



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

BALTIMORE GAS & ELECTRIC COMPANY

DOCKET NO. 50-317

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 40
License No. DPR-53

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendment by Baltimore Gas and Electric Company (the licensee) dated June 17, 1977 (as supplemented March 12, 1979) and August 5, 1977 comply 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.

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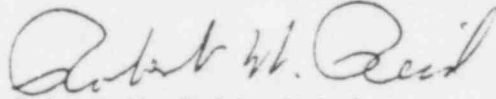
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C. 2 of Facility Operating License No. DPR-53 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 40, 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



Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 31, 1979

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ATTACHMENT TO LICENSE AMENDMENT NO. 40

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 area of change. The corresponding overleaf pages are also provided to maintain document completeness.

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Amendment No. 4
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TABLE 3.3-3 (Continued)
ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
6. CONTAINMENT PURGE VALVES ISOLATION					
a. Manual (Purge Valve Control Switches)	2/Penetration	1/Penetration	2/Penetration	1, 2, 3, 4	6
b. Containment Radiation - High Area Monitor	4	2	3	6	8
7. LOSS OF POWER					
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	4/Bus	2/Bus	3/Bus	1, 2, 3	7*
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	4/Bus	2/Bus	3/Bus	1, 2, 3	7*

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
8. CVCS ISOLATION					
a. Manual (CVCS Isolation Valve Control Switches)	1/Valve	1/Valve	1/Valve	1, 2, 3, 4	6
b. West Penetration Room/Letdown Heat Exchanger Room Pressure - High	4	2	3	1, 2, 3, 4	7*

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TABLE 3.3-4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. SAFETY INJECTION (SIAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure - High	≤ 4.75 psig	≤ 4.75 psig
c. Pressurizer Pressure - Low	≥ 1578 psia	≥ 1578 psia
2. CONTAINMENT SPRAY (CSAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure -- High	≤ 4.75 psig	≤ 4.75 psig
3. CONTAINMENT ISOLATION (CIS)		
a. Manual CIS (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure - High	≤ 4.75 psig	≤ 4.75 psig
4. MAIN STEAM LINE ISOLATION		
a. Manual (MSIV Hand Switches and Feed Head Isolation Hand Switches)	Not Applicable	Not Applicable
b. Steam Generator Pressure - Low	≥ 478 psia	≥ 478 psia

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>FUNCTIONAL UNIT</u>	<u>TRIP VALUE</u>	<u>ALLOWABLE VALUES</u>
5. CONTAINMENT SUMP RECIRCULATION (RAS)		
a. Manual RAS (Trip Buttons)	Not Applicable	Not Applicable
b. Refueling Water Tank - Low	≥ 24 inches above tank bottom	≥ 24 inches above tank bottom
6. CONTAINMENT PURGE VALVES ISOLATION		
a. Manual (Purge Valve Control Switches)	Not Applicable	Not Applicable
b. Containment Radiation - High Area Monitor	≤ 220 mr/hr	≤ 220 mr/hr
7. LOSS OF POWER		
a. 4.16 kv Emergency Bus Under-voltage (Loss of Voltage)	2450 ± 105 volts with a 2 ± 0.2 second time delay	2450 ± 105 volts with a 2 ± 0.2 second time delay
b. 4.16 kv Emergency Bus Under-voltage (Degraded Voltage)	3628 ± 25 volts with a 8 ± 0.4 second time delay	3628 ± 25 volts with a 8 ± 0.4 second time delay

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
6. <u>Steam Generator Pressure-Low</u>	
a. Main Steam Isolation	≤ 6.9
b. Feedwater Isolation	≤ 80
7. <u>Refueling Water Tank-Low</u>	
a. Containment Sump Recirculation	≤ 80
8. <u>Reactor Trip</u>	
a. Feedwater Flow Reduction to 5%	≤ 20
9. <u>Loss of Power</u>	
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	≤ 2.2 ^{***}
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	≤ 8.4 ^{***}

TABLE NOTATION

* Diesel generator starting and sequence loading delays included.

** Diesel generator starting and sequence loading delays not included.
Offsite power available.

*** Response time measured from the incidence of the undervoltage condition
to the diesel generator start signal.

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TABLE 4.3-2

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. SAFETY INJECTION (SIAS)				
a. Manua. (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Containment Pressure - High	S	R	M	1, 2, 3
c. Pressurizer Pressure - Low	S	R	M	1, 2, 3
d. Automatic Actuation Logic	N.A.	N.A.	M(1)(3)	1, 2, 3
2. CONTAINMENT SPRAY (CSAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Containment Pressure -- High	S	R	M	1, 2, 3
c. Automatic Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3
3. CONTAINMENT ISOLATION (CIS)				
a. Manual CIS (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Containment Pressure - High	S	R	M	1, 2, 3
c. Automatic Actuation Logic	N.A.	N.A.	M(1)(4)	1, 2, 3
4. MAIN STEAM LINE ISOLATION (SGIS)				
a. Manual SGIS (MSIV Hand Switches and Feed Head Isolation Hand Switches)	N.A.	N.A.	R	N.A.
b. Steam Generator Pressure - Low	S	R	M	1, 2, 3
c. Automatic Actuation Logic	N.A.	N.A.	M(1)(5)	1, 2, 3

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
5. CONTAINMENT SUMP RECIRCULATION (RAS)				
a. Manual RAS (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Refueling Water Tank - Low	N.A.	R	M	1, 2, 3
c. Automatic Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3
6. CONTAINMENT PURGE VALVES ISOLATION				
a. Manual (Purge Valve Control Switches)	N.A.	N.A.	R	N.A.
b. Containment Radiation - High Area Monitor	S	R	M	6
7. LOSS OF POWER				
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	N.A.	R	M	1, 2, 3
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	N.A.	R	M	1, 2, 3
8. CVCS ISOLATION West Penetration Room/Letdown Heat Exchanger Room Pressure - High	N.A.	R	M	1, 2, 3, 4

TABLE 4.3-2 (Continued)

TABLE NOTATION

- (1) The logic circuits shall be tested manually at least once per 31 days.
- (3) SIAS logic circuits A-5, B-5, A-10 and B-10 may be exempted from testing during operation; however, these logic circuits shall be tested at least once per 18 months during shutdown.
- (4) CIS logic circuits A-5 and B-5 may be exempted from testing during operation; however, these logic circuits shall be tested at least once per 18 months during shutdown.
- (5) SGIS logic circuits A-1 and B-1 may be exempted from testing during operation; however, these logic circuits shall be tested at least once per 18 months during shutdown.

ELECTRICAL POWER SYSTEMS

A.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, the following A.C. electrical busses shall be OPERABLE and energized from sources of power other than a diesel generator but aligned to an OPERABLE diesel generator:

- 1 - 4160 volt Emergency Bus
- 1 - 480 volt Emergency Bus
- 2 - 120 volt A.C. Vital Busses

APPLICABILITY: MODES 5 and 6

ACTION: .

With less than the above complement of A.C. busses OPERABLE and energized, establish CONTAINMENT INTEGRITY within 8 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.2 The specified A.C. busses shall be determined OPERABLE and energized from A.C. sources other than the diesel generators at least once per 7 days by verifying correct breaker alignment and indicated power availability.

ELECTRICAL POWER SYSTEMS

D.C. DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.3 The following D.C. bus trains shall be energized and OPERABLE:

- a. 125-volt D.C. bus No. 11, a 125 volt D. C. battery bank and a full capacity charger.
- b. 125-volt D.C. bus No. 12, a 125-volt D. C. battery bank and a full capacity charger.
- c. 125-volt D.C. bus No. 21, a 125-volt D. C. battery bank and a full capacity charger.
- d. 125-volt D.C. bus No. 22, a 125-volt D. C. battery bank and a full capacity charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- a. With one 125-volt D.C. bus inoperable, restore the inoperable bus 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.
- b. With one 125-volt D.C. battery and/or its charger inoperable, except during surveillance testing per Specifications 4.8.2.3.2.c.2, 4.8.2.3.2.d and 4.8.2.3.2.e, restore the inoperable battery and/or charger 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.
- c. With one 125-volt D.C. battery inoperable during surveillance testing of the battery per Specifications 4.8.2.3.2.c.2 and 4.8.2.3.2.d, operation may continue provided the associated bus is being powered by an OPERABLE charger.
- d. With one 125-volt D. C. battery inoperable during surveillance testing of the battery per Specification 4.8.2.3.2.e, operation may continue provided the associated bus is being powered by a temporary 125-volt D. C. battery bank and an OPERABLE charger.

SURVEILLANCE REQUIREMENTS

4.8.2.3.1 Each D.C. bus train shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated power availability.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4.8.2.3.2 Each 125-volt battery bank and charger shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
 1. The electrolyte level of each pilot cell is between the minimum and maximum level indication marks.
 2. The pilot cell specific gravity, corrected to 77°F and full electrolyte level, is ≥ 1.200 .
 3. The pilot cell voltage is ≥ 2.10 volts.
 4. The overall battery voltage is ≥ 125 volts.
- b. At least once per 92 days by verifying that:
 1. The voltage of each connected cell is ≥ 2.10 volts under float charge and has not decreased more than 0.10 volts from the value observed during the original acceptance test.
 2. The specific gravity, corrected to 77°F and full electrolyte level, of each connected cell is ≥ 1.200 and has not decreased more than 0.02 from the value observed during the previous test.
 3. The electrolyte level of each connected cell is between the minimum and maximum level indication marks.
- c. At least once per 18 months by verifying that:
 1. The cells, cell plates and battery racks show no visual indication of physical damage or deterioration.
 2. The cell-to-cell and terminal connections are clean, tight, and coated with anti-corrosion material.
- d. At least once per 18 months by, verifying that the battery capacity, with the charger disconnected, adequate to either:
 1. Supply and maintain in OPERABLE status all of the actual emergency loads for at least 2 hours when the battery is subjected to a battery service test, or

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Supply a dummy load of the following profile for at least 2 hours while maintaining the battery terminal voltage \geq 100 volts:

a) Batteries 11 and 21:

First minute \geq 827 amperes
Next 1 minute \geq 461 amperes
Next 117 minutes \geq 251 amperes
Next 1 minute \geq 325 amperes

b) Batteries 12 and 22:

First minute \geq 193 amperes
Next 119 minutes \geq 160 amperes

At the completion of this battery test, the battery charger shall be demonstrated capable of recharging the battery at a rate of \leq 400 amperes while supplying normal D.C. loads. The battery shall be charged to at least 95% capacity in \leq 24 hours.

e. At least once per 60 months, during shutdown*, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test shall be performed subsequent to the satisfactory completion of the required battery service test.

*The surveillance requirement scheduled to be performed no later than March 1, 1980, may be performed during operation in any MODE provided that during this test, the associated bus is being powered by a temporary 125-volt D. C. battery bank and an OPERABLE charger.



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

BALTIMORE GAS & ELECTRIC COMPANY

DOCKET NO. 50-318

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 22
License No. DPR-69

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendment by Baltimore Gas and Electric Company (the licensee) dated June 17, 1977 (as supplemented March 12, 1979) and August 5, 1977 comply 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.

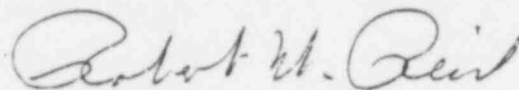
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C. 2 of Facility Operating License No. DPR-69 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 22, 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



Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 31, 1979

ATTACHMENT TO LICENSE AMENDMENT NO. 22

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 area of change. The corresponding overleaf pages are also provided to maintain document completeness.

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CALVERT CLIFFS - UNIT 2

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TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

<u>FUNCTIONAL UNIT</u>	<u>TOTAL NO. OF CHANNELS</u>	<u>CHANNELS TO TRIP</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABLE MODES</u>	<u>ACTION</u>
6. CONTAINMENT PURGE VALVES ISOLATION					
a. Manual (Purge Valve Control Switches)	2/Penetration	1/Penetration	2/Penetration	1, 2, 3, 4	6
b. Containment Radiation - High Area Monitor	4	2	3	6	8
7. LOSS OF POWER					
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	4/Bus	2/Bus	3/Bus	1, 2, 3	7*
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	4/Bus	2/Bus	3/Bus	1, 2, 3	7*

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TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
8. CVCS ISOLATION					
a. Manual (CVCS Isolation Valve Control Switches)	1/Valve	1/Valve	1/Valve	1, 2, 3, 4	6
b. West Penetration Room/Letdown Heat Exchanger Room Pressure - High	4	2	3	1, 2, 3, 4	7*

TABLE 3.3-4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. SAFETY INJECTION (SIAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure - High	≤ 4.75 psig	≤ 4.75 psig
c. Pressurizer Pressure - Low	≥ 1578 psia	≥ 1578 psia
2. CONTAINMENT SPRAY (CSAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure -- High	≤ 4.75 psig	≤ 4.75 psig
3. CONTAINMENT ISOLATION (CIS)		
a. Manual CIS (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure - High	≤ 4.75 psig	≤ 4.75 psig
4. MAIN STEAM LINE ISOLATION		
a. Manual (MSIV Hand Switches and Feed Head Isolation Hand Switches)	Not Applicable	Not Applicable
b. Steam Generator Pressure - Low	≥ 478 psia	≥ 478 psia

CALVERT CLIFFS - UNIT 2

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TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>FUNCTIONAL UNIT</u>	<u>TRIP VALUE</u>	<u>ALLOWABLE VALUES</u>
5. CONTAINMENT SUMP RECIRCULATION (RAS)		
a. Manual RAS (Trip Buttons)	Not Applicable	Not Applicable
b. Refueling Water Tank - Low	≥ 24 inches above tank bottom	≥ 24 inches above tank bottom
6. CONTAINMENT PURGE VALVES ISOLATION		
a. Manual (Purge Valve Control Switches)	Not Applicable	Not Applicable
b. Containment Radiation - High Area Monitor	≤ 220 mr/hr	≤ 220 mr/hr
7. LOSS OF POWER		
a. 4.16 kv Emergency Bus Under-voltage (Loss of Voltage)	2450 ± 105 volts with a 2 ± 0.2 second time delay	2450 ± 105 volts with a 2 ± 0.2 second time delay
b. 4.16 kv Emergency Bus Under-voltage (Degraded Voltage)	3628 ± 25 volts with a 8 ± 0.4 second time delay	3628 ± 25 volts with a 8 ± 0.4 second time delay

CALVERT CLIFFS - UNIT 2

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Amendment No. 2, 22

533 151

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

<u>FUNCTIONAL UNIT</u>	<u>TRIP VALUE</u>	<u>ALLOWABLE VALUES</u>
8. CVCS ISOLATION		
West Penetration Room/ Letdown Heat Exchanger Room Pressure - High	≤ 0.5 psig	≤ 0.5 psig

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TABLE 3.3-5
ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
1. <u>Manual</u>	
a. SIAS Safety Injection (ECCS)	Not Applicable
b. CSAS Containment Spray	Not Applicable
c. CIS Containment Isolation	Not Applicable
d. RAS Containment Sump Recirculation	Not Applicable
2. <u>Pressurizer Pressure-Low</u>	
a. Safety Injection (ECCS)	$\leq 30^*/30^{**}$
3. <u>Containment Pressure-High</u>	
a. Safety Injection (ECCS)	$\leq 30^*/30^{**}$
b. Containment Isolation	≤ 30
c. Containment Fan Coolers	$\leq 35^*/10^{**}$
4. <u>Containment Pressure--High</u>	
a. Containment Spray	$\leq 60^*/60^{**}$
5. <u>Containment Radiation-High</u>	
a. Containment Purge Valves Isolation	≤ 6

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

<u>INITIATING SIGNAL AND FUNCTION</u>	<u>RESPONSE TIME IN SECONDS</u>
6. <u>Steam Generator Pressure-Low</u>	
a. Main Steam Isolation	≤ 6.9
b. Feedwater Isolation	≤ 80
7. <u>Refueling Water Tank-Low</u>	
a. Containment Sump Recirculation	≤ 80
8. <u>Reactor Trip</u>	
a. Feedwater Flow Reduction to 5%	≤ 20
9. <u>Loss of Power</u>	
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	≤ 2.2 ^{***}
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	≤ 8.4 ^{***}

TABLE NOTATION

- * Diesel generator starting and sequence loading delays included.
- ** Diesel generator starting and sequence loading delays not included. Offsite power available.
- *** Response time measured from the incidence of the undervoltage condition to the diesel generator start signal.

CALVERT CLIFFS - UNIT 2

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TABLE 4.3-2

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>FUNCTIONAL UNIT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. SAFETY INJECTION (SIAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Containment Pressure - High	S	R	M	1, 2, 3
c. Pressurizer Pressure - Low	S	R	M	1, 2, 3
d. Automatic Actuation Logic	N.A.	N.A.	M(1)(3)	1, 2, 3
2. CONTAINMENT SPRAY (CSAS)				
a. Manual (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Containment Pressure -- High	S	R	M	1, 2, 3
c. Automatic Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3
3. CONTAINMENT ISOLATION (CIS)				
a. Manual CIS (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Containment Pressure - High	S	R	M	1, 2, 3
c. Automatic Actuation Logic	N.A.	N.A.	M(1)(4)	1, 2, 3
4. MAIN STEAM LINE ISOLATION (SGIS)				
a. Manual SGIS (MSIV Hand Switches and Feed Head Isolation Hand Switches)	N.A.	N.A.	R	N.A.
b. Steam Generator Pressure - Low	S	R	M	1, 2, 3
c. Automatic Actuation Logic	N.A.	N.A.	M(1)(5)	1, 2, 3

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Amendment No. 3, 22

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TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
5. CONTAINMENT SUMP RECIRCULATION (RAS)				
a. Manual RAS (Trip Buttons)	N.A.	N.A.	R	N.A.
b. Refueling Water Tank - Low	N.A.	R	M	1, 2, 3
c. Automatic Actuation Logic	N.A.	N.A.	M(1)	1, 2, 3
6. CONTAINMENT PURGE VALVES ISOLATION				
a. Manual (Purge Valve Control Switches)	N.A.	N.A.	R	N.A.
b. Containment Radiation - High Area Monitor	S	R	M	6
7. LOSS OF POWER				
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	N.A.	R	M	1, 2, 3
b. 4.16 kv Emergency Bus Undervoltage (Degraded Voltage)	N.A.	R	M	1, 2, 3
8. CVCS ISOLATION West Penetration Room/ Letdown Heat Exchanger Room Pressure - High	N.A.	R	M	1, 2, 3, 4

TABLE 4.3-2 (Continued)

TABLE NOTATION

- (1) The logic circuits shall be tested manually at least once per 31 days.
- (3) SIAS logic circuits A-5, B-5, A-10 and B-10 may be exempted from testing during operation; however, these logic circuits shall be tested at least once per 18 months during shutdown.
- (4) CIS logic circuits A-5 and B-5 may be exempted from testing during operation; however, these logic circuits shall be tested at least once per 18 months during shutdown.
- (5) SGIS logic circuits A-1 and B-1 may be exempted from testing during operation; however, these logic circuits shall be tested at least once per 18 months during shutdown.

ELECTRICAL POWER SYSTEMS

A.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, the following A.C. electrical busses shall be OPERABLE and energized from sources of power other than a diesel generator but aligned to an OPERABLE diesel generator:

- 1 - 4160 volt Emergency Bus
- 1 - 480 volt Emergency Bus
- 2 - 120 volt A.C. Vital Busses

APPLICABILITY: MODES 5 and 6

ACTION:

With less than the above complement of A.C. busses OPERABLE and energized, establish CONTAINMENT INTEGRITY within 8 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.2 The specified A.C. busses shall be determined OPERABLE and energized from A.C. sources other than the diesel generators at least once per 7 days by verifying correct breaker alignment and indicated power availability.

ELECTRICAL POWER SYSTEMS

D.C. DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.3 The following D.C. bus trains shall be energized and OPERABLE:

- a. 125-volt D.C. bus No. 11, a 125 volt D. C. battery bank and a full capacity charger.
- b. 125-volt D.C. bus No. 12, a 125-volt D. C. battery bank and a full capacity charger.
- c. 125-volt D.C. bus No. 21, a 125-volt D. C. battery bank and a full capacity charger.
- d. 125-volt D.C. bus No. 22, a 125-volt D. C. battery bank and a full capacity charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

- a. With one 125-volt D.C. bus inoperable, restore the inoperable bus 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.
- b. With one 125-volt D.C. battery and/or its charger inoperable, except during surveillance testing per Specifications 4.8.2.3.2.c.2, 4.8.2.3.2.d and 4.8.2.3.2.e, restore the inoperable battery and/or charger 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.
- c. With one 125-volt D.C. battery inoperable during surveillance testing of the battery per Specifications 4.8.2.3.2.c.2 and 4.8.2.3.2.d, operation may continue provided the associated bus is being powered by an OPERABLE charger.
- d. With one 125-volt D.C. battery inoperable during surveillance testing of the battery per Specification 4.8.2.3.2.e, operation may continue provided the associated bus is being powered by a temporary 125-volt D.C. battery bank and an OPERABLE charger.

SURVEILLANCE REQUIREMENTS

4.8.2.3.1 Each D.C. bus train shall be determined OPERABLE and energized at least once per 7 days by verifying correct breaker alignment and indicated power availability.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4.8.2.3.2 Each 125-volt battery bank and charger shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
 1. The electrolyte level of each pilot cell is between the minimum and maximum level indication marks.
 2. The pilot cell specific gravity, corrected to 77°F and full electrolyte level, is ≥ 1.200 .
 3. The pilot cell voltage is ≥ 2.10 volts.
 4. The overall battery voltage is ≥ 125 volts.
- b. At least once per 92 days by verifying that:
 1. The voltage of each connected cell is ≥ 2.10 volts under float charge and has not decreased more than 0.10 volts from the value observed during the original acceptance test.
 2. The specific gravity, corrected to 77°F and full electrolyte level, of each connected cell is ≥ 1.200 and has not decreased more than 0.02 from the value observed during the previous test.
 3. The electrolyte level of each connected cell is between the minimum and maximum level indication marks.
- c. At least once per 18 months by verifying that:
 1. The cells, cell plates and battery racks show no visual indication of physical damage or deterioration.
 2. The cell-to-cell and terminal connections are clean, tight, and coated with anti-corrosion material.
- d. At least once per 18 months by, verifying that the battery capacity, with the charger disconnected, adequate to either:
 1. Supply and maintain in OPERABLE status all of the actual emergency loads for at least 2 hours when the battery is subjected to a battery service test, or

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Supply a dummy load of the following profile for at least 2 hours while maintaining the battery terminal voltage \geq 100 volts:

a) Batteries 11 and 21:

First minute \geq 827 amperes
Next 1 minute \geq 461 amperes
Next 117 minutes \geq 251 amperes
Next 1 minute \geq 325 amperes

b) Batteries 12 and 22:

First minute \geq 193 amperes
Next 119 minutes \geq 160 amperes

At the completion of this battery test, the battery charger shall be demonstrated capable of recharging the battery at a rate of \leq 400 amperes while supplying normal D.C. loads. The battery shall be charged to at least 95% capacity in \leq 24 hours.

e. At least once per 60 months, during shutdown*, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. This performance discharge test shall be performed subsequent to the satisfactory completion of the required battery service test.

*The surveillance requirement scheduled to be performed no later than March 1, 1980, may be performed during operation in any MODE provided that during this test, the associated bus is being powered by a temporary 125-volt D.C. battery bank and an OPERABLE charger.