December 19, 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 GENERATING STATION - NRC INSPECTION REPORT NO. 05000317/2003009, 05000318/2003009

Dear Mr. Vanderheyden:

On November 7, 2003, 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 7, 2003, with Mr. Kevin Neitmann 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 samples selected for review, the team concluded that in general, problems were properly identified, evaluated and corrected. There were two green findings identified during this inspection associated with the failure to correct problems in accordance with 10 CFR 50, Appendix B, Criterion XVI (Corrective Action). The findings involved the failure to implement effective corrective actions for repetitive human performance errors and also for repetitive component cooling heat exchanger test failures. These findings were determined to be violations of NRC requirements. However, because of their very low safety significance and because they were entered into your corrective action program, the NRC is treating these findings as non-cited violations, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny these non-cited violations, 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 Regulator Commission, ATTN. Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, U. S. Nuclear Regulator Commission, Washington DC 20555-0001; and the NRC Resident Inspector at the Calvert Cliffs Facility.

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 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/***

Raymond K. Lorson, Chief
Performance Evaluation Branch
Division of Reactor Safety

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

Enclosure: Inspection Report No. 05000317/2003009, 05000318/2003009
w/Attachment: Supplemental Information

cc w/encl:
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REGION I

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| Docket Nos: | 50-318, 50-318 |
| License Nos: | DPR-53, DPR-69 |
| Report Nos: | 05000317/2003009, 05000318/2003009 |
| Licensee: | Calvert Cliffs Nuclear Power Plant, Inc. |
| Facility: | Calvert Cliffs Nuclear Power Plant |
| Location: | 1650 Calvert Cliffs Parkway<br>Lusby, MD 20657-4702 |
| Dates: | October 20 - 24 and November 3 - 7, 2003 |
| Inspectors: | Stephen Pindale, Senior Reactor Inspector (Team Leader)<br>Harold Eichenholz, Senior Reactor Inspector<br>Frank Arner, Senior Reactor Inspector<br>Joseph O'Hara, Resident Inspector<br>Brice Bickett, Reactor Inspector |
| Approved by: | Raymond K. Lorson, Chief<br>Performance Evaluation Branch<br>Division of Reactor Safety |

Enclosure

## SUMMARY OF FINDINGS

IR 05000317/2003-009, IR 05000318/2003-009; 10/20/03 - 11/07/03; Calvert Cliffs Nuclear Plant, Units 1 and 2; biennial baseline inspection of the identification and resolution of problems. Two violations were identified in the area of corrective actions.

This inspection was conducted by four regional inspectors and a resident inspector. The inspection identified two Green findings that were non-cited violations. 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 the licensee was generally effective at identifying discrepant conditions at an appropriate threshold and entering them into the corrective action program. Once entered into the system, issues were usually prioritized appropriately and in a timely fashion, and were evaluated in adequate detail commensurate with the safety significance. Overall, the evaluations reasonably identified the causes of the problem, the extent of the condition, and provided for corrective actions to address the causes. However, in some cases, the corrective action program was not being used effectively and consistently to resolve and prevent problems. There were some instances where issue reports were characterized at a lower category than prescribed by the corrective action program. Further, the team identified some instances where issue evaluations, as well as the associated corrective actions, were not effective in resolving problems. On the basis of interviews conducted during the inspection, workers at the station felt free to input safety findings into the corrective action program.

**Cornerstone: Mitigating Systems**

- Green. The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," which requires that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected; and for significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude recurrence. A significant condition adverse to quality involving several component mispositioning events associated with several safety-related systems occurred between January 2002 and October 2003, and effective measures were not implemented to determine the cause of the problem and to preclude recurrence.

  This finding is greater than minor because it affected the human performance attribute and the availability, reliability, and capability objective of the mitigating system cornerstone. In particular, some of the events involved mispositioning components in safety-related mitigating system components, such as a diesel generator, an auxiliary

feedwater system steam driven pump, and a salt water system pump. This finding was determined to be of very low significance (Green) since an actual loss of the safety system function had not occurred as a result of these mispositionings (Section 4OA2c).

- Green. The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," which requires that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. The licensee failed to take appropriate corrective actions in a timely manner to address and correct repeat component cooling water heat exchanger (CCWHX) saltwater system test failures.

  This finding is greater than minor because the reduced CCWHX flowrates affected the availability and reliability of long term heat removal equipment and the objective of the mitigating systems cornerstone. These repetitive failures resulted in an increased unavailability of the CCWHX and decreased the reliability of the CCW system to mitigate design basis events. This finding was determined to be of very low significance (Green) since an actual loss of the safety system function had not occurred as a result of the lower than required flowrates (a subsequent engineering evaluation determined that the degraded CCWHX flowrates did not represent an actual loss of the CCW safety function, based on actual intake temperatures and conditions) (Section 4OA2c).

Report Details

## 4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution

a. Effectiveness of Problem Identification

(1) Inspection Scope

The inspection team reviewed the procedures describing the corrective action program (CAP) at the Calvert Cliffs Nuclear Power Plant. The team reviewed items selected from various licensee processes and activities to determine if personnel were properly identifying, characterizing and entering problems into the CAP for evaluation and resolution. The licensee's formal CAP utilizes issue reports (IRs) to identify and document problems at Calvert Cliffs. The team selected IRs to cover the seven cornerstones of safety identified in the NRC Reactor Oversight Process (ROP). In addition, the team considered risk insights from the individual plant examination report and the probabilistic risk assessment to focus the sample selection and system walkdowns on risk significant components. The IRs are classified by category (I, II, and III), with Category I requiring the most rigorous review due to higher safety and/or risk significance.

The team reviewed logs, control room deficiencies, operator work-arounds, system health reports, temporary modifications, operating experience reviews, and procedures. The team selected items from the licensee's maintenance, operations, engineering, emergency planning and oversight processes to verify that the licensee appropriately considered problems identified in these processes for entry into the CAP. In addition, the team interviewed plant staff and management to determine their understanding of and involvement with the CAP. The specific documents reviewed and referenced during the inspection are listed in the attachment to this report.

The team reviewed a sample of quality and performance assessment audits and assessments, as well as departmental and program self-assessments. This review was to determine whether problems identified by these evaluations were entered into the CAP, and whether the corrective actions were properly completed to resolve the self-identified deficiencies. The team evaluated the effectiveness of the audits and self-assessments by comparing the associated results against self-revealing and NRC-identified findings.

The team conducted several plant walkdowns of safety-related, risk significant areas to determine if observable system equipment and plant material adverse conditions were identified and entered into the CAP. Team members attended daily review and management meetings where IRs were reviewed for screening and assignment. The team attended these meetings to understand the threshold for identifying problems and to assess management involvement with the CAP. The team also assessed the interface between the CAP and the work control process.

(2) Findings and Observations

No findings of significance were identified.

The team determined that the licensee was generally effective at identifying discrepant conditions and initiating IRs where appropriate. Notwithstanding, the team identified two examples where the licensee failed to formally identify conditions adverse to quality and enter them into the CAP. These examples involved the failure to implement and maintain a surveillance test data trending (STDT) program as required by a plant procedure and the failure to implement an inspection program for the 125 Vdc buses and control centers in accordance with vendor recommendations. These two minor issues involved examples where the licensee attempted to resolve issues outside of the established CAP.

Surveillance Test Data Trending Program

The team reviewed the 125 Vdc system health report and interviewed plant personnel and learned that surveillance test results were not being trended as required by station procedure EN-4-104, "Surveillance Testing." This program had not been maintained since November 2002 due to personnel re-assignments and difficulties in maintaining the associated data management system. The team found that although the licensee was aware of this deficiency and actions were being taken to address the issue, an IR was not generated to document the performance deficiency so that it would be included in the CAP. In response to this concern, the licensee generated IR4-016-833 to enter the issue into the CAP. The failure of the licensee to maintain the STDT program in accordance with procedure EN-4-104 and to enter the self-identified deficiency into the CAP is a performance deficiency. The failure to maintain the STDT program was considered minor. Subsequently, program coordinators and system managers reviewed applicable test results to identify potential adverse system performance trends.

Preventive Maintenance for the 125 Vdc Buses and Control Centers

The team found that the licensee did not conduct periodic inspections of the 125 Vdc DC control centers and buses as recommended by the equipment vendor. The licensee stated that the recommended inspections are difficult to perform because the four 125 Vdc system buses provide power for both units. These 125 Vdc buses have been energized since the initial start-up of the buses (circa 1975 for Unit 1, 1977 for Unit 2). The 125 Vdc system health report identified the need to verify the condition of the bus connections that could not be checked while the bus was energized.

Some of the components on the DC buses have received preventive maintenance (PM), which included limited electrical checks on some bolted connections. However, there are many other bolted connections on the buses and control centers that have not been inspected due to the need to remove metal panels on the energized equipment. The vendor manual for the buses and control panels recommended a yearly inspection of the equipment to include a careful inspection of all visible electrical joints and terminals in the electrical bus and wiring. Although the licensee had instituted limited use of

thermography on the 125 Vdc disconnect panels, the need to develop an appropriate PM program for this equipment had not been addressed. Further, the team determined that the licensee's staff was aware of this issue but had not entered it into the CAP for resolution. The licensee subsequently entered this issue into the CAP as IR4-016-833.

The failure to incorporate vendor recommendations into the PM program for the equipment in the 125 Vdc System was a performance deficiency. However, this problem did not represent a violation of regulatory requirements, and the inability to conduct PM activities in accordance with the vendor recommendations has not affected system performance. Accordingly, this item was characterized as a minor finding.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The team reviewed the IRs 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. The team selected the IRs to cover the seven cornerstones of safety identified in the NRC Revised Oversight Program. A portion of the items chosen for review were those that were age dependent (e.g., boric acid accumulation, equipment aging), and, accordingly, the scope of review was expanded to five years. The team also considered risk insights from the Calvert Cliffs probabilistic risk assessment to help focus the inspection sample. Throughout the inspection, the team attended periodic meetings to observe the IR review process and to understand the basis for assigned significance and root cause levels.

The team selected a sample of IRs 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 evaluation of industry operating experience for applicability to Calvert Cliffs. The team also reviewed the licensee's assessment of equipment operability and reportability requirements associated with IRs.

(2) Findings and Observations

No findings of significance were identified.

The team determined that, in general, the licensee adequately prioritized and evaluated the issues and concerns entered into the CAP. Personnel were generally effective at classifying and performing operability evaluations and reportability determinations for discrepant conditions. However, the team noted some examples where IRs were classified at a lower category than prescribed. For example, an adverse trend in human performance (discussed in Section 4OA2.c.1) and a 1B emergency diesel generator (EDG) breaker failure (discussed in NRC Inspection Report 2003-002) were characterized as Category II versus Category I conditions.

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The team reviewed the corrective actions associated with selected IRs to determine whether the actions addressed the identified causes of the problems. The team also reviewed the licensee's timeliness in implementing corrective actions and their effectiveness in precluding recurrence of significant conditions adverse to quality. 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.

(2) Findings and Observations

The team identified two instances where the licensee failed to implement adequate corrective actions. The first example was associated with component mispositioning events, including those on safety-related systems. The second example involved the failure to meet the minimum design basis saltwater system flowrate to the component cooling water heat exchangers. These two issues are described in detail below. Also, the team identified a minor violation where seven control element assembly extension shafts were damaged after the reactor head was set in place.

.1 Mispositioning Events

Introduction. The team identified a Green NCV for the failure to establish appropriate corrective actions in a timely manner for component mispositioning events as required by 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action."

Description. During the period between January 7, 2002, and October 28, 2003, there were a total of 45 events entered into the CAP that involved the mispositioning of components. The majority of these events involved operations department personnel and were related to human performance issues. The licensee's performance goals in this area had not been met since January 2003, and on February 18, 2003, the operations department identified an adverse trend due to four such events occurring within a 10-day span. Category II IR4-015-716 was issued for this adverse trend and an evaluation was performed to determine the causal factors and planned corrective actions. The IR resolution document dated April 26, 2003, evaluated a total of eight mispositioning events (between August 2002 and March 2003), and identified several causes for these events including: not meeting expectations; weak or non-existent activity briefs; and procedure non-compliance. Two of these eight events had been classified as Category II IRs. One involved a severe water hammer in the Unit 1 condensate system and the other event resulted in a loss of a power supply in the Unit 2 auxiliary feedwater (AFW) steam driven train (flow control valves failed open). Actions were taken to address the causal factors and the licensee closed this IR closed on April

29, 2003. The team noted that the operations department had implemented some additional corrective actions (outside of the CAP) in response to this adverse trend.

The team observed that the evaluation did not address several relevant mispositioning events that had occurred before and after the time frame covered by IR4-015-716. Prior Category II IRs included mispositioning of the 22 charging pump vents on January 19, 2002, which resulted in contamination of the pump room and a minor reactor coolant inventory loss; and two unplanned automatic starts of the 1B diesel generator during planned testing on June 24, 2002. There were 19 mispositioning IRs initiated since IR4-015-716 was closed on April 29, 2003, some of these events involved safety-related equipment. As a recent example, on October 8, 2003, the No. 21 saltwater system pump discharge flow path was inadvertently isolated and the pump was operated for a period of 7 minutes (IR4-024-081). A subsequent operability determination was performed which concluded that this event did not result in any damage to the pump.

Procedure QL-2-100, "Issue Reporting and Assessment," specified that an adverse trend of Category II issues should result in a new Category I IR. A Category I IR would have resulted in a formal root cause analysis to determine underlying causal factors, corrective actions, preventive actions, and an effectiveness evaluation. The team noted that a Category I IR had not been initiated prior to the inspection and also that actions to resolve the adverse trend in human performance errors that existed from January 2002 to October 2003 had not been effective. The team examined an industry peer review and a licensee self-assessment and noted that these documents identified similar issues related to the quality of root cause evaluations for human performance errors as well as problems related to effective use of the CAP.

Analysis. The team determined that the adverse trend associated with the several safety-related mispositioning events constituted a significant condition adverse to quality, and the licensee's failure to take appropriate and timely corrective actions to resolve this trend was a performance deficiency. In particular, some of the events involved the mispositioning of components in mitigating systems, such as the diesel generator, the AFW system, a charging pump, and a salt water system pump. This finding is greater than minor because it affected the human performance attribute and the availability, reliability, and capability objective of the mitigating system cornerstone.

This finding was assessed in accordance with NRC Manual Chapter 0609, Appendix A, Attachment 1, "Significance Determination Process for Reactor Inspection Findings for At-Power Situations," and was determined to be of very low safety significance (Green) since none of the events resulted in the actual loss of a system safety function. Therefore, this issue screened out of the Phase 1 SDP as a Green finding.

Enforcement. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected; and for significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude recurrence. Contrary to the above, a significant condition adverse to quality involving several component mispositioning events associated with

safety-related systems existed during the period between January 2002 and October 2003, and prompt, effective corrective actions were not taken to preclude recurrence. Because the individual mispositioning events were of very low safety significance and were entered into the licensee's CAP (IR4-016-119), this violation is being treated as a non-cited violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy. **NCV 05000317; 05000318/2003009-01, Failure to prevent the recurrence of a significant condition adverse to quality involving mispositioning events.**

.2 Component Cooling Water (CCW) Heat Exchanger Test Failures

Introduction. The team identified a Green NCV related to the licensee's failure to take appropriate corrective actions in a timely manner to correct repetitive, degraded component cooling water heat exchanger (CCWHX) performance as required by 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action."

Description. On August 13, 2003, the 12 CCWHX failed to achieve its design basis saltwater flow rate and the issue was entered into the CAP as IR4-022-457. The team noted through a review of previous IRs, that during the time period between December 2001 and August 2003 there had been seven additional failures of CCWHXs to achieve the design saltwater system flow rates. Most of these failures had occurred on the Unit 1 CCWHXs, with a few occurring on Unit 2. Operating Instruction (OI)-29, "Saltwater System," required that a minimum amount of saltwater flow through the CCWHXs be maintained during all accident conditions. This requirement was developed to ensure that the Updated Final Safety Analysis Report (UFSAR) required flow (6316 gpm) would be achieved to ensure that the CCWHX would be capable of removing the design basis heat load during the recirculation phase following a loss of coolant accident (LOCA).

The licensee performs this flow verification weekly via a system operating procedure to ensure that the required flow can be met. The team noted that on the eight occasions within the last two years when the flowrate was unacceptable, the associated CCW train was declared inoperable, and the CCWHX was removed from service and cleaned. The cause for the degraded flowrate was attributed to fouling of the CCWHX due to the buildup of silt and biological organisms. The team identified that the licensee had been initiating IRs to document when the flow verification procedure resulted in flowrates below the design basis value. However, no causal analysis had been performed within the CAP to identify and correct the repetitive performance problem. On July 24, 2003, after a failure of the 11 CCWHX to achieve its minimum required flowrate, the licensee missed the opportunity to perform a causal analysis in accordance with their CAP program and, therefore, did not identify or correct the issue as evidenced by another failure of a CCWHX (12) on August 13, 2003. Procedure QL-2-100, "Issue Reporting and Assessment," describes an IR Categorization Guide and suggests that an adverse trend of Category III issues requires a causal analysis and preventive actions. The failure of the 11 CCWHX was the seventh documented (Category III) failure of CCWHXs at the site to achieve design flowrates since December of 2001.

Analysis. The team determined that the failure on August 13, 2003, of the 12 CCWHX to achieve its required flowrate was a repetitive failure. The failure constituted a condition adverse to quality in that there was an actual nonconformance with regard to achieving the minimum required licensing basis flowrate. The team determined that the licensee's failure to identify effective corrective actions to prevent the repeat flowrate failures was a performance deficiency. This finding is greater than minor because the reduced CCWHX flowrates affected the availability and reliability of long term heat removal equipment and the objective of the Mitigating Systems cornerstone. Repeated failures of the CCWHX flowrate verification increased the unavailability of the affected CCWHX. The inspectors determined that the licensee's actions for this problem (i.e. clean the CCWHX) would not be successful due to the expected radiation levels during certain accident conditions.

This finding was assessed in accordance with NRC Manual Chapter 0609, Appendix A, Attachment 1, Significance Determination Process for Reactor Inspection Findings for At-Power Situations, and was determined to be of very low safety significance (Green). Although the team assessed only the August 13, 2003, occurrence in the SDP, that one was representative of all eight examples where the CCWHX saltwater flowrate failed to achieve the design value. In response to team questions, the licensee completed an operability determination, which concluded that the degraded flowrate of the 12 CCWHX on August 13, 2003, did not represent an actual loss of the CCW safety function, based on actual intake temperatures and conditions at the time. In addition, the finding did not represent a potentially risk significant condition due to any postulated external initiating event. Therefore, this issue screened out of the Phase 1 SDP as a Green finding.

Enforcement. The August 13, 2003, failure of the 12 CCWHX to achieve its minimum design flowrate was the eighth failure of a station CCWHX to meet its minimum licensing bases flowrate since December of 2001 and the licensee had not implemented any actions to resolve this problem. Title 10 to CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires that measures be established to assure that conditions adverse to quality are promptly identified and corrected. Contrary to the above, the licensee's failure to implement effective actions to prevent the repetitive failures of the CCWHX's was determined to be a violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action." Because the failure of the 12 CCWHX to achieve its minimum design flowrate was determined to be of very low safety significance and has been entered into the licensee's CAP (IR4-003-186), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy. **NCV 05000317; 05000318/2003009-02, Failure to identify and correct repeated failures of CCWHX saltwater flow verification.**

.3 Control Element Assembly Extension Shaft Damage

In March 2003, seven control element assembly (CEA) extension shafts were damaged after the reactor head was set in place as a foreign material control measure (fuel remained offloaded from the reactor). The licensee documented this in IR4-013-662. The seven extension shafts apparently were inadvertently lifted as the thimble support

plate (TSP) was lifted previously during reactor vessel disassembly in February 2003. About a year earlier, IR3-063-677, a Category III IR, identified one extension shaft was sitting too high, and noted that it could have caused reactor vessel internal problems, but the issue was "corrected on the spot" and no further actions were recommended or taken. Further, during the February 2003 disassembly activities, there were abnormal indications apparent during the TSP lift (when the seven shafts were apparently lifted) such that the break-away and dynamic loads were atypical. However, no IR was written and no action was taken. The team concluded that the TSP manipulation procedures were not sufficiently adequate to either prevent or identify this adverse condition. The team determined this to be a minor violation of 10 CFR 50, Appendix B, Criterion V, "Procedures," in accordance with the guidance provided in IMC 0612, Power Reactor Inspection Reports, Appendix B, Section 3, Issue Screening; the failure to implement an adequate procedure and correct a prior similar event had little or no safety impact. Notwithstanding the minor significance of this issue, the licensee missed several opportunities to prevent this event by effective use of the CAP.

d. Assessment of Safety Conscious Work Environment

(1) Inspection Scope

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.

(2) Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

The team presented the inspection results to Mr. Kevin Neitmann and other members of licensee management on November 7, 2003. Licensee management acknowledged the results presented. No proprietary information was identified during the inspection.

**ATTACHMENT 1**

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensee Personnel

J. Carroll, POSRC Chairman and Plant General Manager's Assistant
G. Dare, Systems Manager, 124Vdc and 120 Vac
J. Desano, Systems Manager, Fire Protection
M. Gahan III, Supervisor, Issues Assessment Unit
C. Faller, Principal Engineer, Engineering Programs Unit
M. Geckle, Operations Manager
D. Holm, Manager, Nuclear Maintenance
D. Lauver, Principal Engineer, Primary Systems

D. McElheny, System Manager, Primary Systems
P. Furio, Supervisor, Calvert Cliffs Regulatory Matters
B. Scott, Mechanical Engineering Consultant, Mechanical/Civil Engineering Unit
J. Gines, Mechanical Engineering Consultant, Auxiliary Systems Engineering Unit
S. Dean, Principal Engineer, Auxiliary Systems Engineering Unit
S. Loeper, Mechanical Engineering Consultant, Auxiliary Systems Engineering Unit
M. McMahon, Engineering Analyst, Fix It Now Team - Engineering
K. Neitmann, Plant General Manager
W. Rummel, Senior Operational Safety Analyst
A. Simpson, Senior Engineer, Calvert Cliffs Regulatory Matters
P. Suter, Operations Maintenance Coordinator
R. Szoch, General Supervisor, Plant Engineering Unit
L. Williams, Systems Manager, 4kVSystems
H. Winter, Sr. Engineering Analyst, Fix It Now Team - Engineering

## LIST OF DOCUMENTS REVIEWED

Opened and Closed

| | | |
|---|---|---|
| 05000317, 05000318/2003009-01 | NCV | Failure to prevent the recurrence of a significant condition adverse to quality involving mispositioning events (Section 4OA2.c.1). |
| 05000317, 05000318/2003009-02 | NCV | Failure to identify and correct repeated failures of CCWHX saltwater flow verification (Section 4OA2.c.2). |

## LIST OF DOCUMENTS REVIEWED

Procedures

| | |
|---|---|
| EN-4-104 | Surveillance Testing, Rev. 5 |
| NO-1-106 | Functional Evaluation/Operability Determination, Rev. 10 |
| NS-1-100 | Use of Operating Experience, Rev. 5 |
| QL-2-100 | Issue Reporting and Assessment, Rev. 17 |
| QL-2-101 | Causal Analysis, Rev. 7 |
| QL-2-102 | Action Item Subsystem, 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 |
| RV-17 | Upper Guide Structure (UGS) Lift-rig Installation and UGS Removal, Rev. 26 |
| RV-18 | UGS Installation and UGS Lift-Rig Removal, Rev. 22 |
| OAP 91-8 | Operations Administrative Policy - Guidelines: Operations Self Assessment Program, Change 22 |
| OAP 93-7 | Operations Administrative Policy - Guidelines: Control Room Deficiency Reduction Program, Change 6 |
| OAP 94-7 | Reduction Program for Operator Workarounds, Change 3 |
| OI-17C-2 | Reactor Coolant Waste Receiver Tank Operation, Rev. 5 |
| OI-2A | Chemical and Volume Control System, Rev. 43 |
| OI-29 | Saltwater System, Rev. 49 |
| STP-O-8A-2 | Surveillance Test Procedure for Test of 2A DG and 4 KV Bus 21 LOCI Sequencer, Rev. 22 |

Audits and Self-Assessments

Q&PA Surveillance Report No. 2003-047
Q&PA Surveillance Report No. 2003-061
Q&PA Surveillance Report No. 2003-067
Q&PA Surveillance Report No. 2003-102
Q&PA Surveillance Report No. 2003-098
Self-Assessment SA200200249, Site Deficiency Tag Audit
Self-Assessment SA200200070, Nuclear Safety (10/22/02 - 10/25/02)
Self-Assessment SA200200151, Radioactive Contamination Control (12/17/02)
Operations Self-Assessment Report 3rd Quarter 2003 (6/16/03 - 9/15/03)
Report From Technical Specialist on CCNPP's Corrective Action Program (7/25/03)

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

| | |
|---|---|
| NCV 03-02-01 | Failure to Make EAL Classification During Drill and Critique Deficiencies (IR4-016-290) |
| NCV 03-02-02 | Inadequate Corrective Actions to Prevent 4kV Breaker Auxiliary Switch Failure (IR4-003-460) |
| FIN 03-03-01 | Human Performance Error During Turbine Governor Valve Troubleshooting (IR4-019-941) |

Issue Reports

| | | | | |
|---|---|---|---|---|
| IR0-042-007 | IR3-073-690 | IR4-008-665 | IR4-014-287 | IR4-019-956 |
| IR1-039-713 | IR3-074-417 | IR4-008-809 | IR4-014-321 | IR4-019-999 |
| IR2-001-847 | IR3-075-129 | IR4-008-811 | IR4-014-741 | IR4-020-031 |
| IR3-014-322 | IR3-076-848 | IR4-009-012 | IR4-014-815 | IR4-020-158 |
| IR3-021-873 | IR3-080-069 | IR4-010-076 | IR4-014-881 | IR4-020-253 |
| IR3-029-102 | IR3-081-868 | IR4-010-077 | IR4-014-892 | IR4-020-774 |
| IR3-029-959 | IR3-081-975 | IR4-010-078 | IR4-014-967 | IR4-020-901 |
| IR3-033-489 | IR3-083-140 | IR4-010-324 | IR4-015-052 | IR4-021-784 |
| IR3-034-364 | IR3-084-007 | IR4-010-579 | IR4-015-057 | IR4-021-831 |
| IR3-043-299 | IR4-000-083 | IR4-010-902 | IR4-015-307 | IR4-022-177 |
| IR3-043-575 | IR4-000-166 | IR4-010-936 | IR4-015-702 | IR4-022-294 |
| IR3-044-348 | IR4-000-245 | IR4-011-047 | IR4-015-716 | IR4-022-304 |
| IR3-047-267 | IR4-000-898 | IR4-011-198 | IR4-015-735 | IR4-022-316 |
| IR3-048-632 | IR4-001-659 | IR4-011-222 | IR4-015-832 | IR4-022-431 |
| IR3-050-868 | IR4-002-241 | IR4-011-310 | IR4-015-878 | IR4-022-456 |
| IR3-052-490 | IR4-003-180 | IR4-011-530 | IR4-016-025 | IR4-022-484 |
| IR3-054-124 | IR4-003-241 | IR4-011-551 | IR4-016-119 | IR4-022-823 |
| IR3-056-650 | IR4-003-242 | IR4-011-716 | IR4-016-553 | IR4-022-836 |
| IR3-057-944 | IR4-003-460 | IR4-012-026 | IR4-016-601 | IR4-022-838 |
| IR3-058-216 | IR4-003-462 | IR4-012-769 | IR4-016-650 | IR4-022-929 |
| IR3-058-729 | IR4-003-464 | IR4-012-943 | IR4-016-833 | IR4-023-181 |
| IR3-059-583 | IR4-004-739 | IR4-013-473 | IR4-018-077 | IR4-024-081 |
| IR3-060-777 | IR4-004-834 | IR4-013-662 | IR4-018-652 | IR4-024-805 |
| IR3-062-368 | IR4-004-869 | IR4-013-876 | IR4-018-656 | IR4-024-837 |
| IR3-062-878 | IR4-004-984 | IR4-014-157 | IR4-019-086 | IR5-000-182 |
| IR3-063-677 | IR4-005-576 | IR4-014-159 | IR4-019-561 | IR5-012-782 |
| IR3-064-170 | IR4-006-954 | IR4-014-187 | IR4-019-820 | IR5-023-755 |
| IR3-064-577 | IR4-007-976 | IR4-014-284 | IR4-019-941 | |

Action Item Tracking - Responses

| | |
|---|---|
| AIT 4B200200042 | AIT 4B200300139 |
| AIT 4B200200073 | AIT 4B200300179 |
| AIT 4B200300070 | AIT 4B200300184 |
| AIT 4B200300125 | AIT 4B200300381 |

Maintenance Orders

| | | |
|---|---|---|
| 0200102212 | 2199501219 | 2200102951 |
| 0200202140 | 2199601549 | 2200103805 |
| 1200100846 | 2199700837 | 2200103815 |
| 1200102971 | 2200003755 | 2200203698 |
| 1200201224 | 2200100609 | 2200203963 |
| 1200203328 | 2200100610 | 2200302231 |
| 1200204878 | 2200101305 | 2910542001 |
| 2000101865 | 2200102726 | 2910542101 |

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 |

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

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 |
| 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 |