

a. Inspection Scope

The team reviewed the fire hazards analysis, safe shutdown analyses and supporting drawings and documentation to verify that safe shutdown capabilities were properly protected. The team ensured that separation requirements of Section III.G of 10 CFR 50, Appendix R were maintained for the credited safe shutdown equipment and their supporting power, control and instrumentation cables. This review included an assessment of the adequacy of the selected systems for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring, and associated support system functions.

The team reviewed Constellation's procedures and programs for the control of ignition sources and transient combustibles to assess their effectiveness in preventing fires and in controlling combustible loading within limits established in the Fire Hazard Analysis (FHA). A sample of hot work and transient combustible control permits were also reviewed. The team performed plant walkdowns to verify that protective features were being properly maintained and administrative controls were being implemented.

b. Findings

No findings of significance were identified. The team noted that Constellation had not yet completed an assessment of the selected areas as part of the transition to NFPA 805 and therefore the team did not perform any validation of the licensee's efforts during this inspection.

.03 Passive Fire Protection

a. Inspection Scope

The team walked down accessible portions of the selected fire areas to observe material condition and the adequacy of design of fire area boundaries (including walls, fire doors and fire dampers) to ensure they were appropriate for the fire hazards in the area.

The team reviewed installation/repair and qualification records for a sample of penetration seals to ensure the fill material was of the appropriate fire rating and that the installation met the engineering design.

b. Findings

No findings of significance were identified.

.04 Active Fire Protection

a. Inspection Scope

The team reviewed the design, maintenance, testing and operation of the fire detection and suppression systems in the selected plant fire areas. This included verification that the manual and automatic detection and suppression systems were installed, tested and maintained in accordance with the National Fire Protection Association (NFPA) code of record, or as NRC approved deviations, and that they would control and/or extinguish fires associated with the hazards in the selected areas. A review of the design capability of suppression agent delivery systems was verified to meet the code requirements for the fire hazards involved. The team also performed a walkdown of accessible portions of the detection and suppressions systems in the selected areas as well as a walkdown of major system support equipment in other areas (e.g., fire protection pumps, Halon tanks and supply system) and assessed the material condition of the systems and components.

The team reviewed electric and diesel fire pump flow and pressure tests to ensure that the pumps were meeting their design requirements. The team also reviewed the fire main loop flow tests to ensure that the flow distribution circuits were able to meet the design requirements.

The team also assessed the fire brigade capabilities by reviewing training and qualification records, and drill critique records. The team also reviewed pre-fire plans and smoke removal plans for the selected fire areas to determine if appropriate information was provided to fire brigade members and plant operators to identify safe shutdown equipment and instrumentation, and to facilitate suppression of a fire that could impact post-fire safe shutdown. In addition, the team inspected the fire brigade's protective ensembles, self-contained breathing apparatus (SCBA), and various fire brigade equipment (including smoke removal equipment) to determine operational readiness for fire fighting.

b. Findings

No findings of significance were identified.

.05 Protection From Damage From Fire Suppression Activitiesa. Inspection Scope

The team performed document reviews and plant walkdowns to verify that redundant trains of systems required for hot shutdown are not subject to damage from fire suppression activities or from the rupture or inadvertent operation of fire suppression systems. Specifically, the team verified that:

- A fire in one of the selected fire areas would not directly, through production of smoke, heat or hot gases, cause activation of suppression systems that could potentially damage all redundant trains;
- A fire in one of the selected fire areas (or the inadvertent actuation or rupture of a fire suppression system) would not directly cause damage to all redundant trains (e.g., sprinkler caused flooding of other than the locally affected train);
- Adequate drainage is provided in areas protected by water suppression systems.

b. Findings

No findings of significance were identified.

.06 Alternative Shutdown Capability

Alternative shutdown capability for the areas selected for inspection utilizes shutdown from outside the control room and is discussed in Section 1R05.01 of this report.

.07 Circuit Analyses

This topic was not inspected since the plant is in the transition to NFPA 805.

.08 Communicationsa. Inspection Scope

The team reviewed safe shutdown procedures, the safe shutdown analysis and associated documents to verify an adequate method of communications would be available to plant operators following a fire. During this review the team considered the effects of ambient noise levels, clarity of reception, reliability and coverage patterns. The team also inspected the designated emergency storage lockers to verify the

availability of portable radios for the fire brigade and for plant operators. The team also verified that communications equipment such as repeaters, transmitters, etc. would not be affected by a fire.

b. Findings

No findings of significance were identified.

.09 Emergency Lighting

a. Inspection Scope

The team observed the placement and coverage area of eight-hour emergency lights, and in specified locations permanent essential lighting, throughout the selected fire areas to evaluate their adequacy for illuminating access and egress pathways and any equipment requiring local operation and/or instrumentation monitoring for post-fire safe shutdown. The team also verified that the battery power supplies were rated for at least an eight-hour capacity. Preventive maintenance procedures and various documents, including the completed surveillance tests were reviewed to ensure adequate surveillance testing and periodic battery replacements were in place to ensure reliable operation of the eight-hour emergency lights and that the emergency lighting units were being maintained consistent with the manufacturer's recommendations and accepted industry practices.

b. Findings

No findings of significance were identified.

.10 Cold Shutdown Repairs

a. Inspection Scope

The team verified that the licensee had dedicated repair procedures, equipment, and materials to accomplish repairs of components required for cold shutdown which might be damaged by the fire to ensure cold shutdown could be achieved within the time frames specified in their design and licensing bases. The inspectors verified that the repair equipment, components, tools and materials (e.g. pre-cut cables with prepared attachment lugs) were available and accessible on site.

b. Findings

No findings of significance were identified.

.11 Compensatory Measures

a. Inspection Scope

The team verified that compensatory measures were in place for out-of-service, degraded or inoperable fire protection and post-fire safe shutdown equipment, systems, or features (e.g., detection and suppression systems and equipment, passive fire barriers, pumps, valves or electrical devices providing safe shutdown functions or capabilities). The team also verified that the short term compensatory measures compensated for the degraded function or feature until appropriate corrective action could be taken and that Constellation was effective in returning the equipment to service in a reasonable period of time.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA2 Identification and Resolution of Problems

.01 Corrective Actions for Fire Protection Deficiencies

a. Inspection Scope

The team verified that the licensee was identifying fire protection and post-fire safe shutdown issues at an appropriate threshold and entering them into the corrective action program. The team also reviewed a sample of selected issues to verify that the licensee had taken or planned appropriate corrective actions.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

The team presented their preliminary inspection results to Mr. J. Pollock, Plant General Manager, and other members of the site staff at an exit meeting on June 29, 2007. No proprietary information was included in this inspection report.

**ATTACHMENT**

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensee Personnel

R. Bleacher	Operations
B. Cooper	Fire Protection Engineer (Contractor)
G. Cooper	Engineering
C. Dobry	Fire Protection Engineer
G. Joy	Training
J. Pollack	Plant General Manager
K. Robinson	Engineering
M. Stanley	Fire Marshall
A. Simpson	Licensing
J. Stone	Fleet PRA Services
C. Turner	Appendix R Engineer
J. Wynn	Fire Protection System Engineer

NRC

M. Davis	Resident Inspector
S. Kennedy	Senior Resident inspector
J. Rogge	Division of Reactor Safety

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

Opened

None

Open and Closed

None

Closed

None

Discussed

None



Fire Protection Documents

Unit 1 & Unit 2 Interactive Cable Analysis (Cable to Cable Analysis), Rev. 5  
FP00002, Fire Hazards Analysis, Rev. 0

Calculations/Engineering Evaluation Reports

ES199601634, Equivalency Evaluation to use Gel Type Battery for Emergency Appendix 'R' Lights  
1H9300864, Air Bottle Sizing for CV 1(2)-CVC-517-CV, 10/29/93  
M-80-006, Accumulator Size/Auxiliary Feedwater, Rev. 1  
M-94-157, Auxiliary Building Ventilation Heat Load to Cold Shutdown in an Appendix R Fire, Rev. 0  
I-90-187, Air Accumulator Sizing for Valves CV-4070 & 4071, 6/4/90  
CA01318, Salt Water Air Compressor Load, Rev. 3  
CA04467, AFW Pump Room Transient Temperature Analyses using GOTHIC Code, Rev. 1  
CA04570, Heat-up Temperature Profile of the Unit 1 and Unit 2 Switchgear Rooms During a Loss of HVAC, As a Result of a Fire, Rev. 2  
CA04887, Maximum Expected Turbine Building Area Temperatures during a Loss of TB Ventilation Scenario, Rev. 2  
CA05974, 10CFR50 Appendix R Fire Protection AOP-9 Simulations, Rev. 0  
ES200100732, Evaluate Appendix R Pressurizer Level Restoration Time, Rev. 1  
ES199901141, Appendix R Communications, Rev. 0  
CA02243, Calvert Cliffs Nuclear Power Plant Combustible Loading Calculation, Rev. 1  
9-1249SH, Hydraulic Calculation Sheet "Automatic" Sprinkler Corporation of America, Systems 1-5, 11/20/73  
E-90-071, Relay Settings and Coordination, Rev. 005

Procedures

Hazardous Material and Oil Spill Response Plan, Rev. 6  
SA-1-100 Attachment 17, Fire System/Fire Barrier Impairment Permit Log, Rev. 13, 9/19/06-6/8/07  
2-304, Operation of the Bauer Breathing Air Compressor, Rev. 0  
1C06-ALM, RCS Control Alarm Manual, Rev. 47  
1C0-7A&B, Chemical and Volume Control Status Panel Alarm Manual, Rev. 33  
QL-2-100, Corrective Action Program, Rev. 20  
SA-1, Fire Protection Program, Rev. 7  
SA-1-101 Attachment 10, Fire Drill Evaluation Worksheet, Rev. 0  
SA-1-101 Attachment 8, Drill Deficiency Follow Up Form, Rev. 2  
SA-1-101 Attachment 5, Drill Observation Sheet, Rev. 2  
SA-1-101 Attachment 6, Fire Drill Signature Sheet, Rev. 0  
STP-F-592-1, Penetration Fire Barrier Inspection, Rev. 6,  
STP-F-492-0, Halon System Storage Tank Level and Pressure Verification, Rev. 6  
STP-F-589-0, Halon System Pneumatic Valve Actuator and System Flow Test, Rev. 0  
STP-F-291-0, Halon System Valve Position Verification Test, Rev. 5  
STP-M-699-0, Functional Test of Halon System for Switchgear Rooms, Rev. 0

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STP-F-489-0, Halon System Nozzle and Piping Inspection, Rev. 5  
STP-F-691-0, Fire Suppression System Flow Test, Rev. 3  
STP-F-696-0, Fire Pump Flow Test, Rev. 7  
STP-M-491-2, A-1, 2A Diesel Generator Fire Detection Temperature Instrument Functional Test, Rev. 0  
STP-M-390-0, Fire Pump Battery Quarterly Checks, Rev. 7  
STP-F-697-0, Fire Suppression System Functional Test, Rev. 4  
STP-M-499-1, 27' and 45' Switchgear Rooms Halon System Fire Detection Instruments Functional Test, Rev. 2  
STP-M-498-2 Cable Spreading Room Halon System Fire Detection Instruments Functional Test, Rev. 2  
STP-F-490-0-A, Fire Detection Instruments Functional Test, Rev. 3  
STP-F-490-0-B, Fire Detection Instruments Functional Test, Rev. 3  
STP-F-490-0-C, Fire Detection Instruments Functional Test, Rev. 3  
STP-F-490-0-D, Fire Detection Instruments Functional Test, Rev. 3  
STP-F-77-0, Staggered Test of Diesel Fire Pump, Rev. 10  
SA-A-105, Fire Brigade Training, Rev. 0  
OI-20A, Fire Protection Performance Evaluations and Fire System Inspections, Rev. 13, 3/22/06, 3/26/07  
1-102-54-O-SA, Operations Performance Evaluation Requirements, Rev. 22  
2-102-54-O-SA, Operations Performance Evaluation Requirements, Rev. 18  
EOP-2, Unit 1 Loss of Offsite Power/Loss of Forced Circulation, Rev. 14  
EOP-2, Unit 2 Loss of Offsite Power/Loss of Forced Circulation, Rev. 14  
OI-22H, Switchgear Ventilation and Air Conditioning, Rev. 21  
OI-32A, Auxiliary Feedwater System, Rev. 1

#### Completed Tests/Surveillances/Inspections

0-013-12-O-M Auxiliary Building Fire Extinguisher Inspection, Rev. 0201, 5/14/06, 4/20/07, 3/22/07, 2/23/07, 1/19/07, 4/16/07, 3/18/07, 2/19/07, 4/8/07, 2/11/07, 3/12/07  
Halon 122 Concentration Test, 7/28/81  
STP-M-583-1, Unit 1 Instrument Air Safety Related Pressure Boundary Check Valve Leak Test, 3/14/06  
STP O-63-1, Remote Shutdown and Post Accident Monitoring Instrumentation Channel Check, Rev. 33, Completed 6/08/2007  
STP O-63-2, Remote Shutdown and Post Accident Monitoring Instrumentation Channel Check, Rev. 33, Completed 5/25/2007  
1-102-54-O-SA, Operations Performance Evaluation Requirements, 5/8/07  
2-102-10-O-R, Remote Shutdown Panel Operation Verification, Rev. 5, Completed 3/24/2007

#### Quality Assurance (QA) Audits

Assessment Report 2007-026, Independent Assessment of Site's Readiness for NRC Triennial Fire Protection Baseline Inspection, dated April 17, 2007  
Assessment Report 2004-023, Fire Protection Including Hot Work, Welding and Grinding, dated March 1, 2005

Drawings

60-929-B Sh. 1, 11 AFW Pump Turbine Speed Control 201-36-IHC3987A & B, Rev. 3  
 61-075-B Sh. 44, Reactor Auxiliaries RCP Control Bleed Off ICV 505, Rev. 11  
 60329SH0001, Heating & Ventilation System Auxiliary Building Unit 1 Plan at EL. 45'-0",  
 Rev. 15  
 60330SH0001, Heating & Ventilation System Auxiliary Building Unit 1 Plan at EL. 69'-0",  
 Rev. 25  
 60910, Loop Diagram Alternate Shutdown Related Circuit Unit No. 1 AFWS Throttle and Misc.  
 Control Valves, Rev. 7  
 60911SH0001, Loop Diagram 11 & 12 SF Main Steam Line Atmos Dump and Turbine Bypass  
 1PT4056, Rev. 11  
 60933SH0060, Loop Diagram Wide Range Neutron Monitoring System Alt. Shutdown  
 1NX002B1 & 1NX004D1, Rev. 2  
 61001SH0001, Electrical Main Single Line Diagram FSAR Figure No. 8-1, Rev. 42  
 61017SH0002, Single Line Diagram Reactor 480V MCC 114R, Rev. 41  
 61022SH0001, Single Line Diagram 120V AC Vital System, Rev. 48  
 61024, Single Line Diagram 125V ED Vital System Bus 11, Rev. 51  
 61025, Single Line Diagram 125V ED Vital System Buses 12 and 22, Rev. 30  
 61076SH0014B, Schematic Diagram Reactor Safeguards Ctmt Isol. 5464, Rev. 13  
 61076SH0014M, Schematic Diagram Steam Generator 112 Blowdown Line Isolation Valve  
 1CV4012, Rev. 3  
 61406 SEC001 6SH0009, Lighting and Communication Symbols for Drawings, Rev. 9  
 62122, Door Schedule Auxiliary Building EL.45'-0" thru EL. 91'-6", Rev. 31  
 62149SH0001 Appendix "R" Separation Requirements Aux. Bldg. & Containment Struct. Floor  
 Plan at El. (-)10'-0" & (-) 15'-0", Rev. 5  
 62150SH0001, Appendix "R" Separation Requirements Aux. Bldg. & Containment Struct.  
 Floor Plan at El. 5", Rev. 7  
 62151SH0001, Appendix "R" Separation Requirements Aux. Bldg. & Containment Struct. Floor  
 Plan at El. 27'-0", Rev. 9  
 62152SH0001, Appendix "R" Separation Requirements Aux. Bldg. & Containment Struct. Floor  
 Plan at El. 45'-0", Rev. 11  
 62153SH0001, Appendix "R" Separation Requirements Aux. Bldg. & Containment Struct. Floor  
 Plan at El. 69'-0", Rev. 10  
 62152 SH0004, Barrier Segment Drawing for Plant Elevation 45'-0", Rev. 0  
 63017SH0001, Single Line Diagram Reactor 480V MCC 204R, Rev. 41  
 63017SH0002, Single Line Diagram Reactor 480V MCC 214R, Rev. 41

Piping and Instrumentation Diagrams (P&IDs)

60583SH0001, Unit 1 Auxiliary Feedwater (Steam), Rev. 61  
 60583SH0002, Unit 1 Auxiliary Feedwater (Condensate), Rev. 1  
 60700SH0001, Unit 1 Main Steam and Reheat, Rev. 46  
 60702SH0001, Unit 1 Condensate & Feedwater System, Rev. 46  
 60702SH0003, Unit 1 Condensate & Feedwater System, Rev. 40  
 60702SH0004, Unit 1 Condensate & Feedwater System, Rev. 43  
 60708SH0001, Unit 1 Circulating Salt Cooling System, Rev. 42

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60708SH0002, Unit 1 Circulating Salt Cooling System, Rev. 104  
60708SH0003, Unit 1 Circulating Salt Cooling System, Rev. 17  
60710SH0001, Unit 1 Component Cooling System, Rev. 43  
60710SH0002, Unit 1 Component Cooling System, Rev. 37  
60710SH0003, Unit 1 Component Cooling System, Rev. 44  
60712SH0005, Compressed Air System - Instrument Air and Plant Air, Rev. 9  
60722SH0002A, Unit 1 Auxiliary Building Ventilation System, Rev. 6  
60722SH0003, Unit 2 Auxiliary Building Ventilation System, Rev. 10  
60723SH0004, Unit 1 & 2, Ventilation Systems - Control Room and Cable Spreading Room  
HVAC, Rev. 50  
60729SH0001, Unit 1 Reactor Coolant System, Rev. 77  
60729SH0002, Unit 1 Reactor Coolant System, Rev. 26  
60730SH0001, Unit 1 Chemical and Volume Control System, Rev. 82  
60730SH0002, Unit 1 Chemical and Volume Control System, Rev. 70  
60730SH0003, Unit 1 Chemical and Volume Control System, Rev. 42

Fire Brigade Documents

1<sup>st</sup> Quarter 2006 Drill Packets Sections 1-5  
Fire Fighting Strategies Manual, Rev 1  
Fire Brigade Qualifications Records Sheets, 2003-2007

Impairment Permits

06-063-01, Fire System/Fire Barrier Impairment Permit - 01/20/06  
06-067-01, Fire System/Fire Barrier Impairment Permit - 01/20/06  
06-066-01, Fire System/Fire Barrier Impairment Permit - 01/20/06  
06-068-01, Fire System/Fire Barrier Impairment Permit - 01/20/06  
06-065-01, Fire System/Fire Barrier Impairment Permit - 01/20/06  
06-069-01, Fire System/Fire Barrier Impairment Permit - 01/20/06  
06-064-01, Fire System/Fire Barrier Impairment Permit - 01/20/06

Hot Work and Ignition Source Permits

0200301516 Hot Work Permit -6/12/07  
1200405356 Hot Work Permit -6/12/07  
1200603232 Hot Work Permit -6/12/07  
1200603231 Hot Work Permit -6/12/07  
Hot Work Permits May 2007  
Hot Work Permits June 2007

Condition Reports (\* CRs generated as a result of this inspection)

IR4-017-443	IR4-036-388	IRE-005-763	IRE-009-048
IR4-017-447	IRE-000-977	IRE-006-502	IRE-009-118
IR4-029-941	IRE-005-714	IRE-007-372	IRE-010-393

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IRE-010-395	IRE-019-870	IRE-023-400	IRE-023-651*
IRE-010-413	IRE-020-078	IRE-023-405*	IRE-023-654*
IRE-013-077	IRE-022-047	IRE-023-525*	IRE-023-669 *
IRE-014-534	IRE-022-438	IRE-023-534*	IRE-023-672*
IRE-016-325	IRE-023-172	IRE-023-569*	IRE-023-674*
IRE-016-329	IRE-023-176	IRE-023-627*	IRE-023-707*
IRE-016-432	IRE-023-272	IRE-023-645*	IRE-023-719*
IRE-016-186	IRE-023-350*	IRE-023-650*	IRE-023-726*
IRE-019-625	IRE-023-356*		

Work Orders

0200602789	1199805253	1200605857
1199503008	1199805299	1200702492
1199503847	1200203666	2200401367
1199605968	1200502345	2200502401
1199606050	1200503034	

Vendor Manuals

- Plant Emergency Lighting Vendor Manual – Chloride Systems CMF/TMF Series 6 Volt and 12 Volt Emergency Lighting.
- Plant Emergency Lighting Vendor Manual – Exide Lightguard Model B200, 12 Volt 174 Watt output Sealed Maintenance Free Lead Calcium LEC-36 Battery
- Plant Emergency Lighting Vendor Manual – Eagle Picher ‘Carefree’ CFR-6V58 Maintenance Free Rechargeable Batteries.

Miscellaneous Documents

- Appendix R Emergency Lighting Room Blackout Tests, dated September 9, 1997
- Calvert Cliffs Nuclear Power Plant Individual Plant Examination External Events, August 1997
- PRA Configuration Control Database Item CRMP 712, SWGR room fire dampers located within the SWGR room may be failed by fire impact.
- 011034, Breathing Air ‘Pure’ Certification, 08/28/06
- 011034, Breathing Air ‘Pure’ Certification, 03/13/07
- 025132, Breathing Air ‘Pure’ Certification, 04/05/07
- 025132, Breathing Air ‘Pure’ Certification, 12/27/06
- 025132, Breathing Air ‘Pure’ Certification, 08/28/06
- Calvert Cliffs Industrial Safety Manual, Ch. 5 - Heat Stress Safe Work Practice, Rev. 8
- Hazardous Material and Oil Spill Response Plan, Rev. 6
- System Health Reports, Fire: Protection, Deluge, Detection and Barriers, Q406 and Q107
- AOP-9J, Unit 1 Basis Document, Rev. 8
- AOP-9Q, Unit 1 Basis Document, Rev. 8

WCAP-16175-P-A, Model for Failure of RCP Seals Given Loss of Seal Cooling in CE NSSS  
Plants, Rev. 0  
Quality Assurance Topical Report for Calvert Cliffs Nuclear Power Plant, Nine Mile Point  
Nuclear Station and R.E. Ginna Nuclear Power Plant, Rev. 0

**LIST OF ACRONYMS USED**

AC	Alternating Current
AOP	Abnormal Operating Procedure
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CR	Condition Report
DRS	Division of Reactor Safety
FA	Fire Area
FHA	Fire Hazards Analysis
FPP	Fire Protection Program
IP	Inspection Procedure
IPE	Individual Plant Examination
IPEEE	Individual Plant Examination of External Events
IR	Inspection Report
NFPA	National Fire Protection Association
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
P&ID	Piping and Instrumentation Drawing
RCP	Reactor Coolant Pump
SCBA	Self Contained Breathing Apparatus
SRA	Senior Reactor Analyst
UFSAR	Updated Final Safety Analysis Report