

April 2, 1996

Mr. Charles H. Cruse
Vice President - Nuclear Energy
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

SUBJECT: ISSUANCE OF AMENDMENTS FOR CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 1 (TAC NO. M94030) AND UNIT NO. 2 (TAC NO. M94031)

Dear Mr. Cruse:

The Commission has issued the enclosed Amendment No. 214 to Facility Operating License No. DPR-53 and Amendment No. 191 to Facility Operating License No. DPR-69 for the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application transmitted by letter dated November 1, 1995, as supplemented on December 1, 1995.

The amendments reflect the new plant electrical distribution configuration, surveillance and limiting condition for operation of the new safety-related (SR) emergency diesel generator (EDG), the increased electrical capacities for the two of the three existing SR EDGs, the increased EDG fuel oil storage capacity, and the fire protection system for the new EDG building. The remaining existing SR EDG will be upgraded during the Unit No. 2 refueling outage scheduled for the spring of 1997.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

ORIGINAL SIGNED BY:

Daniel G. McDonald, Jr., Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-317
and 50-318

- Enclosures:
1. Amendment No. 214 to DPR-53
 2. Amendment No. 191 to DPR-69
 3. Safety Evaluation

cc w/encls: See next page

DOCUMENT NAME: C:\CC94030.AMD

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DATE	03/25/96		03/26/96	03/24/96	03/27/96	03/27/96

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DATED: April 2, 1996

AMENDMENT NO. 214 TO FACILITY OPERATING LICENSE NO. DPR-53-CALVERT CLIFFS
UNIT 1
AMENDMENT NO. 191 TO FACILITY OPERATING LICENSE NO. DPR-69-CALVERT CLIFFS
UNIT 2

Docket File

PUBLIC
PDI-1 Reading
S. Varga, 14/E/4
S. Shankman
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OGC
G. Hill (2), T-5 C3
C. Grimes, 11/E/22
A. Pal
D. Shum
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PD plant-specific file
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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

April 2, 1996

Mr. Charles H. Cruse
Vice President - Nuclear Energy
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

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The amendments reflect the new plant electrical distribution configuration, surveillance and limiting condition for operation of the new safety-related (SR) emergency diesel generator (EDG), the increased electrical capacities for the two of the three existing SR EDGs, the increased EDG fuel oil storage capacity, and the fire protection system for the new EDG building. The remaining existing SR EDG will be upgraded during the Unit No. 2 refueling outage scheduled for the spring of 1997.

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Daniel G. McDonald, Jr., Senior Project Manager
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Office of Nuclear Reactor Regulation

Docket Nos. 50-317
and 50-318

Enclosures: 1. Amendment No.214 to DPR-53
 2. Amendment No.191 to DPR-69
 3. Safety Evaluation

cc w/encls: See next page

Mr. Charles H. Cruse

Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 and 2

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-317

CALVERT CLIFFS NUCLEAR POWER PLANT UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 214
License No. DPR-53

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Baltimore Gas and Electric Company (the licensee) dated November 1, 1995, as supplemented on December 1, 1995, 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:

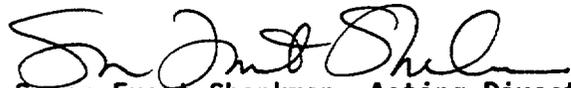
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P PDR

2. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 214, 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 and shall be implemented prior to the restart from the spring 1996 Unit No. 1 refueling outage.

FOR THE NUCLEAR REGULATORY COMMISSION



Susan Frant Shankman, Acting Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 2, 1996



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

BALTIMORE GAS AND ELECTRIC COMPANY

DOCKET NO. 50-318

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 191
License No. DPR-69

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Baltimore Gas and Electric Company (the licensee) dated November 1, 1995, as supplemented on December 1, 1995, 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 Appendices A and B, as revised through Amendment No.191 , 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 and shall be implemented prior to restart from the spring 1996 Unit No. 1 refueling outage.

FOR THE NUCLEAR REGULATORY COMMISSION



Susan Frant Shankman, Acting Director
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 2, 1996

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 214 FACILITY OPERATING LICENSE NO. DPR-53

AMENDMENT NO. 191 FACILITY OPERATING LICENSE NO. DPR-69

DOCKET NOS. 50-317 AND 50-318

Revise Appendix A as follows:

<u>Remove Pages</u>	<u>Insert Pages</u>
3/4 3-40	3/4 3-40
-----	3/4 3-42 (DPR 53 only)
3/4 3-42 through 3-57 (DPR 53 only)	3/4 3-43 through 3-52* (DPR 53 only)
3/4 7-39	3/4 7-39
3/4 7-44 (DPR 53 only)	3/4 7-44 (DPR 53 only)
3/4 8-1	3/4 8-1
3/4 8-3 through 8-8	3/4 8-3 through 8-8
3/4 8-11 and 8-12	3/4 8-11 and 8-12
B3/4 8-1 and 8-2	B3/4 8-1 and 8-2

*Indicates roll-over pages

3/4.3 INSTRUMENTATION

TABLE 3.3-11 (Continued)

FIRE DETECTION INSTRUMENTS
UNIT 1

ROOM/AREA AUX BLDG.	INSTRUMENT LOCATION	MINIMUM INSTRUMENTS OPERABLE*		
		HEAT	FLAME	SMOKE
306/1C	Cable Spreading Rm & Cable Chase**	2		10
308	N/S Corridor			6
315	Main Steam Piping Area			6
317	Switchgear Room, Elev 27'-0"***			6
318	Purge Air Supply Room			2
319/325	West Passage and Vestibule			6
320	Spent Fuel Heat Exchanger Room			3
323	Passage 27' Valve Alley & Filter Rm			3
324	Letdown Heat Exchanger Rm			1
Elev. 27'-0"	Switchgear Vent Duct	1		
1A	Cable Chase 1A			1
1B	Cable Chase 1B			1
405	Control Room			6
410	N/S Corridor			4
417/418	Solid Waste Processing		2	3
413/419/420	Cask and Equip Loading Area &			
424/425/426	Cask and Equip Loading Area		3	22
421	Diesel Generator No. (1B)**	2		
423	West Electrical Pen Rm			3
428	East Piping Area			7
429	East Electrical Pen Rm			3
430	Switchgear Room Elev 45'-0"***			8
439	Refueling Water Tank Pump Rm			2
441	Spent Resin Metering Tank Rm			1
Elev 45'-0"	Switchgear Vent Duct	1		

* Detection instruments located within the containment are not required to be OPERABLE during the performance of Type A Containment Leakage Rate Tests.

** Detectors which automatically actuate Fire Suppression Systems.

3/4.3 INSTRUMENTATION

TABLE 3.3-11 (Continued)
FIRE DETECTION INSTRUMENTS
UNIT 1

<u>ROOM/AREA</u> <u>AUX BLDG.</u>	<u>INSTRUMENT LOCATION</u>	<u>MINIMUM INSTRUMENTS</u> <u>OPERABLE*</u>		
		<u>HEAT</u>	<u>FLAME</u>	<u>SMOKE</u>
<u>1A DG Bldg.</u>				
Zone 1**	DG Room, Oil Separator Room, 1A DG Building Trench, Fan Room, Maintenance Shop and Hallway	33		
Zone 2**	Battery Room, Non-1E Electric Panel Room, Control Room, 1-E Switchgear Room, Future Expansion Room	1		11
Zone 3**	Fuel Oil Storage Tank Room	8		
Zone 4	General Area, Third Floor	17		
Zone 5	HVAC Duct, Second and Third Floor			2

* Detection instruments located within the containment are not required to be **OPERABLE** during the performance of Type A Containment Leakage Rate Tests.

** Detectors which automatically actuate Fire Suppression Systems.

3/4.3 INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION

Radioactive Gaseous Effluent Monitoring Instrumentation

LIMITING CONDITION FOR OPERATION

3.3.3.9 The radioactive gaseous effluent monitoring instrumentation channels shown in Table 3.3-12 shall be **OPERABLE** with their alarm/trip setpoints set to ensure that the limits of Specification 3.11.2.1 are not exceeded. The alarm/trip setpoints of these channels shall be determined and adjusted in accordance with the methodology and parameters in the **ODCM**.

APPLICABILITY: As shown in Table 3.3-12.

ACTION:

- a. With a radioactive gaseous effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above Specification, without delay suspend the release of radioactive gaseous effluents monitored by the affected channel, or declare the channel inoperable, or change the setpoint so it is acceptably conservative.
- b. With less than the minimum number of radioactive gaseous effluent monitoring instrumentation channels **OPERABLE**, take the **ACTION** shown in Table 3.3-12. Exert best efforts to return the instruments to **OPERABLE** status within 30 days and, if unsuccessful, explain in the next Semiannual Radioactive Effluent Release Report why the inoperability was not corrected in a timely manner.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.9 Each radioactive gaseous effluent monitoring instrumentation channel shall be demonstrated **OPERABLE** by performance of the **CHANNEL CHECK**, **SOURCE CHECK**, **CHANNEL CALIBRATION** and **CHANNEL FUNCTIONAL TEST** operations at the frequencies shown in Table 4.3-11.

TABLE 3.3-12**RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION**

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABILITY</u>	<u>ACTION</u>
1. WASTE GAS HOLDUP SYSTEM			
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release	1	*	35
b. Effluent System Flow Rate Measuring Device	1	*	36
2. MAIN VENT SYSTEM			
a. Noble Gas Activity Monitor	1	*	37
b. Iodine Sampler	1	*	38
c. Particulate Sampler	1	*	38

TABLE 3.3-12 (Continued)

TABLE NOTATION

* At all times.

ACTION STATEMENTS

- ACTION 35 -** With the number of channels **OPERABLE** less than required by the Minimum Channels **OPERABLE** requirement, the contents of the tank(s) may be released to the environment:
- a. Using the main vent monitor as a backup and recording RMS readings every 15 minutes during the release, or
 - b. Provided that prior to initiating the release, at least two independent samples of the tank's contents are analyzed, and at least two technically qualified members of the Facility Staff independently verify the release rate calculations and two qualified operators verify the discharge valve lineup.
- Otherwise, suspend release of radioactive effluents via this pathway.
- ACTION 36 -** With the number of channels **OPERABLE** less than required by the Minimum Channels **OPERABLE** requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours.
- ACTION 37 -** With the number of channels **OPERABLE** less than required by the Minimum Channels **OPERABLE** requirement, effluent releases via this pathway may continue provided either (1) grab samples are taken and analyzed for gross activity at least once per 24 hours, or (2) an equivalent monitor is provided.
- ACTION 38 -** With the number of channels **OPERABLE** less than required by the Minimum Channels **OPERABLE** requirement, effluent releases via the affected pathway may continue provided samples are continuously collected as required in Table 4.11-2 with auxiliary sampling equipment.

TABLE 4.3-11

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. WASTE GAS HOLDUP SYSTEM					
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release	P	P	R ⁽³⁾	SA ⁽¹⁾	*
b. Effluent System Flow Rate Measuring Device	D ⁽⁴⁾	NA	R	NA	*
2. MAIN VENT SYSTEM					
a. Noble Gas Activity Monitor	D	M	R ⁽³⁾	SA ⁽²⁾	*
b. Iodine Sampler	W	NA	NA	NA	*
c. Particulate Sampler	W	NA	NA	NA	*

TABLE 4.3-11 (Continued)

TABLE NOTATION

- * At all times other than when the line is valved out and locked.
- (1) The **CHANNEL FUNCTIONAL TEST** shall also demonstrate the automatic isolation of this pathway and/or Control Room alarm annunciation occurs if the appropriate following condition(s) exists:
1. Instrument indicates measure levels above the alarm/trip setpoint.
 2. Circuit failure.
 3. Instrument indicates a downscale failure.
- (2) The **CHANNEL FUNCTIONAL TEST** shall also demonstrate that Control Room alarm annunciation occurs if any of the following conditions exists:
1. Instrument indicates measured levels above the alarm setpoint.
 2. Circuit failure.
 3. Instrument indicates a downscale failure.
- (3) The initial **CHANNEL CALIBRATION** shall be performed using one or more of the reference standards traceable to the National Bureau of Standards or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system within its intended range of energy and measurement range. For subsequent **CHANNEL CALIBRATION**, sources that have been related to the initial calibration can be used.
- (4) The **CHANNEL CHECK** shall consist of verifying indication of flow during periods of release and shall be made at least once per 24 hours on days on which effluent releases are made.

3/4.3 INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION

Radioactive Liquid Effluent Monitoring Instrumentation

LIMITING CONDITION FOR OPERATION

3.3.3.10 The radioactive liquid effluent monitoring instrumentation channels shown in Table 3.3-13 shall be **OPERABLE** with their alarm/trip setpoints set to ensure that the limits of Specification 3.11.1.1 are not exceeded. The alarm/trip setpoints of these channels shall be determined and adjusted in accordance with the methodology and parameters in the **OFFSITE DOSE CALCULATION MANUAL (ODCM)**.

APPLICABILITY: At all times.

ACTION:

- a. With a radioactive liquid effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above Specification, without delay suspend the release of radioactive liquid effluents monitored by the affected channel, or declare the channel inoperable, or change the setpoint so it is acceptably conservative.
- b. With less than the minimum number of radioactive liquid effluent monitoring instrumentation channels **OPERABLE**, take the **ACTION** shown in Table 3.3-13. Exert best efforts to return the instruments to **OPERABLE** status within 30 days and, if unsuccessful, explain in the next Semiannual Radioactive Effluent Release Report why the inoperability was not corrected in a timely manner.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.10 Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated **OPERABLE** by performance of the **CHANNEL CHECK**, **SOURCE CHECK**, **CHANNEL CALIBRATION** and **CHANNEL FUNCTIONAL TEST** operations at the frequencies shown in Table 4.3-12.

TABLE 3.3-13

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>ACTION</u>
1. GROSS RADIOACTIVITY MONITORS PROVIDING ALARM AND AUTOMATIC TERMINATION OF RELEASE		
a. Liquid Radwaste Effluent Line	1	28
b. Steam Generator Blowdown Effluent Line	1	29
2. FLOW RATE MEASUREMENT DEVICES		
a. Liquid Radwaste Effluent Line	1	30
b. Steam Generator Blowdown Effluent Line	1	30

TABLE 3.3-13 (Continued)

ACTION STATEMENTS

- ACTION 28 -** With the number of channels **OPERABLE** less than required by the Minimum Channels **OPERABLE** requirement, effluent releases may continue provided that prior to initiating a release:
- a. At least two independent samples are analyzed in accordance with Specification 4.11.1.1.1, and
 - b. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and two qualified operators verify the discharge valve line up.
- ACTION 29 -** With the number of channels **OPERABLE** less than required by the Minimum Channels **OPERABLE** requirement, effluent releases via this pathway may continue provided grab samples are analyzed for gross radioactivity (beta or gamma) at the lower limit of detection defined in Table 4.11-1:
- a. At least once per 12 hours when the specific activity of the secondary coolant is greater than 0.01 microcurie/gram **DOSE EQUIVALENT I-131**.
 - b. At least once per 48 hours when the specific activity of the secondary coolant is less than or equal to 0.01 microcurie/gram **DOSE EQUIVALENT I-131**.
- ACTION 30 -** With the number of channels **OPERABLE** less than required by the Minimum Channels **OPERABLE** requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours during actual releases. Pump performance curves may be used to estimate flow.

TABLE 4.3-12

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
1. GROSS RADIOACTIVITY MONITORS PROVIDING ALARM AND AUTOMATIC TERMINATION OF RELEASE				
a. Liquid Radwaste Effluent Line	D	P	R ⁽²⁾	SA ⁽¹⁾
b. Steam Generator Blowdown Effluent Line	D	P	R ⁽²⁾	SA ⁽¹⁾
2. FLOW RATE MEASUREMENT DEVICES				
a. Liquid Radwaste Effluent Line	D ⁽³⁾	NA	R	NA
b. Steam Generator Blowdown Effluent Line	D ⁽³⁾	NA	R	NA

TABLE 4.3-12 (Continued)

TABLE NOTATION

- (1) The **CHANNEL FUNCTIONAL TEST** shall also demonstrate that automatic isolation of this pathway and/or Control Room alarm annunciation occur if the appropriate following condition(s) exists:
1. Instrument indicates measured levels above the alarm/trip setpoint.
 2. Circuit failure.
 3. Instrument indicates a downscale failure.
- (2) The initial **CHANNEL CALIBRATION** shall be performed using one or more of the reference standards traceable to the National Bureau of Standards or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system within its intended range of energy and measurement range. For subsequent **CHANNEL CALIBRATION**, sources that have been related to the initial calibration can be used.
- (3) **CHANNEL CHECK** shall consist of verifying indication of flow during periods of release. **CHANNEL CHECK** shall be made at least once per 24 hours on days on which effluent releases are made.

3/4.7 PLANT SYSTEMS

TABLE 3.7-5

FIRE PROTECTION SPRINKLERS
UNIT 1

<u>SPRINKLER LOCATION</u>	<u>CONTROL VALVE ELEVATION</u>
1B Diesel Generator	45'-0"
Unit 1 East Pipe Pen Room 227/316*	5'-0"
Unit 1 Aux Feed Pump Room 603*	12'-0"
Unit 1 East Piping Area Room 428*	45'-0"
Unit 1 East Electrical Penetration Room 429*	45'-0"
Unit 1 West Electrical Penetration Room 423*	45'-0"
Unit 1 Main Steam Piping Room 315*	45'-0"
Unit 1 Component Cooling Pump Room 228*	5'-0"
Unit 1 East Piping Area 224*	5'-0"
Unit 1 Radiation Exhaust Vent Equipment Room 225*	5'-0"
Unit 1 Service Water Pump Room 226*	5'-0"
Unit 1 Boric Acid Tank and Pump Room 217*	5'-0"
Unit 1 Reactor Coolant Makeup Pump Room 216*	5'-0"
Unit 1 Charging Pump Room 115*	(-)10'-0"
Unit 1 Misc Waste Mon Room 113*	(-)10'-0"
Cask and Eqpt Loading Area Rooms 419, 420, 425 & 426*	45'-0"
Solid Waste Processing*	45'-0"
Corridors 200, 202, 212 and 219*	5'-0"
Corridors 100, 103 and 116*	(-)10'-0"
Cable Chase 1A*	45'-0"
Cable Chase 1B*	45'-0"
Unit 1 ECCS Pump Room 119*	(-)15'-0"
Hot Instrument Shop Room 222*	5'-0"
Hot Machine Shop Room 223*	5'-0"
1A DG Building - Preaction Systems 1, 2 & 3	45'-6"

* Sprinklers required to ensure the **OPERABILITY** of redundant safe shutdown equipment.

3/4.7 PLANT SYSTEMS

TABLE 3.7-6
FIRE HOSE STATIONS

<u>LOCATION</u>	<u>ELEVATION</u>	<u>NUMBER OF HOSE STATIONS</u>
1. Containment	10'	2
	45'	2
	69'	2
2. Auxiliary Building	-15' [*]	1 ^{**}
	-10' [*]	2 ^{**}
	5'	6
	27'	3
	45'	5
	69' [*]	4
3. Turbine Building, Heater Bay Outside Service Water Pump Rooms and Aux Feedwater Pump Rooms	12'	3
	27'	2
	45'	3
4. Intake Structure	10' [*]	1
5. Diesel Generator Building	35'	1
	45'	1
	66'	1
	80'	1

* Fire Hose Stations required for primary protection to ensure the **OPERABILITY** of safety related equipment.

** Hose Stations which serve both Units 1 and 2.

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 with:
 1. Separate fuel oil day tanks containing a minimum volume of:
 - a. 325 gallons for No. 1A Emergency Diesel Generator, and
 - b. 275 gallons for No. 1B Emergency Diesel Generator,
 2. Fuel Oil Storage Tanks containing a minimum volume of:
 - a. 49,500 gallons for No. 1A Fuel Oil Storage Tank, and
 - b. 33,000 gallons for No. 11 Fuel Oil Storage Tank, and
 - c. 85,000 gallons for No. 21 Fuel Oil Storage Tank, 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

3/4.8 ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

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 the No. 1A Fuel Oil Storage Tank 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 by performing Surveillance Requirement 4.8.1.1.2.a.4 on No. 1B Emergency Diesel Generator within 24 hours. Demonstrate the **OPERABILITY** of the No. 21 Fuel Oil Storage Tank by performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) and verifying the flow path from the No. 21 Fuel Oil Storage Tank to the No. 1B Emergency Diesel Generator within 1 hour. Restore No. 1A Fuel Oil Storage Tank 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.
- g. With the Nos. 11 and 21 Fuel Oil Storage Tanks 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 by performing Surveillance Requirement 4.8.1.1.2.a.4 on No. 1A Emergency Diesel Generator within 24 hours. Demonstrate the **OPERABILITY** of the No. 1A Fuel Oil Storage Tank by performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 49,500 gallons) and verifying the flow path from the No. 1A Fuel Oil Storage Tank to the No. 1A Emergency Diesel Generator within 1 hour. Restore either No. 11 or 21 Fuel Oil 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.
- h. With either the No. 11 or 21 Fuel Oil Storage Tank inoperable, demonstrate the **OPERABILITY** of the other Fuel Oil Storage Tank by: 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour and at least once per 8 hours thereafter; and 2) verifying the flow path from the operable Fuel Oil Storage Tank to the No. 1B Emergency Diesel Generator within 1 hour.

3/4.8 ELECTRICAL POWER SYSTEMS

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 **REFUELING INTERVAL** 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 achieves a generator voltage and frequency of 4160 ± 420 volts and 60 ± 1.2 Hz, respectively.*
 5. Verifying the generator is synchronized, loaded to ≥ 4000 kW for No. 1A Emergency Diesel Generator or ≥ 2250 kW for No. 1B Emergency Diesel Generator, and operates for ≥ 60 minutes.
 6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.
 7. Verifying that the automatic load sequencer timer is **OPERABLE** with the interval between each load block within $\pm 10\%$ of its design interval.

* 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.

3/4.8 ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- 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 60 Hz in ≤ 10 seconds.
- d. At least once per **REFUELING INTERVAL** 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 ≥ 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 automatically bypassed diesel trips are automatically bypassed on a Safety Injection Actuation Signal.
 4. Verifying the diesel generator operates for ≥ 60 minutes while loaded to > 4000 kW for No. 1A Emergency Diesel Generator or ≥ 2700 kW for No. 1B Emergency Diesel Generator.
 5. Verifying that the auto-connected loads to each diesel generator do not exceed 4000 kW for No. 1A Emergency Diesel Generator or 2700 kW for No. 1B Emergency Diesel Generator.

*

All engine starts for the purpose of this Surveillance Requirement may be preceded by an engine pre-lube period recommended by the manufacturer so that mechanical wear and stress on the diesel engine is minimized.

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

Shutdown

LIMITING CONDITION FOR OPERATION

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

- a. One circuit between the offsite transmission network and the onsite Class 1E Distribution System, and
- b. One diesel generator with:
 1. A fuel oil day tank containing a minimum volume of:
 - a. 325 gallons for No. 1A Emergency Diesel Generator; or
 - b. 275 gallons for No. 1B Emergency Diesel Generator; and
 2. A Fuel Oil Storage System containing a minimum volume of:
 - a. 49,500 gallons in No. 1A Fuel Oil Storage Tank for the No. 1A Emergency Diesel Generator; or
 - b. 85,000 gallons in No. 21 Fuel Oil Storage Tank and 33,000 gallons in the No. 11 Fuel Oil Storage Tank for the No. 1B Emergency Diesel Generator, and
 3. A fuel transfer pump.

APPLICABILITY: **MODES 5 and 6.**

ACTION:

- a. With less than the above minimum required A.C. electrical power sources **OPERABLE**:
 1. Immediately* suspend all operations involving **CORE ALTERATIONS**, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel, and
 2. Immediately initiate corrective actions to restore the minimum A.C. electrical busses to **OPERABLE** status, and

* Performance of **ACTION a.** shall not preclude completion of actions to establish a safe conservative position.

3/4.8 ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

3. All containment penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be either closed by an isolation valve, blind flange, or manual valve, or be capable of being closed by an **OPERABLE** automatic purge valve. A minimum of one door in each airlock shall be closed and the equipment door shall be closed and held in place by a minimum of four bolts.
- b. With the No. 1B Emergency Diesel Generator required to be **OPERABLE** and the No. 11 Fuel Oil Storage Tank inoperable, demonstrate the **OPERABILITY** of No. 21 Fuel Oil Storage Tank by:
 1. Performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour; and
 2. Verifying the flow path from No. 21 Fuel Oil Storage Tank to No. 1B Emergency Diesel Generator within 1 hour.
- c. With the No. 1B Emergency Diesel Generator required to be **OPERABLE** and the No. 21 Fuel Oil Storage Tank inoperable, demonstrate the **OPERABILITY** of No. 11 Fuel Oil Storage Tank by:
 1. Performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour; and
 2. Verifying the flow path from No. 11 Fuel Oil Storage Tank to the No. 1B Emergency Diesel Generator within 1 hour.

Restore No. 21 Fuel Oil Storage Tank to **OPERABLE** status within 72 hours or suspend all operations involving **CORE ALTERATIONS**, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel.
- d. With the No. 1A Emergency Diesel Generator required to be **OPERABLE** and the No. 1A Fuel Oil Storage Tank inoperable, immediately* suspend all operations involving **CORE ALTERATIONS**, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel.

* Performance of **ACTION** d. shall not preclude completion of actions to establish a safe conservative position.

3/4.8 ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated **OPERABLE** by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 except for Requirements 4.8.1.1.2.a.5, 4.8.1.1.2.a.7, 4.8.1.1.2.d.3, and 4.8.1.1.2.d.5.

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.2 ONSITE POWER DISTRIBUTION 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:

- a. With less than the above complement of A.C. busses **OPERABLE** and energized:
 - 1. Immediately* suspend all operations involving **CORE ALTERATIONS**, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel, until the minimum required A.C. busses are restored to **OPERABLE** and energized status, and
 - 2. Immediately initiate corrective actions to restore the minimum A.C. electrical busses to **OPERABLE** and energized status, and
 - 3. All containment penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be either closed by an isolation valve, blind flange, or manual valve, or be capable of being closed by an **OPERABLE** automatic purge valve. A minimum of one door in each airlock shall be closed and the equipment door shall be closed and held in place by a minimum of four bolts.

* Performance of **ACTION a.** shall not preclude completion of actions to establish a safe conservative position.

3/4.8 ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

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.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

The **OPERABILITY** of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of 10 CFR Part 50, Appendix A, General Design Criteria 17.

The **OPERABILITY** of No. 21 and No. 11 Fuel Oil Storage Tanks ensure that at least 7 days of fuel oil will be reserved below the internal tank standpipes for operation of one diesel generator on each unit, assuming one unit under accident conditions with a diesel generator load of 3500 kW, and the opposite unit under normal shutdown conditions with a diesel generator load of 3000 kW. Additionally, the **OPERABILITY** of No. 21 Fuel Oil Storage Tank ensures that in the event of a loss of offsite power, concurrent with a loss of the non-bunkered fuel oil storage tank (tornado/missile event), at least 7 days of fuel oil will be available for operation of one diesel generator on each unit, assuming both diesel generators are loaded to 3000 kW. The **OPERABILITY** of the No. 1A Fuel Oil Storage Tank ensures that at least 7 days of fuel oil is available to support operation of No. 1A Emergency Diesel Generator at 4000 kW.

The **OPERABILITY** of the fuel oil day tanks ensures that at least one hour of diesel generator operation is available without makeup to the day tanks, assuming No. 1A Emergency Diesel Generator is loaded to 4000 kW and No. 1B Emergency Diesel Generator is loaded to 3500 kW.

The **ACTION** requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The **OPERABILITY** of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least one of each of the onsite A.C. and D.C. power sources and associated distribution systems **OPERABLE** during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source.

The **OPERABILITY** of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the facility status.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

Surveillance 4.8.1.1.2.d.3.c demonstrates that diesel generator noncritical protective functions are bypassed on a Safety Injection Actuation Signal. The diesel generator availability to mitigate the Design Basis Accident is more critical than protecting the engine against problems that are not immediately detrimental to emergency operation of the diesel generator. The automatic trips that are required to be bypassed on a Safety Injection Actuation Signal are identified in the Updated Final Safety Analysis Report.

Surveillance 4.8.1.1.2.a.5 for No. 1A Emergency Diesel Generator ensures that at least once per month the diesel generator is loaded to greater than the load required during accident conditions. For No. 1B Emergency Diesel Generator, Surveillance 4.8.1.1.2.a.5 verifies that this diesel generator is capable of synchronizing with the offsite electrical system and accepting loads greater than or equal to 90 percent of the diesel generator's continuous rating for a period of greater than or equal to 60 minutes. Surveillance 4.8.1.1.2.d.4 ensures that at least once per **REFUELING OUTAGE** each diesel generator is loaded to greater than the load required during accident conditions.

3/4.3 INSTRUMENTATION

TABLE 3.3-11 (Continued)

**FIRE DETECTION INSTRUMENTS
UNIT 2**

ROOM/AREA AUX BLDG.	INSTRUMENT LOCATION	MINIMUM INSTRUMENTS OPERABLE*		
		HEAT	FLAME	SMOKE
407	Switchgear Rm, Elev 45'-0" **			8
408	East Piping Area			7
409	East Electrical Pen Rm			3
414	West Electrical Pen Rm			3
416	Diesel Generator No. (2B) **	2		
422	Diesel Generator No. (2A) **	2		
440	Refueling Water Tank Pump Rm			2
Elev. 45'-0"	Switchgear Vent Duct	1		
526	Main Plant Exhaust Equip Rm			8
527	Containment Access			3
532	Electrical Equip Rm			3
Elev. 69'-0"	Cable Spreading Room Vent Duct			1
Elev. 83'-0"	Cable Tunnel			4
605	Auxiliary Feedwater Pump Rm			2
<u>Containment Bldg.</u>				
UNIT 2	RCP Bay East*	16		
UNIT 2	RCP Bay West*	16		
UNIT 2	East Electric Pen Area*	+		
UNIT 2	West Electric Pen Area*	+		
<u>Intake Structure Elev 3'-0" Unit 2 Side</u>				24

* Detection instruments located within the containment are not required to be **OPERABLE** during the performance of Type A Containment Leakage Rate Tests.

** Detectors which automatically actuate Fire Suppression Systems.

+ Monitored by four protecto wires.

3/4.7 PLANT SYSTEMS

TABLE 3.7-5

**FIRE PROTECTION SPRINKLERS
UNIT 2**

<u>SPRINKLER LOCATION</u>	<u>CONTROL VALVE ELEVATION</u>
Unit 2 Aux Feed Pump Room 605*	12'-0"
Unit 2 East Piping Area Room 408*	45'-0"
Unit 2 East Elec Pen Room 409*	45'-0"
Unit 2 West Elec Pen Room 414*	45'-0"
Cable Chase 2A*	45'-0"
Cable Chase 2B*	45'-0"
Unit 2 Main Steam Piping Room 309*	45'-0"
Unit 2 Component Cooling Pp Room 201	5'-0"
Unit 2 East Piping Area 203*	5'-0"
Unit 2 Rad Exh Vent Equip Room 204*	5'-0"
Unit 2 Service Water Pp Room 205*	5'-0"
Unit 2 Boric Acid Tk and Pp Room 215*	5'-0"
Unit 2 Reactor Coolant Makeup Pump Room 216A*	5'-0"
Unit 2 Charging Pump Room 105*	(-)10'-0"
Unit 2 Misc Waste Monitor Tk Room 106*	(-)10'-0"
Unit 2 ECCS Pump Room 101*	(-)15'-0"
2A Diesel Generator	45'-0"
2B Diesel Generator	45'-0"
Unit 2 East Pipe Pen Room 206/310*	5'-0"

* Sprinklers required to ensure the **OPERABILITY** of redundant safe shutdown equipment.

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 with:
 1. Separate fuel oil day tanks containing a minimum volume of 275 gallons of fuel for each diesel generator,
 2. A common Fuel Storage System consisting of:
 - a. No. 21 Fuel Oil Storage Tank containing a minimum volume of 85,000 gallons of fuel oil, and
 - b. No. 11 Fuel Oil Storage Tank containing a minimum volume of 33,000 gallons of fuel oil, 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

3/4.8 ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

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 the No. 21 Fuel Oil Storage Tank inoperable, during the period from:
1. October 1 to March 31, demonstrate the **OPERABILITY** of the No. 11 Fuel Oil Storage Tank by: 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour and at least once per 8 hours thereafter; and 2) verifying the flow path from the No. 11 Fuel Oil Storage Tank to the diesel generators within 1 hour. Restore No. 21 Fuel Oil Storage Tank 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.
 2. April 1 to September 30, demonstrate the **OPERABILITY** of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. Restore No. 21 Fuel Oil Storage Tank 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.
- g. With No. 11 Fuel Oil Storage Tank inoperable, demonstrate the **OPERABILITY** of No. 21 Fuel Oil Storage Tank by 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour and at least once per 8 hours thereafter, and 2) verifying the flow path from No. 21 Fuel Oil Storage Tank to the diesel generators within 1 hour. Restore No. 11 Fuel Oil Storage Tank to **OPERABLE** status within 7 days or be in at least **HOT STANDBY** within the next 6 hours and in **COLD SHUTDOWN** within the following 30 hours.

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.

3/4.8 ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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 **REFUELING INTERVAL** 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 achieves a generator voltage and frequency of 4160 ± 420 volts and 60 ± 1.2 Hz, respectively.*
 5. Verifying the generator is synchronized, loaded to ≥ 2700 kW, and operates for ≥ 60 minutes.
 6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.
 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.

* 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.

3/4.8 ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c. At least once per 184 days by verifying the diesel starts from ambient condition and accelerates to at least 60 Hz in ≤ 10 seconds.*

- d. At least once per **REFUELING INTERVAL** 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 ≥ 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 automatically bypassed diesel trips are automatically bypassed on a Safety Injection Actuation Signal.
 - 4. Verifying the diesel generator operates for ≥ 60 minutes while loaded to ≥ 3000 kW.
 - 5. Verifying that the auto-connected loads to each diesel generator do not exceed 3300 kW.

* All engine starts for the purpose of this Surveillance Requirement may be preceded by an engine pre-lube period recommended by the manufacturer so that mechanical wear and stress on the diesel engine is minimized.

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

Shutdown

LIMITING CONDITION FOR OPERATION

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

- a. One circuit between the offsite transmission network and the onsite Class 1E Distribution System, and
- b. One diesel generator with:
 1. A fuel oil day tank containing a minimum volume of 275 gallons of fuel,
 2. A common Fuel Storage System consisting of:
 - a. No. 21 Fuel Oil Storage Tank containing a minimum volume of 85,000 gallons of fuel oil, and
 - b. No. 11 Fuel Oil Storage Tank containing a minimum volume of 33,000 gallons of fuel oil, and
 3. A fuel transfer pump.

APPLICABILITY: **MODES 5 and 6.**

ACTION:

- a. With less than the above minimum required A.C. electrical power sources **OPERABLE**:
 1. Immediately* suspend all operations involving **CORE ALTERATIONS**, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel, and
 2. Immediately initiate corrective actions to restore the minimum A.C. electrical power sources to **OPERABLE** status, and

* Performance of **ACTION a.** shall not preclude completion of actions to establish a safe conservative position.

3/4.8 ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

3. All containment penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be either closed by an isolation valve, blind flange, or manual valve, or be capable of being closed by an **OPERABLE** automatic purge valve. A minimum of one door in each airlock shall be closed and the equipment door shall be closed and held in place by a minimum of four bolts.

- b. With the No. 11 Fuel Oil Storage Tank inoperable, demonstrate the **OPERABILITY** of No. 21 Fuel Oil Storage Tank by:
 1. Performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour; and
 2. Verifying the flow path from No. 21 Fuel Oil Storage Tank to the diesel generator within 1 hour.

- c. With No. 21 Fuel Oil Storage Tank inoperable, demonstrate the **OPERABILITY** of No. 11 Fuel Oil Storage Tank by:
 1. Performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour; and
 2. Verifying the flow path from No. 11 Fuel Oil Storage Tank to the diesel generator within 1 hour.

Restore No. 21 Fuel Oil Storage Tank to **OPERABLE** status within 72 hours or suspend all operations involving **CORE ALTERATIONS**, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel.

3/4.8 ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated **OPERABLE** by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 except for Requirements 4.8.1.1.2.a.5, 4.8.1.1.2.a.7, 4.8.1.1.2.d.3, and 4.8.1.1.2.d.5.

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.2 ONSITE POWER DISTRIBUTION 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:

- a. With less than the above complement of A.C. busses **OPERABLE** and energized:
 - 1. Immediately* suspend all operations involving **CORE ALTERATIONS**, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel, until the minimum required A.C. busses are restored to **OPERABLE** and energized status, and
 - 2. Immediately initiate corrective actions to restore the minimum A.C. electrical busses to **OPERABLE** and energized status, and
 - 3. All containment penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be either closed by an isolation valve, blind flange, or manual valve, or be capable of being closed by an **OPERABLE** automatic purge valve. A minimum of one door in each airlock shall be closed and the equipment door shall be closed and held in place by a minimum of four bolts.

* Performance of **ACTION a.** shall not preclude completion of actions to establish a safe conservative position.

3/4.8 ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

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.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

The **OPERABILITY** of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of 10 CFR Part 50, Appendix A, General Design Criteria 17.

The **OPERABILITY** of No. 21 and No. 11 Fuel Oil Storage Tanks ensures that at least 7 days of fuel oil will be reserved below the internal tank standpipes for operation of one diesel generator on each unit, assuming one unit under accident conditions with a diesel generator load of 3500 kW, and the opposite unit under normal shutdown conditions with a diesel generator load of 3000 kW. Additionally, the **OPERABILITY** of No. 21 Fuel Oil Storage Tank ensures that in the event of a loss of offsite power, concurrent with a loss of No. 11 Fuel Oil Storage Tank (tornado/missile event), at least 7 days of fuel oil will be available for operation of one diesel generator on each unit, assuming both diesel generators are loaded to 3000 kW.

The **OPERABILITY** of the fuel oil day tanks ensures that at least one hour of diesel generator operation is available without makeup to the day tanks, assuming the associated diesel generator is loaded to 3500 kW.

The **ACTION** requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The **OPERABILITY** of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least one of each of the onsite A.C. and D.C. power sources and associated distribution systems **OPERABLE** during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source.

The **OPERABILITY** of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the facility status.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

Surveillance 4.8.1.1.2.d.3.c demonstrates that diesel generator noncritical protective functions are bypassed on a Safety Injection Actuation Signal. The diesel generator availability to mitigate the Design Basis Accident is more critical than protecting the engine against problems that are not immediately detrimental to emergency operation of the diesel generator. The automatic trips that are required to be bypassed on a Safety Injection Actuation Signal are identified in the Updated Final Safety Analysis Report.

Surveillance 4.8.1.1.2.a.5 verifies that the diesel generators are capable of synchronizing with the offsite electrical system and accepting loads greater than or equal to 90 percent of the diesel generator's continuous rating for a period of greater than or equal to 60 minutes. Surveillance 4.8.1.1.2.d.4 ensures that at least once per **REFUELING OUTAGE** the diesel generator is loaded to greater than the load required during accident conditions.



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 214 TO FACILITY OPERATING LICENSE NO. DPR-53
AND AMENDMENT NO. 191 TO FACILITY OPERATING LICENSE NO. DPR-69

BALTIMORE GAS AND ELECTRIC COMPANY

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

DOCKET NOS. 50-317 AND 50-318

1.0 INTRODUCTION

By letter dated November 1, 1995, as supplemented on December 1, 1995, the Baltimore Gas and Electric Company (the licensee) submitted a request for changes to the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, Technical Specifications (TSs). The requested changes would reflect the new plant electrical distribution configuration, surveillance and limiting condition for operation (LCO) of the new safety-related (SR) emergency diesel generator (EDG), the increased electrical capacities for the two of the three existing SR EDGs, the increased EDG fuel oil storage capacity, and the fire protection system for the new EDG building. The remaining existing SR EDG will be upgraded during the Unit No. 2 refueling outage scheduled for the spring of 1997.

The licensee committed to add a fourth SR EDG and a non safety-related (NSR) EDG, as an alternate ac (AAC) power source, in order to comply with the Station Blackout Rule (10 CFR 50.63). The addition of the new EDG and the capacity changes to the two of the three existing SR EDGs involve changes or additions to surveillance and LCOs for the SR EDGs and the changing of equipment designations; the new electrical distribution configuration requires TS changes to reflect the reconfiguration; the reconfiguration of the fuel oil system, as the result of adding the new EDGs, requires TS changes; and the additions to the fire protection system for the new EDG building require TS changes.

Currently, three SR EDGs are utilized at the Calvert Cliffs Nuclear Power Plant site to provide emergency onsite power for both Unit Nos. 1 and 2. These SR EDGs are designated as No. 11 EDG, No. 21 EDG, and No. 12 EDG. No. 11 EDG and No. 21 EDG are dedicated to Unit 1 and Unit 2, respectively, and No. 12 EDG is designated as a "swing" EDG which is capable of providing emergency power to either unit. The new SR EDG is designated as No. 1A EDG and has its own separate, independent and SR fuel oil storage and transfer system. The existing EDGs will be upgraded from a continuous rating of 2500 kW to a continuous rating of 3000 kW. The No. 1A EDG has a continuous rating of 5400 kW. The No. 12 EDG is re-designated as No. 1B EDG. Both

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No. 1A and No. 1B EDGs are dedicated to Unit 1. The No. 11 EDG and No. 21 EDG are redesignated as No. 2A EDG and No. 2B EDG, respectively, and are dedicated to Unit 2. Thus, the addition of the No. 1A EDG will eliminate the use of a swing EDG at the site.

The licensee submitted the qualification testing program for the upgraded existing EDGs to the NRC staff and the staff approved the subject program by letter dated February 10, 1994. The approved testing program has been completed on the existing No. 21 EDG, and this EDG has been qualified to the upgraded ratings. The licensee plans to qualify the existing No. 11 EDG to the upgraded ratings prior to restart from the upcoming Unit No. 1 refueling outage.

The licensee intends to place the implementation of the amended TS on hold until No. 11 EDG is dedicated to 4.16 kV bus no. 21, and No. 11 EDG and No. 21 EDG are renamed No. 2A EDG and No. 2B EDG, respectively. This implementation schedule is necessary to ensure that the Unit No. 2 TSs correctly reflect the necessary components required to satisfy all operability requirements. Given this implementation schedule, the Unit 1 No. TSs will briefly indicate the new name for the No. 12 EDG (No. 1B EDG) before this change occurred in the plant. However, this inconsistency will not result in an operability compliance problem since the operators will be verifying the same equipment to ensure that the TSs requirements are met. The licensee plans to establish the necessary training and other administrative controls in order to minimize confusion during this transition period.

This Safety Evaluation is divided into four sections. The first section is the introduction. The second section relates to the new SR EDG and the upgraded EDGs as reflected in the new configuration. The third section relates to the changes in the fuel oil supply as a result of the addition of the new SR EDG and the new capacities of the existing EDGs. The fourth section relates to the fire protection system additions as the result of the construction of a building to house the new SR EDG.

2.0 EVALUATION - EDGs AND CONFIGURATION

2.1 Proposed Changes to TS Sections 4.8.1.1.2.a.5 (Unit Nos. 1 and 2)

Current TSs

The TS sections read:

Verifying the generator is synchronized, loaded to ≥ 1250 kW, and operates for ≥ 60 minutes.

Proposed TSs

The amended TS sections would read:

Unit 1

Verifying the generator is synchronized, loaded to ≥ 4000 kW for No. 1A Emergency Diesel Generator, or ≥ 2250 kW for No. 1B Emergency Diesel Generator, and operates for ≥ 60 minutes.

Unit 2

Verifying the generator is synchronized, loaded to ≥ 2700 kW, and operates for ≥ 60 minutes.

Evaluation

Unit 1

The licensee stated that monthly load run test at greater than 90 percent of the EDG's continuous rating provides a clearer indication of the ability of the EDG to operate at its full continuous rating and is consistent with Regulatory Position 2.2.2 of Regulatory Guide (RG) 1.9, Revision 3. The continuous rating of EDG 1B is 2500 kW. The proposed change will require the EDG 1B to be loaded to greater than or equal to 2250 kW (90 percent of 2500). The continuous rating of EDG 1A is 5400 kW. The licensee stated that the proposed minimum test loading of 4000 kW for EDG 1A is based on a maximum accident loading analysis. The licensee further stated that since the surveillance requirements are intended to demonstrate the operability of the EDGs by ensuring that they can provide a reliable source of power to mitigate the consequences of an accident and shut down the unit after an accident, the acceptance criterion for the monthly surveillance for EDG 1A will be 4000 kW. However, the testing will normally be performed at between 90 percent and 100 percent of the EDG's continuous rating. The EDG will not be considered inoperable per TSs unless it fails to maintain a 4000 kW load, indicating that it may not be capable of performing its safety function. Any degradation in the EDG's performance between the continuous rating (5400 kW) and the capacity needed to perform the safety function (4000 kW) will be evaluated under the corrective action program and corrected under the maintenance program, which incorporates trending capabilities.

Unit 2

The licensee stated that monthly load run test at greater than 90 percent of the EDG's continuous rating gives a clearer indication of the EDG's ability to operate at its full continuous rating, and is consistent with Regulatory Position 2.2.2 of RG 1.9, Revision 3. The continuous upgraded rating of EDGs 2A and 2B is 3000 kW. The licensee stated that the proposed minimum test loading of 2700 kW for EDGs 2A and 2B is greater than the calculated accident loads and will more clearly demonstrate the ability of the EDGs to perform their safety function.

The staff has determined that the above proposed changes are an improvement over the original requirement to load at one half of the continuous rating of

the EDGs. The proposed loading requirements for EDGs are consistent with RG 1.9, as noted above, and are also consistent with the Improved Standard Technical Specifications (STS). Therefore, we find the proposed changes acceptable.

2.2 Proposed Changes to TS Sections 4.8.1.1.2.c (Unit Nos. 1 and 2)

Current TS

The TS sections read:

At least once per 184 days by verifying the diesel generator starts from ambient condition and accelerates to at least 900 rpm in ≥ 10 seconds.*

Proposed TSs

The amended TS sections would read:

At least once per 184 days by verifying the diesel generator starts from ambient condition and accelerates to at least 60 Hz in ≤ 10 seconds.* (the existing footnote remains unchanged)

Evaluation

The licensee stated that the existing fairbanks Morse EDGs are rated at 900 revolution per minute (rpm), whereas EDG 1A has a rated speed of 1200 rpm. The licensee proposed to revise the surveillance to verify that the EDGs start and attain a generator frequency of at least 60 Hz (900 rpm for EDG 1B, 2A, 2B and 1200 rpm for EDG 1A) in 10 seconds or less. The footnote relates to engine prelubes prior to surveillance testing as recommended by the manufacturer.

The staff has determined that this change reflects the design of the EDGs and will assure that the EDGs attain their rated speed in 10 seconds, which is reflected by the required 60 Hz frequency. The use of the frequency is also consistent with the improved STS. Therefore, we find the proposed change acceptable.

2.3 Proposed Changes to TS Section 4.8.1.1.2.d.3.c (Unit Nos. 1 and 2)

Current TSs

The TS section reads:

Verifying that the high jacket coolant temperature, high crankcase pressure, and low jacket coolant pressure trips are automatically bypassed on a Safety Injection Actuation Signal. **

** The high crankcase pressure trip bypass verification is applicable after the trip bypass is installed on the diesel engine being tested. Modifications are to be completed by february 28, 1996.

Proposed TSs

The amended TS sections would read:

Verifying that automatically bypassed diesel trips are automatically bypassed on a Safety Injection Actuation Signal.

Evaluation

The licensee stated that the existing fairbanks Morse EDGs and No. 1A EDG have protective trips designed to prevent engine damage by automatically shutting down the EDG if it malfunctions. When the EDGs are called on for post-accident service, as indicated by the presence of a safety injection actuation signal (SIAS), the protective trips that do not generally indicate imminent engine damage are bypassed. However, because of design differences between the Fairbanks Morse EDGs and No. 1A EDG, different protective trips are bypassed on a SIAS. The list of bypassed trips will be relocated to the Updated Final Safety Analysis Report (UFSAR) and controlled under the 50.59 process. With the relocation of bypassed trips to the UFSAR, the footnote associated with this surveillance requirement will no longer be necessary and hence, is deleted.

The staff has determined that this change, which requires verification that the noncritical engine trips have been bypassed when an SIAS signal is present, will provide reasonable assurance of the availability of the SR EDGs when required during and subsequent to a design basis event. The identification of the bypassed trips in the UFSAR is consistent with the improved STS. Therefore, we find the proposed changes acceptable.

2.4 Proposed Changes to TS Sections 4.8.1.1.2.d.4 (Unit Nos. 1 and 2)

Current TSs

The TS Sections 4.8.1.1.2.d.4 read:

Unit 1

Verifying the diesel generator operates for ≥ 60 minutes while loaded to ≥ 2500 kW.

Proposed TSs

The amended TS sections would read:

Unit 1

Verifying the diesel generator operates for ≥ 60 minutes while loaded to ≥ 4000 kW for No. 1A Emergency Diesel Generator, or ≥ 2700 kW for No. 1B Emergency Diesel Generator.

Unit 2

Verifying the diesel generator operates for ≥ 60 minutes while loaded to ≥ 3000 kW.

Evaluation

The licensee stated increasing the acceptance criterion for the EDGs to exceed accident loads gives a better indication of the EDG's ability to support post-accident loads when required.

The staff has determined that this proposed change is an improvement over the existing requirements and reflects the reconfiguration of the electrical distribution system accounting for the design differences of the EDGs. Therefore, we find the proposed changes acceptable.

2.5 Proposed Changes to TS Section 4.8.1.1.2.d.5

Current TSs (Units 1 and 2)

The TS Sections 4.8.1.1.2.d.5 read:

Verifying that the auto-connected loads to each diesel generator do not exceed the 2000 hour rating of each diesel generator.

Proposed TSs

The amended TS sections would read:

Unit 1

Verifying that the auto-connected loads to each diesel generator do not exceed 4000 kW for No. 1A Emergency Diesel Generator, or 2700 kW for No. 1B Emergency Diesel Generator.

Unit 2

Verifying that the auto-connected loads to each diesel generator do not exceed 3300 kW.

Evaluation

The licensee stated that the 2000-hour rating of No. 1B EDG is 2700 kW and that this rating of the No. 1A EDG does not exist. The manufacturer of No. 1A EDG, Societie' Alsacienne de Constructions Mechaniques De Mulhouse (SACM), gives only a "continuous rating" for this EDG, so the term "2000-hour rating" does not apply to this EDG. Therefore, for consistency this TS is revised to verify that auto-connected loads do not exceed 4000 kW for 1A EDG and 2700 kW for 1B EDG. This change provides reasonable assurance that automatic loading

of the EDGs will not adversely affect the ability of the EDGs to perform their safety function.

The licensee stated that the 2000-hour rating of No. 2A and 2B EDG is 3300 kW. This surveillance requirement will adequately assure that automatic loading of the EDGs will not adversely affect the EDGs ability to perform their safety function.

The staff has determined that the proposed changes take into account the design differences of the EDGs and that the kW ratings for EDG Nos. 1B, 2A and 2B reflect their 2000-hour rating. The 4000 kW limit proposed for the No. 1A EDG is less than its continuous rating of 5400 kW; however, the 4000 kW limit prevents the possibility that the auto-connected loads will overload the No. 1A EDG for an extended period of operation and is an acceptable alternative since the EDG does not have a 2000-hour rating. Therefore, we find the proposed changes acceptable.

2.6 Proposed Changes to TS Sections 3.8.1.2 ACTIONS a and b
(Unit Nos. 1 and 2)

Current TSs

The TS Sections 3.8.1.2 ACTIONS a and b read:

a. With less than the above minimum required A.C. electrical power sources OPERABLE for reasons other than the performance of Surveillance Requirement 4.8.1.1.2.d.1 on No. 12 diesel generator:

1. Immediately* suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel, and
2. Immediately initiate corrective actions to restore the minimum A.C. electrical busses to OPERABLE status, and
3. All containment penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be either closed by an Isolation valve, blind flange, or manual valve, or be capable of being closed by an OPERABLE automatic purge valve. A minimum of one door in each airlock shall be closed and the equipment door shall be closed and held in place by a minimum of four bolts.

* Performance of ACTION a. shall not preclude completion of actions to establish a safe conservative position.

b. With less than the above minimum required A.C. electrical power sources OPERABLE for the performance of Surveillance Requirement 4.8.1.1.2.d.1 on No. 12 emergency diesel generator: **

1. Verify either two 500 kV offsite power circuits or a 500 kV offsite power circuit and the 69 kV SMECO offsite power circuit are available and capable of being used. This availability shall be verified prior to removing the OPERABLE emergency diesel generators and once per shift thereafter,
2. Suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel,
3. All containment penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be either closed by an isolation valve, blind flange, or manual valve, or be capable of being closed by an OPERABLE automatic purge valve. A minimum of one door in each airlock shall be closed and the equipment door shall be closed and held in place by a minimum of four bolts.
4. An emergency diesel generator shall be OPERABLE and aligned to provide power to the emergency busses within seven days*.
5. Within two weeks prior to the planned unavailability of an OPERABLE emergency diesel generator, a temporary diesel generator shall be demonstrated available.
6. A temporary diesel generator shall be demonstrated available by starting it at least once per 72 hours.
7. If ACTIONS b) 1 through b) 6 are not met, restore compliance with the ACTIONS within 4 hours or restore an OPERABLE emergency diesel generator within the next 4 hours.

** The provisions of ACTION b) are no longer applicable following the installation of two additional diesel generators.

* During the 1995 Unit 2 refueling outage, an emergency diesel generator shall be OPERABLE and aligned to provide power to an emergency bus within 14 days.
(This footnote on Unit 2 only)

Proposed TSs

The amended TS sections would read:

- a. With less than the above minimum required A.C. electrical power sources OPERABLE:
 1. Immediately* suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel, and

2. Immediately initiate corrective actions to restore the minimum A.C. electrical power sources to OPERABLE status, and
 3. All containment penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be either closed by an isolation valve, blind flange, or manual valve, or be capable of being closed by an OPERABLE automatic purge valve. A minimum of one door in each airlock shall be closed and the equipment door shall be closed and held in place by a minimum of four bolts.
- * Performance of ACTION a. shall not preclude completion of actions to establish a safe conservative position.

Evaluation

The licensee stated that the existing TSs 3.8.1.2, ACTION b, specified the action to be taken for periods with less than the minimum required A.c. electrical power sources operable during the performance of surveillance requirement 4.8.1.1.2.d.1 on No. 12 EDG. The existing ACTION b included footnote ** stating that the provisions of ACTION b are no longer applicable after the installation of two additional EDGs. Subsequently, with concurrence from the NRC staff, the licensee changed its position and installed one EDG and one non-Class 1E MC EDG. As a result, each unit has two dedicated EDGs and one AAC EDG which is shared between the units. Hence, "ACTION b" and the reference of surveillance requirement 4.8.1.1.2.d.1 on No. 12 EDG to "ACTION a" are no longer applicable.

The footnote, which is applicable to Unit 2 only, addresses the Unit 2, 1995 refueling outage and is also no longer applicable.

The staff has determined that the proposed changes reflect the reconfiguration of the electrical system and are consistent with the improved STS. Therefore, we find the proposed changes acceptable.

2.7 Proposed Changes to TS Sections 3.8.2.2 ACTIONS a and b (Unit Nos. 1 and 2)

Current TSs

The TS Sections 3.8.2.2 ACTIONS a and b read:

- a. With less than the above complement of A.C. busses OPERABLE and energized for reasons other than the performance of Surveillance Requirement 4.8.1.1.2.d.1 on No. 12 diesel generator:
 1. Immediately* suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel, until the minimum

required A.C. busses are restored to OPERABLE and energized status, and

2. Immediately initiate corrective actions to restore the minimum A.C. electrical busses to OPERABLE and energized status, and
 3. All containment penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be either closed by an Isolation valve, blind flange, or manual valve, or be capable of being closed by an OPERABLE automatic purge valve. A minimum of one door in each airlock shall be closed and the equipment door shall be closed and held in place by a minimum of four bolts.
- * Performance of ACTION a. shall not preclude completion of actions to establish a safe conservative position.

b. With less than the above minimum required A.C. electrical power sources OPERABLE for the performance of Surveillance Requirement 4.8.1.1.2.d.1 on No. 12 emergency diesel generator: **

1. Verify either two 500 kV offsite power circuits or a 500 kV offsite power circuit and the 69 kV SMECO offsite power circuit are available and capable of being used. This availability shall be verified prior to removing the OPERABLE emergency diesel generators and once per shift thereafter,
2. Suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel,
3. All containment penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be either closed by an isolation valve, blind flange, or manual valve, or be capable of being closed by an OPERABLE automatic purge valve. A minimum of one door in each airlock shall be closed and the equipment door shall be closed and held in place by a minimum of four bolts.
4. An emergency diesel generator shall be OPERABLE and aligned to provide power to the emergency busses within seven days*.
5. Within two weeks prior to the planned unavailability of an OPERABLE emergency diesel generator, a temporary diesel generator shall be demonstrated available.
6. A temporary diesel generator shall be demonstrated available by starting it at least once per 72 hours.

7. If ACTIONS b) 1 through b) 6 are not met, restore compliance with the ACTIONS within 4 hours or restore an OPERABLE emergency diesel generator within the next 4 hours.

** The provisions of ACTION b) are no longer applicable following the installation of two additional diesel generators.

- * During the 1995 Unit 2 refueling outage, an emergency diesel generator shall be OPERABLE and aligned to provide power to an emergency bus within 14 days.
(This footnote on Unit 2 only)

Proposed TSs

The amended TS sections would read:

- a. With less than the above complement of A.C. busses OPERABLE and energized:
 1. Immediately* suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel, until the minimum required A.C. busses are restored to OPERABLE and energized status, and
 2. Immediately initiate corrective actions to restore the minimum A.C. electrical busses to OPERABLE and energized status, and
 3. All containment penetrations providing direct access from the containment atmosphere to the outside atmosphere shall be either closed by an isolation valve, blind flange, or manual valve, or be capable of being closed by an OPERABLE automatic purge valve. A minimum of one door in each airlock shall be closed and the equipment door shall be closed and held in place by a minimum of four bolts.
- * Performance of ACTION a. shall not preclude completion of actions to establish a safe conservative position.

Evaluation

The licensee stated that the existing TSs 3.8.2.2, ACTION b, specified the action to be taken for periods with less than the minimum required A.C. electrical power sources operable to energize the required complement of A.C. buses during the performance of surveillance requirement 4.8.1.1.2.d.1 on No. 12 EDG. The existing ACTION b included footnote ** stating that the provisions of ACTION b are no longer applicable after the installation of two additional EDGs. Subsequently, with concurrence from the NRC staff, the licensee changed its position and installed one EDG and one non-Class 1E MC EDG. As a result, each unit has two dedicated EDGs and one AAC EDG which is

shared between the units. Hence, "ACTION b" and the reference of surveillance requirement 4.8.1.1.2.d.1 on No. 12 EDG to "ACTION a" are no longer applicable.

The footnote, which is applicable to Unit 2 only, addresses the Unit 2, 1995 refueling outage and is no longer applicable.

The staff has determined that the proposed changes reflect the reconfiguration of the electrical system and are consistent with the improved STS. Therefore, we find the proposed changes acceptable.

2.8 Proposed Changes to TS Sections 3/4.8 BASES

The current TS Sections 3/4.8 BASES (second paragraphs) reflect the accident and shutdown loads for the SR EDGs prior to implementing the new configuration. These values have been changed to reflect the loads, accident and shutdown, for the new configuration and designation of the SR EDGs as discussed above.

The current TS Sections 3/4.8 BASES (third paragraphs) reflect that the fuel oil day tanks ensure 1 hour of operation based on a load value for the three existing SR EDGs prior to their power uprating and does not address the new SR EDG No. 1A. The Unit 1 Bases Section is revised to reflect load values for the Nos. 1A and 1B based on the current power ratings. The Unit 2 Bases Section is revised to reflect load values for the SR EDG Nos. 2A and 2B which is also based on the power upratings.

At present, the TS Sections 3/4.8 BASES (last paragraph) reads:

Unit 1

The ACTION requirements for LCOs 3.8.1.2. and 3.8.2.2 are associated with the performance of Surveillance 4.8.1.1.2.d.1 on No. 12 emergency diesel generator with Unit 1 shutdown and Unit 2 at power. This requires that No. 11 emergency diesel generator be aligned to Unit 2. The actions specified reduce the probability of a loss of offsite power by requiring the availability of two offsite power circuits. A temporary diesel is available which has sufficient capacity to carry all required shutdown loads. This ACTION only applies to the performance of Surveillance 4.8.1.1.2.d.1 on No. 12 emergency diesel generator. Performance of Surveillance 4.8.1.1.2.d.1 on No. 11 emergency diesel generator would not violate the LCOs for 3.8.1.2 and 3.8.2.2 because the No. 12 emergency diesel generator may be aligned to either unit.

Unit 2

The ACTION requirements for LCOs 3.8.1.2. and 3.8.2.2 are associated with the performance of Surveillance 4.8.1.1.2.d.1 on No. 12 emergency diesel generator with Unit 2 shutdown and Unit 1 at power. This requires that No. 21 emergency diesel generator be aligned to Unit 1. The actions

specified reduce the probability of a loss of offsite power by requiring the availability of two offsite power circuits. A temporary diesel is available which has sufficient capacity to carry all required shutdown loads. This ACTION only applies to the performance of Surveillance 4.8.1.1.2.d.1 on No. 12 emergency diesel generator. Performance of Surveillance 4.8.1.1.2.d.1 on No. 21 emergency diesel generator would not violate the LCOs for 3.8.1.2 and 3.8.2.2 because the No. 12 emergency diesel generator may be aligned to either unit.

The amended TS sections would read:

Unit 1 and 2

Surveillance 4.8.1.1.2.d.3.c demonstrates that diesel generator noncritical protective functions are bypassed on a Safety Injection Actuation Signal. The diesel generator availability to mitigate the Design Basis Accident is more critical than protecting the engine against problems that are not immediately detrimental to emergency operation of the diesel generator. The automatic trips that are required to be bypassed on a Safety Injection Actuation Signal are identified in the Updated Final Safety Analysis Report.

Unit 1

Surveillance 4.8.1.1.2.a.5 for No. 1A Emergency Diesel Generator ensures that at least once per month the diesel generator is loaded to greater than the load required during accident conditions. For No. 1B Emergency Diesel Generator, Surveillance 4.8.1.1.2.a.5 verifies that this diesel generator is capable of synchronizing with the offsite electrical system and accepting loads greater than or equal to 90 percent of the diesel generator's continuous rating for a period of greater than or equal to 60 minutes. Surveillance 4.8.1.1.2.d.4 ensures that at least once per REFUELING OUTAGE each diesel generator is loaded to greater than or equal to the load required during accident conditions.

Unit 2

Surveillance 4.8.1.1.2.a.5 verifies that the diesel generators are capable of synchronizing with the offsite electrical system and accepting loads greater than or equal to 90 percent of the diesel generator's continuous rating for a period of greater than or equal to 60 minutes. Surveillance 4.8.1.1.2.d.4 ensures that at least once per REFUELING OUTAGE each diesel generator is loaded to greater than or equal to the load required during accident conditions.

The staff finds that these changes to the TS Bases reflect the proposed TS changes discussed above and, therefore, are acceptable.

2.9 Summary

The staff agrees with the licensee that the proposed TSs will, as detailed above, adequately demonstrate the EDG's ability to perform their SR function which is to provide a reliable source of electrical power to the SR busses that is necessary to power accident mitigation equipment if offsite power is unavailable. The staff has further determined that the proposed TSs are an improvement over the existing TSs, reflect the reconfiguration of the electrical system and account for the design differences in the EDGs. Therefore, we find the proposed changes to the TSs acceptable.

However, the staff notes that the existing Calvert Cliffs TSs and some of the proposed changes are not entirely consistent with the improved STSs. On March 31, 1995, the licensee committed to convert the Calvert Cliffs TSs to the improved TS consistent with NUREG-1432, "Standard Technical Specifications - Combustion Engineering Plants." Any inconsistencies will be addressed at that time.

3.0 EVALUATION - FUEL OIL SUPPLY

3.1 Proposed Changes to TS Sections 3.8.1.1 (Unit Nos. 1 and 2)

Current TSs

During unit operation in Modes 1, 2, 3, and 4, TS Section 3.8.1.1.b requires that:

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 fuel oil day tanks containing a minimum volume of 275 gallons of fuel for each diesel generator.
2. A common Fuel Storage System consisting of:
 - a. No. 21 Fuel Oil Storage Tank containing a minimum volume of 74,000 gallons of fuel oil, and
No. 11 Fuel Oil Storage Tank containing a minimum volume of 32,000 gallons of fuel oil.
3. A separate fuel transfer pump for each diesel generator.

Proposed TSs

The amended TSs would read:

Unit 1

Two separate independent diesel generators with:

1. Separate fuel oil day tanks containing a minimum volume of:
 - a. 325 gallons for No. 1A Emergency Diesel Generator, and
 - b. 275 gallons for No. 1B Emergency Diesel Generator,
2. Fuel Storage Tanks containing a minimum volume:
 - a. 49,500 gallons for No. 1A Fuel Oil Storage Tank, and
 - b. 33,000 gallons for No. 11 Fuel Oil Storage Tank, and
 - c. 85,000 gallons for No. 21 Fuel Oil Storage Tank, and
3. A separate fuel transfer pump for each diesel generator.

Unit 2

Two separate independent diesel generators with:

1. Separate fuel oil day tanks containing a minimum volume of 275 gallons of fuel for each diesel generator.
2. A common Fuel Storage System consisting of:
 - a. No. 21 Fuel Oil Storage Tank containing a minimum volume of 85,000 gallons of fuel oil, and
 - b. No. 11 Fuel Oil Storage Tank containing a minimum volume of 33,000 gallons of fuel oil, and
3. A separate fuel transfer pump for each diesel generator.

Evaluation

The proposed addition of No. 1A EDG will eliminate the use of a swing EDG. Accordingly, the licensee proposed to delete the references and special actions required by the current "swing" EDG from the current TSs. The staff has determined that the licensee's proposal to delete the references and special actions required by the current "swing" EDG from the current TS 3.8.1.1.b is appropriate.

The current fuel oil storage and transfer system for the existing three EDGs, which was designed in accordance with the guidance described in IEEE-308-1974, "IEEE Standard Criteria for Class IE Power Systems for Nuclear Power Generating Stations," for multi-unit plants, is a common system containing two above-ground EDG fuel oil storage tanks (FOSTs), No. 11 and No. 21. Each tank is sized to hold approximately 107,000 gallons of usable fuel oil. The licensee stated that normally the amount of fuel oil maintained in each tank is between 90,000 and 107,000 gallons which are well above the TS

requirements. Fuel oil is distributed to the EDGs through two independent and redundant headers. Each EDG can take suction from either storage tank through either header.

Both FOSTs are Seismic Category 1 designed tanks, however, only No. 21 FOST is protected from tornado-generated missiles by a Seismic Category 1 concrete enclosure. Under tornado conditions, only the No. 21 FOST is assumed to be available with sufficient capacity to run one EDG per unit carrying normal shutdown loads for 7 days. (This existing design criteria is based on the assumption that the event of a tornado and a simultaneous design basis accident is not credible.)

The addition of No. 1A EDG, which will eliminate the use of a swing EDG between Unit 1 and Unit 2, results in changes in the way in which the fuel oil will be distributed to the EDGs. The No. 1A EDG will take suction from its own separate, independent and SR day tank and fuel oil storage tank (No. 1A FOST). Like No. 21 FOST, No. 1A FOST will be protected from external hazards, such as tornados and seismic events. No. 1B EDG will continue to share the existing common fuel oil storage and transfer system with Nos. 2A and 2B EDGs.

Under the proposed configuration, Nos. 1B and 2B EDGs will normally be aligned to No. 21 FOST, and No. 2A EDG will normally be aligned to No. 11 FOST. This configuration will ensure that both EDGs for each unit are assigned to a different FOST. Based on its review, the NRC staff find these revised EDG configurations and fuel oil transfer and storage system configuration acceptable.

The proposed TSs require a minimum fuel oil inventory of 325 gallons be maintained in the fuel oil day tank for No. 1A EDG. The licensee stated that this minimum fuel oil inventory will ensure that a sufficient supply of fuel oil is available to support at least 1 hour of No. 1A EDG operation at 4000 kW without makeup to the fuel oil day tank. The minimum fuel oil inventory of 275 gallons currently maintained in fuel oil day tanks for existing EDGs is based on the assumption that EDGs are loaded to 3250 kW. The licensee performed evaluation and concluded that there is enough margin in the minimum fuel oil supply required by the current TS and no change to the TS is required. The staff has determined that the above proposed TS regarding the fuel oil inventories to be maintained in EDG day tanks for No. 1A and No. 1B EDGs meet the intent of the guidance described in ANS N195-1976, "Fuel Oil System for Standby Diesel Generators," for sizing EDG day tanks, and therefore, are acceptable.

The proposed TSs require a minimum fuel oil inventory of 49,000 gallons be maintained in No. 1A FOST. The licensee stated that this minimum fuel oil inventory is based on the operation of No. 1A EDG at 4000 kW for 7 days following a design basis accident.

The NRC staff has determined that the proposed TSs regarding fuel oil inventory to be maintained in No. 1A FOST for No. 1A EDG meets the intent of

the guidance described in ANS N195-1976 for sizing EDG fuel oil storage tanks, and therefore, is acceptable.

In addition, the licensee proposed to revise the minimum fuel oil inventories required be maintained in Nos. 11 and 21 FOSTs to reflect fuel oil consumption rates for existing EDGs operating with increased electrical loads. Currently, the TSs for Units 1 and 2 require a minimum fuel oil inventory of 74,000 gallons to be maintained in No. 21 FOST, and 32,000 gallons in No. 11 FOST. The basis for this requirement is to ensure that at least 7 day supply of fuel oil is available for the operation of one EDG in each unit, assuming one unit is operating under accident conditions with an EDG load of 3000 kW and the opposite unit is operating under normal shutdown conditions with an EDG load of 2500 kW. The licensee stated that the TS minimum fuel oil inventories required to be maintained in Nos. 11 and 21 FOSTs were recalculated with conservative assumptions based on 3500 kW for accident loads and 3000 kW for normal shutdown loads. The total amount of fuel oil required for 7-day EDG operation is 83,900 gallons. Since only No. 21 FOST is protected from tornado generated missile, the licensee proposed to maintain a minimum fuel oil inventories of 85,000 gallons in No. 21 FOST and 33,000 gallons in No. 11 FOST.

The NRC staff has determined that the above proposed fuel oil inventories required to be maintained in Nos. 11 and 21 FOSTs for EDG operation meet the intent of the guidance provided in IEEE-308-1974, "IEEE Standard Criteria for Class IE Power Systems for Nuclear Power Generating Stations," for multi-unit plants, and therefore, are acceptable.

3.2 Proposed Changes to TS Section 3.8.1.1 (Unit Nos. 1 and 2)

Current Action Statements Regarding Fuel Oil Storage Tank Operability

f. With No. 21 Fuel Oil Storage Tank inoperable, during the period from:

1. October 1 to March 31 demonstrate the OPERABILITY of No. 11 Fuel Oil Storage Tank by: 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 74,000 gallons) within 1 hour and at least once per 8 hours thereafter; and 2) verifying the flow path from No. 11 Fuel Oil Storage Tank to the diesel generators within 1 hour. Restore No. 21 Fuel Oil Storage Tank 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.
2. April 1 to September 30 demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. Restore No. 21 Fuel Oil Storage Tank 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.

- g. With No. 11 Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of No. 21 Fuel Oil Storage Tank by: 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 74,000 gallons) within 1 hour and at least once per 8 hours thereafter; and 2) verifying the flow path from No. 21 Fuel Oil Storage Tank to the diesel generators within 1 hour. Restore No. 11 Fuel Oil Storage Tank 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.

Proposed Action Statements Regarding Fuel Oil Storage Tank Operability

The licensee proposed to revise the current Action Statement paragraphs (f) and (g) in the following manner and add a new Action Statement paragraph (h). Paragraph (H) is applicable to Unit 1 only.

Unit 1

- f. With the No. 1A Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter, and by performing Surveillance Requirement 4.8.1.1.2.a.4 on No. 1B Emergency Diesel Generator within 24 hours. Demonstrate the OPERABILITY of the No. 21 Fuel Oil Storage Tank by performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) and verifying the flow path from the No. 21 Fuel Oil Storage Tank to the No. 1B Emergency Diesel Generator within 1 hour. Restore No. 1A Fuel Oil Storage Tank 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.
- g. With the Nos. 11 and 21 Fuel Oil Storage Tanks inoperable, demonstrate the OPERABILITY of the remaining A. C. sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter, and by performing Surveillance Requirement 4.8.1.1.2.a.4 on No. 1A Emergency Diesel Generator within 24 hours. Demonstrate the OPERABILITY of the No. 1A Fuel Oil Storage Tank by performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 49,500 gallons) and verifying the flow path from the No. 1A Fuel Oil Storage Tank to the No. 1A Emergency Diesel Generator within 1 hour. Restore either No. 11 or 21 Fuel Oil 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.
- h. With either the No. 11 or 21 Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of the other Fuel Oil Storage Tank by: 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour and at least once per 8 hours thereafter; and 2) verifying the flow path from the operable Fuel Oil Storage Tank to the No. 1B Emergency Diesel Generator within 1 hour.

Unit 2

f. With No. 21 Fuel Oil Storage Tank inoperable, during the period from:

1. October 1 to March 31. demonstrate the OPERABILITY of No. 11 Fuel Oil Storage Tank by: 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour and at least once per 8 hours thereafter; and 2) verifying the flow path from No. 11 fuel Oil Storage Tank to the diesel generators within 1 hour. Restore No. 21 Fuel Oil Storage Tank 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.
2. April 1 to September 30. demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. Restore No. 21 Fuel Oil Storage Tank 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.

g. With No. 11 Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of No. 21 Fuel Oil Storage Tank by: 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour and at least once per 8 hours thereafter; and 2) verifying the flow path from No. 21 Fuel Oil Storage Tank to the diesel generators within 1 hour. Restore No. 11 Fuel Oil Storage Tank 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.

Evaluation

In relation to Unit 1, the only source of fuel oil for No. 1A EDG is No. 1A FOST, with No. 1A FOST inoperable No. 1A EDG will be inoperable. Therefore, the proposed Action Statement paragraph (f) requires that the operability of the remaining AC sources be demonstrated within 1 hour and that the operability of No. 1B EDG be demonstrated within 24 hours. Similarly, if Nos. 11 and 21 FOSTs are both declared inoperable, No. 1B EDG would be considered inoperable, therefore, the proposed Action Statement paragraph (g) requires that the operability of the remaining AC sources be demonstrated within 1 hour and that the operability of No. 1A EDG be demonstrated within 24 hours. In both cases, the Action Statements require to verify that the operable EDG is aligned to an operable tornado-protected FOST (either No. 21 FOST for No. 1B EDG, or No. 1A FOST for No. 1A EDG).

The NRC staff has determined that the requirements in the above proposed Action Statement paragraphs (f) and (g) will ensure that redundant EDGs and FOSTs each with a 7-day supply of fuel oil are available for reactor safe shutdown in Unit 1 following a design basis accident.

The licensee proposed to add a new paragraph (h) to the Action Statements to ensure that if either No. 11 or No. 21 FOST is inoperable, the other FOST is aligned to No. 1B EDG, and that a sufficient supply (85,000 gallons) of fuel oil is maintained in the operable FOST for the operation of No. 1B EDG under accident conditions.

Based on the redundant EDGs and FOSTs available to Unit 1, the licensee indicated that the conditions described in proposed Action Statement paragraph (h) may continue indefinitely while operation of Unit 1 is in MODES 1-4. Since both Nos. 11 and 21 FOSTs can be aligned to No. 1B EDG, this EDG will still be operable if either tank is lost. Furthermore, the availability of Nos. 11 and 21 FOSTs has no effect on the operability of No. 1A EDG, which maintains its own tornado-protected fuel oil supply.

The NRC staff has determined that sufficient fuel oil inventories will be maintained in No. 1A FOST for 7-day operation of No. 1A EDG and in No. 11 FOST or No. 21 FOST for 7-day operation of No. 1B EDG following a design basis accident.

For Unit 2, the licensee only proposed to revise the current fuel oil inventory requirements described in the Action Statements to reflect the recalculated fuel oil inventory requirements to be maintained for EDGs during MODES 1-4. Based on its review and evaluation for Unit 1, the staff agrees that only the fuel oil inventory requirement of 74,000 gallons described in the current Action Statements needed to be revised to reflect the recalculated fuel oil inventory requirement 85,000 gallons.

Therefore, based on the above, the NRC staff finds the proposed/revised TS Action Statements acceptable.

3.3 Proposed Changes to TS Sections 3.8.1.2 (Unit Nos. 1 and 2)

Current TSs

During unit operation in Modes 5 and 6, TS Sections 3.8.1.2.b require that:

One diesel generator with:

1. A fuel oil day tank containing a minimum volume of 275 gallons of fuel.
2. A common Fuel Storage System consisting of:
 - a. No. 21 Fuel Oil Storage Tank containing a minimum volume of 74,000 gallons of fuel oil, and
 - b. No. 11 Fuel Oil Storage Tank containing a minimum volume of 32,000 gallons of fuel oil, and

3. A fuel transfer pump.

Proposed TSs

Unit 1

The amended TS sections would read:

One diesel generator with:

1. A fuel oil day tank containing a minimum volume of:
 - a. 325 gallons for No. 1A Emergency Diesel Generator, or
 - b. 275 gallons for No. 1B Emergency Diesel Generator, and
2. A Fuel Oil Storage System containing a minimum volume of:
 - a. 49,500 gallons in No. 1A Fuel Oil Storage Tank for the No. 1A Emergency Diesel Generator, or
 - b. 85,000 gallons in No. 21 Fuel Oil Storage Tank and 33,000 gallons in the No. 11 Fuel Oil Storage Tank for the No. 1B Emergency Diesel Generator, and
3. A fuel transfer pump.

Unit 2

One diesel generator with:

1. A fuel oil day tank containing a minimum volume of 275 gallons of fuel.
2. A common Fuel Storage System consisting of:
 - a. No. 21 Fuel Oil Storage Tank containing a minimum volume of 85,000 gallons of fuel oil, and
 - b. No. 11 Fuel Oil Storage Tank containing a minimum volume of 33,000 gallons of fuel oil.
3. A fuel transfer pump.

Evaluation

The revised TSs for Unit 1 reflect the new EDG configuration, fuel oil inventory requirements and fuel oil transfer and storage system configuration in Unit 1 resulting from the proposed addition of a new EDG No. 1A and upgrading of the existing EDGs. The proposed TS will ensure that at least one

EDG together with its associated fuel oil transfer and storage system, and required fuel oil inventory are available to Unit 1 during shutdown.

For Unit 2, the licensee proposed to revise the current TSs to reflect the recalculated fuel oil inventory requirements to be maintained for EDGs during unit operation in MODES 5 and 6. Based on its review and evaluation for Unit 1, the NRC staff concludes that sufficient fuel oil will be available for 7-day operation of one EDG No. 2A or No. 2B in Unit 2 during unit operation in MODES 5 and 6.

Therefore, based on the above, the NRC staff has determined that the proposed TS changes are acceptable.

3.4 Proposed Changes to TS Sections 3.8.1.2 (Unit Nos. 1 and 2)

Current Action Statements Regarding Fuel Oil Storage Tank Operability

- c. With No. 11 Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of No. 21 fuel Oil Storage Tank by: 1) performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 74,000 gallons) within 1 hour; and 2) verifying the flow path from No. 21 Fuel Oil Storage Tank to the diesel generator within 1 hour.
- d. With No. 21 Fuel Oil Storage Tank inoperable, restore No. 21 Fuel Oil Storage Tank to OPERABLE status within 72 hours or suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel.

Proposed Action Statements Regarding Fuel Oil Storage Tank Operability

The licensee proposes to delete the current Paragraph (b) regarding A.C. electrical power source operability which was addressed in Section 2 of this SE. The licensee also proposes to eliminate paragraphs (c) and (d) and proposes to replace them with new paragraphs (b), (c) and (d) for Unit 1 and (b) and (c) for Unit 2 as follows:

Unit 1

- b. With the No. 1B Emergency Diesel Generator required to be OPERABLE and the No. 11 Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of No. 21 Fuel Oil Storage Tank by:
 - 1. performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour; and
 - 2. verifying the flow path from No. 21 Fuel Oil Storage Tank to No. 1B Emergency Diesel Generator within 1 hour.

- c. With the No. 1B Emergency Diesel Generator required to be OPERABLE and the No. 21 Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of No. 11 Fuel Oil Storage Tank by:

1. performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour; and
2. verifying the flow path from No. 11 Fuel Oil Storage Tank to No. 1B Emergency Diesel Generator within 1 hour.

Restore No. 21 Fuel Oil Storage Tank to OPERABLE status within 72 hours or suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel.

- d. With the No. 1A Emergency Diesel Generator required to be OPERABLE and the No. 1A Fuel Oil Storage Tank inoperable, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel.

* Performance of ACTION (d) shall not preclude completion of actions to establish a safe conservative position.

Unit 2

- b. With the No. 11 Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of No. 21 Fuel Oil Storage Tank by:

1. performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour; and
2. verifying the flow path from No. 21 Fuel Oil Storage Tank to the diesel generator within 1 hour.

- c. With the No. 21 Fuel Oil Storage Tank inoperable, demonstrate the OPERABILITY of No. 11 Fuel Oil Storage Tank by:

1. performing Surveillance Requirement 4.8.1.1.2.a.2 (verifying 85,000 gallons) within 1 hour; and
2. verifying the flow path from No. 11 Fuel Oil Storage Tank to the diesel generator within 1 hour.

Restore No. 21 Fuel Oil Storage Tank to OPERABLE status within 72 hours or suspend all operations involving CORE ALTERATIONS, positive reactivity changes, movement of irradiated fuel and movement of heavy loads over irradiated fuel.

Evaluation

Unit 1

Current Action Statement paragraph (c) identifies the required actions if No. 11 is inoperable. The licensee proposes to replace this current Action Statement' paragraph (c) with a new Action Statement paragraph (b) and revise the fuel oil inventory required to be maintained in No. 21 FOST to reflect the recalculated fuel oil consumption rates operating No. 1B EDG with uprated electrical loads. In this proposed new Action Statement paragraph (b), with No. 1B EDG required to be OPERABLE and No. 11 FOST inoperable, No. 21 FOST will be verified to have a minimum fuel oil inventory of 85,000 gallons and aligned to No. 1B EDG within 1 hour. The licensee indicated that while Unit 1 is in MODES 5 and 6, the conditions in this proposed new Action Statement paragraph (b) may continue indefinitely. The basis for this is that the proposed actions are unchanged from the current Action Statement paragraph (c).

Current Action Statement paragraph (d) identifies the required actions if No. 21 is inoperable. The licensee proposes to replace the current Action Statement paragraph (d) with a new Action Statement paragraph (c). In this proposed new Action Statement paragraph (c), the licensee proposed to expand the Action Statement for No. 21 FOST inoperable to delineate the actions required to verify the operability of No. 11 FOST. With No. 1B EDG required to be OPERABLE and No. 21 FOST inoperable, No. 11 FOST will be verified to have a minimum fuel oil inventory of 85,000 gallons, and aligned to No. 1B EDG within 1 hour. The NRC staff has determined that these proposed actions will provide a degree of flexibility in plant operation during MODES 5 and 6 and are within the plant design basis.

In addition, the licensee proposed to add a new paragraph (d) to the Action Statements to immediately suspend fuel handling operations if No. 1A FOST is declared inoperable while No. 1A EDG is required to be operable. The licensee indicated that suspension of core alterations must remain until one EDG (No. 1A or No. 1B) with its associated FOST (No. 1A and either No. 11 or No. 21) is declared operable.

Unit 2

Current Action Statement paragraph (c) identifies the required actions if No. 11 is inoperable. The licensee proposed to replace this current Action Statement paragraph (c) with a new Action Statement paragraph (b) and revise the fuel oil inventory required to be maintained in No. 21 FOST to reflect the recalculated fuel oil consumption rates operating No. 1B EDG with uprated electrical loads. In this proposed new Action Statement paragraph (b), with one EDG (No. 2A or No. 2B) required to be OPERABLE and No. 11 FOST Inoperable, No. 21 FOST will be verified to have a minimum fuel oil inventory of 85,000 gallons and aligned to the operable EDG (No. 2A or No. 2B) within 1 hour. The licensee stated that while Unit 2 is in MODES 5 and 6, the conditions in this proposed new Action Statement paragraph (b) may continue indefinitely. The

basis for this is that the proposed actions are unchanged from the current Action Statement paragraph (c).

Current Action Statement paragraph (d) identifies the required actions if No. 21 is inoperable. The licensee proposed to replace the current Action Statement paragraph (d) with a new Action Statement paragraph (c). In this proposed new Action Statement paragraph (c), the licensee proposed to expand the Action Statement for No. 21 FOST inoperable to delineate the actions required to verify the operability of No. 11 FOST. With one EDG (no. 2A or No. 2B) required to be OPERABLE and No. 21 FOST inoperable, No. 11 FOST will be verified to have a minimum fuel oil inventory of 85,000 gallons, and aligned to the operable EDG (No. 2A or No. 2B) within 1 hour.

Based on its review, the staff finds that this proposed actions will provide a degree of flexibility in plant operation during MODES 5 and 6, and will not endanger the public health and safety.

Therefore, based on the above, the staff has determined that the proposed TS changes are acceptable.

3.5 SUMMARY

The staff has determined that the proposed TSs and their associated Action Statements, as detailed above, will properly reflect the new EDG configuration, fuel oil distribution configuration and fuel oil inventory. The staff has further determined that the licensee will have an adequate and reliable fuel oil inventory in the day tanks for 1-hour EDG operation and in the storage tanks for 7 days of continuous EDG operation following a design basis accident. Therefore, the staff finds the above proposed TS and their associated Action Statements acceptable.

4.0 EVALUATION - FIRE PROTECTION

4.1 Proposed changes to TS tables

Tables 3.3-11

These tables identify the fire detection instruments, the room/area/building location, the instrument location and identifies the minimum number of instruments and instrument types (heat, flame or smoke) that must be operable.

Unit 1

Reference to fire detection instruments location and number for EDG 11 is deleted.

Location and number of the fire detection instruments for EDG 1A are added.

Unit 2

EDG 21 is renamed EDG 2B.

Location and number of the fire detection instruments for EDG 2A are added.

Evaluation

These proposed changes reflect the new identification of the EDGs and the location and requirements for the fire detection instruments in the new EDG building including the minimum number of operable instruments and hose instruments that are automatically actuated.

There are no changes to the requirements for the existing fire protection instruments that have been redesignated. The design basis for fire protection system in the new EDG building has been previously reviewed and approved by the NRC staff. The supporting SEs were provided to the licensee by letters dated March 1, 1994, and June 27, 1994. The inclusion of components of the fire protection system for the new EDG building into the TSs is consistent with the design basis of the plant. In addition, the new building housing the 1A EDG and its fuel supply is a Category I structure physically located away from the other SR EDGs located in the auxiliary building. The design is such that smoke and heat from a fire in the new EDG building will not impact the redundant SR EDG in the auxiliary building nor the other two SR EDGs for Unit 2.

The operability and surveillance requirements that currently exist in TSs 3.3.3.7 and 4.3.3.7.1, respectively, will be applicable to the redesignated EDGs and the new EDG identified in the proposed changes to Tables 3.3-11. Therefore, based on the above, the staff has determined that the proposed changes to the TS tables are acceptable.

Tables 3.7-5

These tables have been changed to reflect the redesignation of the existing SR EDGs and the addition of the new SR EDG to indicate the location of the fire protection sprinklers and their control valves.

Unit 1

Reference to the sprinkler location and control valve elevation for EDG 11 is deleted.

EDG 12 is renamed EDG 1B.

Sprinkler location and control valve elevation for EDG 1A are added.

Unit 2

EDG 21 is renamed EDG 2B.

Sprinkler location and control valve elevation for EDG 2A are added.

Evaluation

These proposed changes reflect the new identification of the EDGs and the sprinkler locations and control valve elevations for the new EDG building. The operability and surveillance requirements that currently exist in TSs 3.7.11.2 and 4.7.11.2, respectively, will be applicable to the redesignated EDGs and the new EDG identified in the proposed changes to Tables 3.7-5. Therefore, the staff has determined that the proposed changes to the TS tables are acceptable.

Table 3.7-6

This table identifies the location, elevation and number of fire hose stations.

Unit 1

The proposed TS change adds the new EDG building as a location for fire hose stations. Four elevations within the new EDG building are identified where hose stations are located.

Evaluation

The operability and surveillance requirements that currently exist in TSs 3.7.11.4 and 4.7.11.4, respectively, will be applicable to the four hose stations that have been added to the table. The fire hose stations provide the capability to extinguish a fire in the new EDG building. Therefore, the staff has determined that the proposed changes to the TS table are acceptable.

4.2 SUMMARY

The staff has determined that the proposed changes to the TS tables, as detailed above, reflect the new designations of the reconfigured electrical system and the addition of the new EDG and building. The changes identify components of the fire protection system and the operability and surveillance requirements they must comply with. The changes will insure that adequate fire detection and suppression is available to detect, confine and extinguish any fire occurring in the vicinity of the SR EDGs. Therefore, the staff finds the above changes to the TS tables relating to components of the fire protection system acceptable.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Maryland State official was notified of the proposed issuance of the amendments. The State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and that there has been no public comment on such finding (61 FR 175). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environments impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

7.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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