

U.S. Nuclear Regulatory Commission  
Office of Inspection and Enforcement

Report Nos.: 50-317/85-22; 50-318/85-20  
Docket Nos.: 50-317/318  
License Nos.: DPR-53/69

Licensee: Baltimore Gas and Electric Company  
Charles Center  
Post Office Box 1475  
Baltimore, Maryland 21203

Facility Name: Calvert Cliffs Nuclear Power Plant, Units 1 & 2  
Inspection at: Baltimore and Lusby, Maryland  
Inspection Conducted: September 9-13, 1985

Inspector: G. T. Hubbard 2/6/86  
G. T. Hubbard, Equipment Qualification and Test Engineer Date

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INSPECTION SUMMARY

Inspection on September 9-13, 1985 (Inspection Report Nos. 50-317/85-22;  
50-318/85-20)

Areas Inspected: Announced inspection to review the licensee's Unit 2 implementation of a program as required by 10 CFR 50.49 for establishing and maintaining the qualification of electric equipment within the scope of 10 CFR 50.49. The inspection included evaluations of the Unit 2 implementation of equipment qualification (EQ) corrective action commitments made as a result of deficiencies identified in the December 16, 1982 Safety Evaluation Report (SER) and the October 13, 1982 Franklin Research Center (FRC) Technical Evaluation Report (TER). The inspection also included followup of Unit 1 findings identified during the October 15-19, 1984 EQ inspection. The inspection involved 245 inspector hours onsite.

Results: The inspection determined that the licensee has implemented a program for both Units 1 and 2 to meet the requirements of 10 CFR 50.49 and has taken corrective action on the findings of the previous Unit 1 EQ inspection, except for certain deficiencies listed below. No deficiencies were found in the licensee's implementation of corrective action commitments made as a result of SER/TER identified deficiencies.

Potential Enforcement/  
Unresolved Items

Report  
Paragraph

Item  
Number

- |    |  |            |                                     |
|----|--|------------|-------------------------------------|
| 1. | Qualification of Rockbestos<br>Coaxial Cable   | 4.A.(9)(b) | 50-317/85-22-02;<br>50-318/85-20-02 |
| 2. | Qualification of ASCO Solenoid<br>Valve Model HCX8320A187                                    | 4.D.       | 50-317/85-22-07                     |
| 3. | Qualification of Hatfield Cable  | 4.E.(1)    | 50-317/85-22-10;<br>50-318/85-20-09 |
| 4. | Failure to Comply with Implemented<br>Procedures   | 4.B.(2)    | 50-317/85-22-03;<br>50-318/85-20-03 |
| 5. | Failure to Establish Adequate<br>Maintenance Procedures for<br>Limiter Motor Valve Operators | 4.B.(6)    | 50-317/85-22-06;<br>50-318/85-20-06 |

Open Items:

- |    |  |                         |   |
|----|--|-------------------------|---|
| 1. | Adequacy of Manually Maintained<br>Equipment Maintenance Tracking<br>System                      | 4.A.(5)                 | 50-317/85-22-01;<br>50-318/85-20-01;                      |
| 2. | Depth, Scope, and Technical<br>Expertise of QA/QC Audits   | 4.B.(3)                 | 50-317/85-22-04;<br>50-318/85-20-04                       |
| 3. | Establishment of EQ Training<br>Program  | 4.B.(4)                 | 50-317/85-22-05;<br>50-318/85-20-05                       |
| 4. | Question Relative to How ASCO<br>Valve 1SV3828 Was Installed in<br>Plant Without Being Qualified | 4.D.                    | 50-317/85-22-08;<br>50-318/85-20-07                       |
| 5. | Dirty/Dusty Reliance Motors  | 4.D.                    | 50-317/85-22-09;<br>50-318/85-20-08                       |
| 6. | Revision to Qualification Files  | 4.E.(2) thru<br>4.E.(4) | 50-317/85-22-11<br>thru 13;<br>50-318/85-20-10<br>thru 12 |

Open Item From Previous Inspection:

- |    |  |         |                 |
|----|--|---------|-----------------|
| 1. | Inadequate Control and Storage of<br>Qualification Files | 4.A.(2) | 50-317/84-27-02 |
|----|--|---------|-----------------|

## DETAILS

### 1. PERSONS CONTACTED:

#### 1.1 Baltimore Gas and Electric Company (BG&E)

W. McCaughey, Engineer  
\*R. L. Wenderlich, Senior Engineer  
A. B. Anuje, Supervisor, Quality Assurance (QA)  
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R. B. Snyder, Supervisor, Electrical and Controls (E&C)  
\*K. Sabra, Principal Engineer  
\*R. Olson, Principal Engineer  
\*M. S. Eye, QA Auditor  
\*R. D. Branch, Engineer  
S. Parr, Engineering Technician  
J. G. Sites, Qualification Maintenance Program (QMP) Coordinator  
\*J. A. Tiernan, Manager, Nuclear Power  
\*M. Patterson, Senior Engineer  
J. M. Moreira, General Supervisor, E&C

#### 1.2 BG&E Consultants

R. Bell, Engineer, Bechtel Power Corporation, Gaithersburg, MD

#### 1.3 Nuclear Regulatory Commission

\*C. Anderson, Chief, Plant Systems Section, RI  
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U. Potapovs, Chief, Equipment Qualification Inspection Section, I&E  
D. Trimble, Resident Inspector, RI  
J. A. Schumacher, Reactor Engineer, RI

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\*Denotes those present at the exit interview on September 13, 1985

2. PURPOSE:

The purpose of this inspection was to review the licensee's Unit 2 implementation of the requirements of 10 CFR 50.49 with regard to establishing qualification of electric equipment within the scope of 10 CFR 50.49 and Unit 2 implementation of committed corrective actions for SER/TER identified deficiencies. Also included as a part of the inspection was a followup review of Unit 1 findings identified during the October 15-19, 1984 EQ inspection.

3. BACKGROUND:

On March 16, 1984 the NRC held a meeting with BG&E officials to discuss BG&E's proposed methods to resolve the EQ deficiencies identified in the December 16, 1982 SER and October 13, 1982 FRC TER. Discussions also included BG&E's general methodology for compliance with 10 CFR 50.49 and justification for continued operation (JCO) for those equipment items for which environmental qualification was not completed. The minutes of the meeting and proposed method of resolution for each of the EQ deficiencies were documented in May 14 and July 9, 1984 submittals from the licensee. Additionally, BG&E submitted a request dated February 28, 1985 to extend the operation of Unit 1 to approximately April 5, 1985 and to extend the operation of Unit 2 to the fall 1985 refueling outage. JCOs for specific pieces of equipment for both units were submitted with the request. The TER and May 14, 1984, July 9, 1984, and February 28, 1985 submittals were reviewed by the inspection team members and were used to establish a status baseline for the Unit 2 inspection.

Additionally, inspection team members reviewed Inspection Report No. 50-317/84-27 dated January 29, 1985 to establish what followup actions were required relative to the findings of the Unit 1 EQ inspection conducted October 15-19, 1984.

4. FINDINGS:

A. Followup of October 15-19, 1984 Unit 1 EQ Inspection

The NRC inspectors reviewed the licensee's corrective actions relative to the Unit 1 findings identified during the October 1984 EQ inspection. Since the licensee's EQ program for compliance with 10 CFR 50.49 covers both Calvert Cliffs Units 1 and 2, there was some overlap of the followup activities for Unit 1 and the inspection activities for Unit 2. Where this overlap existed, discussions in the following paragraphs are applicable to the Unit 1 followup activities as well as to Unit 2 inspection activities and the licensee's overall EQ Program.

(1) (Closed) Qualification Files Not Auditable (50-317/84-27-01)

The NRC inspectors reviewed 20 qualification files relative to followup of Unit 1 findings and 26 qualification files for Unit 2. While the inspectors found the files to be generally adequate and auditable, there were specific file

problems which are discussed later in this report (see paragraph 4.E). The specific file problems were discussed with the licensee and the licensee agreed to take appropriate corrective action. In addition to the specific problems, some generic file problems were identified and are discussed in paragraph 4.B.(1). The inspectors determined that the licensee's EQ program, as defined in Electrical Engineering Department Procedure No. 18 (EEDP-18), "Equipment Qualification," Revision 3, dated September 4, 1985, implemented procedures which establish auditable qualification files. The files were found to include completed Qualification Summaries, Qualification Evaluation Worksheets (QEWs), Qualification Report Review Summary (QRRS) sheets, Qualification Maintenance Requirement sheets and other documentation which supported qualification of specific equipment items. The files included references to test reports and other qualification related data which are maintained in central data files. The qualification files reviewed, except for specific cases discussed in paragraph 4.E., documented licensee evaluations and analysis performed relative to specified performance requirements and qualified life. The files documented the licensee's determinations as to whether equipment is qualified and to what environmental parameters it is qualified.

(2) (Open) Inadequate Control and Storage of Files in Accordance with N45.2.9-1974 (50-317/84-27-02)

During the October 1984 inspection, the NRC inspectors determined that the licensee's electric equipment qualification files and records were not controlled and stored as described in ANSI N45.2.9-1974, entitled "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants." A licensee internal audit conducted from September 12-October 9, 1984, had identified similar findings in this area, audit finding 84-24-01. During this inspection, the NRC inspectors determined that the equipment files are centrally located and kept locked during non-working hours. However, discussions with the licensee disclosed that the audit finding is still open pending file microfilming and hard copies being sent to plant history. The licensee further stated that the audit finding would not be closed until November 30, 1985. This item remains open pending NRC review of the duplicate filing system and verification that filing cabinets have the required fire rating to house permanent plant records.

(3) (Closed) Inadequate Implementation of Requirements and/or Procedures for Compliance to 10 CFR 50.49 (50-317/84-27-03)

The NRC inspectors reviewed EEDP-18; EFDP-20, "Control of Calvert Cliffs Equipment Data Bases," dated July 30, 1985; and Calvert Cliffs Instruction 208 (CCI-208), "Qualification Maintenance Program," dated September 9, 1985, to determine that BG&E has implemented procedures to control their

qualification program in accordance with 10 CFR 50.49. Since the major area of concern during the October 1984 inspection related to maintenance procedures, further discussion of procedure implementation is addressed in paragraph 4.A.(5) on maintenance.

- (4) (Closed) Inherent Characteristics in the Facility Change Request (FCR) System which Delay Verification of "As-built" Installations of Qualified 10 CFR 50.49 Equipment (50-317/84-27-04)

During the October 1984 inspection, the NRC inspectors determined that Electrical Engineering Department (EED) verification of "as-built" conditions of qualified 10 CFR 50.49 equipment had a built-in-delay of a minimum of five months that could extend to over a year. The inspectors found this delay to be of concern, since a modified or new piece of equipment could be utilized in a safety-related application for a significant period of time during which its qualification would not have been established nor would it have been included on the 10 CFR 50.49 list. During this inspection, the NRC inspectors determined, through review of qualification files and discussions with BG&E personnel, that the EED was receiving notification of "as-built" conditions for new and modified equipment by documented input from plant site personnel. This documented input is received by EED within a week of equipment installation or modification completion and EED then completes documentation to establish equipment qualification and adds the equipment to the 10 CFR 50.49 list if required.

Additionally the inspectors learned that the licensee is planning a company reorganization (about January 1, 1986) that will involve moving nuclear engineering personnel from corporate offices in Baltimore to the plant site in Lusby. This move of engineering personnel to the plant site is considered an additional step toward further improvement in the "as-built" time delay problems of the FCR system.

- (5) (Closed) No Maintenance Program which Includes Activities Necessary to Maintain the Qualified Status of Qualified Equipment (50-317/84-27-05)

The NRC inspectors reviewed EEDP-18 and determined that section 5.4 requires EQ related maintenance to be included as part of the licensee's EQ program. It requires EQ files to contain the applicable Qualification Maintenance Requirement sheets (QMRs). The QMRs identify equipment tag numbers, manufacturer's name and model number, required EQ maintenance actions, replacement parts, and the required implementation dates. Additionally, the licensee has developed CCI-208 to implement qualification maintenance requirements. The inspectors reviewed CCI-208 and determined that it addresses procedures for implementing qualification maintenance requirements.

The licensee has identified 658 items of equipment which require EQ related maintenance. As part of its qualification maintenance program (QMP), the licensee has a QMP coordinator at the plant site and has developed a "QMP Equipment List and Status Tracking Chart" to track required EQ maintenance, equipment maintenance status, and the dates required maintenance activities are complete for each of the 658 items. The QMP coordinator manually maintains these EQ status tracking charts which are contained in eight notebook volumes to cover the 658 items.

The inspectors reviewed the status tracking charts for four items of equipment (2-SV-618,-628,-638, and -648) and determined that the individual charts contained sufficient detail to define maintenance requirements and keep track of item maintenance status. However, the inspectors did identify a concern relative to overdue maintenance activities. The inspectors determined that due to the volume of items, the manual tracking system, and that there was no simple method (charts, tables, and/or computer printouts) to identify overdue maintenance, the licensee could have difficulty identifying overdue maintenance activities if they existed. The licensee did state that they were planning to computerize the tracking system in the future. While the inspectors did not identify any examples of overdue maintenance activities, this concern is identified as a new open item which will be reviewed during a future NRC inspection (50-317/85-22-01; 50-318/85-20-01.)

(6) (Closed) Overall Compliance to 10 CFR 50.49 (50-317/84-27-06)

The NRC inspectors' review and evaluation of 20 qualification files for Unit 1, 26 qualification files for Unit 2, the licensee's control and storage methods for EQ records and qualification files, the licensee's FCR system, and the licensee's QMP determined that the licensee has implemented an EQ program in compliance with 10 CFR 50.49, except for certain deficiencies discussed in this report. The specific findings described in this report are considered to be isolated instances of noncompliance with the rule and Appendix B to 10 CFR 50 and do not indicate an overall inadequacy in the licensee's program; therefore, this item is considered closed.

(7) (Closed) Resolution of TER/SER Deficiencies (50-317/84-27-07)

The NRC inspectors reviewed 20 qualification files related to Unit 1 and determined that the licensee had adequately resolved the concerns identified in the TER/SER; therefore, there are no outstanding issues remaining relative to the TER/SER (see discussion in paragraph 4.C. relative to Unit 2).



(8) (Closed) Establishment of the Qualified Life of 10 CFR 50.49  
Equipment Located in the Main Steam Piping Penetration Room  
(50-317/84-27-08)

The NRC's concern with this item pertained to the high temperatures observed in the main steam piping penetration room during the plant walkdown of the October 1984 inspection. The inspectors were concerned as to whether the temperatures (reported to be 140 degrees F) were adequately considered in thermal aging calculations to determine qualified life. During this inspection, the inspectors reviewed the qualification files for the equipment located in the piping penetration room and determined that the high ambient temperatures had been adequately addressed when the qualified life of the equipment was established.

(9) Specific File Deficiencies Identified In Report for October 1984  
Inspection

While the report for the October 1984 inspection did not identify specific qualification file findings as open items during this inspection, the NRC inspectors reviewed 20 Unit 1 qualification files to determine if adequate corrective actions had been taken regarding the identified findings. The inspectors determined that actions taken by the licensee were adequate except for the items discussed below:

- a. While the inspectors' review of Limitorque motor operated valve (MOV) qualification packages, TER items 19 and 27 (MOV001 and 002), determined that adequate corrective actions had been taken regarding the identified deficiencies, an additional concern was identified relative to MOV maintenance requirements. This concern is discussed in paragraph 4.B.(6).
- b. The inspectors reviewed the qualification package for CBL031 for Rockbestos RSS-6-104 coaxial cable which is used in the General Atomics high-range radiation monitoring system (HRRMS) and determined that the licensee had not taken adequate corrective action to establish qualification of the cable. During the previous EQ inspection, the licensee was informed that, based on IE Information Notice (IN) 84-44, their file did not support qualification. However the only additional information in the file during this inspection stated that IN 84-44 "is still under review for final resolution. Presently Rockbestos is retesting to satisfy NRC concerns on qualification data/methods. The expected completion of testing for this cable configuration is December 1985. Presently BG&E is attempting to obtain outside test reports providing qualification data, while monitoring the Rockbestos progress." Since these statements did not provide additional information to demonstrate qualification, the licensee was asked to provide

any other information it might have to support qualification. No additional information was provided to the inspectors; therefore, the qualification of this cable is considered not established for the licensee's application as of the time of the inspection. This deficiency is identified as a Potential Enforcement/Unresolved Item (50-317/85-22-02; 50-318/85-20-02).

(10) Information Notice Recommendation

The NRC inspectors reviewed Calvert Cliffs Instruction (CCI) #139, "Organization and Operation of the Plant Operating Experience Assessment Committee (POEAC)," dated February 4, 1985, and the minutes of POEAC Meetings 85-12, 85-14, and 85-17 to evaluate the licensee's actions relative to the NRC recommendation during the October 1984 inspection that a closed-loop system be considered for action items assigned by the POEAC. Based on discussions with the POEAC secretary and review of the POEAC outstanding item lists for the above meetings, the inspectors determined that the licensee was assuring that assigned POEAC action items were being tracked and the POEAC was assuring adequate completion of assigned action items.

B. EQ Program Compliance with 10 CFR 50.49

The NRC inspectors examined the licensee's EQ Program for establishing the qualification of electric equipment within the scope of 10 CFR 50.49. The licensee's program covers the qualification of all 10 CFR 50.49 equipment for both Units 1 and 2. The program was evaluated by review of the licensee's corrective actions for findings identified during the Unit 1 October 1984 EQ inspection, examination of the licensee's qualification documentation files, examination of procedures which control the licensee's EQ efforts, and examination of the licensee's program for maintaining the qualified status of covered electric equipment.

Based on the inspection findings on the followup of the licensee's Unit 1 corrective actions (discussed in paragraph 4.A.) and the Unit 2 inspection findings of this inspection the inspection team determined that the licensee has implemented a program to meet the requirements of 10 CFR 50.49, although five Potential Enforcement/Unresolved Items and eight Open Items were identified.

(1) Qualification Files, General

The NRC inspectors determined that BG&E's implemented program provides for the preparation of qualification documentation files for equipment within the scope of 10 CFR 50.49. The licensee's program which is described in EEDP-18 requires the establishment of qualification files by the EED. These files are the documents which establish qualification for all items of equipment at Calvert Cliffs Units 1 and 2 within the scope of 10 CFR 50.49.

Each qualification file includes the following:

- ° Qualification Summary
- ° Qualification Report Review Summary
- ° Qualification Evaluation Worksheet (QEW)
- ° Qualification Maintenance Requirement Sheet
- ° QMRS Master Log

The NRC inspectors' review and evaluation of 20 qualification files for Unit 1 and 26 qualification files for Unit 2 determined that the files did establish qualification of 10 CFR 50.49 equipment items except for specific cases identified in this report.

During the review of the files, the inspectors identified many instances where changes were made to the files by crossouts, whitenut, and/or other means without any indication as to who made the changes and/or when the changes were made. Qualification files where the above was specifically noted were PT0006, MOV011, MOV001, SEAL03, SEAL05, SV0026, and ZS0021. Since these files are covered by the requirements of paragraph 4.4 of QAP 7, "Records Management," dated July 3, 1985, which requires changes to records identify who makes or approves the change, when the correction was made, and to leave the original information legible, this finding is an example of the licensee's failure to follow procedures as discussed in paragraph 4.B.(2).

(2) EQ Program Procedures

As previously discussed in paragraphs 4(A)(3) and (5), the NRC inspectors determined that the procedure concerns identified during the October 1984 EQ inspection had been addressed and the licensee was implementing procedures to control his EQ activities. Procedure EEDP-18 provides guidelines for the uniform assessment, evaluation, review, and implementation of activities associated with environmental and seismic qualification of 10 CFR 50.49 equipment at Calvert Cliffs. Procedure EEDP-20 is used to control new inputs and changes to the computerized Calvert Cliffs equipment data bases for all electric/instrumentation devices at the Calvert Cliffs plant. Procedure CCI-208 implements requirements for maintaining the qualified status of 10 CFR 50.49 equipment. In addition to reviewing the above EQ program procedures, other licensee procedures were reviewed as they were applicable to the EQ program. These procedures included:

- QAP-7        Records Management
- QAP-14      Plant Maintenance
- QAP-15      Changes, Tests and Experiments
- QAP-20      Training
- QAP-28      Control of Items Covered by the Quality Assurance Program
- EEDP-2      Control of Changes, Tests and Experiments

EEDP-8 Nuclear Related Indoctrination Training and  
Qualification  
EEDP-16 Records Retention

During the inspection activities, the NRC inspectors identified two instances where the licensee did not comply with its implemented procedures. The instances of not complying with procedures are as follows:

- ° The licensee made changes to documentation in its qualification files without complying with the requirements of paragraph 4.4 of QAP-7 (see discussion in paragraph 4.B.(1)).
- ° The licensee's responsible engineer failed to review an FCR for the replacement of a flow control valve as required by paragraph 7.8 of QAP-15 (see discussion in paragraph 4.D.).

The above instances of not complying with implemented procedures is identified as a Potential Enforcement/Unresolved Item (50-317/85-22-03; 50-318/85-20-03).

(3) Quality Assurance/Quality Control

The NRC inspectors' review determined that the quality assurance (QA) organization for BG&E is comprised of a corporate QA organization and a site QA organization. The corporate organization consists of a QA manager who directs the Internal Audits and Programs Unit. This unit is comprised of lead auditors and auditors certified to ANSI N45.2.23 who conduct mostly corporate audits.

At Calvert Cliffs there is an Operation QA General Supervisor who directs the Senior QA Auditor, QA Specialists, Senior Quality Control (QC) Inspectors and QC Inspectors. These personnel perform EQ receipt inspections, maintenance inspections, and at times assist the corporate QA organization in joint audits.

The inspectors reviewed three audits performed by both corporate and site QA organizations in the EQ area. The first audit reviewed was QAG 61-85-05 conducted by the Internal Audits and Program Unit during March-April 1985. This audit was a direct follow-up to the October 1984 NRC inspection. The other two audits QAG 61-85-20 and EQ-26-85 were conducted simultaneously from August 20-29, 1985. The corporate audit consisted of a review of qualification files, status of FCRs, and implementation of CCI-208. The site audit consisted primarily of assuring site implementation of CCI-208.

The inspectors determined from the review of the audit checklists and discussions with the licensee, that the corporate audit (QAG 61-85-20) should have included additional personnel who had expertise in the environmental qualification area, i.e., the inspectors' discussions with the licensee's auditors indicated the following:

- a. EQ files were reviewed for procedural compliance only.
- b. The auditors did not verify that correct parameters such as operating time, temperature, pressure, humidity, and radiation were in accordance with qualification test reports and plant specific design bases accident parameters.

Based on the NRC inspectors' review and evaluation of the three audits and discussion with the licensee, the inspectors were concerned with the depth and scope of the audits as well as the lack of adequate technical assistance during the audit. This item is identified as an open item which will be reviewed during a future NRC inspection (50-317/85-22-04; 50-318/85-20-04).

(4) EQ Training

The NRC inspectors reviewed training requirements for personnel working with EQ equipment. The inspectors determined that an EQ training program had not been established. Although most all technicians and maintenance personnel have attended a lecture given by EQ personnel after program implementation, personnel have received most of their training by on-the-job training (OJT). To date, the licensee has documented the completion of only a one hour lecture on May 6, 1985 in the EQ area relative to the implementation of CCI-208. The establishment of an EQ training program and the completion of training for personnel working in the EQ area is identified as an open item which will be reviewed during a future NRC inspection (50-317/85-22-05; 50-318/85-20-05).

(5) 10 CFR 50.49 List (EQ Master List)

The NRC inspectors did not review the licensee's 10 CFR 50.49 list as a separate aspect of this inspection since the licensee's list covers both Calvert Cliffs Units 1 and 2 and the Unit 1 list was reviewed during the October 1984 inspection with no major findings. The inspectors concluded from their various inspection activities that the licensee's EQ list was comprehensive. The inspectors observed no changes to the list during the inspection as was seen during the previous inspection.

(6) EQ Maintenance Program

Since the licensee's maintenance program encompasses Calvert Cliffs Units 1 and 2, the discussion in paragraph 4.A.(5) concerning maintenance followup of the October 1984 inspection is applicable to Unit 2 maintenance activities. The NRC inspectors' review of qualification files MOV-001, MOV-002, and MOV-011 for Limitorque motor valve operators identified one concern relative to periodic operator cycling. The abstract of Wyle Qualification Report 17467 states in part "Continued qualified operation is maintained with the following provisions:..., A periodic cycling of the valve actuator must be performed at least twice each year to lubricate the operating parts." This maintenance requirement was not addressed in the qualification file, nor were any engineering evaluations performed to determine if this requirement needed to be implemented. The inspectors determined from discussions with the licensee's engineering personnel that most of the qualified Limitorque operators were only operated once per refueling cycle (typically 18 months). Subsequently, the licensee presented the inspectors with a telephone conversation record dated September 13, 1985, concerning a conversation between the licensee and Limitorque. The record stated that "to cycle the Limitorque valve actuators at least twice a year was a recommendation for actuators in long term storage, and was not required for actuators in service." Since this data is in conflict with the Wyle report, the above conflict is identified as a Potential Enforcement/Unresolved Item (50-317/85-22-06; 50-318/85-20-06).

C. SER/TER Commitments

The NRC inspectors evaluated the implementation of Unit 2 EQ corrective action commitments made as a result of SER/TER identified deficiencies. The evaluation was based on the premise that all corrective action commitments had been completed, except for the equipment items for which JCOs were submitted in a February 28, 1985 letter to the NRC. These JCOs were submitted to allow continued operation of Unit 2 until the fall 1985 outage.

Based on the sample review of the qualification files for which there were no outstanding JCOs and the plant physical inspection, the NRC inspectors identified no deficiencies in the Unit 2 implementation of SER/TER commitments.

D. PLANT PHYSICAL INSPECTION

The plant physical inspection consisted of the examination of six types of safety-related equipment located outside containment on either and/or both Units 1 or 2. The inspectors examined characteristics such as mounting configuration, orientation, interfaces, model number, environment, and physical condition.

The NRC inspectors identified several concerns during the physical inspection. One concern was that Unit 1 ASCO solenoid valve 1SV3828 had a different model number than the other inspected valves, which were qualified by qualification file SV0011. The installed valve, located in the component cooling outlet shutdown heat exchanger system, had a model number of HCX8320A187. The other valves inspected had model numbers HPX8320A26. After the physical inspection, the inspectors determined that qualification file SV0011 did not establish qualification of the model HCX8320A187 valve; nor, did the licensee have any other file to establish the qualification of the HCX8320A187 valve. This failure to establish qualification of a valve located in a harsh environment and a safety-related system is identified as a Potential Enforcement/Unresolved Item (50-317/85-22-07).

Additional NRC discussions with the licensee concerning the above determined that the model HCX8320A187 valve was probably installed in April 1985 when the control valve (1CV3828) on which it was mounted was installed as a replacement for another valve. The inspectors further determined that the licensee had failed to follow paragraph 7.8 of QAP 15 which requires that FCRs for "SR-QUAL (environmentally qualified) items" be reviewed by the engineer who has been assigned responsibility for EQ by the manager of EED. No documented evidence of the review was identified by the inspectors and the responsible engineer admitted to the inspectors that he had not reviewed the FCR. This is an example of the licensee failure to follow procedures as discussed in paragraph 4.B.(2).

Additionally the inspectors had questions regarding the HCX8320A187 valve and why the valve was not on the qualification maintenance requirement sheets of CCI-208 and what role QA/QC should have had to prevent the installation of unqualified equipment. Resolution of these questions is identified as an open item (50-317/85-22-08; 50-318/85-20-07) which will be reviewed during a future NRC inspection. Another concern identified by the inspectors was that the Reliance motors, model P14G408NFV (qualification file MTR024) located in emergency core cooling system (ECCS) pump rooms 21 ECCS and 22 ECCS were observed to be dusty/dirty. The inspectors were concerned that the accumulation of dust/dirt could eventually be severe enough to cause motor winding failure. The inspectors recommended to the licensee that the motors be cleaned. This item is identified as an open item which will be reviewed during a future NRC inspection 50-317/85-22-09; 50-318/85-20-08.

#### E. DETAILED REVIEW OF QUALIFICATION FILES

The NRC inspectors examined in depth 26 qualification files for selected Unit 2 equipment types and one new file for Unit 1 equipment to verify the qualified status of equipment within the scope of 10 CFR 50.49. In addition to comparing plant service conditions with qualification test conditions and verifying the bases for these conditions, the inspectors reviewed areas such as required

post-accident operating time compared to the duration of time the equipment has been demonstrated to be qualified, similarity of tested equipment to that installed in the plant (e.g., insulation class, materials of components of the equipment, test configuration compared to installed configuration, and documentation of both), evaluation of adequacy of test conditions, aging calculations for qualified life, and replacement interval determination, effects of decreases in insulation resistance on equipment performance, adequacy of demonstrated accuracy, evaluation of test anomalies, and applicability of EQ problems reported in IE INs/Bulletins and their resolution.

- (1) The NRC inspectors' review of file CBL011 for a 14AWG, Hatfield 3 conductor cable determined that while the licensee was able to resolve (after much discussion) all the inspectors' concerns regarding the file and support cable qualification, the file itself was deficient in some areas. Examples where the file was deficient are:
  - a. The QEW in the file indicated the cable was qualified for submergence applications, however, the file did not support qualification for submergence. The licensee was able to demonstrate, to the inspectors' satisfaction, that the cable was not used in a submerged application; therefore, the cable was qualified for its plant application.
  - b. The file did not document proof of similarity between the installed and the tested cables. The licensee was able to demonstrate similarity with documentation not referenced in the file.
  - c. A reference contained in the file stated that the Hatfield cable was qualified for 40 years at 111.9°C; however, no data, calculations, or specific references were found in the file to support this qualified life. The licensee eventually was able to justify the above qualified life by recalculating thermal aging using material properties given in qualification file CBL012.

The licensee stated that it would revise this qualification file to resolve all the questions identified by the inspectors; however, this lack of documentation in the file is identified as a Potential Enforcement/Unresolved Item (50-317/85-22-10; 50-318/85-20-09).

2. The NRC inspectors review of file CBL029 for Brand-Rex coaxial cable identified three areas that were not addressed adequately in the file. These areas were as follows:



- (a) Data and/or specific references were not identified in the file to provide a comparison between qualification test parameters and actual plant requirements. This item was resolved by additional licensee data provided the inspectors during the inspection.
- (b) The file did not address plant performance requirements of the cable. The licensee resolved this item by referencing qualification file VT0001 for the acoustical monitoring system. File VT0001 documented that the cable was part of the system tested during the acoustical monitoring system qualification tests; therefore, demonstrating adequate performance of the cable in its only safety-related application at Calvert Cliffs.
- (c) The file did not adequately address margins; however, the licensee resolved this issue by data in the VT0001.

The licensee agreed to revise file CBL029 to resolve the above identified file inadequacies. The revision of this file is identified as an open item (50-317/85-22-11; 50-318/85-20-10) which will be reviewed during a future NRC inspection.

3. The NRC inspectors review of file HRRMS1 for the General Atomic high range radiation detector (model RD-23) determined that the file did not adequately address performance requirements and margins as in file CBL029. The licensee was able to resolve the NRC concerns in these areas and agreed to revise the file to reflect resolution of these concerns. The revision to this file is identified as an open item (50-317/85-22-12; 50-318/85-20-11) which will be reviewed during a future NRC inspection.
4. The NRC inspectors' review of files SEAL01 for Raychem heat shrink tubing and SEAL03 for Raychem NEIS conduit sealing kits determined that data in the file supported qualification of the equipment items; however, the files were not finalized pending notification of completion of field work under FCRs 84-1075 and 84-134. Finalization of these qualification files by the licensee is identified as an open item (50-317/85-22-13; 50-318/85-20-12) which will be reviewed during a future NRC inspection.

#### 4.F. IE Information Notices and Bulletins

The NRC inspectors did not review the licensee's system for the review of INs/Bulletins as a separate aspect of this inspection since the licensee's system covers both Calvert Cliffs Units 1 and 2 and this system was reviewed during the October 1984 inspection. Paragraph 4.A.(10) of this report discusses NRC findings relative to one NRC recommendation provided the licensee during the previous EQ inspection. The NRC inspectors' review of qualification files during this inspection identified one finding (see discussion in paragraph 4.A.(9)(b) on Rockbestos cable) relative to inadequate licensee action on one information notice.