

October 6, 1986

Docket Nos. 50-317  
and 50-318

Mr. J. A. Tiernan  
Vice President - Nuclear Energy  
Baltimore Gas & Electric Company  
P. O. Box 1475  
Baltimore, Maryland 21203

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Dear Mr. Tiernan:

The Commission has issued the enclosed Amendment Nos. 123 and 105 to Facility Operating License Nos. DPR-53 and DPR-69 for Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. These amendments consist of changes to the Technical Specifications in response to your application dated April 14, 1986 as supplemented by your letter dated July 24, 1986. Additionally, minor clarifying changes were made to these submittals with your staff's consent. The remaining item associated with your April 14, 1986 application will be addressed in future correspondence.

The amendments change the Technical Specification (TS) 3/4.8.1 as follows:  
(1) TS 3.8.1.1.b limiting condition for operation is modified to reflect that an individual day fuel tank and a separate fuel transfer pump are required for each diesel generator while the two diesel generators share a common fuel storage system consisting of two independent storage tanks and, (2) TS 3.8.1.1 will incorporate a new Action Statement "f" that will permit continued operation of up to 72 hours with one Diesel Fuel Oil Storage Tank inoperable and requires an alternate 8000 gallon fuel supply onsite during this period. Action Statement "f" is not applicable to an inoperable #21 Diesel Fuel Oil Storage Tank from April 1 through September 30 nor is it applicable for two inoperable Diesel Fuel Oil Storage Tanks. Action Statement "e" is applicable for these conditions.

A copy of the related Safety Evaluation and the Notice of Issuance of Amendment are also enclosed. A copy of the Environmental Assessment related to this action was transmitted to you by letter dated September 8, 1986.

Sincerely,

/S/

Scott Alexander Mc Neil, Project Manager  
PWR Project Directorate #8  
Division of PWR Licensing-B

**Enclosures:**

1. Amendment No. 123 to DPR-53
2. Amendment No. 105 to DPR-69
3. Safety Evaluation
4. Notice of Issuance

cc w/enclosure:  
See next page

\*See previous white for concurrences

PBD#8  
PM Kreutzer  
10/6/86

PBD#8\* FOB\*  
SMcNeil WRegan  
9/16/86 9/18/86

PBD#8\* OGC-Bethesda\*  
ATHadani CWoodhead  
9/19/86 9/22/86

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PDR ADOCK 05000317  
PDR

Docket Nos. 50-317  
and 50-318

Mr. J. A. Tiernan  
Vice President - Nuclear Energy  
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Dear Mr. Tiernan:

The Commission has issued the enclosed Amendment Nos.        and        to Facility Operating License Nos. DPR-53 and DPR-69 for Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. These amendments consist of changes to the Technical Specifications in response to your application dated April 14, 1986 as supplemented by your letter dated July 24, 1986. Additionally, minor clarifying changes were made to these submittals with your staff's consent. The remaining item associated with your April 14, 1986 application will be addressed in future correspondence.

The amendments change the Technical Specification (TS) 3/4.8.1 as follows:  
(1) TS 3.8.1.1.b limiting condition for operation are modified to reflect that an individual day fuel tank and a separate fuel transfer pump are required for each diesel generator while the two diesel generators share a common fuel storage system consisting of two independent storage tanks and, (2) TS 3.8.1.1 will incorporate a new Action Statement "f" that will permit continued operation of up to 72 hours with one Diesel Fuel Oil Storage Tank inoperable and requires an alternate 8000 gallon fuel supply onsite during this period. Action Statement "f" is not applicable to an inoperable #21 Diesel Fuel Oil Storage Tank from April 1 through September 30 nor is it applicable for two inoperable Diesel Fuel Oil Storage Tanks. Action Statement "e" is applicable for these conditions.

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Sincerely,

Scott Alexander Mc Neil, Project Manager  
PWR Project Directorate #8  
Division of PWR Licensing-B

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See next page

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PMKreutzer  
9/16/86

PBD#8  
SMcNeil  
9/16/86

FOR  
WRegan  
9/18/86

AT  
PBD#8  
ATHadani  
9/19/86

OGC-Bethesda  
9/22/86

Mr. J. A. Tiernan  
Baltimore Gas & Electric Company

Calvert Cliffs Nuclear Power Plant

cc:

Mr. William T. Bowen, President  
Calvert County Board of  
Commissioners  
Prince Frederick, Maryland 20768

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
Office of Executive Director  
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ATTN: Mr. W. R. Horlacher, III  
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Windsor, Connecticut 06095-0500

Department of Natural Resources  
Energy Administration, Power Plant  
Siting Program  
ATTN: Mr. T. Magette  
Tawes State Office Building  
Annapolis, Maryland 21204



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-317

CALVERT CLIFFS NUCLEAR POWER PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 123  
License No. DPR-53

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Baltimore Gas & Electric Company (the licensee) dated April 14, 1986 as supplemented July 24, 1986, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-53 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 123, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Ashok C. Thadani, Director  
PWR Project Directorate #8  
Division of PWR Licensing-B

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: October 6, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 123

FACILITY OPERATING LICENSE NO. DPR-53

DOCKET NO. 50-317

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change. The corresponding overleaf pages are provided to maintain document completeness.

Remove Pages

3/4 8-1  
3/4 8-2  
3/4 8-3  
3/4 8-4

Insert Pages

3/4 8-1  
3/4 8-2  
3/4 8-3  
3/4 8-4

### 3/4.8 ELECTRICAL POWER SYSTEMS

#### 3/4.8.1 A.C. SOURCES

##### OPERATING

##### LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system consisting of either:
  - 1. Two 500 kV offsite power circuits, or as necessary
  - 2. The 69 kV SMECO offsite power circuit described in the January 14, 1977 Safety Evaluation and one 500 kV offsite power circuit; and
- b. Two separate and independent diesel generators (one of which may be a swing diesel generator capable of serving either Unit 1 or Unit 2) with:
  - 1. Separate day fuel tanks containing a minimum volume of 375 gallons of fuel for each diesel generator,
  - 2. A common fuel storage system consisting of two independent storage tanks each containing a minimum volume of 18,250 gallons of fuel, and
  - 3. A separate fuel transfer pump for each diesel generator.

APPLICABILITY: MODES 1, 2, 3 and 4.

##### ACTION:

- a. With two offsite circuits of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; and 4.8.1.1.2.a.4 within 24 hours, unless the diesel generators are already operating. Restore at least two offsite circuits to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With one diesel generator inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter, and Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours. Restore two diesel generators to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

## ELECTRICAL POWER SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

#### ACTION: (Continued)

- c. With two offsite circuits and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter and Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours, unless the diesel generators are already operating. Restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two offsite circuits and two diesel generators to OPERABLE status within 72 hours from the time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- d. With three of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of two diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours unless the diesel generators are already operating; restore at least one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one off-site source restored, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- e. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two diesel generators to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- f. With one Diesel Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of the remaining tank by: 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 36,500 gallons) within one hour and at least once per 8 hours thereafter, and 2) verifying the flow-path from the OPERABLE fuel oil storage tank to the diesel generators within one hour. Restore two storage tanks to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (NOTE: If the tank is inoperable, maintain an 8,000 gallon alternate fuel source onsite.)

This Action Statement is not applicable for the following conditions:  
1) when #21 Diesel Fuel Oil Storage Tank is inoperable during the period from April 1 through September 30 due to the higher probability



## ELECTRICAL POWER SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

of tornado occurrences during this time frame and 2) when two Diesel Fuel Oil Storage Tanks are inoperable. Action statement e is applicable for these conditions.

### SURVEILLANCE REQUIREMENTS

4.8.1.1.1. Each required independent circuit between the offsite transmission network and the onsite Class 1E distribution system shall be:

a. Demonstrated OPERABLE, as follows:

1. For each 500 kV offsite circuit, at least once per 7 days by verifying correct breaker alignments and indicated power availability.
2. For the 69 kV SMECO offsite power circuit, within one hour of substitution for a 500 kV offsite power circuit, and at least once per 8 hours thereafter during use by verifying correct breaker alignments and indicated power availability; and

b. Demonstrated OPERABLE at least once per 18 months during shutdown by manually transferring unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by:

1. Verifying the fuel level in the day fuel tank.
2. Verifying the fuel level in the fuel storage tank.
3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
4. Verifying the diesel starts and accelerates to at least 900 rpm with generator voltage and frequency at  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz, respectively.\*
5. Verifying the generator is synchronized, loaded to  $\geq 1250$  kW, and operates for  $\geq 60$  minutes.
6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

\*All engine starts for the purpose of this Surveillance Requirement may be preceded by an engine prelube period and/or other warmup procedures recommended by the manufacturer so that mechanical wear and stress on the diesel engine is minimized.

## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

7. Verifying that the automatic load sequencer timer is OPERABLE with the interval between each load block within  $\pm 10\%$  of its design interval.
- b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank is within the acceptable limits specified in Table 1 of ASTM D975-81 when checked for viscosity, water and sediment.
- c. At least once per 184 days by verifying the diesel starts from ambient condition and accelerates to at least 900 rpm in  $\leq 10$  seconds.
- d. At least once per 18 months by:
  1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.
  2. Verifying the generator capability to reject a load of  $\geq 500$  hp without tripping.
  3. Simulating a loss of offsite power in conjunction with a safety injection actuation test signal, and:
    - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses.
    - b) Verifying the diesel starts from ambient condition on the auto-start signal, energizes the emergency busses with permanently connected loads, energizes the auto-connected emergency loads through the load sequencer and operates for  $> 5$  minutes while its generator is loaded with the emergency loads.
    - c) Verifying that the high jacket coolant temperature and low jacket coolant pressure trips are automatically bypassed on a Safety Injection Actuation Signal.
  4. Verifying the diesel generator operates for  $\geq 60$  minutes while loaded to  $\geq 2500$  kW.
  5. Verifying that the auto-connected loads to each diesel generator do not exceed the 2000 hour rating of 2700 kW.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-318

CALVERT CLIFFS NUCLEAR POWER PLANT UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 105  
License No. DPR-69

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Baltimore Gas & Electric Company (the licensee) dated April 14, 1986 as supplemented July 24, 1986, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

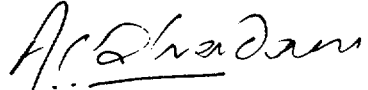
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.2 of Facility Operating License No. DPR-69 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 105, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Ashok C. Thadani, Director  
PWR Project Directorate #8  
Division of PWR Licensing-B

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: October 6, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 105

FACILITY OPERATING LICENSE NO. DPR-69

DOCKET NO. 50-318

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change. The corresponding overleaf pages are provided to maintain document completeness.

Remove Pages

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3/4 8-2  
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Insert Pages

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3/4 8-2  
3/4 8-3  
3/4 8-4

### 3/4.8 ELECTRICAL POWER SYSTEMS

#### 3/4.8.1 A.C. SOURCES

##### OPERATING

##### LIMITING CONDITION FOR OPERATION

---

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

- a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system consisting of either:
  1. Two 500 kV offsite power circuits, or as necessary
  2. The 69 kV SMECO offsite power circuit described in the January 14, 1977 Safety Evaluation and one 500 kV offsite power circuit; and
- b. Two separate and independent diesel generators (one of which may be a swing diesel generator capable of serving either Unit 1 or Unit 2) with:
  1. Separate day fuel tanks containing a minimum volume of 375 gallons of fuel for each diesel generator,
  2. A common fuel storage system consisting of two independent storage tanks each containing a minimum volume of 18,250 gallons of fuel, and
  3. A separate fuel transfer pump for each diesel generator.

APPLICABILITY: MODES 1, 2, 3 and 4.

##### ACTION:

- a. With two offsite circuits of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; and 4.8.1.1.2.a.4 within 24 hours, unless the diesel generators are already operating. Restore at least two offsite circuits to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With one diesel generator inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter, and Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours. Restore two diesel generators to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

## ELECTRICAL POWER SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

#### ACTION: (Continued)

- c. With two offsite circuits and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter and Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours, unless the diesel generators are already operating. Restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two offsite circuits and two diesel generators to OPERABLE status within 72 hours from the time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- d. With three of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of two diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours unless the diesel generators are already operating; restore at least one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one off-site source restored, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- e. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two diesel generators to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- f. With one Diesel Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of the remaining tank by: 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 36,500 gallons) within one hour and at least once per 8 hours thereafter, and 2) verifying the flow-path from the OPERABLE fuel oil storage tank to the diesel generators within one hour. Restore two storage tanks to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (NOTE: If the tank is inoperable, maintain an 8,000 gallon alternate fuel source onsite.)

This Action Statement is not applicable for the following conditions:  
1) when #21 Diesel Fuel Oil Storage Tank is inoperable during the period from April 1 through September 30 due to the higher probability

## ELECTRICAL POWER SYSTEMS

### LIMITING CONDITION FOR OPERATION (Continued)

of tornado occurrences during this time frame and 2) when two Diesel Fuel Oil Storage Tanks are inoperable. Action statement e is applicable for these conditions.

### SURVEILLANCE REQUIREMENTS

4.8.1.1.1. Each required independent circuit between the offsite transmission network and the onsite Class 1E distribution system shall be:

- a. Demonstrated OPERABLE, as follows:
  1. For each 500 kV offsite circuit, at least once per 7 days by verifying correct breaker alignments and indicated power availability.
  2. For the 69 kV SMECO offsite power circuit, within one hour of substitution for a 500 kV offsite power circuit, and at least once per 8 hours thereafter during use by verifying correct breaker alignments and indicated power availability; and
- b. Demonstrated OPERABLE at least once per 18 months during shutdown by manually transferring unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by:
  1. Verifying the fuel level in the day fuel tank.
  2. Verifying the fuel level in the fuel storage tank.
  3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
  4. Verifying the diesel starts and accelerates to at least 900 rpm with generator voltage and frequency at  $4160 \pm 420$  volts and  $60 \pm 1.2$  Hz, respectively.\*
  5. Verifying the generator is synchronized, loaded to  $\geq 1250$  kW, and operates for  $\geq 60$  minutes.
  6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

\*All engine starts for the purpose of this Surveillance Requirement may be preceded by an engine prelube period and/or other warmup procedures recommended by the manufacturer so that mechanical wear and stress on the diesel engine is minimized.



## ELECTRICAL POWER SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

7. Verifying that the automatic load sequencer timer is OPERABLE with the interval between each load block within  $\pm 10\%$  of its design interval.
- b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank is within the acceptable limits specified in Table 1 of ASTM D975-81 when checked for viscosity, water and sediment.
- c. At least once per 184 days by verifying the diesel starts from ambient condition and accelerates to at least 900 rpm in  $\leq 10$  seconds.
- d. At least once per 18 months by:
  1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.
  2. Verifying the generator capability to reject a load of  $\geq 500$  hp without tripping.
  3. Simulating a loss of offsite power in conjunction with a safety injection actuation test signal, and:
    - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses.
    - b) Verifying the diesel starts from ambient condition on the auto-start signal, energizes the emergency busses with permanently connected loads, energizes the auto-connected emergency loads through the load sequencer and operates for  $> 5$  minutes while its generator is loaded with the emergency loads.
    - c) Verifying that the high jacket coolant temperature and low jacket coolant pressure trips are automatically bypassed on a Safety Injection Actuation Signal.
  4. Verifying the diesel generator operates for  $\geq 60$  minutes while loaded to  $\geq 2500$  kW.
  5. Verifying that the auto-connected loads to each diesel generator do not exceed the 2000 hour rating of 2700 kW.



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 123 AND 105

TO FACILITY OPERATING LICENSE NOS. DPR-53 AND DPR-69

BALTIMORE GAS AND ELECTRIC COMPANY

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-317 AND 50-318

Introduction

By letters dated April 14, 1986 (Reference 1) and July 24, 1986 (Reference 2), Baltimore Gas and Electric Co. (BG&E) requested a modification of the Technical Specifications for Calvert Cliffs Units 1 and 2. The modification would add the following limiting condition for operation in Section 3/4.8.1 of the Technical Specifications as subsection f.

- "f. With one Diesel Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of the remaining tank by: 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 36,500 gallons) within one hour and at least once per 8 hours thereafter, and 2) verifying the flowpath from the OPERABLE fuel oil storage tank to the diesel generators within one hour. Restore two storage tanks to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (NOTE: If the tank is inoperable, maintain an 8,000 gallon alternate fuel source onsite.)

This Action Statement is not applicable for the following conditions: 1) when #21 Diesel Fuel Oil Storage Tank is inoperable during the period from April 1 through September 30 due to the higher probability of tornado occurrences during this timeframe, and 2) when two Diesel Fuel Oil Storage Tanks are inoperable. Action statement 'e' is applicable in this condition."

This modification also proposed some minor rewording of LCO in Section 3.8.1.1.b for clarification purposes only.

Minor changes were made to the submittals for the purpose of clarification with the consent of the BG&E staff. In the Note for Action Statement "f", the adjective "inoperable" replaced the originally proposed modifier "drained" and the word "parked" was removed from the original phrase "maintain an 8,000 gallon alternate fuel source parked onsite". Additionally, the phrase "2) when two Diesel Fuel Oil Storage Tanks are inoperable" was added to the explanation of when Action Statement "f" is not applicable. Previously, this stipulation was implied but not stated.

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### Background

Calvert Cliffs Units 1 and 2 Technical Specifications require the operability of two separate and independent diesel generators with a common fuel storage system consisting of two independent storage tanks each containing a minimum volume of 18,250 gallons of fuel. This requirement causes both diesel generators to be considered inoperable if only one diesel fuel oil storage tank is found inoperable. In this condition, the Technical Specification requirement is to either return both fuel oil storage tanks to an operable status within 2 hours, or be in HOT STANDBY within the next 6 hours. This makes any repair, which requires the tank to be drained, impossible without first shutting down both Units 1 and 2. Incorporation of the proposed 72-hour action statement will allow necessary repairs to the fuel oil storage tanks during unit operation. A similar change of the Technical Specification requirement for a period of 14 days during April/May of 1984 was granted to BG&E by our SER dated March 29, 1984 (Reference 3).

### Evaluation

At the Calvert Cliffs nuclear power plant, a swing diesel generator is used for the required redundant Standby AC power source for both units. Each unit has one dedicated diesel generator with a design provision to manually connect the swing diesel generator to redundant buses in Unit 1 or Unit 2. The fuel storage system for these three diesel generators consists of two redundant and independent outdoor fuel storage tanks (DFOST #21 and 11) each with a usable capacity of 109,500 gallons and normally containing a minimum volume of 18,250 gallons of fuel. Redundant fuel supply headers interconnect the two tanks. Manually operated valves are provided such that each tank normally supplies a different header. Each of the three diesel engines can get their fuel supply from either of the two storage tanks through the redundant headers. Each diesel generator is equipped with a 485 gallon day tank containing a minimum of 375 gallons of fuel. Transfer of fuel oil from the storage tank to the day tank is accomplished by a 10 gpm rated fuel transfer pump, one for each diesel generator. At full load, the day tank allows approximately 2-1/2 hours of operation before the transfer of fuel oil is necessary.

Although both storage tanks and associated piping are designed to Seismic Category 1 requirements, only DFOST #21 is provided with protection against tornado winds and tornado generated missiles. As such, the operability of DFOST #11 which is not protected against tornado winds and tornado generated missiles, cannot be assured during the proposed 72 hour LCO when DFOST #21 is out for repair. In response to the staff's concern, the licensee proposed that the 72 hour LCO action statement shall not be applicable if DFOST #21 is out of service during the period of April 1st through September 30. This is based on high probability of a tornado occurring during the months of April through September. The licensee's submittal indicates that there were 63 tornadoes within a period of 36 years (1950 thru 1985) which occurred in an area 50 miles in radius around the Calvert Cliffs Nuclear Power Plant site. Fifty-three out of the sixty-three tornadoes were recorded during the months of April through September establishing a higher probability of tornadoes during this period of the year.

The proposed Technical Specification change retains the existing action statement when DFOST #21 is out of service for repair (action statement "e" when both required diesel generators are inoperable) during the period of April through September. During the remaining 6 months when any one of the two DFOSTs is inoperable or any time during the year when DFOST #11 is out of service, the proposed Technical Specification will require demonstration of the operability of the remaining tank by:

1. Verifying fuel level of at least 36,500 gallons within 1 hour and at least once per 8 hours thereafter, and
2. Verifying the flow path from the operable storage tank to the diesel generators within 1 hour.

If two DFOSTs are not restored to an operable status within 72 hours, both units should be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

The proposed surveillance program ensures the availability of at least 36,500 gallons of fuel in the operable fuel tank which is the minimum requirement of fuel for operation and ensures the passage of fuel oil from the operating storage tank to each diesel generator. Restricting the inoperability of the tornado missile protected storage tank (DFOST #21) during the tornado season (April through September) ensures that the units are shutdown without delay when the DFOST #11 which is not protected from tornado wind and tornado generated missile is the only storage tank operating to supply fuel to the diesel generators. We, therefore, find this Technical Specification change to be acceptable.

#### State Consultations

The State of Maryland was consulted on this matter and had no comments on the determination.

#### Environmental Consideration

The NRC staff has evaluated the environmental consequences of permitting continued power operation of up to 72 hours with one Diesel Fuel Oil Storage Tank inoperable. An environmental Assessment and Finding of No Significant Impact, associated with this action, was published in the Federal Register on September 12, 1986 (51 FR 32558).

#### Conclusion

We have concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

References

1. BG&E letter (J. Tiernan) to NRC (A.C. Thadani) dated April 14, 1986.
2. BG&E letter (L.E. Salyards) to NRC (A.C. Thadani) dated July 24, 1986.
3. NRC memorandum (L.S. Rubenstein) to (Gus C. Lainas) dated March 29, 1984.

Date: October 6, 1986

Principal Contributor:

I. Ahmed

UNITED STATES NUCLEAR REGULATORY COMMISSIONBALTIMORE GAS AND ELECTRIC COMPANYDOCKET NOS. 50-317 AND 50-318NOTICE OF ISSUANCE OF AMENDMENTS TOFACILITY OPERATING LICENSES

The U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment Nos. 123 and 105 to Facility Operating Licenses Nos. DPR-53 and DPR-69, issued to the Baltimore Gas and Electric Company (the licensee), which revised the Technical Specifications for operation of the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2 (the facility), located in Calvert County, Maryland. The amendments were effective as of the date of their issuance.

The amendments change the Technical Specification (TS) 3/4.8.1 as follows:

(1) TS 3.8.1.1.b limiting condition for operation is modified to reflect that an individual day fuel tank and separate fuel transfer pump is required for each diesel generator and that the two diesel generators share a common fuel storage system consisting of two independent storage tanks and, (2) TS 3.8.1.1 will incorporate a new Action Statement "f" that will permit continued operation of up to 72 hours with one Diesel Fuel Oil Storage Tank inoperable and requires an alternate 8000 gallon fuel supply onsite during this period. Action Statement "f" is not applicable to an inoperable #21 Diesel Fuel Oil Storage Tank from April 1 through September 30 nor is it applicable for two inoperable Diesel Fuel Oil Storage Tanks. Action Statement "e" is applicable for these conditions.

The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments.

Notice of Consideration of Issuance of Amendments and Opportunity for Prior Hearing in connection with this action was published in the FEDERAL REGISTER on May 20, 1986 (51 FR 18519). No request for a hearing or petition for leave to intervene was filed following this notice.

The Commission has prepared an Environmental Assessment and Finding of No Significant Impact related to the action and has concluded that an environmental impact statement is not warranted because there will be no environmental impact attributable to the action significantly beyond that which has been predicted and described in the Commission's Final Environmental Statement for the facility dated April 1973.

For further details with respect to the action see (1) the application for amendments dated April 14, 1986 as supplemented July 24, 1986, (2) Amendment Nos. 123 and 105 to Facility Operating License Nos. DPR-53 and DPR-69, (3) the Commission's related Safety Evaluation dated and (4) the Environmental Assessment dated September 8, 1986. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C., and at the Calvert County Library, Prince Frederick, Maryland. A copy of items (2), (3) and (4) may be

obtained upon request addressed to the U.S. Nuclear Regulatory Commission,  
Washington, D.C. 20555, Attention: Director, Division of PWR Licensing-B.

Dated at Bethesda, Maryland, this 6th day of October, 1986.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in dark ink, appearing to read "A. C. Thadani", written over a horizontal line.

Ashok C. Thadani, Director  
PWR Project Directorate #8  
Division of PWR Licensing-B