

January 20, 2005

Mr. George Vanderheyden
Vice President - Calvert Cliffs Nuclear Power Plant
Constellation Generation Group, LLC
1650 Calvert Cliffs Parkway
Lusby, Maryland 20657-4702

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT - NRC INTEGRATED
INSPECTION REPORT 05000317/2004007 AND 05000318/2004007

Dear Mr. Vanderheyden:

On December 31, 2004, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Calvert Cliffs Nuclear Power Plant Units 1 & 2. The enclosed integrated inspection report documents the inspection findings, which were discussed on January 6, 2005, with Mr. Dave Holm 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.

On the basis of the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and 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 the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web Site at <http://www.nrc.gov/reading-rm.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 05000317/2004007 and 05000318/2004007
w/Attachment: Supplemental Information

Mr. George Vanderheyden

2

cc w/encl:

M. J. Wallace, President, Constellation Generation

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

President, Calvert County Board of Commissioners

J. M. Petro, Esquire, Constellation Energy Group, Inc.

J. E. Silberg, Esquire, Shaw, Pittman, Potts and Trowbridge

Director, Nuclear Regulatory Matters

R. McLean, Manager, Nuclear Programs

K. Burger, Esquire, Maryland People's Counsel

State of Maryland (2)

Mr. George Vanderheyden

3

Distribution w/encl: **(via E-mail)**

S. Collins, RA

J. Wiggins, DRA

S. Lee, RI OEDO

R. Laufer, NRR

R. Guzman, PM, NRR

R. Clark, PM, NRR

P. Tam, PM, NRR (Backup)

J. Trapp, DRP

N. Perry, DRP

M. Giles, DRP, Senior Resident Inspector

J. O'Hara, DRP - Resident Inspector

C. Newgent - Resident OA

Region I Docket Room (with concurrences)

SISP Review Complete: _____ (REVIEWER'S initials)

DOCUMENT NAME: G:\BRANCH1\Calvert_Cliffs\Inspection Reports\IR2004-007\Calvert Cliffs IR 2004-007.wpd

After declaring this document "An Official Agency Record" it **will** be released to the Public.

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	RI/DRP		RI/DRP		/				
NAME	MGiles		JTrapp						
DATE	01/20/05		01/20/05						

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos. 50-317, 50-318

License Nos. DPR-53, DPR-69

Report Nos. 05000317/2004007 and 05000318/2004007

Licensee: Constellation Generation Group, LLC

Facility: Calvert Cliffs Nuclear Power Plant

Location: 1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

Dates: October 1, 2004 - December 31, 2004

Inspectors: Mark A. Giles, Senior Resident Inspector
Joseph M. O'Hara II, Resident Inspector
Jamie Benjamin, Acting Resident Inspector
Nancy McNamara, Emergency Preparedness Inspector
Joseph T. Furia, Senior Health Physicist
John R. McFadden, Health Physicist
Stephen T. Barr, Senior Operations Engineer

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

SUMMARY OF FINDINGS

IR 05000317/2004007, 05000318/2004007; 10/1/2004-12/31/2004; Calvert Cliffs Nuclear Plant, Units 1 and 2; Routine Integrated Report.

The report covered a three-month period of inspection by resident inspectors and announced inspections performed by a senior operations engineer, a senior health physicist, a health physicist, and an emergency preparedness inspector. 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

No findings of significance were identified.

B. Licensee-Identified Violations

None.

TABLE OF CONTENTS

SUMMARY OF FINDINGS	ii
REACTOR SAFETY	1
1R01 Adverse Weather Protection	1
1R04 Equipment Alignment	2
1R05 Fire Protection	2
1R07 Heat Sink Performance	3
1R11 Licensed Operator Requalification Program	3
1R12 Maintenance Effectiveness	4
1R13 Maintenance Risk Assessments and Emergent Work Control	5
1R14 Operator Performance During Non-Routine Evolutions and Events	5
1R15 Operability Evaluations	6
1R16 Operator Workarounds	7
1R19 Post-Maintenance Testing	7
1R22 Surveillance Testing	8
1R23 Temporary Plant Modifications	8
1EP4 Emergency Action Level (EAL) and Emergency Plan Changes	9
1EP6 Drill Evaluation	9
RADIATION SAFETY	9
2OS1 Access Control to Radiologically Significant Areas	9
2OS2 ALARA Planning and Controls	11
2OS3 Radiation Monitoring Instrumentation and Protective Equipment	12
2PS3 Radiological Environmental Monitoring Program (REMP)	12
OTHER ACTIVITIES	14
40A1 Performance Indicator (PI) Verification	14
40A2 Identification and Resolution of Problems	16
40A3 Event Followup	17
40A6 Meetings, including Exit	18
SUPPLEMENTAL INFORMATION	18
KEY POINTS OF CONTACT	A-1
LIST OF ITEMS OPENED, CLOSED AND DISCUSSED	A-1
LIST OF DOCUMENTS REVIEWED	A-2
LIST OF ACRONYMS	A-10

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at 100 percent reactor power and remained unchanged until October 6th when reactor power was reduced to approximately 95 percent to support condenser waterbox cleaning. Following the maintenance, reactor power was restored to 100 percent. Power was again reduced on October 12th, 13th, and 15th to approximately 95 percent to support additional condenser waterbox cleaning activities. Following each cleaning, reactor power was restored to 100 percent. On December 18th, reactor power was reduced to approximately 82 percent to support turbine control valve testing. Following completion of the testing, the unit was restored to 100 percent power and remained there the remainder of the inspection period.

Unit 2 began the inspection period at 100 percent power and remained unchanged until October 3rd when power was reduced to support condenser waterbox cleaning. Following the cleaning, power was restored to 100 percent. Power was again reduced on October 14th and 18th to approximately 94 percent to support additional condenser waterbox cleaning activities. On November 5th, power was reduced to 87 percent for main turbine control valve testing. Following the completion of testing, power was reduced to 65 percent to support maintenance on the 22 steam generator feedwater pump. Following completion of this maintenance, the unit was restored to 100 percent power and remained there the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - 1 sample)

a. Inspection Scope

The inspectors reviewed the adverse weather preparations and mitigating strategies for cold weather events. This review included an assessment of station procedures Emergency Response Plan Implementation Procedure (ERPIP) 3.0, "Immediate Actions," Attachment 20, "Severe Weather," ERPIP 3.0, "Immediate Actions," Attachment 21, "Personnel Recall for Severe Weather," and Operations Administrative Policy OAP 00-01, "Severe Weather Operations." Three risk significant systems were selected for this inspection, the 1A emergency diesel generator, and the Unit 1 and Unit 2 auxiliary feedwater systems. The inspectors conducted discussions with control room operators and system engineers to understand protective features applicable to these systems, and performed partial field walkdowns of these systems to verify cold weather protection mitigating strategies and measures were functioning properly prior to anticipated cold weather events.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q - 1 sample, 71111.04S - 1 sample)

Partial System Walkdown. The inspectors performed one partial system walkdown of the Unit 1 safety injection system during this inspection period. The inspectors verified valves associated with the four Unit 1 safety injection tanks were properly aligned during routine safety injection tank sampling on the 45' elevation of the Unit 1 Containment Building. The inspectors reviewed plant documents to determine the correct system and electrical alignments, as well as the required positions of critical valves. 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.

Complete System Walkdown (Semi-Annual). The inspectors performed one detailed system walkdown and equipment alignment of the Unit 1 1A emergency diesel generator (EDG) to independently verify system operability and identify any equipment lineup discrepancies. The inspectors reviewed known equipment deficiencies, daily maintenance and equipment availability schedules, and activities which had a potential to degrade off-site power. This review was completed in order to assess whether plant risk determinations were appropriate. The inspectors reviewed site abnormal and emergency operating procedures to verify applicable procedures were adequate and system operational readiness was maintained. The inspectors interviewed various licensee personnel to discuss daily plant status and equipment availability, ongoing maintenance activities, and an operability determination associated with the 1A EDG emergency ventilation system, as well as site procedures to ensure that licensing basis requirements were maintained.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q - 4 samples)Fire Area Walkdownsa. Inspection Scope

The inspectors walked down accessible portions of the plant 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 operability of that equipment. The inspectors also reviewed administrative procedure SA-1-100, "Fire Prevention," during the conduct of this inspection. The inspectors toured the following areas important to reactor safety which represented four inspection samples:

- Unit 1 Service Water Room

- Unit 2 Service Water Room
- Unit 2 Cable Spreading Room
- Unit 1 1A Emergency Diesel Generator

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A - 1 sample)

a. Inspection Scope

The inspectors observed select portions of flow verification testing and reviewed several completed flow verification tests associated with the Unit 1, 11 and 12, and the Unit 2, 21 and 22 salt water headers following emergent cleanings of the service water and component cooling water heat exchangers. The inspectors reviewed the performance data and evaluated the test acceptance criteria from these completed tests to ensure that design basis requirements were being satisfied. The inspectors reviewed maintenance and testing records for the Unit 1 and Unit 2 service water (SRW) and component cooling water heat exchangers (CCHX) to verify that the licensee had properly identified potential adverse trends and entered these into the corrective action program. 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. In addition, the inspectors also reviewed the licensee's root cause analysis associated with the failure of tubes in the 12 CCHX that occurred during an excessive flow event that occurred during the Unit 1 2004 refueling outage. The inspectors also conducted discussions with cognizant licensee personnel regarding the effectiveness of the licensee's biofouling program and its contribution towards maintaining heat exchanger cleanliness. Based on this review, the inspectors concluded that the licensee's testing that verified continued operability of the SRW and CCHX was adequate, and that these safety-related components were operable and capable of performing their design basis functions.

b. Findings

No findings of significance were identified.

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

1. Requalification Activities Review By Resident Staff (71111.11Q - 1 sample)

a. Inspection Scope

The inspectors observed a licensed operator simulator training scenario conducted on November 22, 2004, in order to assess operator performance and the adequacy of operator requalification training. The scenario involved a steam generator tube rupture, a rapid reduction of reactor power, a feed line break inside containment, and the failure

of both a boric acid pump and an auxiliary feedwater pump. Based on these failures, the reactor was manually tripped by licensed operators. During this inspection, the inspectors focused on high-risk operator actions performed during implementation of the emergency operation procedures, emergency plan implementation, and classification of the simulated event. The inspectors evaluated the clarity and formality of communications, the implementation of appropriate actions in response to alarms, the performance of timely control board operations and manipulations, and the oversight and direction provided by the shift supervisor. The inspectors also reviewed simulator fidelity to evaluate the degree of similarity to the actual control room, especially regarding recent control board modifications.

b. Findings

No findings of significance were identified.

2. Biennial Review By Regional Specialists (71111.11B - 1 sample)

a. Inspection Scope

On December 27, 2004, the inspectors conducted an in-office review of licensee annual operating test results for 2004. 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)." For both units, the inspectors verified that:

- Crew failure rate was less than 20%. (Crew failure rate was 0%.)
- Individual failure rate on the dynamic simulator test was less than or equal to 20%. (Individual failure rate was 0%.)
- Individual failure rate on the walk-through test was less than or equal to 20%. (Individual failure rate was 0%.)
- Overall pass rate among individuals for all portions of the exam was greater than or equal to 75%. (Overall pass rate was 100%.)

b. Findings

No significant findings were identified.

1R12 Maintenance Effectiveness (71111.12Q - 1 sample)

a. Inspection Scope

The inspectors reviewed the licensee's 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. Documents applicable to this inspection

are listed in the Attachment. The inspectors conducted this inspection for the following equipment issue.

- Unit 1 RPS Channel C Card/Power Supply Replacement

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 5 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:

- OC Diesel Output Breaker Inspection
- Unit 1, 12 Switch Gear HVAC Inspection and Lubrication
- Unit 2, 21A Waterbox Cleaning
- Unit 2, Reactor Trip Circuit Breaker Functional Testing
- Unit 2, 4KV Undervoltage Relay Calibration and Response Time Check

b. Findings

No findings of significance were identified.

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

Biofouling Event Effecting The 12A and 12B Service Water And The 12 CC Heat Exchangers

a. Inspection Scope

On October 7, 2004, saltwater flow through the Unit 1, 12A and 12B service water heat exchangers (SRWHXs) and the 12 component cooling heat exchanger (CCHX) was significantly reduced in an extremely short period of time due to bio-fouling of the heat

exchangers. At the time the flow reduction occurred, the licensee was performing STP-073A, "Saltwater Flow Verification Test," which measures the flowrates through the service water and component water heat exchangers. In response to the flow reduction, the licensee entered AOP-7A, "Loss of Saltwater Cooling," and performed several manual flushes through the 12A and 12B SRWHX strainers. Once flow was restored, operators exited AOP-7A. The licensee performed a second saltwater flow verification test which was unsatisfactory due to bio-fouling of the 12 CCHX. The 12 CCHX was subsequently isolated, de-watered and cleaned resulting in the collection of approximately seven gallons of grass-like debris. Following the cleaning and restoration of the component cooling system, a third saltwater flow verification test was performed with satisfactory results.

The inspectors responded to this event and conducted various interviews with appropriate licensee personnel to assess the operability of the saltwater and component cooling systems. This included evaluating the potential impact to other saltwater headers due to common failure mechanisms. As part of this review, and to assess operator performance, the inspectors reviewed operator logs and applicable procedures, conducted interviews with cognizant individuals, examined the debris removed for the 12 CCHX, and performed system walkdowns. In addition, inspectors evaluated the licensee's implementation of various saltwater system Technical Specifications. The inspectors reviewed the licensee's operability determination for the 12 CCHX during this event and did not identify any deficiencies.

b. Findings

No findings of significance were identified

1R15 Operability Evaluations (71111.15 - 4 samples)

a. Inspection Scope

The inspectors reviewed operability determinations to verify that the operability of systems important to safety was properly established, that the affected components or systems remained capable of performing their intended safety function, and that no unrecognized increase in plant or public risk occurred. In addition, 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 inspectors reviewed the operability evaluations for the issues listed below.

- 1A EDG F-10 Fan Actuation
- Unit 1 and Unit 2 Containment Sumps
- Unit 1 and Unit 2 Trisodium Phosphate Baskets
- 22 AFW Pump Inadequate Leakoff

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16A - 4 samples)a. Inspection Scope

The inspectors evaluated the cumulative effects of operator workarounds. 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. In addition to this cumulative review, the inspectors performed a more in-depth review of three specifically selected workarounds which are listed below. All workarounds were reviewed and assessed in light of the licensee's requirements for handling workarounds in accordance with Operations Administrative Policy (OAP) 2004-01, "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.

- 12A Safety Injection Tank Inleakage
- 21B Pressurizer Spray Bypass Valve Leakage
- 1A EDG Broken Temperature Bulb

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 4 samples)a. Inspection Scope

The inspectors observed and/or reviewed post-maintenance tests associated with the following 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.

- 21 Saltwater Air Compressor Filter/Belt Inspection and Replacement
- 0C Diesel Generator Output Breakers 152-1406 and 152-2406 Breaker Inspection and Agastat Calibration
- 23 Saltwater Pump Check Valve Replacement
- 22 Auxiliary Feedwater Pump Packing Replacement

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 6 samples)a. Inspection Scope

The inspectors observed and/or reviewed the six surveillance tests listed below associated with selected risk-significant systems, structures, and components (SSCs) to verify that technical specifications were properly complied with, 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. The following inspection activities represented six inspection samples:

- STP—200-2, Unit 2, Reactor Trip Circuit Breaker Functional Test
- STP—522-2, Unit 2, 4KV Undervoltage Relay Calibration and Response Time Check
- CP-801, Surveillance Test Procedure - Trisodium Phosphate
- STP-O-005A-1, Unit 1, 11, 12, and 13 AFW Pump Surveillance Test
- STP-O-027-1, Reactor Coolant System Leakage Evaluation, Rev 19
- STP-O-027-2, Reactor Coolant System Leakage Evaluation, Rev 17

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23 - 3 samples)a. Inspection Scope

The inspectors reviewed temporary modifications to determine whether system operability and availability were affected during and after the completion of the modifications. The inspectors verified that proper configuration control was maintained, appropriate operator briefings were planned, design modification packages were technically adequate, and post-installation testing was performed satisfactorily to ensure continued operability. The temporary plant modifications listed below were also reviewed against the licensee's criteria in MD-1-100, "Temporary Alterations."

- MOD# 2-04-0004 - Enable Overspeed Trip Relay from the SGFP 22 Speed Control
- TMOD# 2-04-0006 - Enable 22 SGFP Thrust Wear Trip Inputs
- TMOD# 1-04-0061 - Disable Power to 12 Cavity Cooling Fan Discharge Damper

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes (71114.04 - 1 sample)

a. Inspection Scope

A regional in-office review was conducted of licensee submitted revisions to the emergency plan, implementing procedures and EAL changes which were received by the NRC during the period of October - December 2004. A thorough review was conducted of aspects of the plan related to the risk significant planning standards (RSPS), such as classifications, notifications and protection action recommendations. A cursory review was conducted for non-RSPS portions. These changes were reviewed against 10 CFR 50.47(b) and the requirements of Appendix E. These changes are subject to future inspections to ensure that the impact of the changes continues to meet NRC regulations. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04, and the applicable requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06 - 1 sample)

a. Inspection Scope

The inspectors observed a control room simulator training exercise conducted on November 22, 2004, 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 a steam generator tube rupture event. The required procedural transitions and associated event classifications were 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 - 4 samples)

a. Inspection Scope

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 four (4) samples relative to this inspection area (i.e., inspection procedure sections 02.06.a and b and 02.07.a and b) and fulfills the annual inspection requirements.

Radiation Worker Performance (02.06.a and b)

During job performance observations conducted during this current inspection and during the previous inspections in this year, the inspector observed radiation worker performance with respect to stated radiation protection work requirements. The inspector determined that radiation workers were aware of the significant radiological conditions in their workplace and of the special work permit (SWP) controls/limits in place and that their performance took into consideration the level of radiological hazards present.

During this current inspection and during previous inspections in this year, the inspector reviewed 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. 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.a and b)

During job performance observations conducted during this current inspection and during the previous inspections in this year, the inspector observed radiation protection technician performance with respect to all radiation protection work requirements. The inspector determined that radiation protection technicians were aware of the radiological conditions in their workplace and of the SWP controls/limits and that their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

During this current inspection and during previous inspections in this year, the inspector reviewed radiological problem reports which found that the cause of the event was due to radiation protection technician error. The inspector determined that there was no significant observable pattern traceable to a similar cause. After discussions with the RPM, the inspectors determined that this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

Related Activities

On December 14, 2004, the inspector observed activities associated with the solid waste processing area. A pre-job briefing was conducted in anticipation of putting a shield lid onto a shielded container containing a 55-gallon-sized high integrity container. This shielded container was transported to an outside storage area. The inspector observed the work activities performed in the solid waste processing area.

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 - 1 sample)

a. Inspection Scope

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 one (1) sample relative to this inspection area (i.e., inspection procedure section 02.05.a) in partial fulfillment of the biennial inspection requirements.

Source-Term Reduction and Control (02.05.a)

The inspector reviewed licensee records in this area during this inspection and during previous inspections in this year. Using these records, the inspector examined the historical trends and current status of tracked plant source terms. The inspector determined that the licensee had made and was continuing to make allowances for or to develop contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry.

Related Activities

The inspector discussed preparations for the upcoming 2005 refueling outage for Unit 2 with the Radiological Engineering Supervisor and the RPM. The inspector reviewed the projected outage dose estimates for the various outage activities. Also, the inspector examined the reports by two ALARA high-impact teams (i.e., for scaffolding work and for alloy 600/in-service inspection/nondestructive examination work).

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 - 1 sample)

a. Inspection Scope

The inspector reviewed the program for maintaining health physics instrumentation and protective equipment to determine the accuracy and operability of the instrumentation and equipment. This inspection activity represents the completion of one (1) sample relative to this inspection area (i.e., inspection procedure section 02.02) in partial fulfillment of the biennial inspection requirements.

Identify Additional Radiation Monitoring Instrumentation (02.02)

The inspector identified the types of portable radiation detection instrumentation used for job coverage in high radiation area work, of temporary area radiation monitors currently used in the plant, and of continuous air monitors associated with jobs with the potential for workers to receive fifty millirems of committed effective dose equivalent (CEDE). The inspector also reviewed the types of whole body counter equipment in place and the types of radiation detection instruments utilized for personnel release from the radiologically controlled area.

Related Activities

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

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)

2PS3 Radiological Environmental Monitoring Program (REMP) (71122.03 - 10 samples)

a. Inspection Scope

The inspector reviewed the current Annual Environmental Monitoring Report, and licensee assessment results to verify that the REMP was implemented as required by Technical Specifications (TS) and the offsite dose calculation manual (ODCM). The review included changes to the ODCM with respect to environmental monitoring commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, interlaboratory comparison program, and analysis of data. The inspector also reviewed the ODCM to identify environmental monitoring stations. In addition, the inspector reviewed: licensee self-assessments and audits, licensee event reports, inter-laboratory comparison program results, the Updated Final Safety Analysis Report (UFSAR) for information regarding the environmental monitoring program and

meteorological monitoring instrumentation, and the scope of the audit program to verify that it met the requirements of 10 CFR 20.1101.

The inspector walked down nine (of 12) air particulate and iodine sampling stations; two (of 5) vegetation sampling locations; and, 16 (of 42) thermoluminescent dosimeter (TLD) monitoring locations and determined that they were located as described in the ODCM and determined the equipment material condition to be acceptable.

The inspector observed the collection and preparation of a variety of environmental samples (listed above) and verified that environmental sampling was representative of the release pathways as specified in the ODCM and that sampling techniques were in accordance with procedures.

Based on direct observation and review of records, the inspector verified that the meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the UFSAR, NRC Safety Guide 23, and licensee procedures. The inspector verified that the meteorological data readout and recording instruments in the control room and at the tower were operable.

The inspector reviewed each event documented in the Annual Environmental Monitoring Report which involved a missed sample, inoperable sampler, lost TLD, or anomalous measurement for the cause and corrective actions. The inspector conducted a review of the licensee's assessment of any positive sample results.

The inspector reviewed any significant changes made by the licensee to the ODCM as the result of changes to the land census or sampler station modifications since the last inspection. The inspector also reviewed technical justifications for any changed sampling locations and verified that the licensee performed the reviews required to ensure that the changes did not affect its ability to monitor the impacts of radioactive effluent releases on the environment.

The inspector reviewed the calibration and maintenance records for all air samplers. The inspector reviewed: the results of the licensee's interlaboratory comparison program to verify the adequacy of environmental sample analyses performed by the licensee; the licensee's quality control evaluation of the interlaboratory comparison program and the corrective actions for any deficiencies; the licensee's determination of any bias to the data and the overall effect on the REMP; and quality assurance (QA) audit results of the program to determine whether the licensee met the TS/ODCM requirements. The inspector verified that the appropriate detection sensitivities with respect to TS/ODCM were utilized for counting samples and reviewed the results of the quality control program including the interlaboratory comparison program to verify the adequacy of the program.

The inspector observed several locations where the licensee monitors potentially contaminated material leaving the radiologically controlled area (RCA), and inspected the methods used for control, survey, and release from these areas, including observing the performance of personnel surveying and releasing material for unrestricted use verifying that the work is performed in accordance with plant procedures.

The inspector verified that the radiation monitoring instrumentation was appropriate for the radiation types present and was calibrated with appropriate radiation sources. The inspector reviewed the licensee's criteria for the survey and release of potentially contaminated material; verified that there was guidance on how to respond to an alarm which indicates the presence of licensed radioactive material; and reviewed the licensee's equipment to ensure the radiation detection sensitivities were consistent with the NRC guidance contained in IE Circular 81-07 and IE Information Notice 85-92 for surface contamination and HPPOS-221 for volumetrically contaminated material. The inspector also reviewed the licensee's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters and verified that the licensee has not established a "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high radiation background area.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

40A1 Performance Indicator (PI) Verification (71151 - 4 samples)

1. Mitigating Systems Cornerstone (2 samples)

a. Inspection Scope

The inspectors sampled licensee submittals for the performance indicator (PI) listed below for the period from October 2003 through December 2004. PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Rev. 2, were used to verify the accuracy of the PI data reported during that period and the basis in reporting for each data element.

- Reactor Coolant System Leak Rate

The inspectors reviewed the licensee's PI data and plant records associated with the PI listed above for both units, including licensee guidance and procedures for PI collection. The inspectors also reviewed licensee event reports, selected operator narrative logs, system health reports, and interviewed applicable licensee personnel to verify the accuracy and completeness of Calvert Cliff's PI data.

b. Findings

No findings of significance were identified.

2. Occupational Radiation Safety Cornerstone (1 sample)

a. Inspection Scope

Occupation 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 the fourth quarter of 2003 through the third quarter of 2004 during this current inspection and during previous inspections in 2004. The reviewed records included selected corrective action program records and Calvert Cliff's quarterly/monthly PI data records for this PI. This review was conducted against the applicable criteria specified in NEI 99-02.

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 one (1) sample relative to this inspection area (i.e., inspection procedure section 02.01) for one performance indicator (i.e., OECE).

b. Findings

No findings of significance were identified.

3. Public Radiation Safety Cornerstone (1 sample)

a. Inspection Scope

RETS/ODCM Radiological Effluent (02.01)

The inspector selectively examined records used by the licensee to identify any occurrences involving gaseous or liquid effluent releases. The reviewed record types included selected corrective action program records and Calvert Cliff's quarterly/monthly PI data records for this PI. The inspector reviewed records covering the time period from the fourth quarter of 2003 through the third quarter of 2004 during this current inspection and during previous inspections in 2004. This review was conducted against the applicable criteria specified in NEI 99-02.

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 one (1) sample relative to this inspection area (i.e., inspection procedure section 02.01) for one performance indicator (i.e., RETS/ODCM Radiological Effluents).

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 2004 through December 2004 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 systems 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."

b. Findings

No findings of significance were identified.

2. Public Radiation Safety

a. Inspection Scope

The inspector reviewed the licensee's Licensee Event Reports, Special Reports, and audits related to the radiological environmental monitoring program performed since the last inspection. The inspectors determined that the licensee was appropriately entering identified problems into their corrective action program for resolution. The inspector also reviewed corrective actions affecting environmental sampling, sample analysis, or meteorological monitoring instrumentation.

b. Findings

No findings of significance were identified.

3. Occupational Radiation Safety

a. Inspection Scope

During the week of December 13, 2004, the inspector selected fifteen issues identified in the Corrective Action Program (CAP) for detailed review (i.e., IRE-000-273, IRE-000-547, IRE-000-548, IRE-000-732, IRE-000-745, IRE-000-747, IRE-000-975, IRE-001-804, IR4-027-640, IR4-027-641, IR4-030-101, IR4-032-626, IR4-032-659, IR4-032-902, and IR4-032-977). The issues were associated with a semiannual survey of the miscellaneous waste receiver tank, an evaluation of a five-year plan for source-term reduction, an evaluation of an entry into a locked-high-radiation area, area radiation monitors not calibrated per the Updated Final Safety Analysis Report (UFSAR), daily checks on a whole-body counter not performed, method for required monitoring of hydro-vacuums for activity build-ups, failure of skids used for sampling main-vent tritium, a teletector found in the field with an expired calibration, in-core-instrumentation (ICI) flange dose rates found higher than historical values, the dose budget for processing and shipping radioactive waste requiring additional dose, enhancement of a procedure for alignment of steam generator blowdown, ninety-two-day thyroid dose out of administrative target value, original and posted surveys containing minor differences, a continuous air monitor found in alarm condition, and recurrence of radioactive material found outside the radiologically controlled area. 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.

b. Findings

No findings of significance were identified.

4OA3 Event Followup

(Open/Closed) LER 05000317/2004-002-00 Vital Bus Inoperable Due to Scaffold Installation

On January 22, 2004, during a Unit 1 electrical system walkdown, inspectors from a baseline NRC Safety System Design Inspection (SSDI) inspection team identified that a scaffold adjacent to the Unit 1, 14A, 480 Vac load center was not constructed in accordance with procedural requirements. This NRC identified finding was identified as an "improperly erected scaffold" pending a operability evaluation to determine safety impact. The licensee documented this deficient condition into their corrective action program as IR4-007-099. On March 16, 2004, the licensee completed an operability evaluation as part of a root cause analysis which concluded that the scaffolding would have contacted at least one 14A load center cooling fin during a design basis safe shutdown earthquake (SSE) resulting in a leak at the point of contact which could cause the 14A, 480 Vac load center to overheat and fail. The licensee also concluded that the event was not reportable under 10 CFR 50.73(a)(2)(v), "Any operation or condition prohibited by the plant's technical specifications."

On September 14, 2004, during a routine plant walkdown, NRC inspectors identified another inadequately constructed scaffolding in the area of the 22 emergency core cooling system (ECCS) pump room air cooler. The inspectors noted that the scaffolding was constructed in a similar manner to the scaffold constructed near the 14A 480 Vac load center on January 22, 2004. Subsequent to the discussions with the inspectors, the licensee concluded that the January 22, 2004, event was reportable under 10 CFR 50.73(a)(2)(v). The licensee documented the failure to report in their corrective actions program as IRE-000-370.

The NRC-identified finding which was identified on January 22, 2004, was evaluated by the inspectors and dispositioned as a Green non-cited violation (NCV). Details can be found in NRC Integrated Inspection Report 05000317/2004006 and 05000318/2004006, Section 1R15, Operability Evaluations.

This LER and its associated corrective actions were reviewed by the inspectors. No findings of significance were identified. This LER is closed.

40A6 Meetings, including Exit

On January 6, 2005, the inspectors presented the inspection results to Mr. Dave Holm, Acting Plant General Manager, and other members of his staff. The licensee had no objections to the NRC's observations. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel:

J. Ball, Health Physics Work Leader
A. Barnett, REMP Laboratory - Ft. Smallwood
L. Barta, Laboratory Supervisor - Ft. Smallwood
W. Birney, Emergency Preparedness Training Project Manager
J. Blankenship, Health Physics Work Leader
R. Conatser, Senior Chemist
S. Etnoyer, Plant Health Physicist
M. Geckle, Manager, Nuclear Operations
T. Gill, Security Maintenance Analyst
J. Guidotti, Health Physics Work Leader (Radiation Instruments)
G. Gwiazdowski, Director, Nuclear Security
S. Henry, Principal Engineer
D. Holm, Acting Plant General Manager
M. Hunter, Auxiliary Feedwater System Manager
J. Johnson, Engineering Analyst
P. Jones, Senior Plant Health Physicist
E. Krehling, System Engineer
L. Larragoite, Director of Licensing
N. Lavato, Supervisor, Licensed Operator Requalification Training
J. Lenhart, Health Physics Work Leader (Operations)
K. Mills, Operations General Supervisor
K. Neitmann, Plant General Manager
C. Neyman, Engineering Analyst
R. Pace, Shift Manager
G. Rudiger, Senior Emergency Preparedness Analyst
S. Sanders, Health Physics General Supervisor
B. Scotland, Performance Management Analyst
M. Stowe, Senior Plant Health Physicist
C. Thomas, System Engineer
R. Woods, Emergency Preparedness Analyst
M. Yox, Senior Emergency Analysis

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened and Closed

50-317/2004-002-00

LER

Vital Bus Inoperable Due to Scaffold
Installation (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Performance Evaluation 0-102-4-O-M, Rev 8, Freeze Protected Equipment
Operations Administrative Policy 92-9, Cold Weather Operations
OI-22M - 1A and OC DG Building HVAC
ERPIP 3.0 - Attachment 20, Severe Weather
NO-1-119, Seasonal Readiness
IR4-028-499 - Found heat trace circuit #9 @ wfpp1 reading 1.8 amps. Should be reading 5.0 - 6.0 amps
IRE-001-359 - 2-S-9 B leg is shorted to ground

Section 1R04: Equipment Alignment

45' Elevation Unit 1 Containment Entry

IRE-000-901 (Equipment Strap Found at 45' Elevation During a Containment Walkdown)
IRE-000-919 (Boric Acid on Packing Gland of 1-CVC-332)
IRE-000-917 (Boric Acid Build Up on Pipe CAP at 1-SI-512)
IRE-000-920 (1CVC-277 Has Boric Acid on Packing Gland)
IRE-000-915 (Boric Acid Buildup on Packing Gland of 1-RC-1043)

1A EDG

Drawing Number 1E-009, Rev 38, Single Line Meter & Relay Diagram 480V Unit Buses 11A, 11B, 14A & 14B FSAR Figure 8-3
Drawing, Electric Main Single Line Diagram, FSAR Figure 8-1
IRE-000-777 - 1A EDG Fan F-10 Actuator is Degraded
RECO, Attachment 7 Associated with IRE-000-777
AOP-7I, Rev 22, Loss of 14 kV Bus
AOP-3E, Rev 8, Loss of All RCP Flow
AOP-3F, Rev 15, Loss of Off-Site Power
MO#1200302245 - Replace 14 Bus 4KV Volt Meter Selector Switch

Section 1R05: Fire Protection

SA-1-101, Fire Fighting
Fire Fighting Strategies Manual

Section 1R07: Heat Sink Performance

Performance Evaluation 2-012-06-O-W, Saltwater System Flow Verification for 21 and 22
Saltwater header dated 12/1/04
MO#2200403140 - Disassemble, clean, and reassemble 21A SRW HX
IR4-033-267, 21B SRW HX Would not Pass Required Flow IAW OI-29, 6.34
IRE-000-069, 11 CCHX Would not Pass Required Flow IAW OI-29, 6.34
Generic Letter 89-13 : Service Water System Problems Affecting Safety-Related Equipment
MN-1-100, Rev 22, Conduct of Maintenance

OI-29-1(2), Section 6.22, De-watering a CCHX
Reactor Operators Logs
Operability Determination 04-004, Component Cooling Heat Exchangers (revised)
IR4-030-055 - 12 CCHX has a Tube Leak.
IR4-030-512 - A Rattle Noise was observed on the SW Inlet End of the 12 CCHX.
Root Casual Analysis IR200400254: 12 CCHX Tube Failure

Section 1R11: Licensed Operator Requalification Program

ERPIP 3.0, Immediate Actions
OP -12 Rev 6 Simulator Operating Examination for the Licensed Operator Training Program at the Calvert Cliffs Nuclear Power Plant, approved on July 28, 2004.

Section 1R12: Maintenance Effectiveness

MO#1200406481 - 1 RPS Channel C TM/LP calc
Unit 1 Reactor Operators Log

Section 1R13: Maintenance Risk Assessment and Emergent Work Control

4KV Undervoltage Relay Calibration and Response Time Check

STP—522-2, Unit 2, 4KV Undervoltage Relay Calibration and Response Time Check, Rev 12
MO#2200400798 - Emergency Safety Features U/V Testing for 24, 4KV Bus
Plant Status/Integrated Work Schedule for Work Week 0444
Risk Assessment Summary Table B-1 for QSS 0444

Unit 2 Reactor Trip Circuit Breaker Functional Test

STP —200-2 - Reactor Trip Circuit Breaker Functional Test, Rev 12
MO 2200402255 - CEDM Trip Circuit Breaker
Plant Status/Integrated Work Schedule for Work Week 0447
Risk Assessment Summary Table B-1 for QSS 0447

0C Diesel Generator Output Breakers 152-1406 and 152-2406 following breaker inspection and Agastat calibration

MO#1200304176 - Inspect 152-1406 and circuitry per FTE-51 and FTE-59
MO#2200304157 - Inspect 152-2406 and circuitry per FTE-51 and FTE-59
MO#1200302580 - Replace the MJ and MH switch on breaker cubicle 152-1406 DG OC to 4 KV Bus 14
IR4-003-241 - Breaker 152-1403 failed to close during STP O-08B-1
IRE-001-340 - OC EDG feeder breaker to 24 bus, cubicle 152-2406 MH and MJ switches have clear lexan cam followers and need to be replaced
IRE-001-342 - FTE 51A was not completed due to breaker not being aligned for closing
IRE-001-352 - The FTE 51A cannot be completed due to plant conditions on 152-2406
FTE-51A - 4KV General Electric Cubicle Inspection
FTE-51 - 4 KV General Electric Magne-Blast Circuit Breaker and Cubicle Inspection
FTE-59 - Periodic Maintenance, Calibration, and Functional Testing of Protective Relays

PE 0-024-08-O-M, Performance Evaluation OC DG per OI-21C

Unit 1, 12 Switch Gear HVAC Maintenance

MO#1200405695 - 12 Switchgear HVAC is not loading with an increase in switchgear room temperature

Unit 2, 21A Waterbox Cleaning

MO 2200403669 - Power Reduction, Clean 21A Waterbox and Amertap as Required

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

12A and 12B Service Water Heat Exchanger Fouling Event

AOP-7A - Loss of Saltwater Cooling
Saltwater Flow Verification Performance Evaluation dated October 7, 2004
Technical Specifications
Reactor Operators Log

Section 1R15: Operability Evaluations

1A EDG F-10 Fan Actuation

IRE-000-777 - 1A DG Fan failed to operate while trying to cycle per PE-1-24-12-O-M
RECO IRE-000-777 - 1A DG Fan actuator is degraded

Unit 1 and Unit 2 Containment Sumps

NRC Generic Letter 2004-002 - "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors"
NRC Bulletin 2003-001 - "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors"
GSI-191, "Assessment of Debris Accumulation on PWR Sump Performance"
System Description 59 - Containment Sumps

Unit 1 and Unit 2 Trisodium Phosphate Baskets

IRE-001-386 - Chemistry Procedure CP-801, Surveillance Test for Trisodium phosphate does not match the technical specification bases
RECO associated with IRE-001-386
Prompt Investigation IRE-001-386
CP-801 Surveillance Test Procedure - Trisodium Phosphate
Technical Specifications 3.5.5 Trisodium Phosphate
Unit 1 and Unit 2 Reactor Operators Log

22 AFW Pump Inadequate Leakoff

MN-1-101, Control of Maintenance Activities

Drawing #: 12083-0002, Rev. 3, Byron Jackson Pump
Drawing#: 84312, Rev. 3, Unit 2 Auxiliary Feedwater system
Clearance tagout order#: 2200400650
Issue Report IRE-001-860, Inadequate packing leakoff
MO 2200404542, Repack 22 AFW pump due to inadequate leakoff
STP O-5A-2, Auxiliary Feedwater System Quarterly surveillance Test
Engineering Service Package, ES 200100390
Control Room Logs - 12/8/04 through 12/9/04
Panametrics letter to licensee dated April 8, 1999
Controllotron letter to licensee dated December 13, 1993

Section 1R16: Operator Workarounds

12A Safety Injection Tank Inleakage

MO#: 1200403172, Seat leakage on 12A SIT isolation valve
IR#: 4033956, 12A SIT inleakage requires periodic draining

21B Pressurizer Spray Bypass Valve Leakage

MO#: 2200302039, Seat leakage on 21B pressurizer spray bypass valve
IR#: 4018689, 21B pressurizer spray bypass valve leakage requires 2 sets of backup heaters on to maintain panel indication

1A EDG Broken Temperature Bulb

MO#: 1200403064, 1-TS-10088 has a broken temperature bulb
IR#: 4034357, 1A EDG has a broken temperature bulb on 1-TS-10088

Section 1R19: Post-Maintenance Testing

21 Saltwater Air Compressor following filter/belt inspection and replacement

MO#2200401001 - Clean filters, fan, fins, and check belts
HVAC-3 - Inspection and Replacement of V Belts, Revision 2

0C Diesel Generator Output Breakers 1406 and 2406 following breaker inspection and Agastat calibration

MO#1200304176 - Inspect 152-1406 and circuitry per FTE-51 and FTE-59
MO#2200304157 - Inspect 152-2406 and circuitry per FTE-51 and FTE-59
MO#1200302580 - Replace the MJ and MH switch on breaker cubicle 152-1406 DG OC to 4 KV Bus 14
IR4-003-241 - Breaker 152-1403 failed to close during STP O-08B-1
IRE-001-340 - OC EDG feeder breaker to 24 bus, cubicle 152-2406 MH and MJ switches have clear lexan cam followers and need to be replaced
IRE-001-342 - FTE 51A was not completed due to breaker not being aligned for closing
IRE-001-352 - The FTE 51A cannot be completed due to plant conditions on 152-2406
FTE-51A - 4KV General Electric Cubicle Inspection

FTE-51 - 4 KV General Electric Magne-Blast Circuit Breaker and Cubicle Inspection
FTE-59 - Periodic Maintenance, Calibration, and Functional Testing of Protective Relays
PE 0-024-08-O-M, Performance Evaluation OC DG per OI-21C

23 Saltwater Pump following check valve replacement

IRE-000-248 - Accrued Out of Service on 22 SW Header Unnecessary
Operator Logs
MO#2200400606 - Disassemble and Inspect 23 SW Pump and Motor Coupling
MO#2200400707 - Lube Bearings and Adjust 23 SW Pump Packing
STP-O-073-A2 - Saltwater Pump Performance Test

22 Auxiliary Feedwater Pump Packing Replacement

STP O-5A-2, Auxiliary Feedwater System Quarterly Surveillance Test
MO 2200404542, Repack 22 AFW pump due to inadequate leakoff

Section 1R22: Surveillance Testing

Unit 2 Reactor Trip Circuit Breaker Functional Test

STP —200-2 - Reactor Trip Circuit Breaker Functional Test, Rev 12
MO 2200402255 - CEDM Trip Circuit Breaker

4KV Undervoltage Relay Calibration and Response Time Check

STP—522-2, Unit 2, 4KV Undervoltage Relay Calibration and Response Time Check, Rev 12
MO#2200400798 - Emergency Safety Features U/V Testing for 24, 4KV Bus

Trisodium Phosphate Surveillance Test Procedure

Technical Specifications Section 3.5.5 - Trisodium Phosphate (TSP)
IRE-001-386 - CP 801 does not match technical specification bases SR 3.5.5.2
CP-801 - Trisodium Phosphate Surveillance Test Procedure
RECO for IRE-001-386
Reactor Operators Log

AFW Pump Surveillance Test

STP O-005A-1, Aux. Feedwater System Quarterly Surveillance Test
MO#1200402829 - Perform AFW Surveillance Test

Section 1R23: Temporary Plant Modifications

Enable Overspeed Trip Relay 2FTC22/OST from the SGFP 22 Speed Control

Temp Alt 2-04-0004 - 21 and 22 SGFP Overspeed Trip
MO#2200400310 - Implement T/A 2-04-0004 for 21 and 22 SGFP Overspeed Trip

Enable 22 SGFP Thrust Wear Trip Inputs

Temp Alt 2-04-0006, 21 and 22 Thrust Bearing Wear Auto Trip
MO#2200400329 - Implement T/A 2-04-0006 for 21 and 22 Thrust Bearing Wear Auto Trip

Disconnect Power to 12 Cavity Cooling Fan Discharge Damper

Temp Alt 1-04-0061 - remove the thermal overload heaters from the 12 cavity cooling motor operated damper
MO#1200405178 - Replace 11 cavity cooling fan motor

Section 1EP6: Drill Evaluation

ERPIP 3.0, Immediate Actions

OP -12, Rev 6, Simulator Operating Examination for the Licensed Operator Training Program at the Calvert Cliffs Nuclear Power Plant, approved on July 28, 2004.

Section 2OS1: Access Control to Radiologically Significant Areas:

- Procedure RSP-1-104, Rev. 18, Area posting and barricading
- SWP packages including ALARA review checklist, job coverage records, ALARA in-process/post-job review, INFOWORKS - worker exposure details by permit, radiological dose rate and contamination survey records, air sample collection and analysis record, pre-job briefing checklist and attendance record, calibration record for radiation protection instrumentation used for job coverage
- SWP 2004-0112, Rev. 0, Remove/replace bolting on Unit 1 LDHX and piping; Activity 1, high risk, swap bolts on LDHX end bell and inlet flange
- SWP 2004-0113, Rev. 1, Diving operations in the Unit 1 spent fuel pool (SFP); Activity 1, high risk, diving operations in the Unit 1 spent fuel pool; Activity 2, medium risk, support of spent fuel pool dives
- SWP 2004-0114, Rev. 0, Liquid waste processing, filter changes, and skid maintenance; Activity 1, medium risk, filter changes/skid maintenance in high radiation areas
- SWP 2004-0120, Rev. 1, Waste processing (cask loading activities); Activity 1, medium risk, set up, transfer resin from SRMT/waste skid to HIC, sample resin, remove fill head
- SWP 2004-125, Rev. 0, Spent fuel pool clean-out project; Activity 1, medium risk, waste handling/loading and processing casks in the SFP area; Activity 2, medium risk, support underwater loading/packaging and shipment of cask
- SWP 2004-0154, Rev. 0, Overhaul reactor coolant pump (RCP) seals; Activity 1, medium risk, overhaul RCP seals
- SWP 2004-0156, Rev. 0, Independent spent fuel storage installation (ISFSI) activities; Activity 1, medium risk, preparation and loading activities; Activity 2, medium risk, transport dry storage canister (DSC)/transfer cask (TC) to storage and load in HSM; Activity 3, low risk, support activities
- Quality performance assessment report no. 2004-158 for review of the Radiation Protection Program, September 24, 2004
- HP self-assessment no. SA 200200152, August 16-18, 2004, Radioactive material control
- Self-assessment/trend report for the third quarter of 2004-Radiological/Health Physics
- Review of Calvert Cliffs Nuclear Power Plant health physics content and implementation for 2003, pursuant to 10 CFR 20.1101)

- Audit RPP-04-01-C, Radiation protection and radioactive materials' management, November 1, 2004

Section 2OS2: ALARA Planning and Controls

- ALARA post-outage report for 2004
- Projected outage dose targets (for 2005) prior to the scope freeze (November 29, 2004)
- ALARA committee meeting minutes for July 9, 12, 20, September 21, October 26, and November 30, 2004
- Five-year plan for reduction of cumulative radiation exposure (CRE)
- ALARA challenge board concept description
- Unit 2 2005 RFO reactor path optimization ALARA plan
- Unit 2 2005 RFO flush plan
- Off line radiological analysis and comparison of radiation assessment and control points
- Permanent scaffolding and shielding plan (2004 - 2008)
- Procedure OM-1, Rev. 3, Outage management program
- Procedure OM-1-100, Rev. 13, Refueling outage management
- Guideline OMG-09, Rev. 1, Outage management guideline/high impact team (HIT) guideline
- ALARA HIT team exposure challenge reviews for Scaffolding
- Alloy 600/ISI/NDE

Section 2OS3: Radiation Monitoring Instrumentation and Protective Equipment

- Procedure RP-1-115, Rev. 8, Radiological air sampling program
- Procedure RP-1-131, Rev. 2, Operation of the Eberline AMS-4
- Procedure ITEC-658, Rev. 1, Calibration of Eberline Beta particulate monitor Model AMS-4
- Attachment 1, Instrument selection guide, Procedure RSP-1-101, Rev. 22, Routine radiological surveys
- MN-2-101, Rev. 3, Control and calibration of health physics instrumentation

Section 2PS3: Radiological Environmental Monitoring Program

Annual Radiological Environmental Operating Report for the Calvert Cliffs Nuclear Power Plant Units 1 and 2 and the Independent Spent Fuel Storage Installation (January 1 - December 31, 2003)

- Offsite Dose Calculation Manual, Revision 8 (August 2004)
- Land Use Census Around Calvert Cliffs Nuclear Power Plant (August 2004)
- Quality Assurance Audit (2002), Liquid and Gaseous Radwaste and the Radiological Environmental Monitoring Program
- CP-235, Rev 4, Specification and Surveillance Unconditional Release
- CP-301, Rev 1, Setup, Calibration, and Operational Checks of the Gamma Spectroscopy Counting System
- CP-340, Rev 5, Verification of Lower Level of Detection

- CP-977, Rev 6, Operation of Gamma Spectroscopy Counting System
- STP—461-0, Rev 11, Meteorological Calibration
- Current Calibration Data Sheets for SAM-9, SN: 102; 119; 121 and SAM-11, SN: 235; 236; 412 (ITEC-650, Rev 1, Calibration of NE Technology Small Articles Monitor Model SAM-9 or SAM-11)
 - Issue Reports: IRE-001-455; IR4-003-591; IRE-000-975; IR4-012-868; IR4-003-591; IR3-007-893; IR3-007-899; IR3-050-819; IR4-011-505; IR3-061-823; IR3-062-218; IR4-009-003; IR4-000-317; IR4-015-745; IR4-029-887; IR4-037-435-
- Nonconformance Reports: 716; 715; 714; 713; 712; 711; 710; 709; 708; 707; 706; 705; 704; 699; 698; 685; 674; 624; 574

Section 4OA1: Performance Indicator Verification

Reactor Coolant System Leakage

- Unit 1 and 2 Reactor Coolant System Leakage Performance Indicators
- Unit 1 Identified Leakage Data July 2004 through November 2004
- Unit 2 Identified Leakage Data July 2004 through November 2004

LIST OF ACRONYMS

AFW	Auxiliary Feedwater
ALARA	As Low As Is Reasonably Achievable
CAP	Corrective Action Program
CC	Component Cooling
CCHX	Component Cooling Water Heat Exchanger
CEDM	Control Element Drive Mechanism
CEDE	Committed Effective Dose Equivalent
CFR	Code of Federal Regulations
EAL	Emergency Action Level
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
EP	Emergency Preparedness
ERPIP	Emergency Response Plan Implementation Procedure
HP	Health Physics
HX	Head Exchanger
ICI	In-Core-Instrumentation
IR	Issue Report
LER	Licensee Event Report
NCV	Non-Cited Violation
NDE	Non-Destructive Examination
NEI	Nuclear Energy Institute
OAP	Operations Administrative Policy
ODCM	Offsite Dose Calculation Manual
OECE	Occupational Exposure Control Effectiveness
PI	Performance Indicator
PI&R	Problem Identification and
QA	Quality Assurance
RCA	Radiologically Controlled Area
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
REMP	Radiological Environmental Monitoring Program
RPM	Radiation Protection Manager
RSPS	Risk Significant Planning Standard
SDP	Significance Determination Process
SRW	Service Water
SRWHX	Service Water Heat Exchanger
SSC	Systems, Structures, and Components
SSDI	Safety System Design Inspection
SSE	Safe Shutdown Earthquake
STP	Surveillance Test Procedure
SWP	Special Work Permit
TLD	Thermoluminescent Dosimeter
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report