October 23, 2001

Mr. Charles H. Cruse
Vice President - Nuclear Energy
Constellation Nuclear
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT - NRC INSPECTION REPORT 50-317/01-08, 50-318/01-08

Dear Mr. Cruse:

On September 29, 2001, the 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 12, 2001, with Mr. Katz 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. No findings of significance were identified.

Since September 11, 2001, Calvert Cliffs has assumed a heightened level of security based on a series of threat advisories issued by the NRC. Although the NRC is not aware of any specific threat against nuclear facilities, the heightened level of security was recommended for all nuclear power plants and is being maintained due to the uncertainty about the possibility of additional terrorist attacks. The steps recommended by the NRC include increased patrols, augmented security forces and capabilities, additional security posts, heightened coordination with local law enforcement and military authorities, and limited access of personnel and vehicles to the site.

The NRC continues to interact with the Intelligence Community and to communicate information to Constellation Nuclear. In addition, the NRC has monitored maintenance and other activities which could relate to the site's security posture.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Michele G. Evans, Chief
Projects Branch 1
Division of Reactor Projects

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

Enclosures: Inspection Report 50-317/01-08 and 50-318/01-08

Attachment 1 - Supplemental Information

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REGION I

Docket Nos: 50-317, 50-318

License Nos.: DPR-53, DPR-69

Report Nos: 50-317/01-08;
50-318/01-08

Licensee: Calvert Cliffs Nuclear Power Plant, Inc.

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

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

Dates: August 12, 2001 - September 30, 2001

Inspectors: David Beaulieu, Senior Resident Inspector
Leonard Cline, Resident Inspector
David Silk, Senior Emergency Preparedness Inspector

Approved by: Michele G. Evans, Chief, Projects Branch 1
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000317-01-08, 05000318-01-08, on 08/12-09/30/2001, Calvert Cliffs Nuclear Plant, Inc.; Calvert Cliffs Nuclear Power Plant, Units 1 & 2. Resident Inspector Report.

The inspection was conducted by resident inspectors and a regional senior emergency preparedness inspector. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 “Significance Determination Process” (SDP). Findings for which the SDP does not apply are indicated by “No Color” or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at http://www.nrc.gov/NRR/OVERSIGHT/index.html.

A. Inspector Identified Findings

No findings of significance were identified.

B. Licensee Identified Violations

None

Report Details

Unit 1 operated at or near 100 percent power for most of the inspection period. On August 29 and August 31, 2001, reactor power was reduced to locate and repair leaks on the 12A main condenser water box. On September 7 and September 9, 2001, reactor power was reduced for main turbine valve testing and main condenser maintenance, respectively. Unit 2 operated at or near 100 percent power for the entire inspection period, except for a two-day period beginning September 21, 2001, when power was reduced for main turbine valve testing and main condenser maintenance.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors verified the status of structures, systems, and components used, during severe weather conditions, such as a hurricane, to provide a backup source of off-site power and an alternate means of ventilation for the safety related switchgear rooms. The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), the Individual Plant Examination of External Events (IPEEE), the Technical Specifications (TS), Emergency Response Plan Implementation Procedure (ERPIP) 3.0, Attachment 20, “Severe Weather,” and Operations Administrative Policy (OAP) 00-01, "Severe Weather Operations." The inspector verified by walkdown that equipment used for emergency ventilation of the safety-related switchgear rooms was properly staged in accordance with licensee procedures. The inspector confirmed the availability of the alternate offsite power source by observing the successful testing of the spare breaker installed in the Southern Maryland Electric Cooperative (SMECO) breaker cubicle. The inspector also evaluated the below listed Issue Report (IR) and the open maintenance order (MO) involving the licensee’s readiness for adverse weather.

> IR3-074-192, “Unit 1 Switchgear Room Emergency Generator (the one in the flammable locker on the easternmost side) is broken and will not start.”
>
> MO 2200100660, “Perform 13 kV Bus No. 23 SMECO feeder breaker cleaning and inspection.”

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial Walkdown

a. Inspection Scope

The inspectors conducted an equipment alignment partial walkdown to evaluate the operability of selected redundant train or backup systems, while the other train or system was inoperable or out of service. The walkdown included a review of system operating instructions to determine correct system lineup and verification of critical components to identify any discrepancies which could affect operability of the redundant train or backup systems. The inspectors performed partial system walkdowns on the following systems:

- Nos. 22 and 23 Service Water (SRW) system, on August 28, 2001, while the No. 21 SRW pump was out of service for planned maintenance. Reference MO 2200102396, "Drain, flush and refill No. 21 SRW pump outboard bearing."
- Nos. 11 and 12 Switchgear Ventilation and Air Conditioning (HVAC), on September 18, 2001, while the No. 11 Switchgear HVAC was out of service for corrective maintenance. Reference MO 1200104023, "No. 11 Switchgear HVAC will only develop 150 psi discharge pressure."

The inspectors reviewed the following Calvert Cliffs Nuclear Power Plant documentation:

- Operation Instruction OI-15-2, "Service Water System."
- MO 2200102396, "Drain, flush and refill No. 21 SRW pump outboard bearing."
- Operating Instruction OI-22H, "Switchgear Ventilation and Air Conditioning."
- System Description No. 032, "Auxiliary Building Ventilation System Description."
- Drawing No. 60722SH0002, "Auxiliary Building Ventilation System."

b. Findings

No findings of significance were identified.

1R05 Fire Protection - Fire Area Tours

a. Inspection Scope

The inspectors conducted tours of areas important to reactor safety to evaluate conditions related to: (1) licensee control of transient combustibles and ignition sources; (2) the material condition, operational status, and operational lineup of fire protection systems, equipment, and features; and (3) the fire barriers used to prevent fire damage or fire propagation. The inspectors used administrative procedure SA-1-100, "Fire Prevention," during the conduct of this inspection.

The areas inspected included:

- Unit 1 Service Water Pump Room.
- Unit 2 Service Water Pump Room.

- Unit 1 45 ft Switchgear Room.
- Unit 2 45 ft Switchgear Room.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

On September 25, 2001, the inspector observed licensed operator simulator training to assess operator performance for a scenario involving a loss of main and auxiliary feedwater. In particular, the inspector observed operators perform EOP-03, "Loss of All Feedwater," to re-establish auxiliary feedwater flow, which the licensee's probabilistic risk assessment has determined to be an important operator action.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors reviewed performance-based problems involving selected in-scope structures, systems, or components (SSCs) to assess the effectiveness of the maintenance program. Reviews focused on: (1) proper maintenance rule scoping, in accordance with 10 CFR 50.65; (2) characterization of failed SSCs; (3) safety significance classifications; (4) 10 CFR 50.65 (a)(1) and (a)(2) classifications; and (5) the appropriateness of performance criteria for SSCs classified as (a)(2), and goals and corrective actions for SSCs classified as (a)(1). The inspectors reviewed recent system health reports and system functional failures in the last two years. The following SSCs were reviewed:

- Unit 1 and Unit 2 Primary Containment - The licensee appropriately classified this system as (a)(1) primarily due to abnormal degradation of several containment tendons identified in 1997. If left uncorrected, this condition could potentially have resulted in the containment structure failing to meet its design basis. The inspector evaluated the acceptability of the licensee's corrective action plan as documented in Issue Report IR1-050-009, and the licensee's letter to the NRC, dated April 4, 2001.

- No. 23 Auxiliary Feedwater (AFW) Pump - The inspector evaluated the licensee's performance of MO 2200102355, "Replace No. 23 AFW Outboard Pump Bearing," and the trouble shooting of the outboard pump bearing high temperatures experienced during post-maintenance testing.

- The inspector also evaluated maintenance rule scoping based on the licensee's probabilistic risk assessment, updated in November 2000. Specifically, the inspector verified that any SSC with a risk achievement worth which showed at least a doubling of core damage frequency was appropriately classified as risk significant.

The inspectors also reviewed the following Calvert Cliffs Nuclear Power Plant documentation:

- Station Procedure MN-1-112, Managing System Performance.
- Maintenance Rule Scoping Document, Revision 17.
- Maintenance Rule Indicator Report, August 2001.

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

For the selected maintenance orders listed below, the inspectors verified: (1) risk assessments were performed in accordance with Calvert Cliffs procedure NO-1-117, "Integrated Risk Management;" (2) risk of scheduled work was managed through the use of compensatory actions; and (3) applicable contingency plans were properly identified in the integrated work schedule.

- MO 1200103614 Identify source of ground on No. 13 containment air cooler.
- MO 2200102355 Replace No. 23 auxiliary feedwater pump outboard pump bearing.
- MO 1200102280 Inspect and lubricate the No. 11 high pressure safety injection pump coupling.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed selected operability evaluations affecting risk significant mitigating systems to assess: (1) technical adequacy of the evaluations; (2) whether continued system operability was warranted; (3) whether other existing degraded conditions were appropriately addressed with respect to their collective impact on continued safe plant operation; and (4) where compensatory measures were involved, whether the measures were in place, would work as intended, and were appropriately controlled. The following evaluations were reviewed:

- Operability Determination No. 01-016, "Inaccuracies in the Loss of Feedwater Analysis."
- Operability Determination No. 01-013, "Loss of coolant accident coincident with a loss of offsite power will result in the service water pump room temperatures exceeding the room design limit of 130 F."

b. Findings

The inspector reviewed the licensee's disposition of several issue reports (IRs) regarding inaccuracies in their Updated Final Safety Analysis Report (UFSAR), Chapter 14, loss of feedwater analysis. Inaccuracies included: not accounting for reactor coolant pump heat and accounting for the loss of feedwater condition (higher downcomer liquid enthalpy) in the calculation of initial liquid inventory (IR3-075-581); not accounting for steam generator blowdown (IR3-075-582); and not accounting for sludge in the calculation of steam generator liquid inventory (IR3–052-198). The inspector noted that the steam generator blowdown inaccuracy stemmed from an NRC finding that was discussed in NRC Inspection Report 50-317 & 318/2001-007.

When reviewing the licensee's initial operability determination for IR3-075-581 and IR3-075-582, the inspector identified that the UFSAR, Chapter 14, analysis for a loss of feedwater did not assume a single failure of the AFW system. This appears to be inconsistent with a number of statements in the UFSAR (reference Sections 1.4.1, 10.3, and 14.6) and Technical Specification Basis B3.7.3, that describe the redundancy of the AFW system. These statements describe that one steam-driven or one motor-driven AFW pump, independently, has adequate capacity to safely cool the reactor coolant system prior to placing the shutdown cooling system in service.

Station management stated that the loss of feedwater analysis, as well as other abnormal operating occurrences evaluated in the UFSAR Chapter 14, did not assume a single failure. Pending further review of the licensing basis regarding whether the licensee is required to assume a single failure for the abnormal operating occurrences covered in UFSAR Chapter 14, this issue will remain unresolved **(URI 50-317 & 318/2001-008-01)**. In the interim, the inspector finds that Operability Determination No. 01-016 satisfactorily bounds conditions involving a single failure of AFW.

1R16 Operator Workarounds

a. Inspection Scope

The inspectors evaluated selected risk-significant operator workarounds for potential effects on the functionality of mitigating systems. 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; (3) if operator workaround problems were captured in the licensee's corrective action program, and (4) cumulative effects of the workarounds on reliability, availability, and potential for system mis-operation. The following operator workarounds were reviewed:

•	MO 0200101853	Nitrogen Storage Tank Pressure being blown down twice per shift to maintain pressure less than 250 psi.
•	MO 0200101896	Trash rake misaligned, wheels not aligning with tracks properly.
•	MO 1200103615	No. 13 Screen wash pump seal is leaking.
•	MO 1200100698	No. 12A water box priming control valve is stroking with some difficulty.
•	MO 2200103149	No. 21 condenser air removal pump outboard bearing leaks a lot of oil.
•	MO 1200002446	1-CVC-201P-CV, Letdown backpressure regulator, indicates full shut with 37 gpm letdown flow.
•	MO 1200002405	While recircing Nos. 11 and 12 Boric Acid Storage Tanks (BASTs) reactor power lowered considerably.
•	MO 2200101491	Gland Steam manual valve 2-TGS-114 and control valve 2-TGS-4682-CV are leaking by.
•	MO 2200102665	Cavity Cooling fan damper 2MOV5304 would probably not open when Cavity Cooling fan No. 22 started.
•	MO 1200103995	Raise the set point for 1-PS-4521, No. 11A Auxiliary Feedwater Air accumulator low pressure alarm.
•	MO 2200100070	Replace 2-CV-4681 the Gland Steam step down regulator.
•	MO 2200102563	Boric acid storage tank check valve 2CVC-247 is leaking by.
•	MO 1200102845	Letdown Control Valve 1-CVC-110P-CV did not open when placed in service.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed post-maintenance test procedures and associated testing activities for selected risk significant mitigating systems to assess whether: (1) the effect of testing on the plant had been adequately addressed by control room and engineering personnel; (2) testing was adequate for the maintenance performed; (3) acceptance criteria were clear and adequately demonstrated operational readiness, consistent with design and licensing basis documents; (4) test instrumentation had current calibrations, range, and accuracy for the application; (5) tests were performed, as written, with applicable prerequisites satisfied; and (6) that equipment was returned to the status required to perform its safety function. The following maintenance orders were reviewed:

- MO 1200103614, Identify Source of Ground on No. 13 Containment Air Cooler, was retested using procedure STP O-071-1, “Monthly Test of B Train Containment Cooling Units.”

- MO 2200102959, Replace Motor-Operated Potentiometer for Voltage at the No. 2A Emergency Diesel Generator (EDG), was retested by conducting a slow speed start followed by a timed fast start using procedure STP 0-8A-2, “Test of 2A Emergency Diesel Generator and No. 21 4kV Bus Sequencer.”

- MO 1200102280, Inspect and Lubricate the No. 11 High Pressure Safety Injection Pump Coupling, was retested by taking temperature and vibration measurements using procedure STP 0-73I-1, “High Pressure Safety Injection Pump and Check Valve Quarterly Operability Test.”

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors witnessed performance of surveillance test procedures and reviewed test data of selected risk-significant SSCs to assess whether the SSCs satisfied TS, UFSAR, Technical Requirements Manual, and licensee procedural requirements. The inspectors assessed whether the testing appropriately demonstrated that the SSCs were operationally ready and capable of performing their intended safety functions. The following tests were witnessed:

- STP O-065J-1, “Safety Injection Check Valve Quarterly Operability Test.”
- STP O-071-1, “Monthly Test of B Train Containment Cooling Units.”
- STP O-73A-1, “Saltwater Pump and Check Valve Quarterly Operability Test.”

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed a risk significant temporary modification to assess: (1) the adequacy of the 10 CFR 50.59 evaluation; (2) that the installations were consistent with the modification documentation; (3) that drawings and procedures were updated as applicable; and, (4) the adequacy of the post-installation testing. The following temporary alteration (TA) was inspected:

- TA No. 1-01-0044, "No. 13 Containment Air Cooler High Speed Windings."

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation

a. Inspection Scope

On August 23, 2001, the inspectors observed an emergency preparedness drill and evaluated drill conduct at the simulator, technical support center, and operations support center. The inspectors verified that emergency classification declarations and notification activities were properly completed.

b. Findings

No findings of significance were identified.

4 OTHER ACTIVITIES

40A1 Performance Indicator Verification

a. Inspection Scope

The inspectors reviewed performance indicator (PI) data for the below listed cornerstones to verify individual PI accuracy and completeness. This inspection examined data and plant records through the second quarter of 2001, including review of PI Data Summary Reports, Licensee Event Reports, operator narrative logs, maintenance rule records, attendance records for drill and exercise participation, selected drill and exercise scenarios, and alert and notification system test data.

Mitigating Systems Cornerstone
- Heat Removal System Unavailability, Units 1 and 2
- Residual Heat Removal System Unavailability, Units 1 and 2
- High Pressure Safety Injection System Unavailability, Units 1 and 2

Emergency Preparedness Cornerstone
- Drill and Exercise Performance
- Emergency Response Organization Participation
- Alert and Notification System Reliability

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on October 12, 2001. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT 1

a. Key Points of Contact

C. Cruse, Vice President
P. Katz, Plant General Manager
M. Geckle, Director, Nuclear Regulatory Matters
D. Holm, Superintendent, Nuclear Operations
M. Korsnick, Superintendent, Work Management
M. Navin, Superintendent, Technical Support
K. Nietmann, Manager, Nuclear Performance Assessment Department
A. O'Donnell, Director, Emergency Planning Unit
T. Pritchett, Manager, Nuclear Engineering Department
J. Spina, Superintendent, Nuclear Maintenance
R. Szoch, General Supervisor, Plant Engineering
L. Weckbaugh, Manager, Nuclear Support Services

b. List of Items Opened, Closed, and Discussed

Opened

50-317&318/01-08-01	Unresolved Item	UFSAR Chapter 14 Single Failure Assumptions (Section 1R15)

c. List of Acronyms

AFW	Auxiliary Feedwater
BAST	Boric Acid Storage Tank
CCNPPI	Calvert Cliffs Nuclear Power Plant, Inc.
CFR	Code of Federal Regulations
EDG	Emergency Diesel Generator
EOP	Emergency Operating Procedure
ERPIP	Emergency Response Plan Implementation Procedure
HVAC	Heating Ventilation and Air Conditioning
IPEEE	Individual Plant Examination of External Events
IR	Issue Report
kV	kilovolt
MO	Maintenance Order
NRC	Nuclear Regulatory Commission
OAP	Operations Administrative Policy
PI	Performance Indicator
SDP	Significance Determination Process
SMECO	Southern Maryland Electric Cooperative
SRW	Service Water System
SSC	Structure, System and Component
STP	Surveillance Test Procedure
TA	Temporary Alteration

TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item