U. S. NUCLEAR REGULATORY COMMISSION
REGION 1

Report No. 92-04

Docket Nos. 50-317
50-318

License Nos. DPR-53
DPR-69

Licensee: Baltimore Gas and Electric Company
P. O. Box 1475
Baltimore, Maryland 21203

Facility Name: Calvert Cliffs Nuclear Generating Station, Units 1 and 2

Inspection at: Lusby, Maryland

Inspection Conducted: January 27 - 31, 1992

Inspector: _____ 3/16/92
F. L. Bower Reactor Engineer Date
Performance Programs Section
Operations Branch, DRS

Approved by: _____ 3/16/92
Norman J. Blumberg, Chief Date
Performance Programs Section
Operations Branch, DRS

Inspection Summary: Inspection from January 27 - 31, 1992 (Combined Report Nos. 50-317/92-04 and 50-318/92-04

Areas Inspected: Routine unannounced inspection of the Fire Protection/Prevention Program, including: program administration and organization; administrative control of combustibles and ignition sources; equipment maintenance, inspection and tests; plant tour; training; and periodic inspections and quality assurance audits.

Results: The Fire Protection Program administration was adequate, but the detail contained in the Program Procedures could be improved by providing more detailed implementing procedures. The composition of the fire brigade, with two professional fire fighters and

three non-watchstander operators was considered a program strength. The control of combustible materials was adequate and the control of ignition sources was considered to be good. The plant tour found adequate housekeeping, and good maintenance and material condition for fire fighting, fire suppression and fire detection equipment. Firewatch and general employee fire training was good. However, the lesson plans, student handouts and procedures for training the fire brigade could be improved. QA audits of the Fire Protection Program were appropriate in Scope and Detail.

One violation and one non-cited violation were identified and reviewed during this inspection period. The violation concerned, a failure to implement a procedure (Section 5.2) and the non-cited violation concerned, a failure to provide a prompt corrective action to a QA audit finding (Section 6.0).

Details

1.0 Persons Contacted

Attachment 1 provides a listing of persons contacted during the inspection.

2.0 Fire Protection/Prevention Program (64704)

2.1 Scope

An inspection was performed to review areas important to the health and safety of the public and to determine if the licensee had adequately developed and implemented a fire protection program consistent with the Fire Hazard Analysis (FHA), Final Safety Analysis Report (FSAR), and the Technical Specifications (TS). The inspection included verification of procedure implementation, technical adequacy of programs and procedures, inspection of plant facilities, fire brigade qualification and training, and review of previous licensee audit findings. Surveillances, routine tests and inspections, and other procedures related to fire protection were reviewed with respect to administrative requirements for an effective fire protection program. Attachment 2 contains a list of the documents reviewed during this inspection.

2.2 Program Administration and Organization

Discussions with licensee personnel and a review of Calvert Cliffs Instruction (CCI)-133, "Calvert Cliffs Fire Protection Plan," and the documents in Attachment 2 were conducted to ascertain that:

- Personnel were designated for implementing the fire protection program;
- Qualifications were delineated for personnel designated to implement the program;
- Periodic inspections of the plant were specified to verify compliance with fire protection program requirements;
- Fire reporting instructions for general plant personnel are delineated;
- Periodic audits are conducted on the entire fire protection program;
- Fire protection/prevention program is included in the licensee's Quality Assurance Program;

- Work authorization or similar arrangement is provided for review and approval of modifications and maintenance activities which could adversely affect fire protection and the safety of the facility; and

- Fire brigade organization and qualifications of brigade members are delineated.

CCI-133 contains the Fire Protection Program requirements and the associated implementing instructions. The inspector noted that the level of detail contained in the implementing instructions could be improved. This was especially evident in the area of fire brigade training. Section 5.2 provides additional information on this issue. Discussions with the licensee indicated that CCI-133 will be revised as part of the licensee's ongoing procedure upgrade program. As part of this planned revision, the licensee intends to restructure their fire protection program procedures. The upgraded CCI-133 will include the program level requirements. Additionally, a new level of procedures will be developed to provide more detailed implementing instructions. The inspector reviewed drafts of the upgraded procedures and found that the intent of this upgrade is a positive initiative for the Fire Protection Program. Attachment 2 provides a listing of these draft procedures.

The inspector found the organization of the fire brigade to be a strength in the licensee's program. The five person fire brigade consists of two professional fire fighters from the Safety and Fire Protection Unit (SFPU) and three individuals from the Operations staff. The inspector considered the SFPU staff to be knowledgeable and experienced.

The Fire Protection Program administration and organization are adequate, except as noted above.

2.3 Administrative Controls of Combustible Materials

The inspector reviewed CCI-133 and CCI-410 to verify that a program for combustible material control had been established and included the following attributes:

- Authorization is required for the use of combustible, flammable or hazardous material in safety-related areas;

- The storage of combustible materials in safety-related areas is restricted and controlled;

- All wastes, debris, rags, oil spills or other combustible materials are removed upon the completion of work activities or the end of the shift which ever is sooner;

- There are periodic inspections for the accumulation of combustibles;

- Transient combustibles are restricted and controlled in safety-related areas; and

- Housekeeping is properly maintained in areas containing safety-related equipment and components.

The review of procedures and a tour of the facility identified no significant findings.

2.4 Administrative Control of Ignition Sources

The inspector reviewed CCI-133 and CCI-410 to verify that a program for ignition source control had been established and included the following attributes:

- Smoking in safety-related areas is prohibited, except where "smoking permitted" areas had been specifically designated by management;

- Requirements have been established for special authorization (permits) for activities involving welding, cutting, grinding, open flame or other ignition sources and that they are properly safeguarded in areas containing safety-related equipment and components.

From a review of procedures and tours of the site, the inspector concluded that there is an appropriate system in place to control ignition sources. Appropriate permit systems are in place to control ignitions sources such as, cutting, grinding, and welding. No hot work in progress was observed at either Unit; however, areas where hot work was scheduled had the proper permits posted. SFPU technicians had verified that the persons listed as firewatches on these posted permits were trained and qualified. The inspector confirmed that the fire watch personnel were qualified through a review of records. No unacceptable conditions were noted.

3.0 Equipment Maintenance, Inspection, and Tests

The inspector reviewed randomly selected surveillance, maintenance, and inspection procedures to determine whether the licensee had developed adequate procedures to establish maintenance, inspection and testing requirements for the plant fire protection equipment. Attachment 2 contains a list of the procedures which were reviewed. In addition to reviewing these documents, a sample of completed test and inspection records for those documents marked with an asterisk (*) were reviewed by the inspector to verify compliance with Technical Specifications and established procedures. The inspector also observed the accomplishment of a portion of the fire protection inspection conducted in the Auxiliary Building, STP-F-290-0, "Hose Station Hydrant and Hose House Inspection."

The procedures reviewed were found to be adequate, and no significant findings were identified.

4.0 Plant Tour

During the inspection period, the inspector walked down accessible vital and non-vital areas of the plant and visually inspected fire protection water systems, fire pumps, fire water piping and distribution systems, post indicator valves, hydrants, and contents of fire hose houses. The inspection included area fire detection and alarm systems, automatic and manual fixed suppression systems, interior hose stations, fire barriers, penetration seals and fire doors. The inspector observed general housekeeping conditions and randomly checked inspection tags on portable fire extinguisher and hose reels to verify that the required monthly surveillance inspections were performed. Additionally, the inspector interviewed licensee and contractor personnel.

The inspector noted no deterioration of fire fighting equipment, tank gauges registered full, hoses had recently tested date stamps, battery powered lights were working and fire fighting clothes were in an acceptable condition. Adequate housekeeping was noted. A Tech Spec Fire Door which did not latch was properly identified and entered into a tracking system for correction. The appropriate compensatory measure, a fire watch, was stationed and the door was repaired and returned to an operable condition later that shift. Based on interviews with a sampling of personnel from outside the fire department, the inspector concluded that licensee personnel were aware of the station policy and procedures for firewatches, and reporting and responding to fires. No significant findings were identified.

5.0 Training

5.1 Fire Watch and Site Wide Training

A review was conducted to verify that the licensee had developed procedures which included:

- Requirements for training site and contractor personnel concerning response to fire alarms, discovering and reporting fires, and fire protection program controls for combustible materials, ignition sources and fire barriers;

- Requirements for qualifying and training firewatch personnel

No unacceptable conditions or concerns were identified. The lesson plans and student handouts reviewed (listed in Attachment 2) were comprehensive and contained an appropriate level of detail for the subject.

5.2 Fire Brigade Training

The inspector performed a review to ascertain whether the licensee has developed procedures which included:

- Requirements for announced and unannounced drills;

- Requirements for a minimum of two drills per year for each brigade member;

- Requirements for at least one backshift drill per year for each brigade;

- Requirements for maintenance of training records; and

- Requirements for fire brigade training and retraining at prescribed frequencies.

The inspector found that the above requirements were addressed in CCI-133. As the inspector noted previously in section 2.2, CCI-133 contains both program requirements and implementing instructions. The inspector noted that the level of detail contained in the implementing instructions, training lesson plans, and student handouts could be improved. Fire brigade training is currently conducted by the SFPU Training Coordinator (TC) who is an on-shift Fire and Safety Technician. There have been several turnovers of the TC

in recent years. These turnovers and the level of detail of the training program implementing procedures have resulted in inconsistent training and inconsistent records documenting completed training.

The 1991 training records of fire brigade members were reviewed to ascertain whether the brigade members had attended the required quarterly training, participated in a quarterly drill, received the annual hands-on fire extinguishment practice, and received the semi-annual evaluation of qualifications required for continued brigade membership.

Technical Specification (TS) 6.8.1 requires that written procedures for Fire Protection Program implementation shall be established and implemented. CCI-133, "Calvert Cliffs Fire Protection Plan," Section IV, A & B, which, in part, implement this TS requirement, states that all qualified members of the fire brigade shall participate in training sessions every calendar quarter. If a brigade member misses a quarterly training session, the Supervisor-SFPU (S-SFPU) shall evaluate his continued brigade membership. Additionally, the S-SFPU or his designee will evaluate twice a year, the qualification of all personnel assigned to the fire brigade. Contrary to the above, the licensee failed to adequately implement their own procedure. During a review of the 1991 training records, the inspector found 17 fire brigade members who had missed their required quarterly training and 5 fire brigade members who did not participate in at least two quarterly fire drills per year. The inspector found that reviews to evaluate continued brigade membership for these individuals were not performed and documented. Additionally, the inspector found the required semi-annual fire brigade member evaluations were not conducted and documented. This is an example of a violation of NRC requirements to follow procedures (Violation 50-317, 318/ 92-04-01).

Although adherence to Fire Brigade Training Program requirements has been less than adequately implemented, the inspector still considers that the Fire Brigade is able to adequately fulfill their safety objective of fighting live fires. This assessment is based on the following observations:

1. All of the currently qualified Fire Brigade members have attended fire school, which included fighting live fires, in the last year.

2. Two members of the Fire Brigade are experienced professional fire fighters; and

3. Those Fire Brigade members who had not had the required annual physical or participated in fire drills have been disqualified from participating in the Fire Brigade.

The licensee initiated prompt corrective actions to resolve this issue and preclude it from recurring. These corrective actions included: (1) The S-SFPU immediately evaluated all the fire brigade members. Six individuals are not eligible for participation on the fire brigade pending completion of a fire brigade physical or participation in a fire drill. Three members must participate in a first quarter 1992 fire drill to remain qualified for fire brigade duty. This evaluation was documented in memo SFPU-92-041; (2) a method to track the currency of fire brigade training qualifications and the performance of the semi-annual evaluations will be developed; (3) written criteria will be developed for performing evaluations of the fire brigade members; (4) a Fire Protection Specialist will be hired into the SFPU and his duties will include training and training records; (5) Issue Report IRO-008-211 has been submitted to recommend that an improved method of tracking fire brigade member qualifications be developed and to recommend that the Training Section take over Fire Brigade training and tracking of qualifications. These recommendations will be reviewed as part of the issue evaluation process, and (6) during the exit meeting, the licensee committed to completing the outstanding corrective actions during the first quarter of 1992.

Subsequent to the inspection, the licensee informed the inspector that these corrective actions had been completed. The adequacy and effectiveness of these corrective actions will be evaluated during a future inspection.

6.0 Periodic Inspections and Quality Assurance Audits

The licensee is required to perform three types of audits of the Fire Protection Program. Technical Specification (T.S.) 6.5.2.8.1.i requires an independent fire protection and loss prevention program inspection and audit every 12 months and T.S. 6.5.2.8.1.h requires an audit of the Facility Fire Protection Program and implementing procedures at least once per 24 months. In addition, T.S. 6.5.2.8.1.j requires an inspection and audit of the fire protection and loss prevention program by a qualified outside fire consultant at least once per 36 months.

The licensee's QA auditors review the Fire Protection program annually and incorporate the requirements of the annual and biennial audits into a single audit. The inspector reviewed the audits identified in Attachment 2 and noted that the audit findings and recommendations were comprehensive and adequate to meet the requirements specified in the Technical Specifications; however, the inspector raised a concern about the tracking and resolution of audit findings. Criterion XIV of Appendix B to 10 CFR 50 requires prompt corrective action for conditions which are adverse to quality, and Quality Assurance Procedure (QAP)-21 requires that QA audit findings be responded to within 30 days. Contrary to the above, during a review of

audit 91-16 the inspector found that the response to audit finding 91-16-03 was late and audit finding 91-16-01 (with a response due date of 01/10/92) had not been responded to by the end of the inspection period on 01/31/92.

The inspector found that the licensee had initiated corrective actions to resolve this issue and preclude it from recurring. In accordance with QAP-21, QA has initiated a Corrective Action Request (CAR) to obtain a response to audit finding 91-16-01. This request uses successively higher levels of management to obtain responses to past due requests for corrective action responses. Additionally, as of January 1992, the licensee had added a new milestone to their computer based Action Item Tracking System. This new milestone is designed to flag delinquent responses to audit finding for management review.

A review of additional 1991 audit records identified no additional audits with outstanding responses. The inspector concluded that this failure to provide a prompt corrective action to an audit finding was an isolated case and the licensee had initiated corrective actions. Therefore, the violation is not being cited because enforcement discretion specified in 10 CFR Part 2, Appendix C, Section V.A., of the Enforcement Policy is satisfied.

Accept as noted above, the QA audits of the Fire Protection Program were found to be acceptable.

7.0 Exit Meeting

The inspector met with licensee personnel (denoted in Attachment 1) at the conclusion of the inspection, on January 31, 1992, at the Calvert Cliffs Nuclear Power Station. The inspector summarized the inspection scope and inspection findings at that time. During the exit interview, the inspector discussed two violations which were identified during this inspection period. The first violation concerned a failure to implement a procedure (Section 5.2). The second violation was non-cited and concerned a failure to provide prompt corrective action to a QA audit finding (Section 6.0). Licensee management confirmed the planned corrective actions discussed in Sections 5.2 and 6.0. Subsequent to the inspection, the licensee informed the inspector that all the proposed corrective actions had been completed.

Attachments:
1. Persons Contacted
2. Fire Protection Documentation Review

Attachment 1

Persons Contacted

Baltimore Gas and Electric (BG&E)

*A. Anuje, Supervisor - QAU
*D. Buffington, Fire Protection System Engineer, ASEU
*J. Carlson, Supervisor, Technical Training
T. Delaney, Principal Engineer, ASEU
*G. Detter, Director, Nuclear Regulatory Matters
*M. Hofle, Engineer, Quality Audits
*P. Katz, Superintendent - Technical Support
*D. Muth, Compliance Engineer
*C. Sinopli, Supervisor, Safety and Fire Protection
M. Stanley, Fire and Safety Technician
*D. Vincent, PES - Programs Group
*J. Wood, Senior Engineer, Quality Audits
*J. Wood, DES - Fire Protection Engineer

United States Nuclear Regulatory Commission

*P. Wilson, Senior Resident Inspector
A. Howe, Resident Inspector
F. Lyon, Resident Inspector

*Denotes those at the exit meeting held on January 31, 1992.

During the course of this inspection, the inspectors contacted other members of the licensee's Fire, Operations, Technical, and Quality Assurance department staffs.

Attachment 2

FIRE PROTECTION DOCUMENTATION REVIEW

1.0 Technical Specifications

Sections 3, 4, and 6 for Units 1 and 2

2.0 Program Procedures

Calvert Cliffs Instruction (CCI)-112, "Safety Tagging," Rev. M, Change 1, dtd November 15, 1991;

CCI-117, "Temporary Modification Control," Rev. J, Change 2, dtd October 25, 1991;

CCI-133, "Calvert Cliffs Fire Protection Plan," Revision J/Change 6, dtd January 20, 1992;

CCI-702, "Change Control Process Overview," Revision-1, Change 0, dtd September 30, 1991;

QAP-21, "Review and Audit Quality Assurance Program," Revision 29, dtd October 10, 1991;

Fire Fighting Strategies Manual;

Fire Protection Program Procedures Matrices, Revision 4, dtd 3/26/91;

CCI-133, "Calvert Cliffs Fire Protection Plan," (Draft H, dtd June 21, 1991).

CCI-171, "Fire Fighting," (Draft D, dtd 7/10/91);

CCI-172, "Fire Protection Systems and Equipment," (Draft B, dtd 8/26/91); and

CCI-625, "Fire Protection Training," (Draft D, dtd 8/6/91);

Attachment 2

FIRE PROTECTION DOCUMENTATION REVIEW

3.0 Surveillance Procedures

* Surveillance Test Procedure (STP)-F-76-0, "Staggered Test of Electric Fire Pump," Rev.- , dtd 4/13/90;

* STP-F-77-0, "Staggered Test of Diesel Fire Pump," Rev.- , dtd 4/13/90, and

* STP-F-290-0, "Hose Station and Hydrant Hose House Inspection," Rev.- , dtd 7/21/90;

* STP-F-591-1, "Inspection of Fire Doors, Watertight Doors, and Dampers in Fire Rated Barriers," Rev.- , dtd 7/12/90;

* STP-F-592-1, "Penetration of Fire Barrier Inspection," Rev.- , dtd 7/12/90;

* STP-F-592-2, "Penetration Fire Barrier Inspection," Rev.- , dtd 7/14/90);

* STP-F-696-0, "Fire Pump Flow Test," Rev.- , dtd 2/20/90.

* STP-M-21-0, "Fire Pump Battery Quarterly Checks," Rev. 5, dtd 1/4/90;

* STP-M-190-0, "Diesel Fire Pump Battery weekly check," Rev. 4, dtd 8/4/91;

* Technical Specification Fire Door Check daily log;

4.0 Maintenance and Equipment Procedures

* FP-PE-W-5, "Fire Protection Inspection of Safety-Related Areas," dtd 5/9/90.

Operating Instruction (OI)"-20, "Fire Protection System (Common), "Revision 14, dtd 12/28/87, and

PM-1-097-E-Q-007, "Aux. Building Alt. Safe Shutdown and Emergency Lighting Functional Test," dtd 12/13/90;

Attachment 2

FIRE PROTECTION DOCUMENTATION REVIEW

4.0 Maintenance and Equipment Procedures cont.'d

PM-1-97-E-Q-1, "Alt. Safe Shutdown Ltg. & Emerg. Ltg. for Turbine Bldg., Serv. Bldg. & Intake Structure Rm.," dtd 10/28/88;

5.0 Audits

Quality Assurance Audit #91-16 of Fire Protection, dtd November 26, 1991;

Quality Assurance Audit #90-18 of Fire Protection (triennial), dtd November 1, 1990;

Quality Assurance Audit #89-13 of Fire Protection, dtd October 5, 1989, and

Quality Assurance Audit #91-11 of Corrective Actions, dtd September 25, 1991.

6.0 Miscellaneous Documents

Memo No. SFPU-92-041, "Fire Brigade Qualification," dtd January 30, 1992;

Issue Report No. IRO-008-211, "Fire Brigade Training and Qualifications," dtd 1/31/92;

Lesson Plan #GOT-341-4-4, "Module 4F-Fire Protection Training for the General Orientation Training Program, Part I, at Calvert Cliffs Nuclear Power Plant," dtd 3/30/90; and

Lesson Plan #FP-341-1-2, "Fire Watch Training Course."