October 28, 2003

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 05000317/2003005 AND 05000318/2003005

Dear Mr. Vanderheyden:

On September 27, 2003, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Calvert Cliffs Nuclear Power Plant Units 1 & 2. The enclosed report documents the inspection findings which were discussed on October 7, 2003, with Mr. Neitmann 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.

Based on the results of this inspection no findings of significance were identified.

Since the terrorist attacks on September 11, 2001, NRC has issued five Orders and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance controls over access authorization. In addition to applicable baseline inspections, the NRC issued Temporary Instruction 2515/148, "Inspection of Nuclear Reactor Safeguards Interim Compensatory Measures," and its subsequent revision, to audit and inspect licensee implementation of the interim compensatory measures required by order. Phase 1 of TI2515/148 was completed at all commercial nuclear power plants during calendar year '02, and the remaining inspection activities for Calvert Cliffs were completed in July 2003. The NRC will continue to monitor overall safeguards and security controls at Calvert Cliffs.

In accordance with 10 CFR 2.790 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 Trapp, Chief
Projects Branch 1
Division of Reactor Projects

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

Enclosure: Inspection Report 05000317/2003005 and 05000318/2003005
w/Attachment: Supplemental Information

cc w/encl: President, Calvert County Board of Commissioners
J. M. Petro, Esquire, Constellation Energy Group, Inc.
J. E. Silberg, Esquire, Shaw, Pittman, Potts and Trowbridge
M. Geckle, Manager of Operations (CCNPP)
R. McLean, Manager, Nuclear Programs
K. Burger, Esquire, Maryland People's Counsel
P. T. Birnie, Esquire, Maryland Safe Energy Coalition
L. F. Donatell, NRC Technical Training Center
P. Furio, Acting Director, Nuclear Regulatory Matters (CCNPP)
State of Maryland (2)

Distribution w/encl: H. Miller, RA/J. Wiggins, DRA (1)
J. Jolicoeur, RI EDO Coordinator
R. Laufer, NRR
G. Vissing, PM, NRR
R. Clark/P. Tam, PM, NRR (Backup)
J. Trapp, DRP
N. Perry, DRP
M. Giles, SRI - Calvert Cliffs
J. O'Hara, DRP - RI - Calvert Cliffs
Region I Docket Room (with concurrences)

DOCUMENT NAME: G:\BRANCH1\Calvert_Cliffs\Inspection Reports\IR2003-005\Calvert Cliffs IR 2003-005.wpd
After declaring this document "An Official Agency Record" it **will/will not** 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/DF for		JTrapp/JT						
DATE	10/28/03		10/28/03						

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-317, 50-318

License Nos.: DPR-53, DPR-69

Report Nos.: 05000317/2003005 and 05000318/2003005

Licensee: Calvert Cliffs Nuclear Power Plant, Inc. (CCNPPI)

Facility: Calvert Cliffs Nuclear Power Plant

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

Dates: June 29, 2003 - September 27, 2003

Inspectors: Mark A. Giles, Senior Resident Inspector
Gordon K. Hunegs, Senior Resident Inspector
John Richmond, Acting Senior Resident Inspector
Joseph M. O'Hara II, Resident Inspector
Brian J. Fuller, Resident Inspector
David M. Silk, Senior Emergency Preparedness Inspector
Eric Benner, Senior Reactor Systems Engineer
George W. Morris, Electrical Reactor Inspector
Tom Moslak, Health Physicist
Paul R. Frechette, Physical Security Inspector
Dana Caron, Physical Security Inspector
Kevin Mangan, Resident Inspector

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

SUMMARY OF FINDINGS

IR 05000317/2003-005, 05000318/2003-005; 6/29/2003-9/27/2003; Calvert Cliffs Nuclear Plant, Units 1 and 2; routine integrated report.

The report covered a three month period by resident inspectors and announced inspections by a regional senior emergency preparedness inspector, a health physics inspector, a physical security inspector, a senior reactor systems engineer and an electrical reactor inspector. No findings of significance were identified. 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

None

B. Licensee-Identified Violations

None

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at or near 100 percent reactor power for the entire inspection period except for a brief period on July 31, when reactor power was reduced to 87 percent to facilitate main turbine control valve testing, and on September 6, when reactor power was reduced to 96 percent for moderator temperature coefficient testing.

Unit 2 operated at or near 100 percent reactor power for the entire inspection period except for a brief period on September 6, when reactor power was reduced to 87 percent to facilitate main turbine control valve testing.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating strategies in preparation for potential severe thunderstorm events. This review included an assessment of station procedures ERPIP 3.0, Immediate Actions, Attachment 20, Severe Weather, and Operations Administrative Policy OAP 00-01, Severe Weather Operations. In addition, two risk significant systems were selected for this inspection, the emergency diesel generator, and the salt water systems. The inspectors conducted discussions with emergency preparedness personnel to understand protective measures associated with these systems, and also performed partial field walkdowns of these systems. This represents 1 sample of an inspection activity to review severe weather preparation for potential adverse weather events.

The inspectors also reviewed the licensee's preparations for a severe thunderstorm that was declared on September 2, 2003. The inspectors reviewed ERPIP 3.0, Immediate Actions, Attachment 20, Severe Weather, and Operations Administrative Policy OAP 00-01, Severe Weather Operations, as well as conducted discussions with licensee personnel following the severe thunderstorm.

To assess the licensee's identification and resolution of problems in this area, the inspectors reviewed Issue Report (IR) 4-023-068, associated with water entry into the Unit 1 turbine building, 45 foot elevation; IR4-008-846, associated with a water leak into the nuclear engineering facility; and IR4-023-081, associated with one or more backed up storm drains.

In addition, the inspectors reviewed the licensee's preparations for forecasted adverse weather (hurricane "Isabel") during the week of September 15th, per response procedure ERPIP 3.0, Immediate Actions, Attachment 20, Severe Weather, and Operations Administrative Policy OAP 00-01, Severe Weather Operations. Prior to and during the adverse weather, the inspectors performed control board walkdowns, and field

walkdowns of the intake structure area, to assure that equipment required for safe plant operation remained functional.

To assess the licensee's identification and resolution of problems in this area, the inspectors reviewed IR4-024-014, associated with the loss of at least 34 emergency notification sirens due to a loss of AC power from hurricane winds.

The inspectors review of the thunderstorm and hurricane activities represent 2 samples of site specific weather related conditions.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

The inspectors verified the critical portions of equipment alignments for selected trains. The inspectors reviewed plant documents to determine the correct system and power alignments, and the required positions of select valves and breakers. The inspectors verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact mitigating system availability. This inspection activity represents 4 samples. The inspectors performed the following four partial system walkdowns:

- Unit 1 11 Component Cooling heat exchanger subsystem, following return to service after an unscheduled heat exchanger cleaning
- Unit 1 12 Auxiliary Feedwater (AFW) subsystem, while the 11 AFW pump was inoperable due to an emergent equipment condition
- Unit 1 12 AFW verification of system lineup and configuration
- Unit 2 21 Charging Pump, while inoperable due to gear reducer overhaul

b. Findings

No findings of significance were identified.

1R05 Fire Protection

1. Fire Brigade Observation (71111.05A)

a. Inspection Scope

The inspectors observed a fire brigade drill conducted on September 3, 2003, involving a simulated fire in an electrical control cabinet for a chiller unit located on the auxiliary building roof. The inspectors observed the brigade members donning protective equipment, transiting to the scene of the fire, and fighting the simulated fire. The

inspectors observed the fire brigade leader performing an assessment of the fire, communicating with team members and the control room supervisor, and directing the actions of the brigade to extinguish the fire. The inspectors attended the pre-drill meeting with the drill assessment team and post drill briefings between the assessment team and the fire brigade members. This inspection activity represents 1 sample.

b. Findings

No findings of significance were identified.

2. Fire Area Walkdowns (71111.05Q)

a. 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 any related compensatory measures. The inspectors observed the fire protection suppression and detection equipment to determine whether any conditions or deficiencies existed which could impair the operability of that equipment. The inspectors reviewed administrative procedure SA-1-100, Fire Prevention, during the conduct of this inspection. This inspection activity represents 13 samples. The inspectors toured the following 13 areas important to reactor safety:

- Unit Common OC Emergency Diesel Generator (EDG) building
- Unit 1 1A EDG room
- Unit 1 1B EDG room
- Unit 2 2A EDG room
- Unit 2 2B EDG room
- Unit 1 Component Cooling water room
- Unit 1 125 Volt DC battery rooms
- Unit 2 125 Volt DC battery rooms
- Unit 1 cable spreading room
- Unit 2 cable spreading room
- Unit 2 21 4160 Volt essential switchgear room
- Unit Common security EDG building
- Unit 2 22 4160 Volt essential switchgear room

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

1. External

a. Inspection Scope

The inspectors reviewed flood protection measures associated with external flood events. These events are described in the Updated Final Safety Analysis Report, Calvert Cliffs Individual Plant Examination, and emergency response procedures, and were reviewed by the inspectors. The inspectors toured risk significant areas within the plant including the intake structure area, and performed partial walkdowns of the Unit 1 and Unit 2 saltwater systems located within the intake structure. Watertight doors, floor drains, penetrations, level alarm circuits, and sump pumping systems were reviewed to determine if they were functional. In addition, the inspectors reviewed emergency response procedures to determine if they provided a means for prompt identification of flooding events, and provided adequate mitigating strategies for combating flooding events. This inspection activity represented 1 sample.

To assess the licensee's identification and resolution of problems in this area, the inspectors reviewed Issue Report (IR) 4-023-036, associated with a degraded flood barrier located in the intake structure between Units 1 and 2.

b. Findings

No findings of significance were identified.

2. Internal

a. Inspection Scope

The inspectors reviewed flood protection measures associated with internal flood events. These events are described in the Calvert Cliffs Engineering Standard, Number: ES-001, the Updated Final Safety Analysis Report, the Calvert Cliffs Individual Plant Examination, and station emergency response procedures. This inspection activity represented 2 samples. These two inspections were completed on the Unit 1 and Unit 2 emergency core cooling system pump rooms, the service water heat exchanger rooms, and the Unit 1 and 2 component cooling heat exchanger rooms, respectively. The inspectors reviewed the above listed basis documents and conducted discussions with licensee personnel to understand mitigating strategies associated with internal flooding events including the incorporation of watertight doors, floor drains, penetrations, level alarm circuits, and sump pumping systems used during internal flooding events.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

This inspection activity represented 2 samples. The inspectors reviewed the inspection, cleaning, and maintenance activities associated with the Unit 1, 11 component cooling heat exchanger, and with the Unit 1, 11A/B service water heat exchangers. These activities were unscheduled, and were performed to resolve emergent heat exchanger fouling problems. The inspectors reviewed maintenance and testing records for the selected heat exchangers to verify that the licensee had properly identified potential adverse trends, as well as adequately evaluated existing heat transfer capabilities to assure that specific safety functions could be performed in accordance with design specifications.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

The inspectors observed a licensed operator simulator training scenario conducted on September 3, 2003, in order to assess operator performance. The scenario involved a failure of NI Channel A lower detector, a rapid loss of condenser vacuum followed by a reactor trip, and a complete loss of all feedwater flow. The inspection focused on high-risk operator actions performed during implementation of the emergency operating procedures, emergency plan implementation and classification, and the incorporation of lessons learned from previous plant events. The inspectors also evaluated the clarity and formality of communications, the implementation of appropriate actions in response to alarms, the performance of timely control board operation and manipulation, 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. This inspection activity represented 1 sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

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 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. This inspection activity represented 3 samples. The inspectors conducted this inspection for the following three equipment issues:

- Unit 1 Service Water heat exchanger fouling/cleaning activities during July/August, 2003
- Unit 1 Component Cooling heat exchanger fouling/cleaning activities during July/August, 2003
- Unit 1 Charging Pump mechanical and electrical troubleshooting of pump and breaker during August/September, 2003.

b. Findings

No findings of significance were identified.

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

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. This inspection activity represented 7 samples. The inspectors reviewed the following seven selected work activities:

- Unit 1 11 Component Cooling heat exchanger (CC HX) emergent cleaning evolution, following failure of the weekly salt water flow verification test
- Unit 1 11 AFW pump turbine loss of governor oil, while in standby alignment
- Unit 1 11A Service Water heat exchanger (SRW HX) scheduled cleaning evolution
- Unit 1 11B SRW HX emergent cleaning evolution
- Unit 1 12A SRW HX emergent cleaning evolution
- Unit 1 condensate booster pumps secured one pump at a time for oil sampling
- Unit 2 21 CC pump overhaul and breaker maintenance

b. Findings

No findings of significance were identified.

1R14 Personnel Performance Related to Non-Routine Plant Evolutions and Events (71111.14)

a. Inspection Scope

The inspectors assessed operator performance in response to hurricane “Isabel” on September 18-19, 2003. For this assessment, the inspectors observed control room activities, and reviewed operator logs, equipment responses, sequence of events recorder logs, and alarm response procedures, to determine if operators performed the appropriate actions in accordance with their training and established station procedures. This inspection activity represented 1 sample.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed operability determinations to verify that the operability of systems important to safety were 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 whether the determinations were performed in accordance with NO-1-106, Functional Evaluation - Operability Determination, and QL-2-100, Issue Reporting and Assessment. This inspection activity represented 6 samples. The following six operability evaluations were reviewed for the issues listed below:

- Unit 1 11 Component Cooling heat exchanger less than the minimum salt water flow available

- Unit 1 11 AFW pump turbine governor oil level below the bottom of the sight glass
- Unit 1 11 Main Steam Line Radiation Monitor intermittent failures
- Unit 1 RPS Channel D with 1-TE-112CD, Cold leg 11 Temperature RTD, inoperable
- Unit 1 11 Essential Switchgear HVAC fan vibrations exceeding normal acceptable limits
- Unit 2 PDT-123A ASME Class 1 Weld Leak on reactor coolant system piping

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

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 proper testing was specified and conducted to ensure that the equipment could perform its intended safety function following maintenance. This inspection activity represented 9 samples. Testing associated with the following nine maintenance activities were reviewed:

- Unit 1 11 CC HX salt water flow verification, following an emergent cleaning evolution
- Unit 1 13 Charging Pump, following emergent corrective mechanical and electrical work
- Unit 2 residual heat removal system battery replacement associated with shutdown cooling mode flow controller circuit 2-FIC-306
- Unit 1 1B EDG starting air compressor breaker replacement
- Unit 2 21 pressurizer proportional heat controller handswitch 1-HS-100-1 replacement
- Unit 2 22 Charging Pump maintenance
- Unit 2 21 Main Steam Line Radiation Monitor spiking high
- Unit 2 21 Component Cooling pump overhaul due to a degraded outboard pump bearing
- Unit 1 CV-638 valve position switch maintenance

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed and/or reviewed the five 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 were properly specified. The inspectors also verified that proper test conditions were established as specified in the procedures, that no equipment preconditioning activities occurred, and that acceptance criteria had been met. This inspection activity represented 5 samples.

- Unit 1 STP-O-05A-1, Auxiliary Feedwater System Quarterly Surveillance Test
- Unit 1 STP-O- 47A-1 Main Steam Isolation Valve Partial Stroke Quarterly Surveillance Test
- Unit 2 PE 2-93–4-Q, Main Turbine Control Valve Performance Evaluation
- Unit 1 SPT O-65-1, HPSI and LPSI PP CKV Closure Test (HPSI)
- Unit 1 SPT O-65-1, HPSI and LPSI PP CKV Closure Test (LPSI)

b. Findings

No findings of significance were identified

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed and evaluated the licensee's performance in an emergency preparedness exercise conducted on September 9, 2003. The inspectors reviewed the drill scenario to determine if elements of the licensee's Radiological Emergency Plan would be sufficiently challenged. Licensee activities inspected during the exercise included those occurring in the Control Room Simulator, the Technical Support Center, and the Operations Support Center. The NRC's assessment focused on the timeliness and location of classification, the notification and protective action recommendations (PAR) developmental activities, and the licensee's expectations of response. The performance of the emergency response organization was evaluated against applicable licensee procedures and regulatory requirements. The inspectors attended the post-drill critique to evaluate the licensee's self-assessment process for identifying deficiencies relating to failures in classification and notification, as well as PAR development activities.

The inspectors also observed a control room simulator training exercise conducted on September 3, 2003, to assess licensed operators' performance in the area of emergency preparedness. Inspection attributes included verification that the operators made the correct drill event declaration and that associated followup actions were performed in accordance with regulatory requirements and the licensee's procedures. The observed scenario was performed in conjunction with the licensed operator

requalification program. This inspection activity represented 2 samples. (See Section 1R11 for details)

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2PS2 Radioactive Material Processing and Transportation (71122.02)

PS2.1 System Walkdowns

a. Inspection Scope

The inspector walked down accessible portions of the radioactive liquid and solid waste collection/processing systems, located in the Unit 1 & 2 Auxiliary Building, with the site radwaste systems engineer, to determine if systems and facilities were consistent with descriptions contained in the Updated Final Safety Analysis Report (UFSAR); to evaluate general material conditions; and to identify changes to the systems. The waste processing systems evaluated included the Reactor Coolant Waste Processing System, the Miscellaneous Waste Processing System and the Solid Waste Processing System. Also visually inspected were the radwaste storage areas located in the Materials Processing Facility, and the Dredged Spoils Area (Lake Davies).

During the walkdowns, the inspector reviewed the following:

- the status of any non-operational waste process equipment and the adequacy of administrative and physical controls for those systems.
- changes made to radioactive waste processing systems and the potential radiological impact, including safety evaluations, of these changes.
- current processes for transferring radioactive waste resin and sludge to shipping containers and the mixing and sampling of the waste;
- radioactive waste/material storage and handling practices
- sources of radioactive waste at the station.
- the general condition of facilities and equipment.

The review was against the criteria contained in the UFSAR, Technical Specifications, the Process Control Plan (PCP), 10 CFR Parts 20, 61, 71, applicable Branch Technical Positions, and the licensee's procedures.

b. Findings

No findings of significance were identified.

PS2.2 Waste Characterization and Classification

a. Inspection Scope

The inspector reviewed the following:

- radio-chemical sample analysis results for the radioactive waste streams including Dry Active Waste, spent resins, miscellaneous waste filters, and the spent fuel pool filters.
- the development of scaling factors for hard-to-detect radio-nuclides for the various waste streams.
- methods and practices to detect changes in waste streams; and classification and characterization of waste relative to 10 CFR 61.55 and 10 CFR 61.56.
- implementation of applicable Branch Technical Positions on waste classification; concentration averaging, waste stream determination, and sampling frequency.
- current waste streams and their processing relative to descriptions contained in the UFSAR.
- current processes for transferring radioactive waste resin and sludge discharges into shipping/disposal containers to determine the adequacy of sampling.

The review was against the criteria contained in the UFSAR, PCP, applicable Branch Technical Positions, 10 CFR Parts 20, 61, 71, and licensee procedures.

b. Findings

No findings of significance were identified.

PS2.3 Shipment Preparation

a. Inspection Scope

The inspector observed the preparations for shipment numbers 03-123 and 03-136, on September 10 and 11, 2003, respectively. The inspector observed the surveying, labeling, marking, placarding, vehicle checks, emergency instructions, manifest/shipping papers and the briefing provided to the driver. The inspector interviewed the radiation workers to determine if the shippers were knowledgeable of the shipping regulations and whether shipping personnel demonstrated adequate skills to accomplish the package preparation requirements. The inspector verified that the licensee's training program provided training to Personnel responsible for conducting radioactive waste processing and shipment preparation activities.

b. Findings

No findings of significance were identified.

PS2.4 Shipment Records and Documentation

a. Inspection Scope

The inspector selected and reviewed records associated with five (5) non-excepted shipments of radioactive material made since the previous inspection of this area. The shipments were nos. 03-062, 03-067, 03-086, 03-088, and 03-132. The following aspects of the radioactive waste packaging and shipping activities were reviewed:

- implementation of applicable shipping requirements including completion of waste manifests.
- implementation of the specifications in applicable Certificates of Compliance, for the approved shipping casks including limits on package contents.
- classification and characterization of waste relative to 10 CFR 61.55 and 61.56.
- implementation of 10 CFR 20, Appendix G.
- labeling of containers.
- placarding of transport vehicles.
- conduct of vehicle checks.
- providing of driver emergency instructions.
- completion of shipping paper/disposal manifest.

The review was against criteria contained in 10 CFR Parts 20, 61, 71, applicable Department of Transportation requirements, as contained in 49 CFR Parts 170-189; station procedures; and applicable disposal site licenses and related correspondence.

b. Findings

No findings of significance were identified.

3. SAFEGUARDS

Cornerstone: Physical Protection

3PP2 Access Control (71130.02)

a. Inspection Scope

The following activities were conducted during the inspection period to verify that the licensee has effective site access controls, and equipment in place designed to detect and prevent the introduction of contraband (firearms, explosives, incendiary devices) into the protected area as measured against 10 CFR 73.55(d), and the Physical Security Plan and Procedures:

- Site access control activities were observed, including personnel and package processing through the search equipment during peak ingress periods on July 8 and 9, 2003. On July 10, 2003, observation of vehicle search activities was also conducted. On July 7, 2003, testing of all access control equipment; including metal detectors, explosive material detectors, and X-ray examination equipment was observed.

b. Findings

No findings of significance were identified.

3PP3 Response to Contingency Events (71130.03)

a. Inspection Scope

The following activities were conducted to determine the effectiveness of the licensee's response to contingency events, as measured against the requirements of 10 CFR 73.55 and the Calvert Cliffs Safeguards Contingency Plan:

- On July 10, 2003, a review of documentation associated with the licensee's force-on-force exercise program was conducted. The review included documentation of critiques for exercises conducted since the first quarter of 2002, when the exercises were resumed post September 11, 2001.

- On July 9, 2003, performance testing of the Calvert Cliffs intrusion detection and alarm assessment systems was conducted. This testing was accomplished by one inspector who toured the plant perimeter and selected, and subsequently performance tested, areas of potential vulnerability in the intrusion detection

system. Concurrently, a second inspector observed the alarm assessment capabilities from the Central Alarm Station. During the walkdown of the intrusion detection system, 17 specific performance tests were conducted.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

40A1 Performance Indicator Verification (71151)

1. Mitigating Systems Cornerstone

a. Inspection Scope

For the period from July 2002 through June 2003, the inspectors examined the licensee's performance indicator data and plant records associated with the PI listed below, including licensee event reports, selected operator narrative logs, maintenance rule records, and associated issue reports. This inspection activity represented 1 sample.

- Safety System Functional Failure

b. Findings

No findings of significance were identified.

2. Emergency Preparedness Cornerstone

a. Inspection Scope

The inspector reviewed the licensee's process for identifying the data that is utilized to determine the values for the following three EP performance indicators (PI):

- Drill and Exercise Performance
- Emergency Response Organization (ERO) Participation
- Alert Notification System (ANS) Reliability

This review assessed data submitted to the NRC from July 2002, through June 2003. Classification, notification and protective action opportunities were reviewed from licensed operator simulator sessions and site ERO drills and exercises. Attendance records for drill and exercise participation were reviewed for completeness and accuracy. Test results of the ANS testing were reviewed for compliance with licensee testing methodology. The inspector reviewed this data using the criteria of NEI 99-02, Revision 2, "Regulatory Assessment Performance Indicator Guideline." This inspection activity represented 3 samples.

b. Findings

No findings of significance were identified.

3. Physical Protection Cornerstone

a. Inspection Scope

For the period from April 2002 through March 2003, the inspectors reviewed the licensee's programs for gathering, processing, evaluating, and submitting data for the three PIs listed below to ensure the data was reported in accordance with Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 1 and Rev. 2. This review included the licensee's tracking and trending reports, personnel interviews, and security event reports during the review period. This inspection activity represented 3 samples.

- Fitness-for-Duty / Personnel Reliability Program
- Personnel Screening Program
- Protected Area Security Equipment

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

1. Annual Sample Review

a. Inspection Scope

The inspectors performed an in-depth review of two issues entered into the licensee's corrective action program. The samples selected were within the cornerstone of mitigating systems, and involved risk significant systems. This inspection activity represented 2 samples. The reviewed issues included:

- IR4-000-083, which documented an issue associated with problems related to the replacement of the safety-related GE Magne-Blast 4160 Volt Circuit breakers with ABB vacuum technology breakers.

- IR4-022-448, which described an issue associated with the Unit 1 13 charging pump which required a pump overhaul and motor replacement due to degraded component conditions.

For these two issues, the inspectors reviewed the actions taken to determine if the licensee had adequately addressed the following attributes:

- Complete, accurate, and timely identification of the problem

- Evaluation and disposition of operability and reportability issues
- Consideration of previous failures, extent of condition, generic or common cause implications
- Prioritization and resolution of the issue commensurate with the safety significance
- Identification of the root cause and contributing causes of the problem
- Identification and implementation of corrective actions commensurate with the safety significance of the issue

b. Findings

No findings of significance were identified.

2. Processing and Shipping of Radioactive Material

a. Inspection Scope

The inspector reviewed nine (9) Quality and Performance Assessment Observation and Surveillance reports, and two (2) Health Physics Department self-assessments relating to the radioactive waste handling, processing, storage, and shipping programs. The inspector also reviewed fifteen (15) Issue Reports which related to the control of radioactive material initiated between January 1, 2003 and September 11, 2003. This review assessed the licensee's threshold for identifying, evaluating, and resolving problems while implementing these programs. This review was conducted against the criteria contained in 10 CFR Parts 20 and 71.101.

b. Findings

No findings of significance were identified.

4OA3 Event Followup

1. Event Response

a. Inspection Scope

The inspectors reviewed one reported event this quarter to evaluate the licensee's actions and to confirm that this event was properly classified and reported to NRC and state/county governments, as warranted. This event occurred on September 18-19 and involved the loss of at least 34 sirens due to high winds associated with Hurricane Isabel. This issue was documented in IR4-024-014, and was reported and updated to the NRC in accordance with 10 CFR 50.72(b)(3)(xiii) reportability requirements based on the loss of the offsite notification system.

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

On October 7, 2003, the resident inspectors presented the inspection results to Kevin Neitmann and other members of his staff. 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

R. Blasy, Electrical Maintenance & Performance Management
R. Cable, Waste Management Technician
H. Damon, General Supervisor, Electrical and Controls
D. Demore, Principal Waste Management Technician
P. Furio, Supervisor, Regulatory Matters
M. Geckle, Operations Manager
R. Geneva, Waste Management Supervisor
T. Gill, Security Maintenance Analyst
G. Gwiazdowski, Nuclear Security Director
P. Hebrank, Breaker Replacement Project Manager
D. Holm, Manager, Nuclear Maintenance
H. Huntsicker, Electrical Maintenance & Performance Management
T. Kirkham, Health Physics Supervisor
M. Korsnick, Vice President, Asset Optimization
S. Midget, Site Radwaste Systems Engineer
K. Neitmann, Plant General Manager
J. Pruitt, Waste Management Technician
S. Rice, Health Physics Technician
E. Roach, Director, Emergency Planning
G. Rudigier, Senior Emergency Planning Analyst
S. Saunders, Health Physics Technician
B. Scotland, Performance Management Analyst
J. Spina, Manager, Nuclear Maintenance
R. Szoch, General Supervisor, Plant Engineering
G. Vanderheyden, Vice President
L. Williams, Systems Manager, 4kVSystems Engineer
M. Yox, Engineering Analyst, Nuclear Regulatory Matters

NRC Personnel

Alan Blamey, Operations Engineer
Dana Caron, Physical Security Inspector
Paul Frechette, Senior Physical Security Inspector
Mark Giles, Senior Resident Inspector
Tom Moslak, Health Physicist
Joseph O'Hara, Resident Inspector
John Richmond, Senior Resident Inspector
John White, Chief, Radiation Safety and Safeguards Branch
David Silk, Senior Emergency Preparedness Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None

Opened and Closed

None

Closed

None

Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1RO1: Adverse Weather Protection

Procedures

ERPIP 3.0, Immediate Actions, Attachment 20, Severe Weather
Operations Administrative Policy OAP 00-01, Severe Weather Operations

Section 1R04: Equipment Alignment

P&IDs:

OM-51, sheet 2
OM-49, sheet 2

Safety Tagging Clearance Order:

2200300721

Drawings:

62730SH0002
63075SH0023

Section 1R05: Fire Protection

Procedures

ERPIP 3.0, Immediate Actions, Attachment 20, Severe Weather

Manual:

Fire Fighting Strategies Manual

Other:

Drill Scenario 03-02, Fire On The 72' Area Roof

Section 1R06: Flood Protection Measures

Issue Reports:

IR4-023-036, The divider wall between Unit 1 and Unit 2 is corroded and needs restoration

Maintenance Orders:

0200301725, Restore/repair divider wall

Section 1R07: Heat Sink Performance

Procedures:

OI-29, Revision 49, Saltwater System
PE 1-012-06-O-W, Weekly Salt Water Flow Verification
TP-01-005R, Revision 1, Single Tube Thermal Performance Testing
EN-1-327, Revision 1, Salt Water System Operational Performance

Issue Reports:

IR4-022-304, 11 Component Cooling Heat Exchangers could not pass the required flow

Maintenance Orders:

1200302590, Disassemble, clean, and reassemble 11A service water heat exchanger
1200203114, Disassemble, clean, and reassemble 12A service water heat exchanger

Section 1R11: Licensed Operator Requalification Program

Procedures:

ERPIP 3.0, Immediate Actions

Other:

Simulator Operator Examination For The Licensed Operator Training Program At The Calvert Cliffs Nuclear Power Plant, approved on September 2, 2003.

Section 1R12: Maintenance Effectiveness

Procedures:

Maintenance Rule Scoping Document, Revision 21
MN-1-112, Revision 8, Managing System Performance
EN-1-327, Salt Water System Operational Performance
OI-29, Revision 49, Saltwater System
PE ½-012-06-O-W, Weekly Salt Water Flow Verification

Issue Reports:

IR4-022-304, 11 CC HX could not pass the required flow
IR4-022-316, 11B SRW HX SW Flow Failed
IR4-019-984, 11A SRW HX Saltwater Strainer flushing CV 1-SW-5128A is not fully closing
IR4-014-391, 2-SW-5157-CV failed shut while it was throttled open to maintain flow to 22 SW header
IR4-022-431, 11A/B SRW HX are dirty
IR4-015-890, SRW isolated to 11 A/B SRW HX in response to a loss of 11 SRW head
IR4-015-888, Debris/ice in saltwater intake
IR4-022-457, 12 CC HX is dirty to the extent that we are unable to pass the required amount of SW flow
IR4-004-729, Clean 21 CC HX due to the failure of flow testing
IR3-062-323, 21 CC HX does not reduce SW header pressure when outlet CV is fully open
IR4-022-413, 13 charging pump tripped on overload
IR4-022-448, 13 charging pump fails to start on 11 bus
IR4-022-461, 13 charging pump tripped during weekly PE

Maintenance Orders:

1200203114, Disassemble, clean, and reassemble 12A SRW HX
1200203203, Inspect 13 charging pump and control circuit
1200203209, 13 charging pump motor/disconnect inspection
1200300300, Unit 1 SGFP bowser room walls seeping water from corners
1200302590, Disassemble, clean, reassemble 11A SRW HX

1200302596, Disassemble, clean, reassemble 11B SRW HX
1200303246, 11A/B SRW HX are dirty
1200003435, 1-HDV-1446-CV is cycling excessively
1200303361, 13 charging pump fails to start on 11 bus
1200303389, 13 charging pump tripped on overload

Other:

Memorandum dated 9/5/03, Subject: 13 Charging Pump and feeder 52-1104
System Health Reports for salt water, service water, component cooling water, and chemical volume and control systems
Service Water System Heat Exchanger Performance Strategy, 2003

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures:

OI-16, Component Cooling System
NO-1-117, Integrated Risk Management

Maintenance Orders:

MO 1200302590, Disassemble, clean, and reassemble 11A SRW HX
MO 1200203114, Disassemble, clean, and reassemble 12A SRW HX
MO 1200300883, Sample oil in 11, 12, and 13 CBP and Motor
MO 1200203114, Service water heat exchanger full plate cleaning
MO 2200302911, Unit 2 21 component cooling water pump overhaul
MO 2200303546, Unit 2 21 component cooling water pump electrical breaker maintenance

Issue Reports:

IR4-022-484, Governor reservoir oil level low out of sightglass and the drain partially open
IR4-022-316, 11B SRW HX SW flow failed during SW flow verification
IR4-022-304, 11 Component cooling water heat exchanger could not pass required flow

Section 1R15: Operability Evaluations

Procedures:

NO-1-106, Functional Evaluation/Inoperability Determination
OM 460SH0001, Rev. 91 Reactor Coolant System
NO-1-200, Rev. 22, Appendix CM, Component Manipulation Form
Final Safety Analysis Report (FSAR)
NO-1-106, Attachment 2, Operability Determination For Tech spec SSC's, dated July 7, 2003 for 1TE112CD failure
Technical Requirements Manual
Technical Specifications Bases
PDT-123A ASME Class 1 Weld Leak from Reactor Coolant Piping

Issue Reports:

IR4-022-304, Unit 1 11 CC HX could not pass the required flow
IR4-015-810, Unit 2 21 Main Steam Line Rad Monitor intermittently failing
IR4-019-938, Unit 2 21 Main Steam Line Rad Monitor indicates false 450R/hr
IR4-014-907, Unit 2 21 Main Steam Line Rad Monitor trend recorder and computer point indicate higher than the instrument itself
IR4-022-484, Governor oil level low OOS and petcock drain partially open
IR4-021-780, Channel D Unit 1 RPS TC112CD voltage is low
IR4-000-171, Unit 1 11 Switchgear HVAC fan elevated vibration levels
IR4-000-172, Unit 1 11 Switchgear HVAC fan vibration levels indicate a degraded bearing
IR4-003-558, Increase of air flow on the 11 switchgear HVAC fan by adjusting sheaves
IR4-013-052, 11 Switchgear HVAC vibrations levels need investigation
IR4-022-421, 11 Main Steam Line Rad Monitor is failing high
IR3-076-517, 11 Main Steam Line Rad Monitor has failed power supply

Maintenance Orders:

2200300650, 21 MSL Rad Monitor intermittently failing
2200300484, 21 MSL Rad Monitor trend recorder failure
1200302848, Replace 1TE112CD and perform restoration of T/A 1-03-0022
1200303475, Elevated vibration levels on the 11 switchgear HVAC fan

Section 1R19: Post-Maintenance Testing

Procedures:

NO-1-208, Operations Post Maintenance Testing
PE 1-012-06-O-W, Nitrogen Bottle For 1-SW-5149-CV
STP O-73C-2, Component Cooling Pump Quarterly Test
STP-0-65Q-1 Rev. 5, Unit 1 Safety Injection System Valve Quarterly Operability Test

Maintenance Orders:

MO 2200300698, Replace memory battery in 2FIC306
MO 1200200369, Replace MCC cubicle 52-1BG03 (air compressor)
MO 2200300405, Pressurizer heater proportional controller #21 breaker and controls inspection and alignment
MO 2200302427, 2HS100-1 has cracked lexan cam followers
MO 2200203522, Oil analysis reports for 22 Charging pump crank case show increasing levels of iron and lead
MO 1200302354, Repair valve position indication 1-SI-638CV

Issue Reports:

IR4-019-979, 1-SI-638CV Failed to indicate shut
IR4-022-418, Stroke time for 1-CV-638 in alert range
IR4-022-257, Unit 2 21 component cooling pump outboard axial vibrations in alert range

Section 1R22: Surveillance Testing

Procedures:

STP-0-65-1. Rev. 36, Unit 1 HPSI and LPSI PP CKV Closure Test
STP-O-05A-1, Auxiliary Feedwater System Quarterly Surveillance Test
STP-O- 47A-1 Main Steam Isolation Valve Partial Stroke Quarterly Surveillance Test
PE 2-93–4-Q, Main Turbine Control Valve Performance Evaluation

Drawings:

DWG 60731SH0001, Rev. 76, Safety Injection & Containment Spray Systems

Other:

N-197, Rev. 26, Low Pressure Safety Injection Pump Performance Curve

Section 1EP6: Drill Evaluation

Procedures:

ERPIP 3.0, Immediate Actions
Engineering Standard ES-001, Flooding, Revision 2
AOP-7L, Circulating Water/Intake Malfunctions, Revision 5 (Unit 2)

2PS2: Radioactive Material Processing and Transportation

Procedures:

RSP 2-211, Rev 0, Packaging and Labeling for Shipment or Transportation of Radioactive Material
RSP 2-212, Rev 0, Shipment of Radioactive Materials
RSP 2-217, Rev 11, Duratek High Integrity Container
RSP 2-220, Rev 9, Solid Waste Processing Resin Transfer
RSP 2-228, Rev 1, 10 CFR 61 Scaling Factors
RSP 2-231, Rev 4, CNS 8-120B Cask Handling Procedure
RP 1-300, Rev 7, Health Physics Section Conduct of Operations
RP 2-100, Rev 8, Radioactive Materials Management

Issue Reports:

IR4-011-551, Trending issue report for rad waste shipment
IR4-003-387, Water found inside intermodual container
IR4-009-844, Failure of personnel to document the release of material from the radiologically controlled area
IR4-010-048, Water found in transfer cask
IR4-009-789, A 40' container of scaffolding material fell off a flatbed trailer
IR4-012-629, Inspection of containers for proper loading
IR4-001-115, Barrier analysis was performed on container exceeding dose levels
IR4-003-202, Storage area not evaluated as low level rad waste interim storage area
IR4-006-374, Individual found with radiologically contaminated flashlight
IR4-012-677, Radwaste found outside radiologically controlled area
IR4-009-785, While moving HEPA box contact was made with other structure
IR4-009-792, Bags reading higher than RAM tag data
IR4-009-793, Bags with RAM tags indicated less than second check survey
IR4-009-795, Trending issue report due to inaccurate dose rate surveys on radioactive trash and laundry bags
IR4-009-867, Bag of laundry read 150 mr/hr, RAM tagged 15mr/hr

Self-Assessments:

CCNPPI Radioactive Material Shipping Program, Peer Assessment, November 7, 2002
Independent Assessment Radioactive Material Handling and Shipping, July 31, 2003

Quality Assurance Surveillance Report/Audits

Quality and Performance Assessment Observation reports dated 6/10/2003, 7/10/2003, 7/11/2003, 7/14/2003, 7/15/2003, 7/21/2003
Quality and Performance Assessment Surveillance Report 2003-53

Shipping Manifests:

Shipment No. 03-062, LSA II
Shipment No. 03-067, LSA II
Shipment No. 03-086, LSA II
Shipment No. 03-088, LSA II
Shipment No. 03-132, Type B

Other:

Radioactive Shipment Index for 2003
Lake Davies Radioactive Materials Inventory Map
Safety Evaluation for Materials Processing Facility dated July 29, 1983
Training/Qualification Records for Radwaste Management Personnel
CCNPP Effluent and Waste Disposal 2002 Annual Report

Section 3PP2: Access Control

Procedures:

Security Audit, 2002-02
Safeguards Event Log, June 2002 - June 2003
NQA Surveillance 2003-005, June 17, 2003
Audit 03-2Q, July 14, 2003
Audit 03-1Q, May 15, 2003

Section 40A1: Performance Indicator Verification

Procedures

Nuclear Energy Institute (NEI) 99-02, Revision 2, Regulatory Assessment Performance Indicator Guideline
Calvert Cliffs Licensee Event Reports for 2002 and 2003
RM-1-106, Revision 2, Control of NRC Performance Indicators and Monitoring of NRC Assessment Inputs
RM-1-323, Revision 2, Preparation of Emergency Preparedness Cornerstone NRC Performance Indicators

Other:

Performance Indicators, Rev 2

Section 4OA2: Problem Identification and Resolution
Procedures

E-30, Rev. 1, 4.16 KV Magne-Blast Circuit Breaker Overhaul Procedure
FTE-29 Acceptance Test and Calibration of Amp Detectors

Issue Reports:

IR4-000-083, Breakers experienced trip free conditions
IR4-010-164, IR to document Part 21 issued by Westinghouse
IR4-014-287, Generic issue with other breakers
IR4-022-413, 13 charging pump tripped on overspeed
IR4-022-448, 13 charging pump fails to start on 11 480 V bus
IR4-022-461, During weekly PE 13 charging pump tripped

Issue Report Resolution Documents:

AIT#IR200200774 IR4-014-287 Resolution
AIT#IR200300035 IR4-000-083 Resolution

Maintenance Orders:

1200203203, Inspect 13 charging pump and control circuit
1200203209, 13 charging pump motor/disconnect inspection
1200303435, 13 charging pump fail to rotate during weekly PE.

Calculations:

PTI Report R27-97 4kV Vacuum Circuit Breaker Switching Transients at Calvert Cliffs

Miscellaneous:

4 KV Systems Health Report, Second Quarter, 2003
Westinghouse Letter W-CC-BRKR-03-002, Transmittal of CAPS Issue 03-035-M021
Westinghouse Root Cause Analysis, Part 6, Casual Factors, 03-035-M021, Rev.1
Westinghouse Letter LTR-NRC-03-8, Part 21 on ABB Circuit Breakers with Model 7 Operating Mechanisms, March 14, 2003
Westinghouse RRS/EMPE(03)-057, Closeout on Stalling of ABB 4kV Vacuum Breaker, dated February, 2003
ABB Report F-2003-1, Evaluation of Failure to Close and Latch at Calvert Cliffs
SOER 98-02, Circuit Breaker Reliability, Applicability Review, January 6, 1999
System Health Report CVCS (041), second quarter 2003

Section 4OA3: Event Follow-up

Issue Reports:

IR4-024-014, Thirty-four sirens lost ac power due to weather related winds from hurricane Isabel

LIST OF ACRONYMS

ABB	Asea Brown Boveri
AFW	Auxiliary Feedwater
ANS	Alert and Notification System
EDG	Emergency Diesel Generator
EP	Emergency Preparedness
ERO	Emergency Response Organization
NEI	Nuclear Energy Institute
OAP	Operations Administrative Policy
PCP	Process Control Plan
PI	Performance Indicator
UFSAR	Updated Final Safety Analysis Report