January 25, 2006

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 05000317/2005005 AND 05000318/2005005

Dear Mr. Spina:

On December 31, 2005, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Calvert Cliffs Nuclear Power Plant Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on January 13, 2006, with Mr. Joe Pollock and other members of your staff.

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

This report documents two NRC-identified findings of very low safety significance (Green), both of which were determined to involve violations of NRC requirements. However, because of the very low safety significance and because these issues were entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCV) 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 I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Calvert Cliffs Nuclear Power Plant.

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

NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

James M. Trapp, Chief
Projects Branch 1
Division of Reactor Projects

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

Enclosure: Inspection Report 05000317/2005005 and 05000318/2005005
w/Attachment: Supplemental Information

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REGION I

Docket Nos.	50-317, 50-318
License Nos.	DPR-53, DPR-69
Report Nos.	05000317/2005005 and 05000318/2005005
Licensee:	Constellation Generation Group, LLC
Facility:	Calvert Cliffs Nuclear Power Plant, Units 1 and 2
Location:	Lusby, MD
Dates:	October 1, 2005 through December 31, 2005
Inspectors:	Mark A. Giles, Senior Resident Inspector Marlone Davis, Resident Inspector Jack McFadden, Health Physicist Jonathan Lilliendahl, Reactor Inspector Manan Patel, Reactor Inspector Gil Johnson, Operator Examiner Ryan Treadway, Resident-In-Training Anne DeFrancisco, Reactor Inspector Joe D'Antonio, Operations Examiner
Approved by:	James M. Trapp, Chief Projects Branch 1 Division of Reactor Projects

TABLE OF CONTENTS

SUMMARY OF FINDINGS

IR 05000317/2005-005, 05000318/2005-005; 10/01/2005 - 12/31/2005; Calvert Cliffs Nuclear Power Plant, Units 1 and 2; Equipment Alignment, Maintenance Effectiveness and Cross-Cutting Areas.

The report covered a 3-month period of inspection by resident inspectors and announced inspections performed by operations examiners, reactor inspectors, and a health physicist. Two Green non-cited violations (NCVs) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a non-cited violation of Technical Specification 5.4.1.a. "..., written procedures shall be established, implemented,.." because plant procedural requirements were not implemented while establishing boundaries to perform maintenance activities. Specifically, on October 26, 2005, while hanging a clearance to support the replacement of 1-SV-3828, 11 shutdown cooling (SDC) outlet control valve (CV) solenoid valve, component cooling water flow to the Unit 1 containment components was reduced which adversely impacted the reactor coolant pumps due to the increased temperatures associated with the upper and lower guide bearings as well as the lower reactor coolant pump (RCP) seal. A misunderstanding as to how this clearance interacted with a previously established clearance lead to this event. The licensee restored component cooling water flow and corrected the sequencing of these clearances and maintenance activities to ensure plant stability was maintained. The licensee documented this occurrence in their corrective action program.

  This finding is greater than minor because it was associated with the Initiating Events Cornerstone configuration control attribute and affected the cornerstone's objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. This finding was determined to be of very low safety significance (Green), because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The inspectors identified that a contributing cause of this finding was related to the cross-cutting area of human performance. Specifically, the licensed operators did not follow plant procedures and determine if boundaries specified in the clearance order were adequate for the maintenance activity based on the actual plant conditions that existed at the time the clearance was to be implemented. (Section 1R04)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation (NCV) of 10 CFR 50.65(a)(2) for failure to establish adequate measures to demonstrate that performance of Unit 2 safety-related power supplies were effectively monitored in the maintenance rule program. The licensee failed to adequately identify, evaluate, and track the failures of these power supplies in accordance with the requirements of their maintenance rule program. Specifically, when reviewing relevant power supply failures, the inspectors identified that the power supply failure associated with the 22 feedwater steam generator level transmitter, which occurred on September 16, 2005, was not properly classified as a maintenance rule functional failure. The licensee's failure to classify this as a maintenance rule functional failure resulted in the system being placed in a 50.65 (a)(1) category on October 16, 2005, after this deficiency was identified by the inspectors, instead of on September 16, 2005, when the failure occurred. A condition report was generated by the licensee to document this as well as a condition report generated to place the safety-related power supplies in an (a)(1) status.

  The finding is greater than minor because it is associated with the equipment performance attribute and affected the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the licensee did not demonstrate effective control of the performance or condition of the safety-related power supplies by failing to put the affected structure, system, component (SSC) in a 50.65 (a)(1) category. The finding is of very low safety significance because no loss of safety-related equipment actually occurred, and the affected safety-related equipment was capable of performing its intended safety function. The inspectors identified that a contributing cause to the finding was related to the cross-cutting area of human performance. Plant personnel did not properly evaluate and classify the 22 feedwater steam generator level transmitter 2LT1124C power supply failure as a maintenance rule functional failure. This inadequate classification contributed to the system not being placed in a 50.65 (a)(1) category. (Section 1R12)

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent reactor power and remained unchanged until December 3, 2005, when reactor power was reduced to 83 percent to support turbine valve testing. Following successful completion of the testing, reactor power was returned to 100 percent and remained there for the rest of the inspection period.

Unit 2 began the inspection period at 100 percent reactor power and remained unchanged until reactor power was reduced to 97 percent on October 3, 2005, to compensate for valve TBV-3940 failing open, and reactor power was reduced to 83 percent on December 9, 2005, to support turbine valve testing. Following both occurrences, reactor power was restored to 100 percent.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - 1 sample adverse weather preparations - 2 samples impending severe weather)

.1 Adverse Weather Seasonal Preparations - Cold Weather

a. Inspection Scope

The inspectors reviewed the adverse weather preparations and mitigating strategies for cold weather operations. This review included an assessment of station procedure Operations Administrative Policy OAP 92-09, “Cold Weather Operations.” Two risk significant systems were selected for this inspection, the 12 condensate storage tank (CST), and the Unit 1, 11 refueling water tank (RWT). The inspectors assessed the effectiveness of the licensee’s cold weather protection program to ensure that the 12 CST and the 11 RWT would remain functional and available for plant shutdown during cold weather conditions as required by Technical Specifications (TS). The inspectors conducted discussions with control room operators, the cold weather preparation coordinator, and system engineers to understand protective measures applicable to these systems, and performed partial field walkdowns of these systems to evaluate the material condition and functionality of the freeze protection equipment (e.g., heat tracing, area space heaters, etc.) associated with the above systems/components.

.2 Adverse Weather Impending Conditions - Heavy Rains

a. Inspection Scope

On October 11, 2005, the licensee entered Emergency Response Plan Implementation Procedure (ERPIP) 3.0, “Immediate Actions,” for a severe weather watch due to heavy rains. The storm produced severe rain conditions, which ultimately effected the 500 KV breaker 21 indicating power fuse, which shorted out and failed. The inspectors

reviewed the adverse weather preparations and mitigating strategies for severe weather events. This review included an assessment of ERPIP 3.0, “Immediate Actions,” Attachment 20, “Severe Weather,” Emergency Planning (EP) 1-108, “Severe Weather Preparation,” Attachment 3, “Severe Weather Preparation Checklist Operations,” and Operations Administrative Policy (OAP) 00-01, “Severe Weather Operations.” The review also included checks on existing plant conditions tracked under IRE-007-695 and IR4-037-489 for leaks above the 25 battery charger in the 33' 250VDC Bus Room and leaks in the roof near motor control center 222, respectively.

The inspectors chose the 500 KV electrical distribution system as the risk significant system for a more detailed inspection. This system was selected because rainwater was entering and filling up the cable trenches in the 500 KV switchyard beyond the capacity of the drainage system, filling them up enough to short the indicating power fuse for breaker 21, that caused it to fail. The licensee took action to pump out the cable trenches in the switchyard, and replace the fuse once conditions permitted. Additionally, this issue is tracked in Calvert Cliffs corrective action program under IRE-008-780, and maintenance order #0200502209, which required the operators to monitor and pump out the trenches as necessary, until a permanent repair to the cable trench drainage system can be made. The inspectors conducted discussions with control room operators and electrical system engineers to understand the layout of the electrical distribution system, specifically in the switchyard, and performed a complete field walkdown of the system to verify severe weather mitigating strategies and measures were functioning properly subsequent to the event.

.3 Adverse Weather Impending Conditions - Tornado Watch

a. Inspection Scope

On November 29, 2005, the licensee entered ERPIP 3.0, “Immediate Actions,” for a severe weather watch due to a declared tornado watch. The inspectors reviewed the adverse weather preparations and mitigating strategies for severe weather events. This review included an assessment of Emergency Response Plan Implementation Procedure (ERPIP) 3.0, “Immediate Actions,” Attachment 20, “Severe Weather ,” Emergency Planning (EP) 1-108, “Severe Weather Preparation,” Attachment 3, “Severe Weather Preparation Checklist Operations,” and Operations Administrative Policy (OAP) 00-01, “Severe Weather Operations.” The review also included checks on existing plant conditions tracked under IRE-007-695 and IR4-037-489 for leaks above the 25 battery charger in the 33' 250VDC Bus Room and leaks in the roof near motor control center 222, respectively. The inspectors conducted discussions with control room operators to understand the conditions of the plant during and following the declaration, and to verify severe weather mitigating strategies and measures were appropriate subsequent to the event.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

Partial Walkdown (71111.04Q - 3 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 impact 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 three activities.

- The inspectors completed a partial walkdown of the low pressure safety injection (LPSI), high pressure safety injection (HPSI) and containment spray (CS) systems following 12 LPSI/CS component cooling heat exchanger maintenance and 13 HPSI handswitch (HS) replacements.
- The inspectors completed a partial walkdown of the saltwater system (SWAC) following 12 SWAC HS replacement.
- The inspectors completed a partial walkdown of the component cooling system following replacement of valve 1-SV-3828.

b. Findings

Introduction. The inspectors identified a Non-Cited Violation (NCV) of very low safety significance (Green) for the licensee's failure to establish adequate physical boundaries when hanging a tagout clearance to perform maintenance activities. As a result, Unit 1 component cooling water system flow was reduced to components within containment including the reactor coolant pumps. This event occurred because the licensee did not adhere to requirements contained in station procedure NO-1-112, "Safety Tagging," as required by Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978.

Description. On October 26, 2005, licensed operators hung Clearance ID#: 1200500791 to tagout the 11 component cooling water heat exchanger for dewatering and cleaning activities. Following completion of this task, a second tagout, Clearance ID#: 1200500794 was to be hung to support the replacement of the 11 shutdown cooling (SDC) outlet CV solenoid valve (1-SV-3828). During the implementation of this tagout, control room operators received high temperature alarms associated with the Unit 1 reactor coolant pumps controlled bleedoff and upper/lower guide bearings temperatures. This occurred when one of the valves in the clearance, 1-CC-260, 11 SDC HX Inlet Cross-Connect, was being closed in accordance with the written clearance steps. Closure of this valve isolates all component cooling water to containment components. Control room operators entered AOP-7C, Loss of Component Cooling Water, and at about the same time, reopened valve 1-CC-260, restoring component cooling water to

containment components. AOP-7C was then exited after plant parameters returned to normal and were in a stable condition.

The inspectors reviewed both clearances and associated system drawings, as well as temperature graphs which profiled the reactor coolant pump parameters that were impacted. The inspectors also conducted discussions with licensee personnel to better understand the event. The inspectors learned that both clearances were adequate if hung independently; however, when hung simultaneously they resulted in a loss of component cooling water to containment. The inspectors also determined that based on the heatup rate that was observed, manual trip criteria for the reactor coolant pumps was never exceeded nor significantly approached.

Analysis. The inspectors determined that the licensee's failure to properly follow approved station procedures and adequately ensure that component cooling water remained available to components within containment during maintenance activities to be a performance deficiency. Specifically, NO-1-112, "Safety Tagging," stated that reviews of the clearance stubs shall ensure that clearance controls (especially boundaries) that have been, or are to be set by the associated clearance orders indicated on the stub, are adequate for the work to be performed under the stub. The licensee's determination that these two mentioned clearances could be hung simultaneously to support planned maintenance activities was inadequate.

This finding is greater than minor because it was associated with the Initiating Events Cornerstone configuration control attribute and affected the cornerstone's objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during power operations. The significance of this finding was evaluated using Phase 1 of the SDP and was determined to be a finding of very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. A contributing cause to the finding was related to the cross-cutting area of human performance. The licensed operators did not follow plant procedures and determine if boundaries specified in the clearance order were adequate for the maintenance activity based on the actual plant conditions that existed at that time.

Enforcement. Technical Specifications 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978. Specifically, Regulatory Guide 1.33, Appendix "A", Section 9, Procedures for Performing Maintenance, includes procedures for properly preplanning and performing maintenance that can affect the performance of safety-related equipment. Contrary to this requirement, the licensee did not properly follow approved station procedures and adequately ensure that the clearance boundary for replacement of valve 1-SV-3828 was appropriate to support the maintenance which is required by NO-1-112, "Safety Tagging," which stated that reviews of the clearance stubs shall ensure that clearance controls (especially boundaries) that have been, or are to be set by the associated clearance orders indicated on the stub, are adequate for the work to be performed under the stub. Because the failure is of a very low safety significance and has been

entered into the corrective actions program as IRE-009-106, this violation of TS 5.4.1.a is being treated as an NCV consistent with Section VI.A.1 on NRC Enforcement Policy: NCV 05000317/2005005-01, Failure To Establish Adequate Clearance Order Boundaries.

1R05 Fire Protection (71111.05Q - 11 samples)

Fire Protection - Tours

a. Inspection Scope

The inspectors conducted a tour of accessible portions of the eleven areas listed below 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 protection suppression and detection equipment to determine whether any conditions or deficiencies existed which could impair the availability of that equipment. The inspectors also reviewed administrative procedure SA-1-100, "Fire Prevention," during the conduct of this inspection. The eleven areas are as follows:

- Unit 1 Auxiliary Feedwater Room
- Unit 2 Auxiliary Feedwater Room
- Unit 1 27' 4160 Switchgear Room
- Unit 2 27' 4160 Switchgear Room
- Unit 1 12 ECCS Pump Room
- 2A Emergency Diesel Generator Room
- 1A Emergency Diesel Generator Room
- Unit 1 Cable Spreading Room
- Unit 2 Cable Spreading Room
- Unit 1 Intake Structure (inside)
- Unit 2 Intake Structure (inside)

b. Findings

No findings of significance were identified.

1R06 Flood Protection (71111.06 - 2 internal flooding samples)

Internal Flooding

a. Inspection Scope

The inspectors reviewed flood protection measures associated with internal flood events. These events were described in the Calvert Cliffs' Engineering Standard (ES)-001, the Individual Plant Examination (IPE), and the Updated Final Safety Analysis Report (UFSAR). The inspectors performed a walkdown of the following two areas that contain risk significant systems and components: Component Cooling Water (CCW)

Rooms 201 and 228; and East Piping Penetration Rooms 206 and 227. The inspectors observed the condition of watertight doors, drain systems and sumps, penetrations in floors and walls, and safety related instrumentation located in these areas.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07 - 1 sample)

a. Inspection Scope

The inspectors observed the 21 component cooling water heat exchanger (CCHX) thermal performance test. The inspectors reviewed the performance data and evaluated the test acceptance criteria from this completed test 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 conducted discussions with cognizant licensee personnel regarding the effectiveness of the licensee's intake pit and intake tunnel coating program and its contribution towards maintaining an improved condition of heat exchanger cleanliness in light of historical bio-fouling issues. Based on this review, the inspectors concluded that the licensee's testing verified continued operability of the 21 CCHX, and that this safety-related component was operable and capable of performing its design basis function.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11 - 2 samples)

.1 Resident Inspector Quarterly Review

a. Inspection Scope

On November 15, 2005, the inspectors observed a licensed operator simulator scenario that was part of the annual licensed operator requalification exam. The scenario involved a small leak from the reactor coolant system (RCS) in containment, a loss of offsite power, and a steam generator tube rupture with a station blackout. During this inspection, the inspectors focused on high-risk operator actions performed during implementation of the emergency operating procedures, emergency plan implementation, and classification of the event. The inspectors verified operator's actions were consistent with operating, alarm response, abnormal, and emergency procedures. The inspectors assessed simulator fidelity and verified that evaluators identified deficient operator performance as appropriate.

.2 Biennial Review

a. Inspection Scope

The following inspection activities were performed using NUREG-1021, Rev. 9, "Operator Licensing Examination Standards for Power Reactors," Inspection Procedure Attachment 71111.11, "Licensed Operator Requalification Program," and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)," as acceptance criteria, 10 CFR 55.46 Simulator Rule (sampling basis). These inspection activities were performed for both units.

The inspectors reviewed documentation of operating history since the last requalification program inspection. Documents reviewed included NRC inspection reports and the following plant incident reports (IRs):

- IR4-020-078 Simulator does not match plant 1/23/2004 trip response.
- IR4-033-425 Green Finding; Crew performance during 1/23/2004 plant trip.
- IR4-020-078 During the simulator validation of the U2 reactor trip on 1/23/2004, it was discovered that simulator pressure and temperature response did not match the plant.

The inspectors reviewed two comprehensive biennial written exams administered in the inspection week and the previous week. The inspectors reviewed simulator scenario sets for two weeks, and a facility evaluation of scenario sets against examiners standard requirements for the full 2005 requalification program exam. Job performance measures (JPMs) administered during this current exam week were also reviewed. These reviews were performed to ensure the quality of the exams met or exceeded the criteria established in the Examination Standards and 10 CFR 55.59.

The inspectors observed the administration of operating examinations to two operations and two staff crews. The inspectors observed a total of sixteen simulator scenarios for the operating and staff crews, and the set of five JPMs administered to the one operating crew. As part of the examination observation, the inspectors assessed the adequacy of licensee examination security measures.

The inspectors interviewed two operators for feedback regarding the implementation of the licensed operator requalification program. The inspectors also reviewed Operations Training Action Item Detail Reports, QA audits, Operations Training self-assessments, and recent plant and industry events to ensure that the training staff modified the program, when appropriate, to recommended changes.

Remedial training was assessed through the review of evaluation records for the past two years to ensure remediation plans were timely, effective, and unique to the individual failures.

Training concerning operator significant actions identified in the facility probabilistic risk assessment (PRA) was assessed. The inspectors observed more than half of these

actions addressed in the observed examinations.

Conformance with operator license conditions was verified by reviewing the following records:

- 10 medical records to confirm all records were complete, that restrictions noted by the doctor were reflected on the individuals' license and that the exams were given within 24 months; and

- Proficiency watch-standing and reactivation records: All watch-standing crews' documentation was reviewed for the current and prior quarter to verify currency and conformance with the requirements of 10 CFR 55.

The inspectors observed simulator performance during the conduct of the examinations, and reviewed simulator performance tests and discrepancy reports to verify compliance with the requirements of 10 CFR 55.46. Calvert Cliffs is committed to the ANSI 3.5-1985 standard. The inspectors reviewed simulator configuration control and performance testing through interviews and the review of: facility simulator procedures; open and closed simulator issue reports and maintenance orders; and the review of test results. Tests reviewed during the inspection are listed in the Attachment.

On December 20, 2005, the inspectors conducted an in-office review of licensee requalification exam results. These results included the annual operating test only since the comprehensive written exam was administered last year. The inspection assessed whether pass rates were consistent with the guidance of NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)." The inspectors verified that:

- Crew failure rate on the dynamic simulator was less than 20%. (Failure rate was 0%)

- Individual failure rate on the dynamic simulator test was less than or equal to 20%. (Failure rate was 0%)

- Individual failure rate on the walk-through test (JPMs) was less than or equal to 20%. (Failure rate was 1.25%)

- Individual failure rate on the comprehensive biennial written exam was less than or equal to 20%. (Failure rate was 0%)

- More than 75% of the individuals passed all portions of the exam (98.75% of the individuals passed all portions of the exam).

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

.1 Quarterly Review (71111.12Q - 3 samples)

a. Inspection Scope

The inspectors reviewed the licensee effectiveness in performing routine maintenance activities. This review included an assessment of the licensee's practices pertaining to the identification, scoping, and handling of degraded equipment conditions, as well as common cause failure evaluations, and the resolution of historical equipment problems. For those systems, structures, and components (SSC) scoped in the maintenance rule per 10 CFR 50.65, the inspectors verified that reliability and unavailability were properly monitored and that 10 CFR 50.65 (a)(1) and (a)(2) classifications were justified in light of the reviewed degraded equipment condition. The inspectors conducted this inspection for the following equipment issues:

- Unit 2 125 volt vital power supply failures/replacement activities
- RWT "ZE" level switch ESFAS response time testing
- Unit 2 containment atmosphere monitoring

b. Findings

Introduction. A Green NCV was identified for the licensee's failure to establish adequate measures to demonstrate that performance of Unit 2 safety-related power supplies were effectively monitored in the maintenance rule program in accordance with the requirements of 10 CFR 50.65(a)(2). As a result, the licensee did not demonstrate that the Unit 2 safety-related power supply's performance was effectively controlled.

Description. On September 16, 2005, the 22 feedwater steam generator level transmitter (2LT1124C) power supply for Unit 2 failed. During normal plant operation, the operators received an alternate feed actuation signal (AFAS) bi-stable trip alarm on control panel 2C04. The licensee's investigation identified that the 22 steam generator low level bistable had failed low, which was caused by the power supply failure. The condition report generated for the failed power supply was reviewed by the system engineer and the maintenance rule system manager and determined not to be a maintenance rule functional failure. The inspectors reviewed this condition report, as well as the last five years of safety-related power supply failures, and found a similar power supply failure that the licensee had determined to be a maintenance rule functional failure. The inspectors questioned the licensee's determination pertaining to the September 16, 2005, failure, and further reviewed the licensee's requirements for safety-related power supplies maintenance rule requirements for placing the safety-related power supplies in a maintenance rule a(1) status. The inspectors noted that this was the sixth functional failure in the last two years, and the requirement to place this system in 50.65(a)(1) status is six functional failures in two years. Through further discussions with the inspectors, the licensee acknowledged that the September 16, 2005, failure had been incorrectly classified.

Analysis. The issue was a performance deficiency because the licensee failed to establish adequate measures to demonstrate that performance of Unit 2 safety-related power supplies were effectively monitored in the maintenance rule program, resulting in the licensee's inability to meet the requirements of 10 CFR 50.65(a)(2), in which the cause was reasonably within their ability to foresee and correct. The finding is greater than minor because it is associated with the equipment performance attribute and affected the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the licensee did not demonstrate effective control of the performance or condition of the safety-related power supplies by failing to put the affected structure, system, component (SSC) in a 50.65 (a)(1) category. The finding is of very low safety significance because the power supply failures did not result in a loss of operability per Generic Letter 91-18, did not represent loss of a safety system function, did not involve an external event, or use the IPEEE to identify core damage scenarios of concern.

The inspectors identified that a contributing cause of this finding was related to the cross-cutting area of human performance. The failure of the 22 feedwater steam generator level transmitter (2LT1124C) power supply failure was not properly classified as a maintenance rule functional failure.

Enforcement. 10 CFR 50.65 (a)(1) requires, in part, that holders of an operating license shall monitor the performance or condition of SSC(s) within the scope of the rule defined by 10 CFR 50.65 (b), against licensee-established goals, in a manner sufficient to provide reasonable assurance that such SSC(s), are capable of fulfilling their intended safety function.

10 CFR 50.65 (a)(2) requires, in part, that monitoring as specified in 10 CFR 50.65 (a)(1) is not required where it has been demonstrated that the performance or condition of an SSC is being effectively controlled through the performance of appropriate preventative maintenance, such that the SSC remains capable of performing its intended safety function.

Contrary to the above, the licensee failed to demonstrate that the performance or condition of the Unit 2 safety-related power supplies had been effectively controlled through the performance of appropriate scheduled maintenance and did not monitor against licensee-established goals. Specifically, the licensee failed to identify and properly account for one of the safety related power supply failures on September 16, 2005, which demonstrated that performance or condition of SSC(s) of the safety-related power supply system was not being effectively controlled through appropriate scheduled maintenance and, as a result, goal setting and monitoring was required. However, because the finding was of very low safety significance and has been entered into the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section IV.A.1 of the NRC Enforcement Policy: NCV 05000318/2005005-02, Maintenance Rule Failure to Monitor Safety-Related Power Supply System. Condition reports IRE-008-026 and IRE-008-929 were written on these

issues.

.2 Biennial Review (71111-12B - 6 samples)

a. Inspection Scope

The inspector conducted a review of Calvert Cliffs' periodic evaluation of implementation of the Maintenance Rule as required by 10 CFR 50.65(a)(3) from July 11, 2005 to July 15, 2005. The evaluation covered a period from October 2002 to September 2004. The purpose of this review was to ensure that Calvert Cliffs effectively assessed its (a)(1) goals, (a)(2) performance criteria, system monitoring, and preventive maintenance activities. The inspector verified that the assessment was completed within the required time period and also that industry operating experience was utilized, as applicable. Additionally, the inspector verified that Calvert Cliffs appropriately balanced equipment reliability and availability when planning maintenance activities.

The inspector selected a sample of six risk-significant systems to verify that: (1) the structures, systems, and components were properly characterized, (2) goals and performance criteria were appropriate, (3) corrective action plans were adequate, and (4) performance was being effectively monitored in accordance with ER-1-103, "Maintenance Rule Program Implementation." The following systems were selected for this detailed review:

- 480V Breakers
- Main Feedwater
- Reactor Coolant Pumps
- Control Rod Drive System
- Compressed Air
- Main Steam

These systems were either in a(1) status or at some time during the assessment period had been in a(1) status or experienced degraded performance. The inspector reviewed corrective action documents for malfunctions and failures of these systems to determine if: (1) they had been correctly categorized as functional failures, and (2) their performance was adequately monitored to determine if classifying a system as (a)(1) was appropriate.

The inspectors interviewed the maintenance rule coordinator and several of the system managers, reviewed documentation for all of the systems, and walked down portions of the main feedwater and main steam systems on both units. The documents that were reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 7 samples)

a. Inspection Scope

The inspectors reviewed the licensee's assessments concerning the risk impact of removing from service those components associated with the work items listed below. This review primarily focused on activities determined to be risk significant within the maintenance rule. 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 NUMARC 93-01, Revision 2, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Section 11, "Evaluation of Systems to Be Removed From Service," and approved station procedures. The inspectors compared the assessed risk configuration to actual plant conditions to evaluate whether the assessment was accurate and comprehensive. In addition, the inspectors assessed the adequacy of the licensee's identification and resolution of problems associated with maintenance risk assessments and emergent work activities. The inspectors reviewed the following selected work activities:

- Clean and inspect 21 CCHX
- 12 LPSI/CS/CCHX and 13 HPSI preplanned maintenance activities
- 1B EDG preplanned maintenance
- 12 SWAC HS replacement
- 2B EDG preplanned maintenance
- 22 saltwater pump replacement
- 22 component cooling water pump

b. Findings

No findings of significance were identified.

1R14 Operator Performance During Non-Routine Evolutions and Events (71111.14 - 3 samples)

a. Inspection Scope

Unit 2 Over-Cooling Event Due To The Inadvertent Failure of TBV-3940

The inspectors assessed operator performance associated with a Unit 2 event that involved the inadvertent opening of a turbine bypass valve (TBV) that caused power to exceed the licensed maximum power level of 2700 megawatts thermal. At 12:42 p.m. on October 3, 2005, TBV-3940 inadvertently opened when a volume booster associated with the TBV failed, allowing 100psi control air to the topside of the air operated valve. At 12:44 p.m., control room operators reduced power to 97 percent by inserting control element assemblies and lowering turbine generator load in accordance with AOP-7K, Over-Cooling Event. Peak thermal power during the transient was recorded at 2770 megawatts thermal for an approximate duration of thirty minutes. The TBV was isolated

when operators shut an isolation valve upstream of TBV-3940. Further troubleshooting and evaluation by the licensee revealed that the volume booster had failed and caused an erroneous output resulting in the event. This failure was documented in the licensee's corrective action program as IRE#: 008-586. The unit was restored to normal steady-state 100 percent reactor power at 2:40 p.m. on October 3, 2005.

The inspectors assessed the plant response and conditions specific to the event, and evaluated the performance of licensed operators. The inspectors also reviewed control room procedures and operator logs to determine if operators performed the appropriate actions in accordance with their training and established station procedures.

Unit 1 Downpower Due To Data Acquisition System (DAS) Trouble

The inspectors assessed operator performance associated with an emergent power reduction that occurred on December 1, 2005 when the Unit 1 control room operators entered AOP-7H, "Loss of Plant Computer in Mode One or Two," Revision 21. A power reduction to approximately 96.5 percent was completed when the operators could not conclusively determine that the data acquisition system (DAS) remained available. This was done to ensure reactor linear heat rate (LHR) was maintained within Technical Specification (TS) 3.2.1.

At 2:22 a.m., the Unit 1 plant computer alarm screen indicated several printers had failed with redirected output. At 2:25 a.m., alarm windows E-41, "Plant Computer" and E-46, "DAS" annunciated. The operators followed the respective alarm response procedures which directed them to attempt a "bootstrap" of the plant computer. The "bootstrap" attempt was unsuccessful and AOP-7H was subsequently entered. Computer technicians were called in and the operators continued to follow steps in AOP-7H. This procedure requires the use of conservative calculations for linear heat generation rate if/when the DAS is not available. Continuing to use AOP-7H, the operators concluded they could not ensure DAS was available with the Plant Computer inoperable and used a manual calculation for LHR. This manual calculation indicated that power needed to be reduced to 94 percent to be within the limited LHR. TS 3.2.1 requires LHR be restored to within the calculated LHR within one hour.

Based on an assumed unavailability of DAS at 2:25 a.m., the operators determined power had to be reduced to 94 percent by 3:25 a.m. They also determined that it would take approximately 15 minutes to achieve the 94 percent power level. Power reduction was started at 3:10 a.m. At approximately the same time, the computer technician arrived on site and was able to determine the DAS had not been lost and remained available for continued use. As a result, the power reduction was terminated and power stabilized at approximately 96.5 percent. Following restoration of the plant computer, reactor power was returned to 100 percent.

The inspectors reviewed alarm response procedures E-41, "Plant Computer" and E-46, "DAS" as well as AOP-7H and determined the operators acted appropriately given plant indications and the guidance provided in the respective procedures. The inspectors further concluded that the decision to reduce reactor power was a conservative decision

since the procedural diagnostics, available to control room operators during this event, were inadequate to determine if the DAS function was actually lost. The licensee entered this into their corrective action program as IRE#: 009-869 to ensure that AOP-7H and OI-50A are revised to provide sufficient instructions to allow control room operators to determine DAS availability without assistance from the computer department.

Reactor System Leakage From 2-CVC-110P-CV, Unit 2 Letdown Flow Control Valve

The inspectors assessed operator performance associated with a Unit 2 event that involved a loss of reactor coolant inventory from a letdown flow control valve (2-CVC-110P-CV). On December 12, 2005, at 8:19 p.m., control room operators received a waste processing auxiliary building ventilation alarm. The alarm was due to a higher than normal reading on the ventilation radiation monitors. Following the alarm, the operators noticed that the volume control tank level had lowered and that steam was visible inside the letdown heat exchanger room. The steam was identified with the auxiliary building cameras, which are displayed locally in the control room. The operators scanned the area and noticed that the letdown flow control valve appeared to be leaking excessively. At approximately 8:20 p.m., the Unit 2 CRO entered the Abnormal Operating Procedure AOP-2A, Excessive Reactor Coolant Leakage, and calculated a leakrate of 4.4 GPM. However, the operators could not ascertain what part of the valve was leaking. This prompted the operators to enter Technical Specification action statement 3.4.13.A for the RCS leakage being greater than 1 GPM for unidentified leakage. At 8:25 p.m., the operators implemented ERPIP 3.0, Immediate Actions, Attachment 19, Radiological Event, in accordance with station procedures once the operators had taken steps to isolated and secured the leaking valve. At 9:03 p.m., operators exited AOP-2A. Letdown was restored when the operators placed the parallel flow control valve 2-CVC-110Q-CV in service.

The inspectors assessed the plant response and conditions specific to this event, and evaluated the performance of licensed operators. The inspectors also reviewed control room procedures and operator logs to determine if operators performed the appropriate actions in accordance with their training and established station procedures.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 5 samples)

a. Inspection Scope

The inspectors reviewed five operability determinations to verify that the operability of systems important to safety were properly established and that affected components or systems remained capable of performing their intended safety function. The inspectors reviewed the selected operability determinations to verify they were performed in accordance with NO-1-106, “Functional Evaluation - Operability Determination,” and QL-2-100, “Issue Reporting and Assessment.” The following operability evaluations were reviewed:

- Unit 2 - PAMS 22 hot leg temperature indication deviations between CH A & B
- 22 Charging Pump oscillation amps and reduced flow rate
- 12" Weld #1 off shutdown cooling piping from the 12 hot leg
- Speed switch on the 2B EDG for the low speed actuation was found out of specification
- Phase overcurrent protective relay, phases A&C “AS LEFT” timing points are slightly high out of tolerance

b. Findings

No findings of significance were identified

1R16 Operator Workarounds (71111.16A - 3 samples)

.1 Cumulative Workarounds (1 sample)

a. Inspection Scope

The inspectors evaluated the cumulative effects of operator workarounds on November 2, and on December 6, 2005. This assessment evaluated the potential impact on the functionality of mitigating systems, as well as operator performance during postulated transient events in light of the identified workarounds. The workarounds were assessed in light of the licensee’s requirements for handling workarounds in accordance with Operations Administrative Policy (OAP) 04-01, Managing Operator Impacts. The workarounds were reviewed to determine: (1) if the functional capability of the system or human reliability in responding to an initiating event was affected; (2) the effect on the operator’s ability to implement abnormal or emergency procedures; and (3) if operator workaround problems were captured in the licensee’s corrective action program.

.2 Specific Workarounds (2 samples)

a. Inspection Scope

The inspectors also assessed the adequacy of licensee actions associated with two

specific operator workarounds. The workarounds involved the closure of 1FW-114 to eliminate flow through leaking minimum flow valve on 12 SGFP, and the closure of 1-MS-116 to eliminate flow through leaking 1-TBV-3944. Both of these valves could be required to be manually opened following a reactor trip. Based on this, the inspectors locally verified the extent of operator actions required to be performed when realigning the valves, and the timeliness of these actions. In addition, the inspectors reviewed associated component manipulation forms, as required by station procedures, to ensure that the evaluation of these abnormal valve configurations were appropriate and adequate.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17 - 1 sample)

a. Inspection Scope

The inspectors reviewed engineering service package (ESP) ES-200000242-000, which added vent valves to the 1A EDG air start system. The inspectors performed field verifications to ensure the valves and associated piping were installed per approved station design drawings, and the modification was adequately tested following completion of the fabrication process.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 10 samples)

a. Inspection Scope

The inspectors observed and/or reviewed post-maintenance tests associated with the following ten work activities to verify that equipment was properly returned to service, and that appropriate testing was specified and conducted to ensure that the equipment was operable and could perform its intended safety function following the completion of maintenance. Post-maintenance testing activities were conducted as specified in station procedure MN-1-101, “Control Of Maintenance Activities.” Post-maintenance test results associated with the maintenance activities listed below were reviewed.

- Replacement of Unit 1 RPS channel “D” wide range nuclear indication power supply
- Calibration of U-2 RWT Level Switch “ZE”
- Repair of 2CV3940 TBV after failing open
- 21 CCHX clean and inspect
- Repair of 1A DG 1RV10251
- Replacement of 13 HPSI Handswitch

- Preplanned maintenance on 1B EDG
- 12 SWAC handswitch replacement
- Zero leakage check for 1A EDG following air start system modification
- 2A EDG post-maintenance operability verification

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 7 samples)

a. Inspection Scope

The inspectors observed and/or reviewed the seven surveillance tests listed below associated with selected risk-significant SSCs to verify TS compliance and that test acceptance criteria was properly specified. 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.

- STP-521-2, ESFAS channel time response test
- STP-M-514D-1, WRNI calibration channel "D"
- STP O-8A-1, Test of 1A DG and 11 4 kV Bus LOCI Sequencer
- STP-O-5A-2, Auxiliary Feedwater System Quarterly Surveillance Test (21 AFW pump) [IST Testing]
- STP-O-5A-2, Auxiliary Feedwater System Quarterly Surveillance Test (23 AFW pump) [IST Testing]
- STP O-27-2, Reactor Coolant System Leakage Evaluation [RCS Leak Detection]
- STP O-27-1, Reactor Coolant System Leakage Evaluation [RCS Leak Detection]

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23 - 1 sample)

a. Inspection Scope

The inspectors reviewed one temporary modification associated with jumpering out the 16 battery charger DC undervoltage (UV) relay to determine whether system operability and availability were affected during and after the completion of the modification. The inspectors verified that proper configuration control was maintained, appropriate operator briefings were planned, the design modification package was technically adequate, and post-installation testing was performed satisfactorily to ensure continued operability. The temporary plant modification was also reviewed against the licensee's criteria in MD-1-100, "Temporary Alterations."

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness (EP)

1EP6 Drill Evaluation (71114.06 - 1 sample)

Simulator Exercises

a. Inspection Scope

The inspectors observed control room simulator training exercises conducted on November 15, 2005, to assess licensed operators' performance in the area of emergency preparedness. This training exercise focused on equipment failures and operator challenges that would typically exist during RCS leakage events followed by inadvertent safety injection actuation signal (SIAS) and containment spray actuation signal (CAS) events. The required procedural transitions and associated event classification was observed and evaluated by the inspectors.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS)

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope (7 Samples)

The inspector reviewed radiological work activities and practices and procedural implementation during observations and tours of the facilities and inspected procedures, records, and other program documents to evaluate the effectiveness of Calvert Cliffs access controls to radiologically significant areas. This inspection activity represents the completion of 7 samples relative to this inspection area (i.e., inspection procedure sections 02.03.a thru c, 02.05.a and b, 02.06.b, and 02.07.b) and fulfills the annual inspection requirements.

Problem Identification and Resolution (02.03.a thru c)(3 Samples)

The inspector reviewed the licensee's self-assessments and audits related to the access control program since the last inspection. Based on a review of corrective action reports related to access controls, the inspector determined that identified problems were being entered into the corrective action program for resolution. Based on discussions with

cognizant personnel and a review of documents, the inspector determined that the follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk. The inspector noted that the licensee's self-assessment activities appeared to be also identifying and addressing the type of deficiencies identified in the corrective action program.

High Risk Significant, High Dose Rate HRA and VHRA Controls (02.05.a & b) (2 Samples)

The inspector focused on verifying aspects of the licensee's performance indicator (PI) activities for high-risk, high-dose-rate (HDR), high radiation areas (HRAs)(i.e., greater than 25 rem in one hour at 30 centimeters) and for all very high radiation areas (VHRAs). The inspector discussed the controls and procedures for HDR-HRAs and VHRAs with the Radiation Protection Manager (RPM). There were no changes to licensee procedures which would substantially reduce the effectiveness and level of worker protection. The inspector also questioned first-line radiation protection supervision about the controls in place for special areas that have the potential to become a VHRA.

Radiation Worker Performance (02.06.b) (1 Sample)

During this current inspection and during previous inspections in this year, the inspector reviewed selected radiological problem reports which found that the cause of the event was due to radiation worker errors. The inspector determined that there was no significant observable pattern traceable to a similar cause for the reviewed problem reports. The inspector discussed the corrective actions, planned or taken for the reviewed radiological problem reports, with the radiation protection manager (RPM).

Radiation Protection Technician Proficiency (02.07.b) (1 Sample)

During this current inspection and during previous inspections in this year, the inspector reviewed selected radiological problem reports for any which found that the cause of the event was due to radiation protection technician errors. The inspector did not identify any significant issues in the reports or observable pattern traceable to a similar cause. The categorization of the reviewed issues in the corrective action program appeared appropriate.

Related Activities

During the inspection on October 11 - 14, 2005, the inspector observed Radiologically-Controlled Area (RCA) entries and exits being made by radiation workers at the primary RCA access control point to verify compliance with requirements for RCA entry and exit, wearing of record dosimetry, and issuance and use of alarming electronic radiation dosimeters. The inspector toured various elevations in the auxiliary building to verify the adequacy of the radiological controls which were being implemented. The inspector reviewed observed work activities for compliance with the special work permit (SWP) requirements. During these observations and tours the inspector reviewed, for

regulatory compliance, the posting, labeling, barricading, and level of radiological access control for locked high radiation areas (LHRAs), high radiation areas (HRAs), radiation and contamination areas, and radioactive material areas. On October 12, the inspector observed a pre-job radiological safety brief for a medium risk Special Work Permit (SWP) which required breeching the reactor coolant system. On October 13, the inspector observed the morning turnover meeting for the Health Physics (HP) technicians.

The inspector performed a selective examination of documents (as listed in the List of Documents Reviewed section) to evaluate the adequacy of radiological controls.

The review in this area was against criteria contained in 10 CFR 19.12, 10 CFR 20 (Subparts D, F, G, H, I, and J), Technical Specifications, and procedures.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope (4 Samples)

The inspector reviewed the effectiveness of the licensee's program to maintain occupational radiation exposure as low as is reasonably achievable (ALARA). This inspection activity represents the completion of 4 samples relative to this inspection area (i.e., inspection procedure sections 02.08.a thru d) and fulfills the biennial inspection requirements.

Problem Identification and Resolutions (02.08.a thru d) (4 Samples)

During this current inspection and during previous inspections in this year, the inspector reviewed the licensee's self-assessments and audits related to the ALARA program. The inspector determined that the licensee's overall audit program's scope and frequency (for all applicable areas under the Occupational Cornerstone) met the requirements of 10 CFR 20.1101(c). The inspector noted that identified problems were being entered into the corrective action program for resolution and that they appeared to be properly characterized and prioritized for resolution. The inspector discussed selected corrective action reports related to the ALARA program with cognizant radiation protection personnel. The inspector noted that the licensee's self-assessment of ALARA during the last outage resulted in several issues being entered into the corrective action program for resolution.

Related Activities

The inspector performed a selective examination of documents (as listed in the List of Documents Reviewed section) for regulatory compliance and for adequacy of control of radiation exposure.

The review was against criteria contained in 10 CFR 20.1101 (Radiation protection programs), 10 CFR 20.1701 (Use of process or other engineering controls), and procedures.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

a. Inspection Scope (1 Sample)

The inspector reviewed the program for health physics instrumentation and protective equipment to determine the accuracy and operability of the instrumentation and equipment. Specifically, the inspector reviewed the program for portable and fixed radiation protection instruments and the installed area and process radiation monitoring systems. This inspection activity represents the completion of 1 sample relative to this inspection area (i.e., inspection procedure section 02.03) and fulfills the biennial inspection requirements.

Verify Calibration, Operability, and Alarm Setpoint (if applicable) of Several Types of Instruments and Equipment (02.03) (1 Sample)

During a tour of the RCA on October 14, the inspector identified and noted the condition, operability, and calibration status of selected installed area and process radiation monitors and any accessible local indication information for those monitors and the status of selected portable and fixed radiation protection instruments. Also, in order to verify calibration, operability, and alarm setpoint of these instruments and monitors, the inspector reviewed the calibration documentation for selected instruments and installed radiation monitors. The inspector examined the health physics instrument calibration facility and the issue point in the RCA. The inspector also reviewed the most recent 10 CFR 61 sample analysis for dry active waste to determine if the calibration sources used were representative of the plant source term. Calibration records for continuous air monitors, lapel air samplers, portable air monitors, portable ion chamber survey meters, teletectors, and alarming electronic personnel dosimeters were examined. The calibration records for installed radiation monitors, which were reviewed, are listed in the List of Documents Reviewed section.

Related Activities

The inspector performed a selective examination of documents (as listed in the List of Documents Reviewed section) for regulatory compliance and adequacy.

The review was against criteria contained in 10 CFR 20.1501, 10 CFR 20, Subpart H, Technical Specifications, and procedures.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety (PS)

2PS2 Radioactive Material Processing and Transportation (71122.02)

a. Inspection Scope (6 Samples)

The inspector reviewed the radioactive material processing and transportation work activities and practices during tours of the facilities, discussed observations and issues with site representatives, and inspected procedures, procedural implementation, records, and other program documents to evaluate the effectiveness of performance in this area. This inspection activity represents the completion of six (6) samples relative to this inspection area in complete fulfillment of the biennial inspection requirements.

Inspection Planning and In-Office Inspection (02.01.a and b)(1 Sample)

The inspector reviewed the descriptions of the solid and liquid radioactive waste systems in the Updated Final Safety Analysis Report (UFSAR) and the most recent radiological effluent release report for information on the types and amounts of radioactive waste disposed. The inspector also reviewed the scope of the site's most recent audit covering radiation protection and radioactive materials management, self-assessments of the radioactive waste processing and transportation function, and several quality performance assessments to verify that the audit program met the requirements of 10 CFR 20.1101(c).

Radioactive waste system walk down (02.02.a thru d)(1 Sample)

The inspector walked down selected accessible portions of the station's radioactive liquid and radioactive solid waste collection, processing, and storage systems/locations to verify that the current system configuration and operation agreed with descriptions contained within the UFSAR and the Process Control Program (PCP). The areas reviewed during the walk downs included areas within the main radiologically-controlled area (RCA), the Materials Processing Facility (MPF), and the Lake Davies storage area.

During system walkdowns and during discussions with chemistry personnel and radioactive waste processing and shipping personnel, the inspector reviewed the status of nonoperational and/or abandoned-in-place radioactive waste process equipment and administrative and physical controls for the systems; the inspector also reviewed the adequacy of any changes to the radioactive waste processing systems since the last inspection in this area and the potential radiological impact and reviewed the current processes for transferring radioactive waste resin into shipping/disposal containers and for dewatering.

Waste characterization and classification (02.03.a and b)(1 Sample)

The inspection included a review of conformance with applicable waste characterization and classification regulations and with program procedures. This included a selective review of the radiochemical sample analysis results for each of the tracked radioactive waste streams (i.e., filters, resins, and dry active waste) and the development of scaling factors for difficult-to-detect-and-measure radionuclides; the inspector also verified that programmatic elements were in place to ensure that determination of waste classification (10CFR61.55) and of waste characteristics (10CFR61.56) was adequate and that the waste stream composition data accounts for changing operational parameters.

Shipment preparation (02.04.a and b)(1 Sample)

Based on the scheduled radioactive waste processing and shipment activities, the inspector had the opportunity to observe the loading of a liner containing irradiated control element assemblies into a shipping cask and the final preparations for shipment of the cask which was a White I-label-type shipment. Based on this observation, on the review of shipment records, radioactive waste program documents, shipment preparation procedures, and the technical instructions presented to workers during routine training, and on discussions with radioactive waste processing and shipping personnel, the inspector was able to assess the adequacy of shipment preparation activities from initial packaging to shipment readiness and to determine that shipping personnel were knowledgeable of NRC and DOT shipping regulations.

Shipping records (02.05)(1 Sample)

The inspector examined the shipping records for five non-excepted packages including one Low-Specific-Activity-One (LSA I) type shipment, one Low-Specific-Activity-Two-type (LSA II) shipment, one Type A (White I) shipment, one Type A (Yellow II) shipment, and one Type B (Yellow III) shipment. The inspector reviewed these records for compliance with NRC and DOT requirements, including shipment paper and description requirements, shipper's certification, proper use of forms, package marking and labeling, vehicle placarding, emergency response information, and packaging requirements.

Identification and resolution of problems (02.06.a thru c)(1 Sample)

The inspection included a selective review of an audit, self-assessments, and quality performance assessments related to the radioactive waste processing and transportation and radiation protection programs performed since the last inspection in this area. The inspector also reviewed selected Issue Reports (IRs) and their corrective actions for issues related to the inspected area. Specifics regarding the corrective action program are addressed in Section 4OA2 of this report.

Related Activities

During the inspection, the inspector witnessed several radiological briefings. On October 24, the inspector observed a pre-job radiological briefing for the transfer of a liner containing irradiated control element assemblies from a transfer cask to a radioactive waste shipping cask. On October 27, the inspector observed a pre-job radiological briefing for the movement of a canister loaded with spent fuel assemblies to the independent spent fuel storage pad.

During the review of the areas, which are listed above under inspection scope, the inspector performed a selective examination of procedures, records, and documents (as listed in the List of Documents Reviewed section) for regulatory compliance and adequacy.

The above review was against criteria contained in: 10 Code of Federal Regulations (CFR) Part 20: Subpart F (Surveys and monitoring); 10 CFR 20.1902 (Posting requirements); Subpart I (Storage and control of licensed material); Subpart K (Waste disposal); Appendix G to Part 20 (Requirements for transfers of low-level radioactive waste intended for disposal at licensed land disposal facilities and manifests); 10 CFR 61.55, Waste classification; 10 CFR 61.56, Waste characteristics; 10 CFR 61.57, Labeling; 10 CFR 71, Packaging and transportation of radioactive material; 49 CFR 172 (Hazardous materials table, special provisions, hazardous-materials communications, emergency response information, and training requirements); 49 CFR 173 (Shippers-general requirements for shipments and packagings); 49 CFR 173 (Subpart I-Class 7 (radioactive) materials); 49 CFR 177 (Carriage by public highway); NRC Bulletin 79-19; and site procedures.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151)

a. Inspection Scope (2 Samples)

Occupational Exposure Control Effectiveness (OECE)(02.01)

The inspector selectively examined records used by the licensee to identify occurrences involving high radiation areas, very high radiation areas, and unplanned personnel exposures for the time period from mid December 2004 through the third quarter of 2005. The reviewed records included selected corrective action program records and the periodic PI data records for this PI. This review was conducted against the applicable criteria specified in Nuclear Energy Institute's (NEI) Regulatory Assessment Performance Indicator Guideline No. 99-02 (Revision 3, with an effective date of April 1, 2005).

This review and examination did not identify any problems with the PI accuracy or completeness and, thus, verified this performance indicator. This inspection activity represents the completion of 1 sample relative to this inspection area (i.e., inspection procedure section 02.01) for one performance indicator (i.e., OECE).

Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM REOs)(02.01)

The inspector selectively examined records used by the licensee to identify any occurrences involving gaseous or liquid effluent releases for the time period from mid December 2004 through the third quarter of 2005. The reviewed record types included selected effluent release permits, corrective action program records, and the periodic PI data records for this PI. This review was conducted against the applicable criteria specified in Nuclear Energy Institute's (NEI) Regulatory Assessment Performance Indicator Guideline No. 99-02 (Revision 3, with an effective date of April 1, 2005).

This review and examination did not identify any problems with the PI accuracy or completeness and thus verified this performance indicator. This inspection activity represents the completion of 1 sample relative to this inspection area (i.e., inspection procedure section 02.01) for one performance indicator (i.e., RETS/ODCM REOs).

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

.1 Corrective Action Review by Resident Inspectors

a. Inspection Scope

Continuous Review

The inspectors performed a daily screening of items entered into the licensee's corrective action program as required by Inspection Procedure 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. It was accomplished by reviewing each issue report and attending daily screening meetings, and accessing the licensee's computerized database.

Semi-Annual Problem Identification and Resolution (PI&R) Review

The inspectors performed an in-depth, semi-annual, PI&R review of licensee documents written from July 2005 through December 2005 to verify that the licensee is identifying issues at the appropriate threshold, entering them into the corrective action program, and ensuring that there are no significant adverse trends outside of the corrective action

program which would indicate the existence of a more significant safety issue.

The inspectors reviewed licensee PIs, self-assessment reports, quality assurance audit/surveillance reports, corrective action reports, and system health reports and compared the results of the review with results reported in the NRC baseline inspection program. Additionally, the inspectors evaluated the reports against the requirements of the Constellation Nuclear's Corrective Action Program (CAP) as delineated in QL-2, "Self-Assessment/Corrective Action Program."

.2 Identification and Resolution of Problems - Occupational Radiation Safety (71121)

a. Inspection Scope

During the inspection on October 11 -14, 2005, the inspector selected seven issues identified in the Corrective Action Program (CAP) for detailed review (i.e., Issue Report (IR) Nos. IRE-003-830, -004-387, -006-725, -007-120, -007-752, -007-849, and -007-977). The issues were associated with the alteration of a high radiation barrier by a radiation worker, a higher- than-expected source term, radiation monitoring system (RMS) channels out-of-service for extended periods, improvement in contamination control practices, a plan for ALARA program enhancements, filter debris in the spent fuel pool, and the radioactive shipment of a tritium source, respectively. The documented reports for the issues were reviewed to determine whether the full extent of the issues was identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized.

.3 Identification and Resolution of Problems - Public Radiation Safety (71122.02)

a. Inspection Scope

During the inspection on October 24 - 27, 2005, the inspector selected two issues identified in the Corrective Action Program (CAP) for detailed review (i.e., Issue Report (IR) Nos. IRE-007-146 and -009-122). The issues were associated with the mixture of low and high dose bags of used anti-contamination clothing and a White I transportation label lacking quantitative units, respectively. The documented reports for the issues were reviewed or discussions with cognizant individuals were conducted to determine whether the full extent of the issues was identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 TI 2515/161 - Transportation of Reactor Control Rod Drives in Type A packages

a. Inspection Scope (TI Completed)

During the inspection week of October 11 - 14, 2005, the inspector performed Temporary Instruction (TI) 2515/161. This area was inspected to verify that the licensee's radioactive material transportation program complied with specific requirements of 10 CFR Parts 20 and 71, and Department of Transportation (DOT) regulations contained in 49 CFR Part 173 and specifically to examine the use of DOT Specification 7A Type A packages. The inspector interviewed licensee personnel and determined that the licensee had undergone refueling/defueling activities four times since January 1, 2002. However, the licensee had not made any shipments of irradiated reactor control rod drives during this time period.

.2 Reactor Vessel Head Replacement Inspection, Pre-Outage Inspection (71007 - 1 sample)

a. Inspection Scope

The scope covers activities reviewed during the first onsite week of inspection and two weeks of follow-up in-office review. The reactor vessel head components were fabricated and constructed at vendor facilities in Japan, Canada and US under the jurisdiction of an Authorized Nuclear Inspector. In addition to fabrication at the vendor facilities, portions of the head fabrication including control element motor housing assembly were controlled by Constellation procedures.

Activities performed during onsite and in-office inspection included:

- Observation of the new reactor vessel head and its penetrations at the site storage facility (post- CEDM housing seal welding and gas pressure testing);
- Review of the non-destructive examination (NDE) techniques performed on head penetrations j-groove welds, including PT-white surface examination, review of documented test data and interviews with Constellation and B&W NDE personnel;
- Review of reactor vessel head, Enhanced Service Structure (ESS) and Thimble Support Plate (TSP, due to its support function of the in-core instrumentation) design documents and screenings for 10 CFR 50.59 evaluations;
- Review of Certified Material Test Reports (CMTRs) for head forgings (dome and flange), weld material rods, and CEDM nozzles; and
- Walk-down of the haul path from the location of head storage to the containment

equipment hatch with Constellation and vendor representatives.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On January 13, 2006, the resident inspectors presented the inspection results to Mr. Joe Pollock and other members of his staff who acknowledged the findings. The inspectors asked the licensee 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

Licensee Personnel

D. Bauder, Manager, Nuclear Operations
T. Blankenship, Health Physics Technician
K. Burroughs, Plant Health Physicist
R. Cable, Waste Management Technician
E. Chrzanowski, Simulator Support Leader
R. Conatser, Senior Chemist (Technical Services)
R. Courtney, Principal Waste Management Technician
G. Dare, System Manager, 480 VAC and 125 VDC
S. Dean, Assistant Operations Manager
D. Demore, Health Physics Work Leader (Radiological Engineering)
J. Detchemendy, Health Physics Technician
A. Dewhurst, Framatome, Haul Path/Rigging Engr
B. Downs, NDE Level III
S. Etnoyer, Plant Health Physicist
H. Evans, Health Physics Work Leader (Dosimetry)
J. Evans, Manager, Nuclear Training (Interim)
K. Fearrington, Health Physics Technician
P. Furio, Regulatory Matters
D. Geneva, Waste Management Supervisor
K. Greene, Maintenance Rule Coordinator
T. Grigg, Senior HP/Chemistry Instructor (Nuclear Training Department)
G. Gwiazdowski, Director, Nuclear Security
R. Holland, Health Physics Technician
D. Holm, Plant Manager
J. Johnson, Engineering Analyst-Regulatory Matters
G. Khouri, Component Replacement Engr.
T. Kirkham, Health Physics Supervisor (Operations)
T. Konerth, Fab PM/Project Engineer
E. Kreahling, System Engineer
L. Larragoite, Director of Licensing
N. Lavato, Supervisor, Nuclear Operator Requalification Training
J. Lenhart, Health Physics Work Leader (Operations)
Loeper, System Manager, Diesel Generators
K. Mills, Operations General Supervisor
C. Neyman, Licensing Analyst
B. Pace, General Supervisor, Operators Training
J. Pruitt, Waste Management Technician
J. Remenuik, ESS Task Manager
I. Rice, Health Physics Technician
B. Rudell, Task Manager, RVH/CEDMs
S. Sanders, General Supervisor of Health Physics/Chemistry

D. Scroggy, Health Physics Technician
A. Simpson, Regulatory Matters
S. Smith, System Manager, Main Feedwater System
M. Stanley, Safety Specialist
B. Tench, Acting Director, RVH Project
G. Vanderheyden, Site Vice President
L. Williams, System Manager, Control Rod Drive System
M. Yox, Licensing

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

05000317/2005005-01	NCV	Failure To Establish Adequate Clearance Order Boundaries (Section 1R04)
05000318/2005005-02	NCV	Safety-Related Power Supply System (a)(2) Demonstration Invalidated (Section 1R12)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Adverse Weather - Heavy Rains

ERPIP 3.0 - Attachment 20, Severe Weather
EP-1-108 attachments 1,2,4 and 5 of the severe weather preparation checklist
NO-1-119, Season Readiness
IRE-007-695 - Leak Above 25 Battery Charger in 33' 250VDC Bus Room
IR4-037-489 - Water from Roof near MCC 222 on Mezzanine
MO#0200502405 - Leak Above 25 Battery Charger in 33' 250VDC Bus Room
MO#0200402783 - Replace existing expansion joint for Water from Roof near MCC 222
NO-1-207 - Calvert Cliffs Shift Turnover Information Sheet / Operator Comp Actions

Adverse Weather - Cold Weather Preparations

OAP 92-09 - Operations Administration Policy Guidelines for Cold Weather Operations

Adverse Weather Actions for Tornado Warning

ERPIP 3.0 - Attachment 20, Severe Weather
EP-1-108 attachments 1,2,3 and 5 of the severe weather preparation checklist
NO-1-119 - Season Readiness
NO-1-207 - Calvert Cliffs Shift Turnover Information Sheet / Operator Comp Actions
Plant Operator Logs

Section 1R04: Equipment Alignment

12 LPSI/CS/CCHX maintenance and 13 HPSI HS replacements

Clearance Order# 1200500063 - 12 LPSI 152-1404 Bkr Inspection
Clearance Order# 1200500662 - 12 CS Pump Motor Lubrication
Clearance Order# 1200500075 - 12 CCHX Clean and Inspect
Clearance Order# 1200500708 - 13 HPSI 1HS301Z replacement
MO#1200501339 - Inspect 152-1404 Bkr for 12 LPSI Pump
MO#1200501370 - Lubricate 12 CS Pump Motor
MO#1200302291 - Replace 1HS301Z for 13 HPSI Pump
MO#1200502786 - Clean Tube Sheet and Remove Debris from Inlet Channel Head
DWG No. 62708SH0003 Rev.7 - Circulating Cooling System
DWG No. 62710SH0002 Rev.24 - Component Cooling System
DWG No. 60731SH0001 Rev.78 - Safety Injection and Containment Spray Systems
DWG No. 60731SH0002 Rev.43 - Safety Injection and Containment Spray Systems
DWG No. 60731SH0003 Rev.25 - Safety Injection and Containment Spray Systems

12 SWAC HS Replacement

Clearance Order#1200500676 - 12 SWAC HS replacement
MO#1200405768 - Replace 1HS5205 for #12 SWAC
DWG No. 62712SH0003 rev. 109 - Compressed Air System Plant & Instrument Air

Replacement of Valve 1-SV-3828

Clearance ID#: 1200500791, tagout of 11 component cooling water heat exchanger
Clearance ID#: 1200500794, replacement of valve 1-SV-3828
Various reactor coolant pump temperature graphs
Condition Report#: IRE-009-106, Entry into AOP-7C, Loss of component cooling water
Control room operator logs - October 26, 2005
NO-1-112, Revision 28, Safety Tagging
System Drawing No. 60710, sheet 2, Component Cooling Water System

Section 1R05: Fire Protection

IRE-009-396 - Door sweep missing on bottom of door number 321, U1, 27' switchgear room

Section 1R07: Heat Sink Performance

21 CCHX thermal performance test

ETP 01-005R rev. 1- Single tube Thermal Performance Testing Procedure for 21 CCHX
OI-29-2 rev. 41 Salt Water System
EPRI STTD Data Acquisition Procedure
DWG No. 62710SH0001 rev. 38 - Component Cooling System

DWG No. 62710SH0002 rev. 24 - Component Cooling System
BGE Document in Response to GL 89-13
GL 89-13 Service Water System Problems Affecting Safety Related Equipment

Section 1R11: **Licensed Operator Requalification Program**

Licensed Operator Requalification Training Program Manual Rev. 5
Training Guideline 9 "Examinations" Rev. 6
Lesson Plan LOR-300-1-04 Operator Performance Issues
Lesson Plan LOR-384-1-04 Calvert Cliffs OE Unit 2 Trip of 1/23/04
Simulator Configuration Manual ch 12 Simulator Testing Rev. 8
Simulator Performance Tests:

Transient Tests

ANS 2A Reactor Trip 7/28/2005
ANS 2E Trip of 11A Reactor Coolant Pump 2/18/2005
ANS 2E Trip of 12A Reactor Coolant Pump 2/18/2005
MS002 Steam Generator Tube Rupture 7/28/2005
ANS 2C Simultaneous Closure of Both MSIVs 8/10/2005
ANS 2H DBA LOCA with Loss of Offsite Power 7/28/2005
Comprehensive Transient Test and Overview for Unit 2 ½3/2004 Trip 6/29/2004

Normal Evolutions Tests

ANS 3B Operations from Hot Standby to 10% Power 8/20/2004
ANS 3A Operations from Cold Shutdown to Hot Standby 12/3/2001
ANS 3E Operations in Hot Standby 12/6/2001

Malfunction Tests

AFW003 Aux Feedwater Pipe Rupture 9/13/2005
CVCS011 Inadvertent Boration via CVC-514 9/12/2005
CCW004 Loss of Component Cooling Water to Containment 2/10/2002
CVCS007 Tube Rupture in Non-Regenerative HX 9/12/2005
480v004 Loss of Pressurizer Heater MCC's 11/14/2003

Steady State Tests

ANS 1D Steady State 100% Heat/Mass Balance 5/31/2005
ANS 1E Steady State Data Comparison 8/9/2005

Section 1R12: Maintenance Effectiveness

Quarterly:

125 volt vital power supply failures/replacement activities

STP-M-514D-1 WRNI Calibration Channel D rev.7
DWG No. 60933SH0059 rev. 10 - Loop Diagram Wide Range Neutron Monitoring System
IRE-008-608 - PS1 on WRNI "D" had AC Ripple
MO#1200503629 - AC Ripple on WRNI "D" PS1
MN-1-110 - Interdepartmental Troubleshooting Procedure and Rover Maintenance
DWG No. 12723-0158 SH.4 rev.8 - Power Supply System ESFAS
Power Supply Functional Failure Rate per Rolling 8 Quarters - EHD Data 7/6/05
EPRI Guidance for Maintenance Program and Practices
MN-1-112 rev.12 Attachment s,(a)(1) - Evaluation, Corrective Action and Goal Setting Plan

RWT "ZE" level switch ESFAS response time testing

TS 3.3.4.A - ESFAS System Instrumentation
STP-521-2 - ESFAS Channel Time Response Test
Combustion Engineering Infobulletin No. 97-02
IRE-008-508 - 2LS4142B failed Time Response Test

Unit 2 Containment Atmosphere Monitoring

IRE-008-845 (Unit 2 Containment Atmosphere Monitors placed in (a)(1) status)
077, 079G - Process Radiation Monitor System Health report
Drawing, Area & Process Radiation Monitoring System # 60738SH0001 rev. 66
Drawing, Area & Process Radiation Monitoring System # 60738SH0002 rev. 21
EOP-5 Loss of Coolant Accident
AOP-06B Accidental Release of Radioactive Liquid Waste
AOP-06C Accidental Gaseous Waste Release

Biennial

Maintenance Rule (A)(1) Evaluations

001-04-01, Switchyard, Rev 0, 12/1/04
005B-04-01, 480V Load Center Breakers, Rev 1, 5/2/05
011-04-01, Service Water (21 SRW pump unavailability), Rev 0, 2/18/04
012-04-01, Salt Water, Rev 0, 3/16/04
015-03-01, Component Cooling (21 CC pump unavailability), Rev 0, 10/20/03
032-04-01, Aux Building Ventilation, Rev 0, 1/21/04
045-04-01, Main Feedwater, Rev 0, 4/5/04
055-04-01, Control Rod Drive System, Rev 0, 3/19/04
064B-04-01, Reactor Coolant Pumps (Seals), Rev 0, 2/26/04
064B-05-01, Reactor Coolant Pumps (Vibration Indication), Rev 2, 6/14/05

077-04-01, Rad Monitoring, Rev 1, 3/3/04
083A-03-01, Main Steam (MSIVs), Rev 2, 1/5/04
083A-04-01, Main Steam (MSIVs), Rev 3, 11/30/04
125 VDC - 22 Battery Charger, Rev 0, 11/20/02
21 Auxiliary Feedwater Steam Train, Rev 0, 7/18/02
23 Auxiliary Feedwater Pump, Rev 0, 3/28/05
Main Steam (MSIVs), Rev 0, 12/23/02
Main Steam (MSIVs), Rev 1, 5/13/03
Reactor Coolant Pumps (Vibration Indication), Rev 0, 12/16/01
Reactor Coolant Pumps (Vibration Indication), Rev 1, 9/24/01

Administrative Documents

ER-1-103, Maintenance Rule Program Implementation, Rev 0, 6/20/05
Maintenance Rule Scoping Document, Rev 24, 4/30/05
MN-1-112, Managing System Performance, Rev 9, 9/12/03
Unit Operating Record Unavailability Data Guideline Sheets by System, 6/2/04

Corrective Action Program

AIT IR200100762
AIT IR200300398
AIT IR200400033
AIT IR200400052
AIT IR200400254
IR IR4-019-664
IR IRE-006-878*
IR IRE-006-910*
IR IRE-006-915*
IR IRE-006-917*
IR IRE-006-918*

* IRs written as a result of this inspection

Miscellaneous Documents

(A)(3) Periodic Assessment of Maintenance Rule Program (October 2002 through September 2004), 11/19/04
Maintenance Rule System Level Performance Indicators Summary Report (1st Quarter 2003), 4/26/03
Maintenance Rule System Level Performance Indicators Summary Report (1st Quarter 2005), 4/16/05
RAN: 02-020, Diesel Generator Required Action Completion Time Risk Analysis, Rev 2, 5/6/03
RAN: 98-004, Identification of Risk Significant Components for the Maintenance Rule System Level Indicators, Rev 0, 3/21/98
RE: 03-007, Memo from T. O'Meara to G. Dockstader regarding 125 VDC Battery Charger Performance Criteria Increase, 1/30/03

System Health Report 480V Breakers (005B) - 2nd Quarter 2004
System Health Report 480V Breakers (005B) - 2nd Quarter 2005
System Health Report 480V Breakers (005B) - 4th Quarter 2004
System Health Report Compressed Air (019) - 2nd Quarter 2005
System Health Report Compressed Air (019) - 3rd Quarter 2004
System Health Report Control Rod Drive System (055A) - 2nd Quarter 2005
System Health Report Control Rod Drive Systems (055A) - 3rd Quarter 2004
System Health Report Main Feedwater (045) - 2nd Quarter 2004
System Health Report Main Steam (083A) - 1st Quarter 2005
System Health Report Main Steam (083A) - 2nd Quarter 2005
System Health Report Main Steam (083A) - 2nd Quarter 2005
System Health Report Reactor Coolant Pumps (064B) - 2nd Quarter 2004
White Paper from K. Tietjen on Battery Charger Low DC Current Indications, 1/16/01
MO 1200203831, Calibration of 11 SGFP Speed Controls Instruments, Rev 0, 4/18/04

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Clean and inspect 21 CCHX

NO-1-117, Rev 11 - Integrated Risk Assessment
QSS Converter/Evaluator Macro Basis for 21 CCHX Maintenance
CCNPP Plant Status/ Integrated Work Schedule Work Sheet 0540
MO#2200403294 - Perform ETP 01-005R for 21 CCHX
ETP 01-005R rev. 1- Single tube Thermal Performance Testing Procedure for 21 CCHX
Clearance Order#2200500587 - 21 CCHX Clean and Thermal Performance Test
DWG No. 62710SH0001 rev. 38 - Component Cooling System

12 LPSI/CS/CCHX and 13 HPSI preplanned maintenance activities

NO-1-117, Rev 11 - Integrated Risk Assessment
QSS Converter/Evaluator Macro Basis for 12 LPSI pump HS Replacement
QSS Converter/Evaluator Macro Basis for 12 CS Bkr Inspection
QSS Converter/Evaluator Macro Basis for 13 HPSI HS Replacement
QSS Converter/Evaluator Macro Basis for 12 CCHX Maintenance
CCNPP Plant Status/ Integrated Work Schedule Work Sheet 0541
MO#1200501339 - Inspect 152-1404 Bkr for 12 LPSI Pump
MO#1200501370 - Lubricate #12 CS Pump Motor
MO#1200302291 - Replace 1HS301Z for 13 HPSI Pump
MO#1200502786 - Clean Tube Sheet and Remove Debris from Inlet Channel Head

1B EDG preplanned maintenance

TS 3.8.1.B - Electrical Power Systems
NO-1-117, Rev 11 - Integrated Risk Assessment
QSS Converter/Evaluator Macro Basis for 1B D/G Maintenance
CCNPP Plant Status/ Integrated Work Schedule Work Sheet 0542

12 SWAC HS replacement

TS 3.5.2.A - ECCS Operating
TS 3.6.6.A - Containment Spray and Cooling Systems
TS 3.7.5.A - Component Cooling System
TS 3.7.6.B - Service Water System
TS 3.7.7.A - Saltwater System
NO-1-117, Rev 11 - Integrated Risk Assessment
QSS Converter/Evaluator Macro Basis for 21 CCHX Maintenance
CCNPP Plant Status/ Integrated Work Schedule Work Sheet 0540

2B EDG preplanned maintenance

FTE-81 - Speed Switch and Tach-Generator Drive Operational Check for Fairbanks Morse Diesel Generators
FTE-59 - Periodic Maintenance, Calibration And Functional Testing Of Protective Relays, Revision 5

22 saltwater pump replacement

MO 2200404667, Inspect breaker 152-2405
MO 2200402219, Replace 2TE5206, 22 SW pump motor lower guide bearing TE
MO 2200401563, Replace 22 SW pump with spare pump
MO 2200404687, Disassemble/inspect 22 SW pump and motor coupling
MO 2200502311, Sample oil from 22 SW pump
MO 2200404281, Relocate MH4 light fixture on east wall

22 component cooling water pump

MO 2200502319, Lubricate 22 component cooling water pump

Section 1R14: Operator Performance During Non-Routine Evolutions and Events

2CV3940 TBV Failing Open

RM-1-101 - Regulatory Reporting
IRE-008-590 - During TBV Failure, MW th power indicated 2770 for 2 minutes with no alarm
IRE-008-591 - During AOP-7k (Over-cooling Event), instrument air failed for 1-MS-120
IRE-008-602 - Air Volume Boosters for TBV have problem, 6 failures since 2002
IRE-008-586 - 2CV3940 Failed Open Unexpectedly at 100% Power
MO#2200504421 - 2CV3940 Failed Open due to Volume Booster Failure
CC UFSAR Chapter 14.4 - Excess Load Event
Plant Computer Logs
Plant Operator Logs
Pi Processor Data Trends for Tc, Pzr Level, MW th and Rx Power
CCNPP Unit 2 License No. DPR-69 - C(1) Maximum Power Level

Unit 1 Downpower Due To Data Acquisition System (DAS) Trouble

RM-1-101 - Regulatory Reporting
IRE-009-869 (AOP-7H revision needed for loss of Plant Computer and resultant loss of DAS)
OP-3 Normal Operating Procedure
AOP-7H Loss of Plant Computer
Plant Computer Logs
Plant Operator Logs
Pi Processor Data Trends for Rx Power (MW th and Nuclear Instruments)
CCNPP Unit 1 License No. DPR-69 - C(1) Maximum Power Level

Section 1R15: Operability Evaluations

Unit 2 - PAMS 22 hot leg temperature indication deviations between CH A & B

IRE-009-167, PAMS 22 hot leg temperatures chanels A and B have exceeded their STP maximum deviations

22 Charging Pump oscillation amps and reduced flow rate

IRE-008-697 - 22 Charging Pump oscillating amps and reduced flow rate
ES200400393 - Engineering Evaluation, Risk Assessment of SIAS to the Charging Pumps

12" Weld #1 off Shut Down Cooling, off the 12 hot leg

IRE-009-389 - 12" Weld #1 off Shut Down Cooling, off the 12 hot leg has a non-metallic inclusion

Speed switch on the 2B EDG for the low speed actuation was found out of specification

IRE-009-387 - Speed switch on the 2B EDG for the low speed actuation was found out of specification

Phase overcurrent protective relay, Phases A&C “AS LEFT” timing points are slightly high out of tolerance

IRE-009-417 - A & C Phases “AS LEFT” timing points are slightly high out of tolerance for the overcurrent protective relay

Section 1R16: Operator Workarounds

OAP-04-01, Managing Operator Impacts
Shift Turnover Information Sheet, dated 12/5/05
Nucleis “Report of Operator Workarounds”, dated 12/5/05
Operator Workarounds/Compensatory Action Aggregate Effects, October 2005
Unit 1 - Auxiliary Building Equipment Availability Sheet, 12/5/05

Section 1R19: Post-Maintenance Testing

Replacement of Unit 1 RPS channel "D" wide range nuclear indication

STP-M-514D-1 WRNI Calibration Channel D rev.7
DWG No. 60933SH0059 rev. 10 - Loop Diagram Wide Range Neutron Monitoring System
IRE-008-608 - PS1 on WRNI "D" had AC Ripple
MO#1200503629 - AC Ripple on WRNI "D" PS1
MN-1-110 - Interdepartmental Troubleshooting Procedure and Rover Maintenance
DWG No. 12723-0158 SH.4 rev.8 - Power Supply System ESFAS

Calibration of U-2 RWT Level Switch "ZE"

STP-521-2 rev.11, ESFAS Channel Time Response Test
IRE-008-508 - 2LS4142B failed Time Response Test

Repair of 2CV3940 TBV after failing open

IRE-008-602 - Air Volume Boosters for TBV have problem, 6 failures since 2002
IRE-008-586 - 2CV3940 Failed Open Unexpectedly at 100% Power
MN-1-101 rev. 30 - Attachment 2, IR Rover for IRE-008-586
Fairchild Volume Booster Figure 1. - Model 4500A Detail Drawing

21 CCHX clean and inspect

OI-29 6.34, SW System
Clearance Order#2200500587 - 21 CCHX Clean and Thermal Performance Test
MO#2200403294 - Perform ETP -01-005R rev.1

Repair of 1A DG 1RV10251

IRE-008-267 - Shafts for 1A1 and OC Starting Air Compressor Water Separator Inlet 4-way valve stuck in mid position when cycling between to flowpaths
MO#1220503556 - Shafts for 1A1 and OC Starting Air Compressor 4-way valve sticking
MO#1200503499 - DSA RV's lifting on 1A1 DG Air Compressor
IRE-004-774 - 1RV10251 lifting during Air Compressor Operation
IRE-004-995 - Two minor air leaks found in the 1A dg Starting Air System
DWG No. DG-M-8SH0001 rev. 2 - Starting Air System for 1A DG

Replacement of 13 HPSI Handswitch

OI-3A 6.21, Safety Injection and Containment Spray Systems
MO#1200302291 - Replace 1HS301Z for 13 HPSI Pump
Reactor Operator Logs

Preplanned maintenance on 1B EDG

STP O-008B-1 rev.26 - Test of 1B DG
IR4-000-907 - Inspect and repair 1TI4821 for 1B DG
MO#1200204764 - 1B DG Turbo Charger Exhaust Thermocouple reads erratically
MO#1200200370 - Shutdown Relay Logic Testing for STP M-654C-1B
OI-21B - 1B Diesel Generator Operation

2A EDG post-maintenance operability verification

STP-O-8A-2, Test of 2A DG and 4KV Bus 21 LOCI Sequencer, Revision 25

12 SWAC handswitch replacement

OI-29 6.32, Salt Water System
IRE-001-308 - Replace 1HS5205 for #12 SWAC
MO#1200405768 - Replace 1HS5205 for #12 SWAC
DWG No. 62712SH0003 rev. 109 - Compressed Air System Plant & Instrument Air

Zero leakage check for 1A EDG following air start system modification

ES-20000242-000, Permanent plant modification to add vent valves to the 1A EDG

Section 1R23: Temporary Plant Modifications

Jumpering out 16 battery charger DC UV relay

IRE-005-374 - Replace K3 Relay for 16 Battery Charger, Clean T/A 1-05-0030
MO#1200405605 - Clean and Inspect 16 Battery Charger and Calibrate Relays
DWG No. 61024SH0002 - DG1A 125V DC System
DWG No. 61087SH0010D - Annunciator Diesel Generator 1A Alarms
Temp Alt# 1-05-0030 - Jumper 16 Battery Charger DC UV Relay

Section 2OS1: Access Control to Radiologically Significant Areas

SWP 2005-0109, Rev. 3, Activity 1, Medium Risk, Minor maintenance in high radiation areas
Procedure RSP-1-104, Rev. 19, Area posting and barricading
Self-assessment of contamination control processes, August 30, 2005
QA Audit of Radiation Protection and Radioactive Materials Management, November 1, 2004
Quality Performance Assessment Report, Radiation exposure control, March 6, 2005
Quality Performance Assessment Report, Radiological Work Practices, March 8, 2005
Quality Performance Assessment Report, Observation of work in Unit 2 containment, March 11, 2005
Quality Performance Assessment Report, Containment move-out during the 2005 Unit 2 outage, March 11, 2005
Quality Performance Assessment Report, 2004 Self-assessments by Health Physics, March 22, 2005

Quality Performance Assessment Report, Material processing facility (MPF) walkdown, April 15, 2005
Quality Performance Assessment Report, Assessment of housekeeping, material condition and radiological signs and postings, June 14, 2005
Quality Performance Assessment Report, Configuration control maintenance in areas of temporary shielding, temporary camera floor stands, and control of locked high radiation area keys, June 23, 2005
Quality Performance Assessment Report, Contamination and dose control during 11 and 21 degassifier modification and inspection, July 19, 2005
Quality Performance Assessment Report, ALARA challenge boards, August 5, 2005
Self-assessment of human performance in the Health Physics Organization, September 10, 2005

Section 2OS2, ALARA Planning and Controls

Annual ALARA report for 2004
ALARA post-outage report for 2005 (Unit 2, RFO 15)
Monthly dose report for September 2005

Section 2OS3, Radiation Monitoring Instrumentation and Protective Equipment

MN-2-101, Rev. 3, Control and calibration of Health Physics Instrumentation
10 CFR 61 Sample data for DAW 2004 smears (sample date of May 17, 2004)
STP-561-1, Rev. 12, Containment area radiation monitor channel calibration, RI-5316A thru D, Unit 1, April 13, 2004
STP-561-2, Rev. 11, Containment area radiation monitor channel calibration, RI-5316A thru D, Unit 2, January 15, 2005
STP-562-1, Rev. 7, Containment high range radiation monitor alignment check, Unit 1, March 15, 2004
STP-562-2, Rev. 6, Containment high range radiation monitor alignment check, Unit 2, June 9, 2005
STP-563-1, Rev. 4, Containment high range radiation monitor source check, Unit 1, April 11 and 12, 2004
STP-563-2, Rev. 3, Containment high range radiation monitor source check, Unit 2, February 24, 2005

Section 2PS2: Radioactive Material Processing and Transportation

Inspection Planning and In-Office Inspection

Updated Final Safety Analysis Report for Units 1 and 2, Volume 5, Chapter 11, Waste Processing and Radiation Protection
Effluent and waste disposal 2004 annual report

Radioactive Waste System Walkdown

Updated Final Safety Analysis Report for Units 1 and 2, Volume 5, Chapter 11, Waste Processing and Radiation Protection
Procedure No. CP-628, Rev. 0, Solid waste processing resin transfer

Waste Characterization and Classification

Procedure No. CH-1-110, Rev. Draft, Process Control Program
Procedure No. CP-630, Rev. 0, 10 CFR 61 Scaling factors (10 CFR 61 classification and scaling factor data for waste streams for resin, cartridge filters, and dry active waste)

Shipment Preparation

Procedure No. CP 617, Rev. 0, Shipment of radioactive materials-general requirements
Procedure No. CP 618, Rev. 1, Packaging for shipment or transportation of radioactive materials
Procedure No. CP 619, Rev. 0, Radioactive material quantification, identification, and waste characterization
Procedure No. CP 625, Rev. 0, Shipment of radioactive material, SCO
Procedure No. CP 631, Rev. 1, CNS 8-120A cask handling procedure
Procedure No. CP 632, Rev. 0, CNS 8-120B cask handling procedure
Procedure No. RSP 2-217, Rev. 11, Duratek high integrity container
Certifications for shipping casks
CNS 8-120A Type A USA/2915/A
CNS 8-120B Type B USA/9168/B
CNS 3-55-2 Type B USA/5805/B(U)
SWP No. 2005-0120, Rev. 2, Waste processing (cask loading activities); Activity 2, medium risk; Transfer HICs/waste drums to shipping/rad-vault
Script for loading 13G liner for shipment on October 25, 2005
Training records for:
Radioactive waste packaging, transportation, and disposal course (Department of Transportation regulations)
Radioactive waste handling course (NRC Bulletin 79-19)
Hazardous waste management and manifesting course (49 CFR 172 Subpart H)
RADMAN certification course (DOT shipping software)

Shipping Records

04-119, radioactive waste, irradiated hardware, Type B (Yellow III)
05-003, radioactive waste, bead resin, Type A LSA-II
05-007, radioactive material, new fuel assembly, Type A (Yellow II)
05-023, radioactive material, laundry, Type A LSA-I
05-096, radioactive waste, irradiated hardware, Type A (White I)

Identification and Resolution of Problems

Audit RPP-04-01-C, Radiation Protection and Radioactive Materials Management, November 1, 2004
Semi-annual audit of shipment records, January 6, 2004
Self-assessment, Radioactive material processing and transportation, July 28, 2005
Self-assessment, Waste Management Unit's radioactive waste shipping program, September 19 - 21, 2005
EPRI low level waste characterization study, September 2005
Quality performance assessment reports
2005-105: Shipment of depleted resin high integrity container packaged in a CNS 8-120 shipping cask, May 13, 2005
2005-143: Radioactive waste shipment-loading of waste shipping cask for shipment no. 2005-070; review shipping documents for shipment nos. 2005-070 and 2005-074

Section 4OA5: Other Activities

Design

ESP No. ES200200485, Supp. No. 101, Rev. No. 1, Form 8, DESIGN INPUT REQUIREMENTS EVALUATION, AREVA Document Comment forms, Form 15, DESIGN VERIFICATION REPORT
Bigge PROJECT EXECUTION PLAN, DOCUMENT NO. 2095-G1, June 24, 2005
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LIST OF ACRONYMS

AFAS	Alternate Feed Actuation Signal
ALARA	As Low As Reasonably Achievable
AOP	Abnormal Operating Procedures
CAP	Corrective Action Program
CCHW	Cooling Water Heat Exchanger
CCW	Component Cooling Water
CEA	Control Element Assembly
CEDM	Control Element Drive Mechanism
CFR	Code of Federal Regulations
CMTRS	Certified Material Test Reports
CST	Condensate Storage Tank
DAS	Data Acquisition System
DOT	Department of Transportation
ERPIP	Emergency Response Plan Implementation Procedure
ESFA	Engineered Safety Feature Actuation
ESP	Engineering Service Packages
ESS	Enhanced Service Structure
HDR	High Dose Rate
HP	Health Physics
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IPE	Individual Plant Examination
IPEEE	Individual Plant Examination of External Events
IR	Incident Report
IR	Issue Report
JPM	Job Performance Measure
LHRA	Locked High Radiation Area
LHR	Linear Heat Rate
LSA	Low Specific Activity
NDE	Non-Destructive Examination
MPF	Materials Processing Facility
MR	Maintenance Rule
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
OAP	Operations Administrative Policy
ODCM	Offsite Dose Calculation Manual
OECE	Occupational Exposure Control Effectiveness
PAM	Postaccident Monitorinig

PCP	Process Control Program
PI	Performance Indicator
PIR	Problem Identification Resolution
PRA	Probabilistic Risk Assessment
RCA	Radiologically Controlled Area
RCP	Reactor Cooltant Pump
RCS	Reactor Coolant System
REO	Radiological Effluent Occurrence
RETS	Radiological Effluent Technical Specification
RMS	Radiation Monitoring System
RPM	Radiation Protection Manager
RWT	Refueling Water Tank
SDC	Shutdown Cooling
SDP	Significance Determination Process
SGFP	Steam Generator Feedwater Pump
SSC	Systems, Structures, and Components
SWP	Special Work Permit
TBV	Turbine Bypass Valve
TI	Temporary Instruction
TS	Technical Specifications
TSP	Thimble Support Plate
UFSAR	Updated Final Safety Analysis Report
VHRA	Very High Radiation Area