

December 22, 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 GENERATING STATION - NRC PROBLEM
IDENTIFICATION AND RESOLUTION INSPECTION REPORT NO.
05000317/2005007, and 05000318/2005007

Dear Mr. Vanderheyden:

On November 18, 2005, the NRC completed a team inspection at the Calvert Cliffs Unit 1 and Unit 2 reactor facilities. The enclosed report documents the inspection findings, which were discussed on November 18, 2005, with you and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, compliance with the Commission's rules and regulations, and with the conditions of your license. Within these areas, the inspection involved examination of selected procedures and representative records, observation of activities, and interviews with personnel.

On the basis of the sample selected for review, the team concluded that in general, problems were properly identified, evaluated, and corrected. Relatively few deficiencies were identified by external organizations that had not been previously identified by your organization. Audits and assessments appeared thorough.

This report documents one NRC-identified finding of very low safety significance (Green). This finding was determined to be a violation of NRC requirements. However, because of its very low safety significance and because it was entered into your corrective action program, the NRC is treating this finding as a non-cited violation, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny this non-cited violation, you should provide a response with the basis for your denial within 30 days of the date of this inspection report, to the U. S. Nuclear Regulatory Commission, ATTN. Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, U. S. Nuclear Regulator Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Calvert Cliffs Facility.

Mr. George Vanderheyden

2

In accordance with 10 CFR 2.390 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 NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.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 No. 05000317/2005007, 05000318/2005007
w/Attachment: Supplemental Information

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

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

- S. Collins, RA
- M. Dapas, DRA
- S. Lee, RI OEDO
- R. Laufer, NRR
- P. Milano, PM, NRR
- R. Guzman, PM, NRR (Backup)
- J. Trapp, DRP
- C. Khan, DRP
- M. Giles, DRP, Senior Resident Inspector
- C. Newgent - Resident OA
- PIR Team members (see list of inspectors)
- Region I Docket Room (with concurrences)
- ROPReports@nrc.gov (All IRs)

DOCUMENT: E:\Filenet\ML053570380.wpd

SISP Review Complete: GSB (Reviewer's Initials)

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	E	RI/DRP	E	RI/DRP	E		
NAME	SBarber/GSB		JTrapp/JMT		PKrohn/GSB for			
DATE	12/21/05		12/22/05		12/21/05			

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos: 50-317, 50-318

License Nos: DPR-53, DPR-69

Report Nos: 05000317/2005007, 05000318/2005007

Licensee: Calvert Cliffs Nuclear Power Plant, Inc.

Facility: Calvert Cliffs Nuclear Power Plant

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

Dates: October 31 - November 4, 2005 and
November 14 - 18, 2005

Inspectors: G. Scott Barber, Senior Project Engineer, (Team Leader)
Donald Jackson, Senior Project Engineer
John Richmond, Reactor Inspector
Ryan Treadway, Acting Resident Inspector
Dana Caron, Security Inspector

Observer: Nicole Sieller, Nuclear Safety Professional Development
Program (NSPDP) Engineer

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

SUMMARY OF FINDINGS

IR 05000317/2005-007, IR 05000318/2005-007; 10/31/05 - 11/18/05; Calvert Cliffs Nuclear Plant, Units 1 and 2; biennial baseline inspection of the identification and resolution of problems. One violation was identified in the area of maintenance procedure adequacy.

This inspection was conducted by four regional inspectors and a resident inspector. One finding of very low safety significance (Green) was identified during this inspection and was classified as a non-cited violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)." Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Identification and Resolution of Problems

The team determined that Constellation's Calvert Cliffs (CC) Units 1 and 2 Nuclear Power Plants were effective at identifying problems and entering them into the corrective action program (CAP). Relatively few deficiencies were identified by external organizations (including NRC) that had not been previously identified by the licensee. Audits and self-assessments were generally thorough. Once entered into the CAP, issues were screened and prioritized in a timely manner using established criteria. Items entered into the CAP were also properly evaluated commensurate with their safety significance. The causal evaluations for equipment and performance issues were complete, and proposed corrective actions that addressed the identified causes. Corrective actions were generally effective and typically implemented in a timely manner. On the basis of interviews conducted during the inspection, workers at the station felt free to raise safety issues and were willing to enter them into the corrective action program. However, an ineffective maintenance procedure adversely impacted the availability of an auxiliary feedwater pump.

A. NRC Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

Green. The NRC identified a Green non-cited violation (NCV) of Technical Specification (TS) 5.4.1 due to an inadequate procedure for installation and adjustment of packing for the 22 turbine-driven auxiliary feedwater (TDAFW) pump, which led to premature pump shutdown during a quarterly surveillance test. During the test, operators secured the pump when they noticed a burning smell and observed smoke coming from the pump's inboard packing gland. Investigation found the inboard packing gland had lost adequate leak off flow along its inner diameter. The licensee entered the deficiency with the pump overhaul procedure into their corrective action (CA) program for resolution.

This finding was greater than minor because it adversely affected the availability of a safety-related TDAFW pump which affected the equipment performance attribute of the Mitigating Systems Cornerstone because the pump was unavailable until the degraded packing had been replaced and the pump was satisfactorily retested. The finding was determined to be of very low safety significance (Green) in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," because an engineering analysis determined that the pump would have remained operable, and was capable of performing its intended safety function. (Section 4OA2.2)

B. Licensee-Identified Violations

None

Report Details

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution (Biennial - 71152B)

1. Effectiveness of Problem Identification

a. Inspection Scope

The inspection team reviewed the procedures, listed in the Attachment to this report, describing the corrective action program (CAP) at Constellation's Calvert Cliffs Units 1 and 2 Nuclear Power Plants. Constellation identifies problems by initiating Condition Reports (CRs) for conditions adverse to quality, human performance problems, equipment nonconformances, industrial or radiological safety concerns, and other significant issues. The CRs are subsequently screened for operability, categorized by priority and significance (1 through 4), and assigned for evaluation and resolution.

The team considered risk insights from the NRC's and Constellation's risk analyses to focus the sample selection and plant tours on risk-significant systems and components. The team reviewed CRs selected across the seven cornerstones of safety in the NRC's Reactor Oversight Process (ROP) to determine if problems were being properly identified, characterized, and entered into the CAP for evaluation and resolution. The team selected items from the maintenance, operations, engineering, emergency planning, security, radiological protection, and oversight programs to ensure that the licensee was appropriately considering problems identified in each functional area. The team used this information to select a risk-informed sample of CRs that had been issued since the last NRC Problem Identification and Resolution (PI&R) inspection, which was completed in November 2003.

In addition to CRs, the team conducted plant tours and selected items from other processes at Calvert Cliffs to verify that problems identified in these areas were entered into the corrective action program when appropriate. Specifically, the team reviewed a sample of work requests, engineering documents, operator log entries, control room deficiency logs, operator work-arounds, operability determinations, system health reports, and temporary modifications. The documents were reviewed to ensure that underlying problems associated with each issue were appropriately considered for resolution via the corrective action process. In addition, the team interviewed plant staff and management to determine their understanding of and involvement with CAP. The CRs and other documents reviewed, and a list of key personnel contacted, are listed in the Attachment to this report.

The team reviewed a sample of the licensee's Quality and Performance Assessment (Q&PA) audits and surveillances, including the most recent audit of the CAP, quarterly assessment reports, and departmental self-assessments. This review was performed to

Enclosure

determine if problems identified through these assessments were entered into CAP, and whether the identified issues were dispositioned appropriately commensurate with the safety significance of the issue. The effectiveness of the audits and self-assessments was evaluated by comparing audit and self-assessment results against self-revealing and NRC-identified findings, and current observations during the inspection.

b. Findings and Assessments

No findings of significance were identified.

The team concluded that Constellation was generally effective at problem identification at Calvert Cliffs. The CRs that are written are classified by their significance as category (I, II, III and IV) CRs, with Category I CRs usually requiring a root cause analysis (RCA) and Category II CRs usually requiring an apparent cause evaluation (ACE). Level III and IV CRs do not typically require detailed reviews. The team noted station staff demonstrated appropriate knowledge of the corrective action program, and entered identified problems into the program at an appropriate threshold. There were approximately 3780 CRs assigned in 2004 and approximately 2877 assigned in 2005 as of the beginning of this inspection. The team did not identify any significant conditions adverse to quality in the maintenance, engineering, or operations tracking systems which did not have a CR associated with them.

Relatively few deficiencies were identified by external organizations, including the NRC, that had not been previously identified by the licensee. Audits and self-assessments were generally thorough. Each department was responsible for reviewing identified issues to look for trends. This program has generally been effective in identifying trends relating to conditions adverse to quality.

The use of the CAP by the security organization was also inspected and the results of this inspection are contained in NRC Inspection Report 05000317/2005008 and 05000318/2005008.

2. Prioritization and Evaluation of Issues

a. Inspection Scope

The team reviewed the CRs listed in the attachment to this report to assess whether the licensee adequately prioritized and evaluated problems. These reviews evaluated the causal assessment of each issue (i.e., root cause analysis or apparent cause evaluation); and for significant conditions adverse to quality, the extent of condition, and determination of corrective actions to preclude recurrence. Throughout the inspection, the team attended periodic meetings to observe the CR review process and to understand the basis for assigned significance and root cause levels.

The team also considered risk insights from the Calvert Cliffs probabilistic risk assessment to help focus the inspection sample. The team selected the auxiliary

feedwater (AFW) system for an expanded review of five years. This system was selected because it is a significant contributor to plant risk.

The team selected a sample of CRs associated with previous NRC non-cited violations (NCVs) and findings to determine whether the licensee evaluated and resolved problems associated with compliance to applicable regulatory requirements and standards. The team reviewed the licensee's approach to operating experience (OE), which included an assessment of multiple examples of how effectively OE is used. Operability and reportability determinations associated with CRs were also reviewed.

b. Assessments

The team determined that Constellation adequately prioritized and evaluated the issues and concerns entered into the CAP. The team concluded that prioritized CRs were based on the safety significance of the issue. Operability determinations and reportability assessments were made promptly when issues were entered into the CAP. The team noted that licensee management was thoroughly prepared during CR screening meetings as evidenced by their probing questions of presenters. Evaluations were generally completed in a timely manner, particularly after the CAP process was revised to establish a standard 30 day deadline for all CR evaluations. Clear guidance has been developed for performing cause evaluations, and multi-level review of completed evaluations has resulted in generally high quality evaluations with proposed corrective actions that addressed the identified causes.

The team developed specific insights regarding the five year review of the AFW system and of Constellation's OE program. These assessments are described below. The team also identified that the evaluation of a maintenance activity did not fully address all potential causal factors because a key underlying procedural inadequacy remained unaddressed. Thus, the team identified one finding of low safety significance (Green) that was a violation of NRC requirements which is described in section c. below.

Auxiliary Feedwater System Five Year Review

The team selected the auxiliary feedwater (AFW) system for the five year inspection and review, which is the most risk significant system at Calvert Cliffs. A complete system walkdown was conducted and no significant conditions adverse to quality were identified. The team interviewed operators and the system engineer and determined that they had a basic understanding of the system and previous issues documented in CRs and IRs.

The team reviewed the last five years of logs, data and trends for the AFW system including condition reports, apparent cause evaluations, root cause evaluations, AFW system procedures, operator logs, and tagouts to assess AFW system performance from a corrective action standpoint. The team generated a table for AFW system components conditions that were adverse to quality and categorized the information by significance to assess performance. The team determined that there were several failed surveillances that involved the TDAFW control valves and questioned the licensee

to determine if a previously undetected adverse trend existed. The inspectors noted several failed surveillances for the TDAFW control valves related to American Society of Mechanical Engineers code compliance issues, repetitive use of inadequate maintenance procedures which resulted in failed surveillances, and several condition reports related to improper use of vendor recommendations. Detailed followup by the team later determined that the licensee's actions to evaluate these issues were adequate and that corrective action taken was commensurate with the issue's safety significance.

Operating Experience

The process that Constellation used to collect, screen, review OE appeared to be very effective. Operating experience is gathered from multiple sources, and is screened daily for general applicability and an update is e-mailed to an extensive list of licensee personnel for their information. In cases where the operating experience is screened to be applicable to the licensee, an "action item" is generated to perform a "barrier analysis" to determine if further corrective action is needed. If action is required, a "condition report" is generated to address the underlying OE. The program used a simple database that plant staff can easily access. Licensee staff charged with administering the operating experience program were proactive at screening OE which was clearly valued by line management as evidenced by the timely responses OE screening requests and actions generated by these reviews. The team reviewed several operating experience items that were in various stages of resolution. The team determined that the licensee had an effective program and management displayed strong support of the operating experience program.

c. Findings

Introduction. The NRC identified a Green non-cited violation (NCV) of Technical Specification (TS) 5.4.1 due to inadequate procedures for installation and adjustment of packing for the 22 turbine driven auxiliary feedwater (TDAFW) pump, which led to premature pump shutdown during a quarterly surveillance test. The team determined that appropriate procedural guidance would have precluded the pump unavailability that occurred until the repairs were accomplished and the pump was satisfactorily retested.

Description. On December 8, 2004, during a quarterly surveillance test, the 22 TDAFW pump was shutdown due to a lack of adequate packing gland leakage, and the observation and smell of smoke coming from the pump inboard packing gland. After the pump shutdown, the licensee replaced the packing, performed a successful surveillance and declared the pump operable on December 9, 2004.

The apparent cause evaluation (ACE) (IR200400582) for this condition stated that the pressure applied to the bottom three rings of packing reduced the clearance needed for sufficient packing leak off. The licensee postulated that this raised the temperature of the water and caused flashing which virtually eliminated packing leak off flow. Thus, the packing began to deform and fuse together until all leak off was subsequently stopped.

The licensee's operability assessment determined that the TDAFW pump was operable in the as-found condition, with the packing degraded.

Based on interviews, the team determined that operators would have taken action to secure the TDAFW pump and place the standby pump in-service if the packing had degraded during an actual plant event (e.g., a loss of off-site power) based on procedural guidance in OI-32A, AFW system. The team also determined that appropriate procedural guidance for repacking the pump would have precluded the pump unavailability that occurred until the repairs and a satisfactory retest were accomplished on December 9, 2004.

The licensee identified the apparent cause for the TDAFW pump unavailability as improper pump packing installation and adjustment. The licensee proposed changes to the AFW operating instruction and the surveillance test procedure but did not propose change the pump overhaul procedure. The team discussed the reasons for this approach with the licensee and pointed out that the pump overhaul procedure only included one step for repacking the pump and it did not reference the vendor technical manual (VTM). The Byron-Jackson VTM-B580-1032 listed several key steps that are necessary to ensure adequate packing installation and adjustment. Plant staff acknowledged that a change to the overhaul procedure was needed. Consequently, a Request for a Procedure Addendum (RPA) to make the appropriate changes to the pump overhaul procedure was implemented to ensure that appropriate vendor technical manual guidance for repacking of the pump was included.

Analysis. The packing failure was a performance deficiency because the existing maintenance procedure was not adequate to ensure that TDAFW pump repack was successfully performed. This finding was more than minor because it affected the procedure quality attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability of systems that respond to initiating events to prevent undesirable consequences. The team conducted a significance determination process (SDP) Phase 1 screening in accordance with IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations." The finding was determined to be Green because the inadequate procedure and subsequent packing degradation did not result in a loss of function per Generic Letter 91-18, did not represent loss of a safety system function for longer than the TS limiting condition for operation (LCO) allowed outage time, and did not involve an external event.

Enforcement. Technical Specification 5.4.1 requires the licensee to establish, implement, and maintain procedures for the auxiliary feedwater system as referenced in Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978. Contrary to these requirements, the licensee did not implement adequate procedures for the TDAFW pump packing installation and adjustment. Because this deficiency was of very low safety significance and has been entered into the corrective action program as IRE-001-860, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000318/2005007-01 AND 05000318/2005007-01, Inadequate Procedure for Installation and Adjustment of TDAFW Pump Packing.

Enclosure

3. Effectiveness of Corrective Actions

a. Inspection Scope

The team reviewed the corrective actions associated with selected CRs to determine whether they addressed the identified causes of the problems. The licensee's timeliness in implementing corrective actions and their effectiveness in precluding recurrence for significant conditions adverse to quality was also reviewed. Furthermore, the team assessed the backlog of outstanding corrective actions to determine if they, individually or collectively, represented an increased risk to the plant. The team also reviewed NCVs and findings issued since the last inspection of the licensee's CAP to determine if issues placed in the program had been properly evaluated and corrected.

b. Findings and Assessments

Overall, the team concluded that Constellation's corrective actions for identified deficiencies were typically timely and adequately implemented. Administrative controls have been put in place to ensure that corrective actions are completed as scheduled and reviews are performed to ensure the actions were implemented as intended. Constellation also conducted in-depth effectiveness reviews for significant issues to determine if the corrective actions were effective in resolving the issue. In some cases, the licensee appropriately self-identified ineffective or improper closeout of corrective actions and reentered the issue into the CAP for further action. However, the team noted a long-standing issue in which corrective actions were not totally effective in addressing conditions adverse to quality.

Component Mispositioning

The team reviewed the effectiveness of corrective actions taken to resolve a long-standing issue associated with component mispositioning events. In December 2003, a Category 1 Root Cause Analysis (RCA) was generated to resolve a continuing series of component mispositioning problems. Corrective actions for this issue included raising personnel accountability, providing additional personnel training, pre-job briefing improvements, general employee training improvements, and work load controls. These corrective actions had little effect in lowering the number or significance of component mispositionings. As a result, in May 2004, a Category 2 Apparent Cause Analysis (ACE) was conducted to further address this problem. The actions generated in response to this ACE were numerous and significant and included the initiation of a comprehensive human performance improvement program (HPIP). The HPIP program action plan has become a living document where changes to the original action plan have been made based on need and the scope of improvements was widened beyond those in response to the original December 2003 RCA on this issue. This program has been generally effective at lowering the significance of component mispositionings, however, the number of component mispositionings have not significantly decreased.

The licensee has generated an effective performance indicator to track progress in the mispositioning area. The performance indicator accounts for both the number and significance of component mispositionings. In May and June 2005, the performance indicator indicated that expectations were not being met in the area of component mispositionings as a result of 8 component mispositionings in early 2005, including one mis-positioning that had a negative consequence as determined by the licensee's program. As a result of the performance indicator degradation, the licensee initiated another Category 2 Apparent/ Common Cause Analysis to correct the negative trend. This analysis determined that the cause of the mis-positionings was due to a lack or misuse of error prevention tools that had been established by their HPIP. The team observed a number of planned activities that had the potential to result in component mis-positionings. During these observations, the team noted that station personnel were very consistent in their use of the error prevention tools that had been established by their HPIP and that the number and nature of the tools being used was commensurate with the potential significance of any mis-positioning that could occur. Although the corrective actions for a previous significant condition adverse to quality have not been totally effective at curtailing the frequency of component mispositionings, the significance of component mispositionings has lowered to a level where the mitigating systems cornerstone attribute has not been negatively impacted. Thus, the team determined that this was a minor issue because Constellation had improved the frequency of use of error prevention tools to limit the actual significance of component mispositionings.

4. Assessment of Safety Conscious Work Environment

a. Inspection Scope

The team members interviewed plant staff, observed various activities throughout the plant, and attended a cross section of meetings to determine if conditions existed that would result in personnel being hesitant to raise safety concerns to their management and/or the NRC. The team also reviewed a sample of investigations performed to address employee and contractor concerns to assess the effectiveness of the employee concerns program (ECP).

b. Findings and Assessments

No findings of significance were identified.

Employee Concerns Program

The team determined that the investigations performed for employee concerns appeared prompt and thorough. The program administrator willingly accepted not only safety concerns, but work place concerns. The threshold for entering concerns in the program appeared appropriately low. Although the reviews did appear thorough, there was a great deal of variability in the level of documentation for some investigations. In some instances, the status of open investigations was not available in the written record although it was available on the computer. In other instance, the basis for the closeout

Enclosure

of certain workplace concerns was not succinctly provided. The specific details of these and other similar issues were discussed with the program administrator and the quality assurance manager.

4OA6 Meetings, Including the Exit Meeting

The team presented the inspection results to Mr. George Vanderheyden and other members of licensee management on November 18, 2005. Licensee management acknowledged the results presented. No proprietary information was identified during the inspection.

4OA7 Licensee-Identified Violations

None

ATTACHMENT: Supplemental Information

In addition to the documentation that the inspectors reviewed (listed in the attachment), copies of information requests given to the licensee are in ADAMS, under accession number ML053460412.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

J. Pollack , Plant General Manager
D. Bauder, Operations Manager
J. Sickle, Manager, Nuclear Training
M. Gahan III, Principal Engineer, Equipment Reliability Unit
W. Rummel, Senior Operational Safety Analyst
A. Simpson, Senior Engineer, Calvert Cliffs Regulatory Matters
P. Suter, Operations Maintenance Coordinator
E. Dean, Assistant Operations Manager
M. Seckens, Supervisor of Nuclear Safety Services
K. Crissman, Supervisor E&C, and Human Performance Improvement Lead
T. Huber, Shift Manager
J. Grooms, Shift Manager
J. Gioffre, Control Room Supervisor
G. Getz, Control Room Supervisor
D. Woods, Nuclear Plant Operator
L. Vandersnick, Nuclear Plant Operator
R. Ciabattoni, Nuclear Plant Operator
B. Shobert, Nuclear Plant Operator
W. Tippett, Operating Experience Lead
J. Wynn, Senior Engineer, Primary Systems Engineering
M. Lewis, Senior Engineer, Primary Systems Engineering
M. Dorn, Associate Engineer, Systems Engineering

LIST OF DOCUMENTS REVIEWED

Opened and Closed

05000317, 05000318/2005007-01 NCV Failure to identify and correct unavailability problems for the turbine drive AFW pump. (Section 4OA2.c.2).

Procedures

NO-1-106	Functional Evaluation/Operability Determination, Rev. 10
NS-1-100	Use of Operating Experience, Rev. 7
NS-1-101	Employee Concerns Program, Rev. 0
QL-2-100	Corrective Action Program, Rev 0
EN-1-100	Engineering Services Process Overview
MN-1-101	Control of Maintenance Activities

A-2

MN-1-123	Integrated Work Planning
CNG-CA-1.01-1001	Management Review Committee, Rev. 0
CNG-CA-1.01-1002	Corrective Action Review Board, Rev. 0
CNG-CA-1.01-1004	Root Cause Analysis, Rev. 0
CNG-CA-1.01-1005	Apparent Cause Evaluation, Rev. 0
CNG-CA-1.01-1006	Common Cause Analysis, Rev. 0
CNG-HU-1.01-1001, Rev. 1	“Human Performance Tools and Verification Practices”
CNG-HU-1.01-1002, Rev. 2	“ Pre-Job Briefings and Post-Job Critiques”
CNG-HU-1.01-1003, Rev. 0	“Human Performance Tools For Non-Field Technical Activities”
TR-1-101, Rev 18	“Conduct of Training”
NO-1-106	Functional Evaluation/Operability Determination, Rev. 10
NS-1-100	Use of Operating Experience, Rev. 5
QL-2-104	Self-Assessment, Rev. 3
QL-2-105	Conduct of the Corrective Action Review Board, Rev. 4
QL-2-106	Site Key Performance Indicators, Rev. 0
OI-29	Saltwater System, Rev. 57
OI-32A	Auxiliary Feedwater System, Rev.16
STP-O5A-1	Auxiliary Feedwater System Quarterly Surveillance Test, Rev. 19
STP-O5A-2	Auxiliary Feedwater System Quarterly Surveillance Test, Rev. 18
Pump-12	Turbine Driven Auxiliary Feedwater Pump Overhaul, Rev. 7

Audits and Self-Assessments

RPP-04-01-C	Radiation Protection and Radioactive Materials Management
SPT-04-01-C	Special Processes / Section XI / Testing
ISF-04-01-C	Independent Spent Fuel Storage Installation (ISFSI)
MAP-05-01-C	Maintenance Program
SA200300050-	Operations Department Self Assessment
SA200400042-	Operations Department Self Assessment
SA200400168-	Calvert Cliffs Nuclear Safety Self Assessment\
Audit OPS-04-01-C	Nuclear Plant Operations- QA Audit

Operating Experience Documents Reviewed

OE 18634	Small Fire Under Reactor Feed Pump Turbine
OE 18895	Mihama- Death of a Worker Due To Condensate Rupture
OE 19803	High Initial License Class Failure Rate
OE 19810	Error In Plant Monitoring System Software
OE 20688	“Tin Whiskers” Found On SSPS Circuit Cards

Miscellaneous Items Reviewed

Operations “Work-Around” List- Dated October 6, 2005
Control Room Deficiencies List- Dated October 6, 2005
Active Operability Determinations List- Dated September 29, 2005
Training Lesson Plan- Corrective Action Program Basic Overview
Operations Component Mis-positioning Action Plan

Non-Cited Violations (NCV) and Findings (FIN)

NRC NCV 2003-006-01	IR4-027-075	[IR200300457]
NRC NCV 2004-002-02	IR4-008-006	[IR200400065]
NRC NCV 2004-002-03	IR4-008-997	[IR200400073]
NRC NCV 2004-004-01	IR4-023-638	[IR200400310]
NRC NCV 2004-005-02	IR4-030-055	[IR200400254]
NRC NCV 2004-008-04	IR4-030-176	[IR200400276] special inspection

Condition Reports

IR4-019-491	3R200402451	3R200500940
IR4-019-404	3R200402486	3R200500956
IR4-001-097	3R200500094	3R200501421
IRE-002-678	3R200500529	3R200501440
IRE-003-544	3R200500794	3R200501871
IRE-003-998	IR3-077-073	3R200501951
IRE-004-359	IR3-062-103	IR200300307
IRE-007-196	IRE-001-860	IR200300402
IR200300402	IR4-028-800	IR200400047
IR200400056	IR4-025-059	IR200400198
IR200400066	IR4-028-786	IR200400254
IR200400106	IR4-007-136	IR200400198
IR200400546	IR4-007-137	IR200400053
IR200400564	IR4-002-245	IR200400254
IR200500004	IR4-026-577	IR200400047
IR200500071	IR4-007-138	IR200400053
IR200500151	IR4-034-668	IR200400254
IR200300410	IR4-028-774	IR200300458
IR200400036	IR4-023-561	IR3-072-603
IR200400051	IR4-035-828	IRE-008-095
IR200400089	IR4-028-183	IRE-008-859
IR200400126	IR3-031-076	IRE-008-318
IR200400162	IR3-042-570	IRE-008-142
IR200400186	IR3-054-115	IRE-008-058
IR200400211	IR3-062-103	IRE-006-910
IR200400248	IR3-063-687	IR4-003-606
IR200400251	IR3-075-298	IR4-031-243
IR200400299	IR3-076-835	IRE-006-286
IR200400342	IR3-076-860	IR4-031-267
IR200400402	IR3-077-073	IRE-003-501
IR200400454	IR3-077-124	IR200300409
IR200400458	IR3-084-380	IR200300458
IR200400589	IR3-084-400	IR200400033
IR200500125	IR4-010-076	IR200400111
IR200500185	IR4-010-875	IR200400198

IR200500188	IR4-041-139	IR200400254
IR200500204	IR3-043-669	IRE-004-220
3R200400010	IR3-044-531	IRE-019-658
3R200400310	IR3-048-589	IRE-014-006
3R200400406	IR3-048-642	
3R200400733	IR3-053-642	
3R200400771	IR3-076-976	
3R200400868	IR3-081-274	
3R200401135	IR3-084-379	
3R200401253	IR4-015-857	
3R200401292	IR3-032-391	
3R200401453	IR3-059-054	
3R200401647	IR3-082-917	
3R200401713	IR4-002-760	
3R200401771	IR4-015-052	
3R200401839	IR4-018-247	
3R200402077	IR4-001-896	
3R200402119	IR4-011-627	
3R200402199	IR3-041-489	
3R200402351	IR3-059-099	
3R200402449		
3R200402448		
3R200402450		

Action Item Tracking - Responses

AIT 4B200200042
AIT 4B200200073
AIT 4B200300070
AIT 4B200300125
AIT 4B200300139
AIT 4B200300179
AIT 4B200300184
AIT 4B200300381
AIT IR200400582
AIT IR200500209

Maintenance Orders

0200102212	1200102971	1200204878
0200202140	1200201224	2000101865
1200100846	1200203328	2199501219

2199601549	2200404545
2199700837	2200200685
2200003755	2200101441
2200100609	2200302891
2200100610	2200400612
2200101305	2200400728
2200102726	2200400310
2200102951	1200401033
2200103805	1200400448
2200103815	2200304932
2200203698	2200102181
2200203963	1200401980
2200302231	1200303236
2910542001	1200402911
2910542101	2200400444
	2200401217
	2204016770
	2200403496
	1200501254
	2200304260
	2200401216
	2200401173
	2200303845
	1200401591
	2200302811

Drawings

62708SH0002	Circulating Water Cooling System, Rev. 95
62708SH0003	Circulating Water Cooling System, Rev. 7
62706SH0002	Service Water Cooling System Auxiliary Building/Containment, Rev. 64
60730SH0001	Chemical and Volume Control System
60730SH0002	Chemical and Volume Control System
60730SH0003	Chemical and Volume Control System
62731SH0003	Safety Injection and Containment Spray Systems, Rev. 39
63024	Single Line Diagram 125 DC Vital System Bus 21
61025	Single Line Diagram 125 DC Vital System Bus 12 and 22
61024	Single Line Diagram 125 DC Vital System Bus 11
60583SH0002	Auxiliary Feedwater System (Steam), Rev. 60
60583SH0002	Auxiliary Feedwater System (Condensate), Rev.0
60727SH0002	Diesel Generator Cooling Water, Starting Air, fuel, & Lube Oil Diesel No. 1B, Rev. 62
60727SH0003	Diesel Generator Cooling Water, Starting Air, fuel, & Lube Oil Diesel No. 2B, Rev. 50
60727SH0001	Diesel Generator Cooling Water, Starting Air, fuel, & Lube Oil

60738SH0001	Diesel No. 2A, Rev. 59
60738SH0002	Area and Process Radiation Monitoring System, Rev. 66
	Area and Process Radiation Monitoring System, Rev. 21

Operating Experience Review

Information Notice 94-03	Deficiencies identified during SW operational inspections
Information Notice 03-02	Recent Experience with Reactor Coolant System Leakage and Boric Acid Corrosion
Information Notice 02-36	Incomplete or Inaccurate Information Provided to the License and/or By Any Contractor or Subcontractor Employee
Information Notice 03-08	NRC Potential Flooding Through Unsealed Concrete Floor Cracks
Information Notice 02-27	Recent Fires at Commercial Nuclear Power Plants in the United States
Information Notice 02-18	Effect of Adding Gas Into Water Storage Tanks on the Net Positive Suction Head for Pumps
Information Notice 03-15	Importance Of Followup Activities In Resolving Maintenance Issues

Miscellaneous

Letter: Response to Inspection Report Nos. 50-317/89-200; 50-318/89-200 (Special Team Inspection), June 21, 1989

Letter: Implementation of Computerized Trending of Surveillance Data, dated April 4, 1990

Letter: Response and Supplemental Responses to NRC Bulletin 88-04, "Potential Safety-Related Pump Loss," dated July 5, 1988, December 21, 1988, and August 22, 1989

Letter: Nuclear Logistics Inc to Mr. G. Dare CCNPS , 10/31/03, documenting safety function of 125 VDC post seal components

Letter: Calvert Cliff Response to 10 CFR 21 Notification (ABB Breakers), dated May 13, 2002

Memorandum: February 10, 2000 Maintenance Rule Expert Panel Meeting Minutes, 2/17/00

Memorandum: Designation of Surveillance Test Coordinator and Functional Surveillance Test Coordinators per EN-4-104, Surveillance Testing, 4/10/02

CARB Meeting Minutes of 10/23/03 and 10/28/03

Maintenance Indicators for October 2003

Maintenance Rule Scoping Document - System 015 - Rev. 21

Corrective Action Program Performance Indicator Index July and August, 2003

System Health Report- Salt Water

System Health Report- Component Cooling Water

System Health Report- Service Water

System Health Report - 125 Vdc

System Health Report - 120 Vac

System Health Report - Reactor Coolant System

Calvert Cliffs Industrial Safety Manual, Rev. 4,

Component Manipulation Form CM-03-186, Unit 1

Component Manipulation Form CM-03-153, Unit 2

Operability Determination OD No. 03-004, Intake Structure Fire Detection

Equipment Reliability Improvement Project (ERIP) Plan

ERIP Plant Health Committee Charter, September 17, 2002
ERIP Steering Committee Charter, March 15, 2003
Plant Health Committee - Outstanding Equipment Reliability Issues, 11/7/03
Plant Health Committee Meeting Minutes: 6/5/03, 7/22/03, 7/24/03 8/7/03, 8/28/03, 9/5/03
ES200200752, Request for Alternate Mounting of Trico Oiler (9/10/02), Rev. 0
Final Response to NRC Generic Letter 89-13, Service Water system problems affecting safety-related equipment, dated June 30, 1994
UFSAR Section 9.5, Cooling Water Systems
CARB Meeting Minutes of 10/31/05 and 11/02/05
Maintenance Rule Scoping Document - System 036A - Rev. 24
Maintenance Rule Scoping Document - System 064B - Rev. 24
Plant Health Committee Issues List
Plant Health Committee Issues List Coming Due
Plant Health Committee Meeting- 11/01/2005
System Health Report-Process Rad Monitor RCS Leak Detection Inside Containment
System Health Report- Process Rad Monitor Gaseous Effluent Radiation Monitor
System Health Report- Process Rad Fuel Handling Accident Monitors
System Health Report- Auxiliary Feedwater System Unit 1
System Health Report- Auxiliary Feedwater System Unit 2
System Health Report - Reactor Coolant Pump Unit 1
System Health Report - Reactor Coolant Pump Unit 2
Equipment Reliability Improvement Project (ERIP) Plan
PM Deferral Request #0200501199/10010020 - Overhaul 500Kv Disconnect Switch 0DISC589-42B
PM Deferral Request #1200501833/10030059 - Replace / Test the P-13000-1 Fault Press Device
PM Deferral Request #1200501831/10030068 - Wire Chack from XFMR CNTRL Cabinets
Final Response to NRC Generic Letter 89-13, Service Water system problems affecting safety-related equipment, dated June 30, 1994
UFSAR Section 6.9, Auxiliary Feedwater Pump Room Emergency Cooling
UFSAR Section 7.10, Auxiliary Feedwater Actuation System
UFSAR Section 10.3, Auxiliary Feedwater System
Vendor Technical Manual #15002-027 - Automatic Recirculation Control Valve
Field Engineering Change #87-115-26 - AFW Enhancements
Engineering Service Package #ES200100390 - 22 TDAFW pump sealant repairs
Byron Jackson Technical Manual #VTD-B580-1032 - DVMX six-stage pump
Calvert Cliffs Top Ten Material Condition List
ler 012991-001-000022891 - Design Error in EGD Air Start System
Parker V-Series Needle Valve Technical Manual for Model #4Z-V4LK-SS

Vendor Information

ITE Technical Manual - 125 Volt DC Distribution Panel
Valtek Technical Manual Maintenance Bulletin Number 10, Rev. 5/87/5M/P
Maintenance Bulletin Number 10, Valdisk Control Valves
Rotary Actuators, Beta Positioners Specifications

LIST OF ACRONYMS

AFW	Auxiliary Feedwater
CAP	Corrective Action Program
CARB	Corrective Action Review Board
CCNPS	Calvert Cliffs Nuclear Power Station
CCW	Component Cooling Water
CEA	Control Element Assembly
CFR	Code of Federal Regulations
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
FIN	Finding
gpm	gallons per minute
HX	Heat Exchanger
IMC	Inspection Manual Chapter
IR	Issue Report
kV	kiloVolt
LCO	Limiting Condition for Operation
LOCA	Loss of Coolant Accident
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
PM	Preventive Maintenance
POSRC	Plant Operations and Safety Review Committee
Q&PA	Quality and Performance Assessment
ROP	Reactor Oversight Process
SDP	Significant Determination Process
STDT	Surveillance Test Data Trending
SW	Service Water
TSP	Thimble Support Plate
UFSAR	Updated Final Safety Analysis Report
VAC	Volts - Alternating Current
VDC	Volts - Direct Current