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

March 16, 1987

Docket Nos: 50-387
and 50-388

Mr. Harold W. Keiser
Vice President
Nuclear Operations
Pennsylvania Power and Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Dear Mr. Keiser:

Subject: Issuance of Amendment No. 61 to Facility Operating License No. NPF-14 and Amendment No. 32 to Facility Operating License No. NPF-22 - Susquehanna Steam Electric Station, Units 1 and 2

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 61 to Facility Operating License No. NPF-14 and Amendment No. 32 to Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station, Units 1 and 2. These amendments are in response to your letters dated February 10, 1986, as supplemented on March 4, June 24, August 29, and October 1, 1986, and January 21, 1987.

These amendments revise the Susquehanna Unit 1 and Unit 2 Technical Specifications to incorporate operational control over the newly installed E diesel generator.

Your letter dated March 3, 1987, withdrew references to switchgear buses 0A510A, 0A510B, 0A510C, 0A510D, and 0A510E. Accordingly, the Technical Specification pages have been corrected reflecting the March 3, 1987, request.

Amendment No. 30, dated September 19, 1986, erroneously deleted item 4.8.1.1.2.d.6 heading on page 3/4 8-5 of Unit 2 Technical Specifications. We have corrected the error and restored the missing heading.

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A copy of the related safety evaluation supporting Amendment No. 61 to Facility Operating License No. NPF-14 and Amendment No. 32 to Facility Operating License No. NPF-22 is enclosed.

Sincerely,

Elinor G. Adensam

Elinor G. Adensam, Director
BWR Project Directorate No. 3
Division of BWR Licensing

Enclosures:
1. Amendment No. 61 to NPF-14
2. Amendment No. 32 to NPF-22
3. Safety Evaluation

cc w/enclosures:
See next page

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AMENDMENT NO. 61 TO FACILITY OPERATING LICENSE NO. NPF-14 - SUSQUEHANNA, UNIT 1
AMENDMENT NO. 32 TO FACILITY OPERATING LICENSE NO. NPF-22 - SUSQUEHANNA, UNIT 2

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

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-387

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 61
License No. NPF-14

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:

   A. The application for the amendment filed by the Pennsylvania Power & Light Company (the licensee), dated February 10, 1986, as supplemented on March 4, June 24, August 29, and October 1, 1986, and January 21, 1987, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 set forth in 10 CFR Chapter I;

   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 enclosure to this license amendment; and paragraph 2.C.(2) of the Facility Operating License No. NPF-14 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No.61, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. PP&L shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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3. This amendment is effective upon removal of the boundary tags on the diesel generator E Emergency Service Water valves.

FOR THE NUCLEAR REGULATORY COMMISSION

Elinor G. Adensam, Director
BWR Project Directorate No. 3
Division of BWR Licensing

Enclosure:
Changes to the Technical
Specifications

Date of Issuance: March 16, 1987

ENCLOSURE TO LICENSE AMENDMENT NO. 61

FACILITY OPERATING LICENSE NO. NPF-14

DOCKET NO. 50-387

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

REMOVE	INSERT
3/4 3-79	3/4 3-79 (overleaf)
3/4 3-80	3/4 3-80
3/4 7-19	3/4 7-19
3/4 7-20	3/4 7-20 (overleaf)
3/4 7-23	3/4 7-23 (overleaf)
3/4 7-24	3/4 7-24
3/4 8-1	3/4 8-1
3/4 8-2	3/4 8-2 (overleaf)
3/4 8-5	3/4 8-5 (overleaf)
3/4 8-6	3/4 8-6
----	3/4 8-6a
----	3/4 8-6b
----	3/4 8-6c
----	3/4 8-6d
----	3/4 8-6e
3/4 8-8a	3/4 8-8a
3/4 8-9	3/4 8-9
3/4 8-10	3/4 8-10
----	3/4 8-10a
3/4 8-11	3/4 8-11
3/4 8-12	3/4 8-11a
	3/4 8-12
3/4 8-13	3/4 8-13
3/4 8-14	3/4 8-14 (overleaf)

REMOVE	INSERT
3/4 8-15	3/4 8-15
----	3/4 8-15a
3/4 8-16	3/4 8-16
----	3/4 8-16a
3/4 8-17	3/4 8-17 (overleaf)
3/4 8-18	3/4 8-17a
----	3/4 8-18
3/4 8-18a	3/4 8-18a
----	3/4 8-18b
3/4 8-19	3/4 8-19
	3/4 8-19a
3/4 8-20	3/4 8-20
3/4 8-21	3/4 8-21
3/4 8-22	3/4 8-21a
	3/4 8-22 (overleaf)
3/4 8-27	3/4 8-27 (overleaf)
3/4 8-28	3/4 8-28
3/4 8-29	3/4 8-29
3/4 8-30	3/4 8-30
3/4 8-31	3/4 8-31
3/4 8-32	3/4 8-32
------	3/4 8-32a
------	3/4 8-32b
B 3/4 8-1	B 3/4 8-1
B 3/4 8-2	B 3/4 8-2 (overleaf)

TABLE 3.3.7.9-1 (Continued)

FIRE DETECTION INSTRUMENTATION

INSTRUMENT LOCATION			INSTRUMENTS OPERABLE						
			HEAT		IONIZATION		PHOTO-ELECTRIC		
FIRE ZONE	ROOM OR AREA	ELEV.	TOTAL	MIN.	TOTAL	MIN.	TOTAL	MIN.	
b.	Reactor Building								
1-1B	Core Spray Pump Room	645'-0"	NA	NA	5	3	NA	NA	
1-1A	Core Spray Pump Room	645'-0"	NA	NA	7	4	NA	NA	
1-1E	RHR Pump Room	645'-0"	NA	NA	NA	NA	13	7	
1-1F	RHR Pump Room	645'-0"	NA	NA	NA	NA	15	8	
1-1D	RCIC Pump Room	645'-0"	2	1	NA	NA	5	3	
1-1C	HPCI Pump Room	645'-0"	2	1	NA	NA	7	4	
1-1G	Sump Room	645'-0"	NA	NA	2	1	NA	NA	
1-2B	Access Area	670'-0"	NA	NA	7	4	NA	NA	
1-5A	Fuel Pool Pumps and Heat Exchangers	749'-1"	NA	NA	22	11	7	4	
1-2D	Remote Shutdown Panel Rm.	670'-0"	NA	NA	2	1	NA	NA	17
1-4C	Switchgear Room	719'-0"	NA	NA	2	1	NA	NA	
1-4D	Switchgear Room	719'-0"	NA	NA	2	1	NA	NA	
1-4A	Containment Access Area	719'-0"	NA	NA	27	14	4	2	
1-5F	Load Center Room	749'-1"	NA	NA	2	1	NA	NA	
1-5G	Load Center Room	749'-1"	NA	NA	2	1	NA	NA	
1-2A	Access Area	670'-0"	NA	NA	7	4	NA	NA	
1-3A	Access Area	683'-0"	NA	NA	7	4	NA	NA	
1-3B	Access Area	683'-0"	NA	NA	12	6	NA	NA	
1-3C	Access Area	683'-0"	NA	NA	NA	NA	13	7	16
1-4B	Pipe Penetration Room	719'-1"	NA	NA	1	1	NA	NA	
1-4G	Main Steam Piping	719'-1"	NA	NA	NA	NA	6	3	
1-5B	Valve Access Area	761'-10"	NA	NA	NA	NA	2	1	
1-5D	RWCU Pumps & Heat Exchangers	749'-1"	NA	NA	NA	NA	12	6	
1-5E	Penetration Room	749'-1"	NA	NA	NA	NA	2	1	
1-6A	Access Area	779'-1"	NA	NA	9	5	NA	NA	
1-6I	Fuel Pooling Holding Pump Room	779'-1	NA	NA	NA	NA	2	1	

TABLE 3.3.7.9-1 (Continued)

FIRE DETECTION INSTRUMENTATION

INSTRUMENT LOCATION			INSTRUMENTS OPERABLE							
				HEAT		IONIZATION		PHOTO-ELECTRIC		
FIRE ZONE	ROOM OR AREA		ELEV.	TOTAL	MIN.	TOTAL	MIN.	TOTAL	MIN.	
Reactor Building (Continued)										
1-6D	H&V Equipment Room		779'-1"	NA	NA	12	6	NA	NA	
1-6E	Recirculation Fans Area		779'-1"	NA	NA	2	1	NA	NA	
0-6G	Surge Tank Vault		779'-4"	NA	NA	2	1	NA	NA	
1-7A	H&V Fan and Filter Rooms		799'-1"	24	12	15	8	NA	NA	
0-8A	Refueling Floor		818'-1"	NA	NA	NA	NA	59	30	
c. ESSW Pumphouse										
0-51	Pump Room		685'-6"	NA	NA	6	3	NA	NA	
0-52	Pump Room		685'-6"	NA	NA	6	3	NA	NA	
						INFRA-RED (FLAME)				
						TOTAL	MIN.			
d. Diesel Generator Building										
0-41A	Diesel Generator Rooms	and	660'-0" and 677'-0"	22	11	2	1	15	8	
0-41C	Diesel Generator Rooms	and	660'-0" and 677'-0"	22	11	2	1	15	8	
0-41B	Diesel Generator Rooms	and	660'-0" and 677'-0"	23	12	2	1	15	8	
0-41D	Diesel Generator Rooms	and	660'-0" and 677'-0"	22	11	2	1	15	8	
								IONIZATION		
								TOTAL	MIN.	
e. Diesel Generator E Building										
0-41E	Diesel Generator Rooms		656'-6"	1	1	NA	NA	18	9	
		and	675'-6"	NA	NA	6	3	3	2	
		and	708'-0"	NA	NA	4	2	NA	NA	

*Not accessible.

LIMITING CONDITION FOR OPERATION

3.7.6.2 The following spray and sprinkler systems shall be OPERABLE:

a. RCIC Pump Room, Unit 1
b. HPCI Pump Room, Unit 1
c. Upper Cable Spreading Room, Unit 1
d. Lower Cable Spreading Room, Unit 1
e. Diesel Generator A Room
f. Diesel Generator B Room
g. Diesel Generator C Room
h. Diesel Generator D Room
i. Fire Zones 1-3A and 1-3B
j. Fire Zone 1-4A
k. Fire Zone 1-5A
l. Fire Zone 1-2B
m. Fire Zone 0-29B
n. Fire Zone 0-30A
o. Diesel Generator E Building, Fire Zone 0-41E

APPLICABILITY: Whenever equipment protected by the spray and/or sprinkler systems is required to be OPERABLE.

ACTION:

a. With one or more of the above required spray and/or sprinkler systems inoperable, within 1 hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol.

b. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

4.7.6.2 Each of the above required spray and sprinkler systems shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve, manual, power operated or automatic, in the flow path is in its correct position.

b. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

c. At least once per 18 months:

1. By performing a system functional test which includes simulated automatic actuation of the system, and:

a) Verifying that the automatic valves in the flow path actuate to their correct positions on a test signal, and

b) Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.

2. By a visual inspection of the dry pipe spray and sprinkler headers to verify their integrity, and

3. By a visual inspection of each deluge nozzle's spray area to verify that the spray pattern is not obstructed.

d. At least once per 3 years by performing an air or water flow test through each open head spray and sprinkler header and verifying each open head spray and sprinkler nozzle is unobstructed.

FIRE HOSE STATIONS

LIMITING CONDITION FOR OPERATION

3.7.6.5 The fire hose stations shown in Table 3.7.6.5-1 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the areas protected by the fire hose stations is required to be OPERABLE.

ACTION:

a. With one or more of the fire hose stations shown in Table 3.7.6.5-1 inoperable, route an additional fire hose of equal or greater diameter to the unprotected area(s) from an OPERABLE hose station within 1 hour if the inoperable fire hose is the primary means of fire suppression; otherwise, route the additional hose within 24 hours. |26

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.6.5 Each of the fire hose stations shown in Table 3.7.6.5-1 shall be demonstrated OPERABLE:

a. At least once per 31 days by a visual inspection of the fire hose stations accessible during plant operation to assure all required equipment is at the station.

b. At least once per 18 months by:

1. Visual inspection of the fire hose stations not accessible during plant operation to assure all required equipment is at the station.

2. Removing the hose for inspection and re-racking for all fire hose stations, and |29

3. Inspecting all gaskets and replacing any degraded gaskets in the couplings for all fire hose stations. |29

c. At least once per 3 years by:

1. Partially opening each hose station valve to verify valve OPERABILITY and no flow blockage.

2. Conducting a hose hydrostatic test at a pressure of 150 psig or at least 50 psig above the maximum fire main operating pressure, whichever is greater.

TABLE 3.7.6.5-1

FIRE HOSE STATIONS

LOCATIONS	COLUMN	HOSE RACK NUMBER
a. Control Structure		
El. 697'-0"	L-26	1HR-171
El. 697'-0"	L-32	2HR-171
El. 714'-0"	L-26	1HR-162
El. 714'-0"	L-31	2HR-162
El. 729'-0"	L-25.9	1HR-158
El. 729'-0"	L-32.1	2HR-158
El. 754'-0"	L-26	1HR-136
El. 754'-0"	L-32	2HR-136
El. 771'-0"	L-26	1HR-125
El. 771'-0"	L-31	2HR-125
b. Reactor Building		
El. 645'-0"	R-29	1HR-271
El. 645'-0"	P-20.6	1HR-272
El. 645'-0"	U-22	1HR-273
El. 645'-0"	R-37.4	2HR-271
El. 645'-0"	U-30.5	2HR-272
El. 645'-0"	R-30	2HR-273
El. 670'-0"	O-27.5	1HR-261
El. 670'-0"	Q-29	1HR-262
El. 670'-0"	T-22	1HR-263
El. 683'-0"	Q-27.5	1HR-251
El. 683'-0"	Q-20.6	1HR-252
El. 683'-0"	T-22	1HR-253
El. 719'-1"	Q-27.5	1HR-241
El. 719'-1"	S-27.5	1HR-242
El. 719'-1"	Q-20.6	1HR-243
El. 719'-1"	T-20.6	1HR-244
El. 719'-1"	T-23.5	1HR-245
El. 749'-1"	S-27.5	1HR-231
El. 749'-1"	S-27.5	1HR-231
El. 749'-1"	Q-20.6	1HR-232
El. 749'-1"	T-20.6	1HR-233
El. 779'-1"	P-26.5	1HR-221
El. 779'-1"	S-26.5	1HR-222
El. 779'-1"	Q-22	1HR-223
El. 779'-1"	U-20.6	1HR-224
El. 779'-1"	T-23.3	1HR-211
El. 818'-1"	P-26.5	1HR-201
El. 818'-1"	U-26.5	1HR-202
El. 818'-1"	Q-20.6	1HR-203
c. Diesel Generator E Building		
El. 656'-6"	Near North Stairwell	OHR-811
El. 656'-6"	Near South Stairwell	OHR-812
El. 676'-6"	Near North Stairwell	OHR-821
El. 676'-6"	Near South Stairwell	OHR-822
El. 708'-0"	Near North Stairwell	OHR-831
El. 708'-0"	Near South Stairwell	OHR-832

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

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, and

b. Four of the five separate and independent diesel generators*, each with:

1. Separate engine mounted day fuel tanks containing a minimum of 325 gallons of fuel,

2. A separate fuel storage system containing a minimum of 47,570 gallons of fuel for diesel generator A, B, C and D; and 60,480 gallons for diesel generator E, and

3. A separate fuel transfer pump.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With one offsite circuit of the above 3.8.1.1.a required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter and Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours sequentially on four diesel generators; restore at least two offsite circuits to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With one diesel generator of 3.8.1.1.b inoperable, demonstrate the OPERABILITY of the A.C. offsite sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter; and Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours; restore the diesel generator to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*Shared with Unit 2. An OPERABLE diesel generator may be removed from service for a period of eight hours when aligning diesel generator E to the Class 1E distribution system. If alignment of diesel generator E is not completed within eight hours, the appropriate ACTION will be followed. The specified time limits in the ACTION will be measured from the time alignment of diesel generator E began.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

c. With one offsite circuit and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaning A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; and Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours, restore one of the inoperable sources to OPERABLE status within 12 hours or be in at lease HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore the other A.C. power source (offsite circuitor diesel generator) to OPERABLE status in accordance with the provisions of Section 3.8.1 Action Statement a or b, as appropriate,with the time requirement of that Action Statement based on the time of initial loss of the remaining inoperable A.C. power source.

d. With one diesel generator of the above required A.C. electrical power sources inoperable, in addition to ACTION b or c, above, verify within 2 hours that all required systems, subsystems, trains, components and devices that depend on the remaining diesel generators as a source of emergency power are also OPERABLE; otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

e. With two of the above required offsite circuits inoperable, demonstrate the OPERABILITY of four diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4, for one diesel generator at a time, within eight hours unless the diesel generators are already operating; restore at least one of the inoperable offsite circuits to OPERABLE status within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours. With only one offsite circuit restored to OPERABLE status, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

f. With two or more of the above required diesel generators 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, for one diesel generator at a time, within 2 hours, and at least once per 8 hours thereafter; restore at least three of the diesel generators to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore four diesel generators to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

6. Simulating a loss-of-offsite power in conjunction with an ECCS actuation test signal, and:

   a) Verifying deenergization of the emergency busses and load shedding from the emergency busses.

   b) Verifying the diesel generator starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected loads through the load timers and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady state voltage and frequency of the emergency busses shall be maintained at 4160 ± 400 volts and 60 ± 3.0 Hz during this test.

   c) Verifying that all automatic diesel generator trips, except engine overspeed, generator differential and engine low lube oil pressure, are automatically bypassed upon loss of voltage on the emergency bus concurrent with an ECCS actuation signal.

7. Verifying with at least one unit in OPERATIONAL CONDITION 4 or 5 that the diesel generator operates for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to greater than or equal to 4700 kW and during the remaining 22 hours of this test, the diesel generator shall be loaded to 4000 kW. The generator voltage and frequency shall be 4160 ± 400 volts and 60 ± 3.0 Hz within 10 seconds after the start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test.

8. Verify the hot restart capability of the diesel by verifying the diesel generator starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady state voltage and frequancy of the emergency busses shall be maintained at 4160 ± 400 volts and 60 ± 3.0 Hz during this test. This test shall be performed within 5 minutes of completing a one hour run at 4000 KW or within 5 minutes after operating temperatures have stabilized at a load of 4000 KW.

9. Verifying that the auto-connected loads to each diesel generator do not exceed the 2000-hour rating of 4700 kW.

SURVEILLANCE REQUIREMENTS (Continued)

10. Verifying the diesel generator's capability to:

    a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,

    b) Transfer its loads to the offsite power source, and

    c) Be restored to its standby status.

11. Verifying that with the diesel generator operating in a test mode and connected to its bus, a simulated ECCS actuation signal overrides the test mode by (1) returning the diesel generator to standby operation, and (2) automatically energizes the emergency loads with offsite power.

12. Verifying that each diesel generator loading sequence timer shown in Table 4.8.1.1.2-2 is OPERABLE with its setpoint within ± 10% of its design setpoint.

13. Verifying that the following diesel generator lockout features do not prevent diesel generator starting and/or operation when not required:

    a) Engine overspeed.
    b) Generator differential.
    c) Engine low lube oil pressure.

e. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting all diesel generators simultaneously, during shutdown, and verifying that all diesel generators accelerate to at least 600 rpm in less than or equal to 10 seconds.

f. At least once per 10 years by:

1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypochlorite or equivalent solution, and

2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code in accordance with ASME Code Section XI Article IWD-5000.

4.8.1.1.3 Diesel generator E when not aligned to the Class 1E System shall be demonstrated OPERABLE by:

a. Verifying in accordance with the frequency specified in Table 4.8.1.1.2-1:

1. The fuel level in the engine-mounted day fuel tank.

2. The fuel level in the fuel storage tank.

SURVEILLANCE REQUIREMENTS (Continued)

3. The fuel transfer pump starts and transfers fuel from the storage system to the engine-mounted day fuel tank.

4.* The diesel manually starts from ambient condition and accelerates to at least 600 rpm in less than or equal to 10 seconds. The generator voltage and frequency are 4160 ± 400 volts and 60 ± 3.0 Hz within 10 seconds after the start signal.

5.* The diesel generator is synchronized, loaded to greater than or equal to 4000 kw in less than or equal to 90 seconds, and operates with this load for at least 60 minutes.

6. The pressure in the diesel generator air start receivers to be greater than or equal to 240 psig.

b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the engine-mounted day fuel tanks.

c. Verifying at least once per 92 days and from new fuel oil prior to addition to the storage tanks that a sample obtained in accordance with ASTM-D270-1975 has a water and sediment content of less than or equal to .05 volume percent and a kinematic viscosity @ 40°C of greater than or equal to 1.3 but less than or equal to 2.4 for 1D oil or 1.9 but 4.1 for 2D oil when tested in accordance with ASTM-D975-77, and an impurity level of less than 2 mg. of insolubles per 100 ml. when tested in accordance with ASTM-D2274-70.

d. Verifying at least once per 18 months if Specification 4.8.1.1.2.d has not been performed:

1. An inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service is performed.

2.* The diesel generators capability to reject a load of greater than or equal to 1425 kw while maintaining voltage at 4160 ± 400 volts and frequency at 60 ± 3.0 Hz.

3.* The diesel generators capability to reject a load of 4000 kw without tripping. The generator voltage shall not exceed 4560 volts during and following the load rejection.

4.* The diesel generator operates for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to greater than or equal to 4700 kw and during the

* These tests may be conducted utilizing the test facility.

remaining 22 hours of this test, the diesel generator shall be loaded to 4000 kW. The generator voltage and frequency shall be 4160 ± 400 volts and 60 ± 3.0 Hz within 10 seconds after the start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test.

5. The following diesel generator lockout features do not prevent diesel generator starting and/or operation when not required:

   a) Engine overspeed.
   b) Generator differential.
   c) Engine low lube oil pressure.

6. Either:

   a) on a rotational basis substitute diesel generator E for diesel generator A, B, C, or D and

      i) Stimulate a loss of offsite power by itself, and:

         a) Verify deenergization of the emergency bus and load shedding from the emergency bus

         b) Verify diesel generator E starts on the auto-start signal, energizes the emergency bus with permanently connected loads within 10 seconds and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady state voltage and frequency of the emergency bus shall be maintained at 4160 ± 400 volts and 60 ± 3.0 Hz during this test, and

      ii) Verify that on an ECCS actuation test signal, without loss of off-site power, diesel generator E starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be 4160 ± 400 volts and 60 ± 3.0 Hz within 10 seconds after the auto-start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test, and

      iii) Simulate a loss-of-offsite power in conjunction with an ECCS actuation test signal, and

         a) verify deenergization of the emergency bus and load shedding from the emergency bus.

b) Verify diesel generator E starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected loads through the load timers and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization the steady state voltage and frequency of the emergency busses shall be maintained at 4160 ± 400 volts and 60 ± 3.0 Hz during this test.

c) Verify that all automatic diesel generator trips, except engine overspeed, generator differential and engine low lube oil pressure, are automatically bypassed upon loss of voltage on the emergency bus concurrent with an ECCS actuation signal, and

iv) Verify the diesel generator E's capability to:

a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,

b) Transfer its loads to the offsite power source, and

c) Be restored to its standby status, and

v) Verify that with diesel generator E operating in a test mode and connected to its bus, a simulated ECCS actuation signal overrides the test mode by (1) returning diesel generator E to standby operation, and (2) automatically energizes the emergency loads with offsite power, or

b) On a test facility

i) Stimulate a loss-of-offsite power by itself and verify diesel generator E starts on the auto-start signal, energizes the simulated emergency bus with simulated permanently connected loads within 10 seconds and operates for greater than or equal to 5 minutes while its generator is loaded with the simulated shutdown loads. After energization, the steady state voltage and frequency of the simulated emergency bus are maintained at 4160 ± 400 volts and 60 ± 3.0 Hz during this test and

SURVEILLANCE REQUIREMENTS (Continued)

ii) Simulate an ECCS actuation test signal, without loss of offsite power and verify that diesel generator E starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be 4160 ± 400 volts and 60 ± 3.0 Hz within 10 seconds after the auto-start signal, the steady state generator voltage and frequency shall be maintained within these limits during this test,

and

iii) Stimulate a loss-of-offsite power in conjunction with an ECCS actuation test signal and verify diesel generator E starts on the auto-start signal, energizes the simulated emergency bus with simulated permanently connected loads with 10 seconds, energizes the simulated auto-connected loads and operates for greater than or equal to 5 minutes while its generator is loaded with the simulated emergency loads. After energization, the steady state voltage and frequency of the simulated emergency bus are maintained at 4160 ± 400 volts and 60 ± 3.0 Hz during this test, and

a) Verify that all automatic diesel generator trips, except engine overspeed, generator differential and engine low lube oil pressure, are automatically bypassed upon loss of voltage on the emergency bus concurrent with an ECCS actuation signal, and

iv) On a rotational basis, substitute diesel generator E for diesel generator A, B, C or D and verify diesel generator E energizes the appropriate emergency bus, and

a)** Verify the diesel generator E's capability to:

1) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,

2) Transfer its loads to the offsite power source, and

3) Be restored to standby status, and

b) Verify that with diesel generator E operating in a test mode and connected to its bus, a simulated ECCS actuation signal overrides the test mode by (1) returning the diesel generator to standby operation and (2) automatically energizes the emergency loads with offsite power.

**Test not required to be performed during initial startup of diesel generator E.

SURVEILLANCE REQUIREMENTS (Continued)

e. Verifying that once per 10 years if Specification 4.8.1.1.2f has not been performed:

1. The fuel oil storage tank has been drained, removing the accumulated sediment and cleaned using a sodium hypochlorite or equivalent solution, and

2. A pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code in accordance with ASME Code Section II Article IWD-5000 has been performed.

4.8.1.1.4 Reports - All diesel generator failures, valid or non-valid, shall be reported to the Commission in a Special Report pursuant to Specification 6.9.2 within 30 days. Reports of diesel generator failure shall include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977. If the number of failures in the last 100 valid tests, on a per diesel generator basis, is greater than or equal to 7, the report shall be supplemented to include the additional information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977.

TABLE 4.8.1.1.2-2 (Continued)

UNIT 1 AND UNIT 2

DIESEL GENERATOR LOADING TIMERS

DEVICE TAG NO.	SYSTEM	LOCATION	TIME SETTING
62X-20204	Emergency Switchgear Rm Cooler B & RHR SW pp H&V Fan B	0C877B	60 sec
262X-20104	Emergency Switchgear Rm Cooler A	0C877A	120 sec
262X-20204	Emergency Switchgear Rm Cooler B	0C877B	120 sec
*62X-516	DG Rm Exh Fan A	0B516	2 min
*62X-526	DG Rm Exh Fan B	0B526	2 min
*62X-536	DG Rm Exh Fan C	0B536	2 min
*62X-546	DG Rm Exh Fan D	0B546	2 min
*CRX-5652A	DG Room Supply Fans E1 and E2	0B565	2 min
*62X-5653A	DG Room Exhaust Fan E3	0B565	1 min
*62X-5652A	DG Room Exhausts Fan E4	0B565	1 min
62X1-20304	Control Structure Chilled Water System	0C877A	3 min
62X1-20404	Control Structure Chilled Water System	0C877B	3 min
62X1-20310	Control Structure Chilled Water System	0C876A	3 min
62X2-20410	Control Structure Chilled Water System	0C876B	3 min
62X2-20304	Control Structure Chilled Water System	0C877A	3.5 min
62X2-20404	Control Structure Chilled Water System	0C877B	3.5 min
62X-K11AB	Emergency Switchgear Rm Cooling Compressor A	2CB250A	260 sec
62X-K11BB	Emergency Switchgear Rm Cooling Compressor B	2CB250B	260 sec

*When associated diesel generator is declared OPERABLE.

ELECTRICAL POWER SYSTEMS

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. Two of the five separate and independent diesel generators each with:

1. An engine mounted day fuel tank containing a minimum of 325 gallons of fuel.

2. A fuel storage system containing a minimum of 47,570 gallons of fuel for diesels A, B, C, and D; and 60,480 gallons for diesel generator E.

3. A fuel transfer pump.

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5 and *.

ACTION:

a. With less than the above required A.C. electrical power sources OPERABLE, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment, operations with a potential for draining the reactor vessel and crane operations over the spent fuel pool when fuel assemblies are stored therein. In addition, when in OPERATIONAL CONDITION 5 with the water level less than 22 feet above the reactor pressure vessel flange, immediately initiate corrective action to restore the required power sources to OPERABLE status as soon as practical.

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.1.2 At least the above required A.C. electrical power sources shall be demonstrated OPERABLE per Surveillance Requirements 4.8.1.1.1, 4.8.1.1.2 and 4.8.1.1.4, except for the requirement of 4.8.1.1.2.a.5.

*When handling irradiated fuel in the secondary containment.

3/4.8.2 D.C. SOURCES

D.C. SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.1 As a minimum, the following D.C. electrical power sources shall be OPERABLE:

a. Division I, consisting of:

1. Load group Channel "A" power source consisting of:
   a) 125 volt DC battery bank — 1D610, 2D610*
   b) Full capacity charger — 1D613, 2D613*

2. Load group Channel "C" power source consisting of:
   a) 125 volt DC battery bank — 1D630, 2D630*
   b) Full capacity charger — 1D633,2D633*

3. Load group "I" power source consisting of:
   a) 250 volt DC battery — 1D650
   b) Half-capacity chargers — 1D653A, 1D653B

4. Load group "I" power source consisting of:
   a) ± 24 volt DC battery bank — 1D670
   b) Two half-capacity chargers — 1D673, 1D674

b. Division II, consisting of:

1. Load group Channel "B" power source consisting of:
   a) 125 volt DC battery bank — 1D620, 2D620*
   b) Full capacity charger — 1D623, 2D623*

2. Load group Channel "D" power source consisting of:
   a) 125 volt DC battery bank — 1D640, 2D640*
   b) Full capacity charger — 1D643, 2D643*

3. Load group "II" power source consisting of:
   a) 250 volt DC battery bank — 1D660
   b) Full capacity charger — 1D663

*Not required to be OPERABLE when the requirements of ACTION b have been satisfied.

D.C. SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

4. Load group "II" power source consisting of:
   a) ± 24 volt DC battery bank — 1D680
   b) Two half-capacity chargers — 1D683, 1D684

c. Diesel Generator E

1. Load group power source, consisting of:
   a) 125 volt DC battery bank — 0D595
   b) Full capacity charger — 0D596

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3

ACTION:

a. With one of the above required Unit 1 125 volt or 250 volt DC load group battery banks inoperable, restore the inoperable battery bank to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With one or more of the above required Unit 2 125-volt DC load group battery banks inoperable, within 2 hours either:

   1. Restore the inoperable battery bank(s) to OPERABLE status, or

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

2. Transfer the Unit 1 and common loads aligned to the inoperable Unit 2 battery bank(s) to the corresponding Unit 1 battery bank(s).

Otherwise, declare the Unit 1 and common loads aligned to the inoperable Unit 2 battery bank(s) inoperable and take the ACTION required by the applicable Specification(s).

c. With the Unit 1 loads associated with one or more of the above required Unit 1 125-volt DC load group battery bank(s) aligned to the corresponding Unit 2 load group battery bank(s), realign the Unit 1 loads to the Unit 1 battery bank(s) within 72 hours after restoring the Unit 1 battery bank(s) to OPERABLE status; otherwise, declare the Unit 1 loads aligned to the Unit 2 battery bank(s) inoperable and take the ACTION required by the applicable Specification(s).

d. With one of the above required ± 24 volt DC load group battery banks inoperable, declare the associated equipment inoperable and take the ACTION required by the applicable Specification(s).

e. With one of the above required Division I and Division II chargers inoperable, demonstrate the OPERABILITY of its associated battery bank by performing Surveillance Requirement 4.8.2.1.a.1 within 1 hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare the battery inoperable.

f. With the above required diesel generator E 125 volt DC load group battery bank inoperable and diesel generator E not aligned to the Class 1E distribution system, restore the battery bank to OPERABLE status within 2 hours or verify that all ESW valves associated with diesel generator E are closed and diesel generator E is not running within 2 hours. The provisions of Specification 3.0.4 are not applicable.

g. With the above required diesel generator E 125 volt DC load group battery bank inoperable and diesel generator E aligned to the Class 1E distribution system, restore the battery bank to OPERABLE status within 2 hours or declare generator E inoperable and take the ACTION required by specification 3.8.1.1.

h. With the above required diesel generator E 125 volt DC charger inoperable and diesel generator E aligned to the Class 1E distribution system, demonstrate the OPERABILITY of the associated battery bank by performing Surveillance Requirement 4.8.2.1.a.1 within one hour and at least once per 8 hours thereafter. In any Category A limit in Table 4.8.2.1-1 is not met, declare diesel generator E inoperable and take the ACTION required by specification 3.8.1.1.

i. With the above required diesel generator E charger inoperable and diesel generator E not aligned to the Class 1E distribution system,

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

demonstrate the OPERABILITY of its associated battery bank by performing Surveillance Requirement 4.8.2.1.a.1 within 1 hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare the battery inoperable, and take the ACTION required by specification 3.8.2.1.f. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.2.1 Each of the above required ± 24-volt, 125-volt and 250-volt batteries and chargers shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

1. The parameters in Table 4.8.2.1-1 meet the Category A limits, and
2. There is correct breaker alignment to the battery chargers, and total battery terminal voltage is greater than or equal to 26, 129, 258-volts on float charge.

b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 22, 110 or 220 volts, as applicable, or battery overcharge with battery terminal voltage above 30, 150 or 300 volts, as applicable, by verifying that:

1. The parameters in Table 4.8.2.1-1 meet the Category B limits,
2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohm, and
3. The average electrolyte temperature of 4, 10 or 20, as applicable, of connected cells for the 24, 125 and 250 volt batteries is above 60°F.

SURVEILLANCE REQUIREMENTS (Continued)

c. At least once per 18 months by verifying that:

1. The cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration,

2. The cell-to-cell and terminal connections are clean, tight, free of corrosion and coated with anti-corrosion material,

3. The resistance of each cell-to-cell and terminal connection of each 125-volt and 250-volt battery is less than or equal to 150×10^{-6} ohm, and

4. The battery charger, for at least 4 hours, will supply at least:

a) For the ± 24-volt batteries, 25 amperes at a minimum of 25.7 volts.

b) For the 125-volt batteries, 100 amperes at a minimum of 127.8 volts.

c) For the 250-volt batteries, 300 amperes at a minimum of 255.6 volts.

d) For the 125-volt diesel generator E batteries, 200 amperes at a minimum of 127.8 volts.

d. At least once per 18 months by verifying that either:

1. The battery capacity is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for the design duty cycle when the battery is subjected to a battery service test, or

2. The battery capacity is adequate to supply a dummy load of the following profile, which is verified to be greater than the actual emergency loads, while maintaining the battery terminal voltage greater than or equal to ± 21, 105 or 210 volts, as applicable.

a) For ± 24-volt battery banks 1D670, 1D670-1, 1D680 and 1D680-1, 9.37 amperes for the entire 4 hour test.

b) For 125-volt batteries:

1) Channel A battery 1D612:
325 amperes for 60 seconds
107 amperes for the remainder of the 4 hour test

2) Channel "B" battery 1D622:
323 amperes for 60 seconds
105 amperes for the remainder of the 4 hour test

3) Channel "C" battery 1D632:
340 amperes for 60 seconds
121 amperes for the remainder of the 4 hour test

4) Channel "D" battery 1D642:
323 amperes for 60 seconds
104 amperes for the remainder of the 4 hour test.

SURVEILLANCE REQUIREMENTS (Continued)

5) Channel "A" battery 2D612:
   328 amperes for 60 seconds
   112 amperes for the remainder of the 4 hour test.
6) Channel "B" battery 2D622:
   326 amperes for 60 seconds
   110 amperes for the remainder of the 4 hour test.
7) Channel "C" battery 2D632:
   343 amperes for 60 seconds
   128 amperes for the remainder of the 4 hour test.
8) Channel "D" battery 2D642:
   326 amperes for 60 seconds
   111 amperes for the remainder of the 4 hour test.

9) Channel "H" battery 0D595:
   286 amperes for the first 60 seconds
   95 amperes for the next 238 minutes
   155 amperes for the last minute of the 4 hour test.

c) For 250-volt batteries:

1) Battery bank 1D650:

1091	amperes	for	60 seconds
567	amperes	for	29.0 minutes
113	amperes	for	60.0 minutes
24	amperes	for	150.0 minutes

2) Battery bank 1D660:

1314	amperes	for	60 seconds
465	amperes	for	60 seconds
365	amperes	for	28.0 minutes
323	amperes	for	15.0 minutes
185	amperes	for	195.0 minutes

e. At least once per 60 months by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval, this performance discharge test may be performed in lieu of the battery service test.

f. Annual performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

TABLE 4.8.2.1-1

BATTERY SURVEILLANCE REQUIREMENTS

Parameter	CATEGORY A(1)	CATEGORY B(2)	
	Limits for each designated pilot cell	Limits for each connected cell	Allowable(3) value for each connected cell
Electrolyte Level	>Minimum level indication mark, and ≤ ¼" above maximum level indication mark	>Minimum level indication mark, and ≤ ¼" above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage	> 2.13 volts	≥ 2.13 volts(c)	> 2.07 volts
Specific Gravity(a)	≥ 1.200(b)	≥ 1.195(b). Average of all connected cells > 1.205(b)	Not more than .020 below the average of all connected cells. Average of all connected cells ≥ 1.195(b)

(a) Corrected for electrolyte temperature and level.
(b) Or battery charging current is less than 0.01, 0.1 and 0.25 amperes for the ±24, 125 and 250 volt batteries, respectively, when on float charge.
(c) May be corrected for average electrolyte temperature.
(1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.
(2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameters are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.
(3) Any Category B parameter not within its allowable value indicates an inoperable battery.

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, Division I and diesel generator E or Division II and diesel generator E of the D.C. electrical power sources shall be OPERABLE with:

a. Division I consisting of:

1. Load group Channel "A" power source, consisting of:
   a) 125 volt DC battery bank — 1D610, 2D610**
   b) Full capacity charger — 1D613,2D613**

2. Load group Channel "C" power source, consisting of:
   a) 125 volt DC battery bank — 1D630, 2D630**
   b) Full capacity charger — 1D633, 2D633**

3. Load group "I" power source, consisting of:
   a) 250 volt DC battery bank — 1D650
   b) Half-capacity chargers — 1D653A, 1D653B

4. Load group "I" power source, consisting of:
   a) ± 24 volt DC battery bank — 1D670
   b) Two half-capacity chargers — 1D673, 1D674

b. Division II consisting of:

1. Load group Channel "B" power source, consisting of:
   a) 125 volt DC battery bank — 1D620, 2D620**
   b) Full capacity charger — 1D623, 2D623**

2. Load group Channel "D" power source, consisting of:
   a) 125 volt DC battery bank — 1D640, 2D640**
   b) Full capacity charger — 1D643, 2D643**

3. Load group "II" power source, consisting of:
   a) 250 volt DC battery bank — 1D660
   b) Full capacity charger — 1D663

4. Load group "II" power source, consisting of:
   a) ± 24 volt DC battery bank — 1D680
   b) Two half-capacity chargers — 1D683, 1D684

c. Diesel Generator E

1. Load group power source, consisting of:
   a) 125 volt DC battery bank — 0D595
   b) Full capacity charger — 0D596

**Not required to be OPERABLE when the requirements of ACTION b have been satisfied.

ELECTRICAL POWER SYSTEMS

D.C. SOURCES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5, and *.

ACTION:

a. With less than the above required Unit 1 Division I or Division II 125 volt and/or 250 volt DC load group battery banks OPERABLE, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.

b. With less than the above required Unit 2 125-volt DC load group battery banks OPERABLE, either:

*When handling irradiated fuel in the secondary containment.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

1. Suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel, or

2. Transfer the Unit 1 and common loads aligned to the inoperable Unit 2 battery bank(s) to the corresponding Unit 1 battery bank(s).

Otherwise, declare the Unit 1 and common loads aligned to the inoperable Unit 2 battery bank(s) inoperable and take the ACTION required by the applicable Specification(s).

c. With the Unit 1 loads associated with one or more of the above required Unit 1 125-volt DC load group battery bank(s) aligned to the corresponding Unit 2 load group battery bank(s), realign the Unit 1 loads to the Unit 1 battery bank(s) within 72 hours after restoring the Unit 1 battery bank to OPERABLE status; otherwise, declare the Unit 1 loads aligned to the Unit 2 battery bank(s) inoperable and take the ACTION required by the applicable Specification(s).

d. With the above required ± 24 volt D.C. load group battery banks inoperable, declare the associated equipment inoperable and take the ACTION required by the applicable Specification(s).

e. With the above required Division I or Division II charger(s) inoperable, demonstrate the OPERABILITY of the associated battery by performing Surveillance Requirement 4.8.2.1.a.1 within one hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare the battery inoperable.

f. The provisions of Specification 3.0.3 are not applicable.

g. With the above required diesel generator E 125 volt DC load group battery bank inoperable and diesel generator E not aligned to the Class 1E distribution system, restore the battery bank to OPERABLE status within 2 hours or verify that all ESW valves associated with diesel generator E are closed and diesel generator E is not running within 2 hours. The provisions of Specification 3.0.4 are not applicable.

h. With the above required diesel generator E 125 volt DC load group battery bank inoperable and diesel generator E aligned to the Class 1E distribution system, restore the battery bank to OPERABLE status within 2 hours or declare diesel generator E inoperable and take the ACTION required by specification 3.8.1.2.

i. With the above required diesel generator E 125 volt DC charger inoperable and diesel generator E aligned to the Class 1E distribution system, demonstrate the OPERABILITY of the associated battery bank

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

by performing Surveillance Requirement 4.8.2.1.a.1 within one hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare diesel E inoperable and take the ACTION required by specification 3.8.1.2.

j. With the above diesel generator E charger inoperable and diesel generator E not aligned to the Class 1E distribution system, demonstrate the OPERABILITY of the associated battery by performing Surveillance Requirement 4.8.2.1.a.1 within 1 hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare the battery inoperable, and take the ACTION required by specification 3.8.2.2.g. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.2.2 At least the above required battery and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.1.

3/4.8.3 ONSITE POWER DISTRIBUTION SYSTEMS

DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.3.1 The following power distribution system divisions shall be energized with tie breakers open both between redundant buses within the unit and between units at the same station:

a. A.C. power distribution:

1.	Division I, consisting of:		
	a)	Load group Channel "A", consisting of:	
		1) 4160 volt A.C. switchgear bus	1A201
		2) 480 volt A.C. load center	1B210
		3) 480 volt A.C. motor control centers	0B516, 0B517 1B216, 1B217
		4) 208/480 volt A.C. instrument panels	1Y216
	b)	Load group Channel "C", consisting of:	
		1) 4160 volt A.C. switchgear bus	1A203
		2) 480 volt A.C. load center	1B230
		3) 480 volt A.C. motor control centers	0B536, 0B136 1B236, 1B237
		4) 208/120 volt A.C. instrument panels	1Y236
	c)	Isolated 480 volt A.C. swing bus, including:	1B219
		1) Preferred power source	
		2) Preferred power source MG set	
		3) Alternate power source	
		4) Automatic transfer switch	
2.	Division II, consisting of:		
	a)	Load group Channel "B", consisting of:	
		1) 4160 volt A.C. switchgear bus	1A202
		2) 480 volt A.C. load center	1B220
		3) 480 volt A.C. motor control centers	0B526, 0B527 1B226, 1B227
		4) 208/120 volt A.C. instrument panels	1Y226
	b)	Load group Channel "D", consisting of:	
		1) 4160 volt A.C. switchgear bus	1A204
		2) 480 volt A.C. load center	1B240
		3) 480 volt A.C. motor control centers	0B546, 0B146 1B246, 1B247
		4) 208/120 volt A.C. instrument panels	1Y246
	c)	Isolated 480 volt A.C. swing bus, including:	1B229
		1) Preferred power source	
		2) Preferred power source MG set	
		3) Alternate power source	
		4) Automatic transfer switch	

b. D.C. power distribution:

1.	Division I, consisting of:		
	a)	Load group Channel "A", consisting of:	
		1) 125 volt DC buses	1D612, 2D612,* 1D614, 2D614*
		2) Fuse box	1D611, 2D611*

*Not required to be OPERABLE when the requirements of ACTION c have been satisfied.

c) Isolated 480 volt A.C. swing bus, including: 1B229

1) Preferred power source
2) Preferred power source MG set
3) Alternate power source
4) Automatic transfer switch

3. Diesel Generator E, when aligned to the Class 1E system

a) Load group consisting of:

1) 480 volt A.C. motor control center 0B565

b. D.C. power distribution:

1. Division I, consisting of:

a) Load group Channel "A", consisting of:

1) 125 volt DC buses 1D612, 2D612,*

2) Fuse box 1D614, 2D614*
1D611, 2D611*

*Not required to be OPERABLE when the requirements of ACTION C have been satisfied.

LIMITING CONDITION FOR OPERATION

D.C. power distribution (Continued)

b) Load group Channel "C", consisting of:

1) 125 volt DC buses	1D632, 2D632* 1D634, 2D634*
2) Fuse box	1D631, 2D631*

c) Load group "I", consisting of:

1) 250 volt DC buses	1D652, 1D254
2) Fuse box	1D651

d) Load group "I", consisting of:

1) ± 24 volt DC buses	1D672
2) Fuse box	1D671

2. Division II, consisting of:

a) Load group Channel "B" consisting of:

1) 125 volt DC buses	1D622, 2D622* 1D624, 2D624*
2) Fuse box	1D621, 2D621*

b) Load group Channel "D" consisting of:

1) 125 volt DC buses	1D642, 2D642* 1D644, 2D644*
2) Fuse box	1D641, 2D641*

c) Load group "II" consisting of:

1) 250 volt DC buses	1D662, 1D264, 1D274
2) Fuse box	1D661

d) Load group "II" consisting of:

1) ± 24 volt DC buses	1D682
2) Fuse box	1D681

3. Diesel Generator E

a) Load group consisting of:

1) 125 volt DC bus	0D597

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

*Not required to be OPERABLE when the requirements of ACTION c have been satisfied.

LIMITING CONDITION FOR OPERATION

ACTION:

a. With one of the above required Division I or Division II A.C. distribution system load groups not energized, re-energize the load group within 8 hours or be in an least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With one of the above required Unit 1 Division I or Division II D.C. distribution system load groups not esnergized, re-energize the load group within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

c. With one or more of the above required Unit 2 D.C. distribution system load groups not energized, within 2 hours either:

   1. Re-energize the load group(s), or

   2. Transfer the Unit 1 and common loads aligned to the deenergized Unit 2 load group(s) to the corresponding Unit 1 load group(s). Otherwise declare the Unit 1 and common loads aligned to the deenergized Unit 2 load group(s) inoperable and take the ACTON required by the applicable Specification(s).

d. With the Unit 1 loads associated with one or more of the above required Unit 1 125-volt D.C. load group(s) aligned to the corresponding Unit 2 load group(s), realign the Unit 1 loads to the Unit 1 load group(s) within 72 hours after restoring the Unit 1 load group(s) to OPERABLE status; otherwise, declare the Unit 1 loads aligned to the Unit 2 load group(S) inoperable and take the ACTION required by the applicable Specification(s).

e. With one or both of the isolated 480 volt A.C. swing busses inoperable, declare the associated LCPI loop inoperable (see Specification 3.5.1).

f. With the above required diesel generator E A.C. distribution system load group not energized and diesel generator E aligned to the Class 1E distribution system, re-energize the load group within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

g. With the above required diesel generator E 125 volt D.C. distribution system load group not energized and diesel generator E not aligned to the Class 1E distribution system, re-energize the load group within 2 hours or shut down diesel generator E and close all ESW valves associated with diesel generator E within 2 hours. The provisions of Specification 3.0.4 are not applicable.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

h. With the above required diesel generator E 125 volt D.C. distribution system load group not energized and diesel generator E aligned to the Class 1E distribution system, re-energize the load group within 2 hours or declare diesel generator E inoperable and take the ACTION required by Specification 3.8.1.1.

SURVEILLANCE REQUIREMENTS

4.8.3.1.1 Each of the above required power distribution system load groups shall be determined energized at least once per 7 days by verifying correct breaker alignment and voltage on the busses/MCCs/panels.

4.8.3.1.2 The isolated 480 volt A.C. swing bus automatic transfer switches shall be demonstrated OPERABLE at least once per 31 days by actuating the load test switch or by disconnecting the preferred power source to the transfer switch and verifying that swing bus automatic transfer is accomplished.

3.8.3.2 As a minimum, the following power distribution system divisions shall be energized:

a. For A.C. power distribution, Division I and diesel generator E or Division II and diesel generator E with:

1. Division I consisting of:

a) Load group Channel "A" consisting of:

1)	4160 volt A.C. switchgear bus	1A201
2)	480 volt A.C. load center	1B210
3)	480 volt A.C. motor control centers	0B516, 0B517 1B216, 1B217
4)	208/120-volt A.C. instrument panels	1Y216

b) Load group Channel "C", consisting of:

1)	4160 volt A.C. switchgear bus 1A203	1A203
2)	480 volt A.C. load center	1B230
3)	480 volt A.C. motor control centers	0B536, 0B136 1B236, 1B237
4)	208/120 volt A.C. instrument panels	1Y236

c) Isolated 480 volt A.C. swing bus, including: 1B219*

1) Preferred power source
2) Preferred power source MG set
3) Alternate power source
4) Automatic transfer switch

2. Division II consisting of:

a) Load group Channel "B", consisting of:

1)	4610 volt A.C. switchgear bus	1A202
2)	480 volt A.C. load center	1B220
3)	480 volt A.C. motor control centers	0B526, 0B527 1B226, 1B227
4)	208/120-volt A.C. instrument panels	1Y226

b) Load group Channel "D", consisting of:

1)	4160 volt A.C. switchgear bus	1A204
2)	480 volt A.C. load center	1B240

*The swing bus shall be OPERABLE if the Division I LPCI subsystem alone is fulfilling the requirements of Specification 3.5.2.

LIMITING CONDITION FOR OPERATION (Continued)

3)	480 volt A.C. motor control centers	0B546, 0B146 1B246, 1B247
4)	208/120 volt A.C. instrument panels	1Y246
c)	Isolated 480 volt A.C. swing bus, including	1B229*
1)	Preferred power source	
2)	Preferred power source MG set	
3)	Alternate power source	
4)	Automatic transfer switch	

3. Diesel Generator E

a) Load Group, consisting of:

1)	480 volt A.C. motor control center	0B565

*The swing bus shall be OPERABLE if the Division II LPCI subsystem alone is fulfilling the requirements of Specification 3.5.2.

LIMITING CONDITION FOR OPERATION (Continued)

b. For D.C. power distribution, Division I or Division II, with:

1. Division I consisting of:

a) Load group Channel "A", consisting of:
   1) 125 volt DC buses — 1D612, 2D612**, 1D614, 2D614**
   2) Fuse box — 1D611, 2D611**

b) Load group Channel "C", consisting of:
   1) 125 volt DC buses — 1D632, 2D632**, 1D634, 2D634**
   2) Fuse box — 1D631, 2D631**

c) Load group "I", consisting of:
   1) 250 volt DC buses — 1D652, 1D254
   2) Fuse box — 1D651

d) Load group "I", consisting of:
   1) ± 24 volt DC buses — 1D672
   2) Fuse box — 1D671

2. Division II consisting of:

a) Load group Channel "B", consisting of:
   1) 125 volt DC buses — 1D622, 2D622**, 1D624, 2D624**
   2) Fuse box — 1D621, 2D621**

b) Load group Channel "D", consisting of:
   1) 125 volt DC buses — 1D642, 2D642**, 1D644, 2D644**
   2) Fuse box — 1D641, 2D641**

c) Load group "II", consisting of:
   1) 250 volt DC buses — 1D662, 1D264, 1D274
   2) Fuse box — 1D661

d) Load group "II", consisting of:
   1) ± 24 volt DC buses — 1D682
   2) Fuse box — 1D681

3. Diesel Generator E

a) Load group consisting of:
   1) 1254 volt D.C. bus — 0D597

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5 and *.

*When handling irradiated fuel in the secondary containment.
**Not required to be OPERABLE when the requirements of ACTION c have been satisfied.

ACTION:

a. With less than the Division I or Division II load groups of the above required A.C. distribution system energized, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.

b. With less than the Division I or Division II load groups of the above required Unit 1 D.C. distribution system energized, suspend CORE ALTERATIONS, handling or irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.

c. With less than Division I or Division II of the above required Unit 2 D.C. distribution system energized, either:

   1. Suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment, and operations with a potential for draining the reactor vessel, or

   2. Transfer the Unit 1 and common loads aligned to the deenergized Unit 2 load group(s) to the corresponding Unit 1 load group(s).

   Otherwise, declare the Unit 1 and common loads aligned to the deenergized Unit 2 load group(s) inoperable and take the ACTION required by the applicable Specification(s).

d. With the Unit 1 loads aligned to one or more of the above required Unit 1 125-volt D.C. load group(s) aligned to the corresponding Unit 2 load group(s), realign the Unit 1 loads to the Unit 1 load group(s) within 72 hours after restoring the Unit 1 load group(s) to OPERABLE status; otherwise, declare the Unit 1 loads aligned to the Unit 2 load group(s) inoperable and take the ACTION required by the applicable Specification(s).

e. With one or both of the isolated 480 volt A.C. swing busses inoperable, declare the asscociated LPCI loop inoperable (see Specification 3.5.2).

f. The provisions of Specification 3.0.3 are not applicable.

g. With the above required diesel generator E A.C. distribution system load group not energized and diesel generator E aligned to the Class 1E distribution system, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.

h. With the above required diesel generator E 125 volt D.C. distribution system load group not energized and diesel generator E not aligned to the Class 1E distribution system, re-energize the load group within 2 hours or verify that all ESW valves associated with diesel generator E are closed and diesel generator E is not running within 2 hours. The provisions of Specification 3.0.4 are not applicable.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

i. With the above required diesel generator E 125 volt D.C distribution system load group not energized and diesel generator E aligned to the Class 1E distribution system, re-energize the load group within 2 hours or declare diesel generator E inoperable and take the ACTION required by Specification 3.8.1.2.

SURVEILLANCE REQUIREMENTS

4.8.3.2.1 At least the above required power distribution system divisions shall be determined energized at least once per 7 days by verifying correct breaker alignment and voltage on the busses/MCCs/panels.

4.8.3.2.2 The isolated 480-volt A.C. swing bus automatic transfer switch shall be demonstrated OPERABLE at least once per 31 days by actuating the load test switch or by disconnecting the preferred power source to the transfer switch and verifying that swing bus automatic transfer is accomplished.

ELECTRICAL POWER SYSTEMS

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

PRIMARY CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.1 All primary containment penetration conductor overcurrent protective devices shown in Table 3.8.4.1-1 and all fuses tested pursuant to Specification 4.8.4.1.a.2 shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

ACTION:

a. With one or more of the above required containment penetration conductor overcurrent devices shown in Table 3.8.4.1-1 and/or fuses tested pursuant Specification 4.8.4.1.a.2 inoperable:

   1. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping, racking out, or removing the alternate device or racking out or removing the inoperable device within 72 hours, and

   2. Declare the affected system or component inoperable, and

   3. Verify at least once per 7 days thereafter the alternate device is tripped, racked out, or removed, or the device is racked out or removed.

   Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. The provisions of Specification 3.0.4 are not applicable to overcurrent devices which have the inoperable device racked out or removed or, which have the alternate device tripped, racked out, or removed.

SURVEILLANCE REQUIREMENTS

4.8.4.1 Each of the primary containment penetration conductor overcurrent protective devices required above shall be demonstrated OPERABLE:

a. At least once per 18 months:

   1. By selecting and functionally testing a representative sample of at least 10% of each type of lower voltage circuit breakers. Circuit breakers selected for functional testing shall be selected on a rotating basis. Testing of these circuit breakers shall consist of injecting a current with a value equal to 300% of the pickup of the thermal (long term time delay) element of Types HFB-TM and KB-TM (thermal magnetic) circuit breakers, and verifying that the circuit breaker operates within the time delay band-width

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effective upon start-up following the first refueling outage

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION - CONTINUOUS

LIMITING CONDITION FOR OPERATION

3.8.4.2.1 The thermal overload protection of each valve shown in Table 3.8.4.2.1-1 shall be bypassed continuously by an OPERABLE bypass device integral with the motor starter.

APPLICABILITY: Whenever the motor operated valve is required to be OPERABLE unless otherwise specified.

ACTION:

a. With thermal overload protection for one or more of the above required valves not bypassed continuously by an OPERABLE integral bypass device, take administrative action to continuously bypass the thermal overload within 8 hours or declare the affected valve(s) inoperable and apply the appropriate ACTION statement(s) for the affected system(s).

b. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.4.2.1.1 The thermal overload protection for the above required valves shall be verified to be bypassed continuously by an OPERABLE integral bypass device by verifying that the thermal overload protection is bypassed:

a. At least once per 18 months, and

b. Following maintenance on the motor starter.

4.8.4.2.1.2 The thermal overload protection shall be verified to be bypassed following activities during which the thermal overload protection was temporarily placed in force.

TABLE 3.8.4.2.1-1

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION - CONTINUOUS

VALVE NUMBER	SYSTEM(S) AFFECTED
HV-01222A	RHRSW
HV-01222B	RHRSW
HV-01224A1	RHRSW
HV-01224B1	RHRSW
HV-01224A2	RHRSW
HV-01224B2	RHRSW
*HV-01112A	ESW
*HV-01112B	ESW
*HV-01122A	ESW
*HV-01122B	ESW
*HV-01112C	ESW
*HV-01112D	ESW
*HV-01122C	ESW
*HV-01122D	ESW
*HV-01110A	ESW
*HV-01110B	ESW
*HV-01120A	ESW
*HV-01120B	ESW
*HV-01110C	ESW
*HV-01110D	ESW
*HV-01120C	ESW
*HV-01120D	ESW
*HV-01110E	ESW
*HV-01120E	ESW
*HV-01112E	ESW
*HV-01122E	ESW
HV-08693A	ESW
HV-08693B	ESW
HV-01201A1	RHRSW
HV-01201A2	RHRSW
HV-01201B1	RHRSW
HV-01201B2	RHRSW
HV-11210A	RHRSW
HV-11210B	RHRSW
HV-11215A	RHRSW
HV-11215B	RHRSW
HV-15766	Cont. Isol.
HV-15768	Cont. Isol.
HV-12603	Cont. Isol.
HV-11345	Cont. Isol.
HV-11313	Cont. Isol.
HV-11346	Cont. Isol.
HV-11314	Cont. Isol.
HV-E11-1F009	RHR

* Continuous bypass not required when corresponding diesel generator is not aligned to the Class 1E distribution system.

TABLE 3.8.4.2.1-1 (Continued)

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION CONTINUOUS

VALVE NUMBER	SYSTEM(S) AFFECTED
HV-E11-1F040	RHR
HV-G33-1F001	RWCU
HV-E11-1F103A	RHR
HV-E11-1F075A	RHRSW
HV-E11-1F048A	RHR
HV-E11-1F006C	RHR
HV-E11-1F004C	RHR
HV-E11-1F015A	RHR
HV-E11-1F024A	RHR
HV-E21-1F015A	CS
HV-E41-1F002	HPCI
HV-B21-1F016	NSSS
HV-E11-1F022	RHR
HV-E11-1F010A	RHR
HV-E11-1F011A	RHR
HV-E11-1F004A	RHR
HV-E11-1F006A	RHR
HV-E11-1F027A	RHR
HV-E11-1F007A	RHR
HV-E11-1F104A	RHR
HV-E11-1F026A	RHR
HV-E11-1F028A	RHR
HV-E11-1F047A	RHR
HV-E11-1F073A	RHRSW
HV-E11-1F003A	RHR
HV-E11-1F017A	RHR
HV-E21-1F001A	CS
HV-E21-1F031A	CS
HV-E21-1F004A	CS
HV-E21-1F005A	CS
HV-E11-1F021A	RHR
HV-E11-1F016A	RHR
HV-15112	RHR
HV-E51-1F007	RCIC
HV-E51-1F084	RCIC
HV-E11-1F027B	RHR
HV-E11-1F048B	RHR
HV-E11-1F015B	RHR
HV-E11-1F006B	RHR
HV-E11-1F021B	RHR
HV-E11-1F010B	RHR
HV-E11-1F011B	RHR
HV-E11-1F004B	RHR
HV-E11-1F007B	RHR
HV-E11-1F104B	RHR
HV-E11-1F026B	RHR

TABLE 3.8.4.2.1-1 (Continued)

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION CONTINUOUS

VALVE NUMBER	SYSTEM(S) AFFECTED
HV-E11-1F028B	RHR
HV-E11-1F047B	RHR
HV-E11-1F016B	RHR
HV-E11-1F003B	RHR
HV-E11-1F017B	RHR
HV-E21-1F031B	CS
HV-E21-1F001B	CS
HV-E11-1F103B	RHR
HV-E11-1F075B	RHRSW
HV-E11-1F073B	RHRSW
HV-E11-1F006D	RHR
HV-E11-1F004D	RHR
HV-E11-1F024B	RHR
HV-E21-1F015B	CS
HV-E21-1F004B	CS
HV-E21-1F005B	CS
HV-E32-1F001K	MSIV
HV-E32-1F002K	MSIV
HV-E32-1F003K	MSIV
HV-E32-1F001P	MSIV
HV-E32-1F002P	MSIV
HV-E32-1F003P	MSIV
HV-E32-1F001B	MSIV
HV-E32-1F002B	MSIV
HV-E32-1F003B	MSIV
HV-E32-1F001F	MSIV
HV-E32-1F002F	MSIV
HV-E32-1F003F	MSIV
HV-E32-1F006	MSIV
HV-E32-1F007	MSIV
HV-E32-1F008	MSIV
HV-E32-1F009	MSIV
HV-E51-1F045	RCIC
HV-E51-1F012	RCIC
HV-E51-1F013	RCIC
HV-15012	RCIC
HV-E51-1F046	RCIC
HV-E51-1F008	RCIC
HV-E51-1F031	RCIC
HV-E51-1F010	RCIC

TABLE 3.8.4.2.1-1 (Continued)

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION CONTINUOUS

VALVE NUMBER	SYSTEM(S) AFFECTED
HV-E51-1F019	RCIC
HV-E51-1F060	RCIC
HV-E51-1F059	RCIC
HV-E51-1F022	RCIC
HV-E51-1F062	RCIC
HV-E41-1F012	HPCI
HV-E41-1F001	HPCI
HV-E41-1F011	HPCI
HV-E41-1F006	HPCI
HV-E41-1F079	HPCI
HV-E41-1F059	HPCI
HV-E41-1F004	HPCI
HV-E41-1F003	HPCI
HV-E41-1F042	HPCI
HV-E41-1F075	HPCI
HV-E41-1F008	HPCI
HV-E41-1F007	HPCI
HV-E41-1F066	HPCI
HV-G33-1F004	RWCU
HV-B21-1F019	NSSS
HV-E11-1F008	RHR
HV-E11-1F023	RHR
HV-E11-1F049	RHR
HV-B31-1F032A	RX RECIRC
HV-B31-1F032BB	RX RECIRC
HV-B31-1F031A	RX RECIRC
HV-B31-1F031B	RX RECIRC

ELECTRICAL POWER SYSTEMS

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION - AUTOMATIC

LIMITING CONDITION FOR OPERATION

3.8.4.2.2 The thermal overload protection of each valve shown in Table 3.8.4.2.2-1 shall be bypassed automatically by an OPERABLE bypass device integral with the motor starter.

APPLICABILITY: When diesel generator E is not aligned to the Class 1E distribution system.

ACTION:

a. With thermal overload protection automatic bypass inoperable for one or more valves listed above, take administrative action to continuously bypass the thermal overload within 8 hours, or verify that all diesel generator E ESW valves are closed and diesel generator E is not running within 8 hours.

b. The provision of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.4.2.2.1 The automatic bypass of thermal overload protection for those valves listed above shall be demonstrated OPERABLE at least once per 18 months.

TABLE 3.8.4.2.2-1

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION - AUTOMATIC

VALVE NUMBER	SYSTEM(S) AFFECTED
HV-01110E	ESW
HV-01120E	ESW

BASES

3/4.8.1, 3/4.8.2 and 3/4.8.3 A.C. SOURCES, D.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS

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 General Design Criteria 17 of Appendix "A" to 10 CFR 50.

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 three of the onsite A.C. and the corresponding D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of one other onsite A.C. source. The Plant configuration consists of four diesel generators - A, B, C and D - and a spare fifth diesel generator - E - which can be substituted for any one of the other four diesel generators.

The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974. When one diesel generator is inoperable, there is an additional ACTION requirement to verify that all required systems, subsystems, trains, components and devices, that depend on the remaining OPERABLE diesel generator as a source of emergency power, are also OPERABLE. This requirement is intended to provide assurance that a loss of offsite power event will not result in a complete loss of safety function of critical systems during the period one of the diesel generators is inoperable. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out-of-service for maintenance or other reasons. It does not mean to perform the surveillance requirements needed to demonstrate the OPERABILITY of the component.

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 unit status.

The surveillance requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies", March 10, 1971, Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants", Revision 1, August 1977 and Regulatory Guide 1.137 "Fuel-Oil Systems for Standby Diesel Generators", Revision 1, October 1979.

A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

The surveillance requirements for demonstrating the OPERABILITY of the unit batteries are in accordance with the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants", February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage onfloat charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8.2.1-1 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and .015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than .020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than .010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8.2.1-1 is permitted for up to 7 days. During this 7 day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than .020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity ensures that an individual cell's specific gravity will not be more than .040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

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

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.32
License No. NPF-22

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:

   A. The application for the amendment filed by the Pennsylvania Power & Light Company (the licensee), dated February 10, 1986, as supplemented on March 4, June 24, August 29, and October 1, 1986, and January 21, 1987, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 set forth in 10 CFR Chapter I;

   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 enclosure to this license amendment; and paragraph 2.C.(2) of the Facility Operating License No. NPF-22 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No.32, and the Environmental Protection Plan contained in Appendix B are hereby incorporated in the license. PP&L shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective upon removal of the boundary tags on the diesel generator E Emergency Service Water valves.

FOR THE NUCLEAR REGULATORY COMMISSION

Elinor G. Adensam

Elinor G. Adensam, Director
BWR Project Directorate No. 3
Division of BWR Licensing

Enclosure:
Changes to the Technical
Specifications

Date of Issuance: March 16, 1987

ENCLOSURE TO LICENSE AMENDMENT NO. 32

FACILITY OPERATING LICENSE NO. NPF-22

DOCKET NO. 50-388

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

REMOVE	INSERT
3/4 3-81	3/4 3-81 (overleaf)
----	3/4 3-81a
3/4 3-82	3/4 3-82 (overleaf)
3/4 7-21	3/4 7-21
3/4 7-22	3/4 7-22 (overleaf)
3/4 7-25	3/4 7-25 (overleaf)
3/4 7-26	3/4 7-26
3/4 8-1	3/4 8-1
3/4 8-2	3/4 8-2 (overleaf)
3/4 8-5	3/4 8-5 (overleaf)
3/4 8-6	3/4 8-6
----	3/4 8-6a
----	3/4 8-6b
----	3/4 8-6c
----	3/4 8-6d
----	3/4 8-6e
3/4 8-9	3/4 8-9
3/4 8-10	3/4 8-10
3/4 8-11	3/4 8-11
----	3/4 8-11a
3/4 8-12	3/4 8-12
----	3/4 8-12a
3/4 8-13	3/4 8-13
----	3/4 8-13a
3/4 8-14	3/4 8-14 (overleaf)

REMOVE	INSERT
3/4 8-15	3/4 8-15 (overleaf)
3/4 8-16	3/4 8-16
----	3/4 8-16a
3/4 8-17	3/4 8-17
----	3/4 8-17a
----	3/4 8-18 (overleaf)
----	3/4 8-18a
3/4 8-19	3/4 8-19
----	3/4 8-19a
3/4 8-20	3/4 8-20
3/4 8-21	3/4 8-21
3/4 8-22	3/4 8-22
3/4 8-23	3/4 8-23
----	3/4 8-23a
3/4 8-24	3/4 8-24 (overleaf)
3/4 8-29	3/4 8-29 (overleaf)
3/4 8-30	3/4 8-30
3/4 8-31	3/4 8-31
3/4 8-32	3/4 8-32
3/4 8-33	3/4 8-33
3/4 8-34	3/4 8-34
3/4 8-34a	3/4 8-34a
3/4 8-34b	3/4 8-34b
B 3/4 8-1	B 3/4 8-1
B 3/4 8-2	B 3/4 8-2 (overleaf)

TABLE 3.3.7.9-1 (Continued)

FIRE DETECTION INSTRUMENTATION

INSTRUMENT LOCATION			INSTRUMENTS OPERABLE							
				HEAT		IONIZATION		PHOTO-ELECTRIC		
FIRE ZONE	ROOM OR AREA		ELEV.	TOTAL	MIN.	TOTAL	MIN.	TOTAL	MIN.	
b.	Reactor Building (Continued)									
2-5D	RWCU Pumps & Heat Exchangers		749'-1"	NA	NA	NA	NA	10	5	
2-5E	Penetration Room		749'-1"	NA	NA	NA	NA	2	1	
2-5H	Instrument Repair Room		749'-1"	NA	NA	2	1	NA	NA	
2-6A	Access Area		779'-1"	NA	NA	10	5	NA	NA	
2-6B	Load Center Room		779'-1"	NA	NA	4	2	NA	NA	
2-6C	Electric Equipment Room		779'-1"	NA	NA	2	1	NA	NA	
2-6E	Hatch and Laydown Area		779'-1"	NA	NA	2	1	NA	NA	
2-6D	H&V Equipment Room		779'-1"	NA	NA	12	6	NA	NA	
0-6G	Surge Tank Vault		779'-4"	NA	NA	2	1	NA	NA	
2-7A	H&V Fan and Filter Rooms		799'-1"	24	12	14	7	NA	NA	
0-8A	Refueling Floor		818'-1"	NA	NA	NA	NA	59	30	
c.	ESSW Pumphouse									
0-51	Pump Room		685'-6"	NA	NA	6	3	NA	NA	
0-52	Pump Room		685'-6"	NA	NA	6	3	NA	NA	
						INFRA-RED (FLAME)				
						TOTAL	MIN.			
d.	Diesel Generator Building									
0-41A	Diesel Generator	Rooms and	660'-0" 677'-0"	22	11	2	1	15	8	
0-41C	Diesel Generator	Rooms and	660'-0" 677'-0"	22	11	2	1	15	8	
0-41B	Diesel Generator	Rooms and	660'-0" 677'-0"	23	12	2	1	15	8	
0-41D	Diesel Generator	Rooms and	660'-0" 677'-0"	22	11	2	1	15	8	

*Not accessible.

TABLE 3.3.7.9-1 (Continued)

FIRE DETECTION INSTRUMENTATION

INSTRUMENT LOCATION			INSTRUMENTS OPERABLE							
FIRE ZONE	ROOM OR AREA		ELEV.	HEAT TOTAL	HEAT MIN.	INFRA-RED (FLAME) TOTAL	INFRA-RED (FLAME) MIN.	IONIZATION TOTAL	IONIZATION MIN.
e.	Diesel Generator E Building								
0-41E	Diesel Generator Rooms		656'-6"	1	1	NA	NA	18	9
		and	675'-6"	NA	NA	6	3	3	2
		and	708'-0"	NA	NA	4	2	NA	NA

INSTRUMENTATION

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.7.10 The radioactive liquid effluent monitoring instrumentation channels shown in Table 3.3.7.10-1 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 in accordance with the methodology and parameters described 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, immediately suspend the release of radioactive liquid effluents monitored by the affected channel or declare the channel inoperable.

b. With less than the minimum number of radioactive liquid effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3.7.10-1. Restore the inoperable instrumentation to OPERABLE status within the time specified in the ACTION or explain why this inoperability was not corrected in a timely manner in the next Semiannual Radioactive Effluent Release Report.

c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.7.10 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 4.3.7.10-1.

LIMITING CONDITION FOR OPERATION

3.7.6.2 The following spray and sprinkler systems shall be OPERABLE:

a. RCIC Pump Room, Unit 2
b. HPCI Pump Room, Unit 2
c. Upper Cable Spreading Room, Unit 2
d. Lower Cable Spreading Room, Unit 2
e. Diesel Generator A Room
f. Diesel Generator B Room
g. Diesel Generator C Room
h. Diesel Generator D Room
i. Fire Zone 2-3B
j. Fire Zones 2-4A and 2-4B
k. Fire Zone 2-5A
l. Fire Zone 0-29B
m. Fire Zone 0-30A
n. Diesel Generator E Building, Fire Zone 0-41E

APPLICABILITY: Whenever equipment protected by the spray and/or sprinkler systems is required to be OPERABLE.

ACTION:

a. With one or more of the above required spray and/or sprinkler systems inoperable, within 1 hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol.

b. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.6.2 Each of the above required spray and sprinkler systems shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve, manual, power operated or automatic, in the flow path is in its correct position.

b. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

c. At least once per 18 months:

1. By performing a system functional test which includes simulated automatic actuation of the system, and:

a) Verifying that the automatic valves in the flow path actuate to their correct positions on a test signal, and

b) Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.

2. By a visual inspection of the dry pipe spray and sprinkler headers to verify their integrity, and

3. By a visual inspection of each deluge nozzle's spray area to verify that the spray pattern is not obstructed.

d. At least once per 3 years by performing an air or water flow test through each open head spray and sprinkler header and verifying each open head spray and sprinkler nozzle is unobstructed.

FIRE HOSE STATIONS

LIMITING CONDITION FOR OPERATION

3.7.6.5 The fire hose stations shown in Table 3.7.6.5-1 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the areas protected by the fire hose stations is required to be OPERABLE.

ACTION:

a. With one or more of the fire hose stations shown in Table 3.7.6.5-1 inoperable, route an additional fire hose of equal or greater diameter to the unprotected area(s) from an OPERABLE hose station within 1 hour if the inoperable fire hose is the primary means of fire suppression; otherwise, route the additional hose within 24 hours.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.6.5 Each of the fire hose stations shown in Table 3.7.6.5-1 shall be demonstrated OPERABLE:

a. At least once per 31 days by a visual inspection of the fire hose stations accessible during plant operation to assure all required equipment is at the station.

b. At least once per 18 months by:

1. Visual inspection of the fire hose stations not accessible during plant operation to assure all required equipment is at the station.

2. Removing the hose for inspection and re-racking for all fire hose stations, and

3. Inspecting all gaskets and replacing any degraded gaskets in the couplings for all fire hose stations.

c. At least once per 3 years by:

1. Partially opening each hose station valve to verify valve OPERABILITY and no flow blockage.

2. Conducting a hose hydrostatic test at a pressure of 150 psig or at least 50 psig above the maximum fire main operating pressure, whichever is greater.

TABLE 3.7.6.5-1

FIRE HOSE STATIONS

LOCATIONS	COLUMN	HOSE RACK NUMBER
a. Control Structure		
El. 697'-0"	L-26	1HR-171
El. 697'-0"	L-32	2HR-171
El. 714'-0"	L-26	1HR-162
El. 714'-0"	L-31	2HR-162
El. 729'-0"	L-25.9	1HR-158
El. 729'-0"	L-32.1	2HR-158
El. 754'-0"	L-26	1HR-136
El. 754'-0"	L-32	2HR-136
El. 771'-0"	L-26	1HR-125
El. 771'-0"	L-31	2HR-125
b. Reactor Building		
El. 645'-0"	R-37.4	2HR-271
El. 645'-0"	U-30.5	2HR-272
El. 645'-0"	R-30	2HR-273
El. 670'-0"	Q-36	2HR-261
El. 670'-0"	P-30.3	2HR-262
El. 670'-0"	S-29	2HR-263
El. 683'-0"	Q-36	2HR-251
El. 683'-0"	Q-29	2HR-252
El. 683'-0"	Y-29	2HR-253
El. 719'-1"	Q-36	2HR-241
El. 719'-1"	S-36	2HR-242
El. 719'-1"	Q-29	2HR-243
El. 719'-1"	T-29	2HR-244
El. 719'-1"	S-30.5	2HR-245
El. 749'-1"	S-36	2HR-231
El. 749'-1"	Q-30.5	2HR-232
El. 749'-1"	T-29	2HR-233
EL. 779'-1"	Q-36	2HR-221
EL. 779'-1"	S-34.5	2HR-222
EL. 779'-1"	Q-31.5	2HR-223
EL. 779'-1"	U-29	2HR-224
EL. 779'-1"	T-33	2HR-211
EL. 818'-1"	R-33	2HR-201
EL. 818'-1"	U-33	2HR-202
c. Diesel Generator E Building		
EL. 656'6"	Near North Stairwell	OHR-811
EL. 656'6"	Near South Stairwell	OHR-812
EL. 676'6"	Near North Stairwell	OHR-821
EL. 676'6"	Near South Stairwell	OHR-822
EL. 708'0"	Near North Stairwell	OHR-831
EL. 708'0"	Near South Stairwell	OHR-832

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

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, and

b. Four of the five separate and independent diesel generators*, each with:

1. Separate engine mounted day fuel tanks containing a minimum of 325 gallons of fuel,

2. A separate fuel storage system containing a minimum of 47,570 gallons of fuel for diesel generators A, B, C and D; and 60,480 gallons for diesel generator E, and

3. A separate fuel transfer pump.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With one offsite circuit of the above 3.8.1.1.a required A.C. electrical power source inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter and Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours sequentially on four diesel generators; restore at least two offsite circuits to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With one diesel generator of 3.8.1.1.b inoperable, demonstrate the OPERABILITY of the A.C. offsite sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter; and Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours; restore the diesel generator to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*Shared with Unit 1. An OPERABLE diesel generator may be removed from service for a period of eight hours when aligning diesel generator E to the Class 1E distribution system. If alignment of diesel generator E is not completed within eight hours, the appropriate ACTION will be followed. The specified time limits in the ACTION will be measured from the time alignment of diesel generator E began.

ACTION (Continued)

c. With one offsite circuit and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaning A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; and Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours, restore one of the inoperable sources to OPERABLE status within 12 hours or be in at lease HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore the other A.C. power source (offsite circuitor diesel generator) to OPERABLE status in accordance with the provisions of Section 3.8.1 Action Statement a or b, as appropriate,with the time requirement of that Action Statement based on the time of initial loss of the remaining inoperable A.C. power source.

d. With one diesel generator of the above required A.C. electrical power sources inoperable, in addition to ACTION b or c, above, verify within 2 hours that all required systems, subsystems, trains, components and devices that depend on the remaining diesel generators as a source of emergency power are also OPERABLE; otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

e. With two of the above required offsite circuits inoperable, demonstrate the OPERABILITY of four diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4, for one diesel generator at a time, within eight hours, unless the diesel generators are already operating; restore at least one of the inoperable offsite circuits to OPERABLE status within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours. With only one offsite circuit restored to OPERABLE status, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

f. With two or more of the above required diesel generators 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, for one diesel generator at a time, within 2 hours, and at least once per 8 hours thereafter; restore at least three of the diesel generators to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore four diesel generators to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

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SURVEILLANCE REQUIREMENTS (Continued)

6. Simulating a loss-of-offsite power in conjunction with an ECCS actuation test signal, and;

   a) Verifying deenergization of the emergency busses and load shedding from the emergency busses.

   b) Verifying the diesel generator starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected loads through the load timers and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady state voltage and frequency of the emergency busses shall be maintained at 4160 ± 400 volts and 60 ± 3.0 Hz during this test.

   c) Verifying that all automatic diesel generator trips, except engine overspeed, generator differential and engine low lube oil pressure, are automatically bypassed upon loss of voltage on the emergency bus concurrent with an ECCS actuation signal.

7. Verifying with at least one unit in OPERATIONAL CONDITION 4 or 5 that the diesel generator operates for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to greater than or equal to 4700 kw and during the remaining 22 hours of this test, the diesel generator shall be loaded to 4000 kW. The generator voltage and frequency shall be 4160 ± 400 volts and 60 ± 3.0 Hz within 10 seconds after the start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test.

8. Verify the hot restart capability of the diesel by verifying the diesel generator starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady state voltage and frequency of the emergency busses shall be maintained at 4160 ± 400 volts and 60 ± 3.0 hz during this test. This test shall be performed within 5 minutes of completing a one hour run at 4000 KW or within 5 minutes after operating temperatures have stabilized at a load of 4000 KW.

9. Verifying that the auto-connected loads to each diesel generator do not exceed the 2000-hour rating of 4700 kW.

10. Verifying the diesel generator's capability to:

    a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,

b) Transfer its loads to the offsite power source, and

c) Be restored to its standby status.

11. Verifying that with the diesel generator operating in a test mode and connected to its bus, a simulated ECCS actuation signal overrides the test mode by (1) returning the diesel generator to standby operation, and (2) automatically energizes the emergency loads with offsite power.

12. Verifying that each diesel generator loading sequence timer shown in Table 4.8.1.1.2-2 is OPERABLE with its setpoint within ± 10% of its design setpoint.

13. Verifying that the following diesel generator lockout features do not prevent diesel generator starting and/or operation when not required:

a) Engine overspeed.

b) Generator differential.

c) Engine low lube oil pressure.

e. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting all diesel generators simultaneously, during shutdown, and verifying that all diesel generators accelerate to at least 600 rpm in less than or equal to 10 seconds.

f. At least once per 10 years by:

1. Draining each fuel oil storage tank, removing the accumulated sediment and cleaning the tank using a sodium hypochlorite or equivalent solution, and

2. Performing a pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code in accordance with ASME Code Section XI Article IWD-5000.

4.8.1.1.3 Diesel generator E when not aligned to the Class 1E System shall be demonstrated OPERABLE by:

a. Verifying in accordance with the frequency specified in Table 4.8.1.1.2-1:

1. The fuel level in the engine-mounted day fuel tank.

2. The fuel level in the fuel storage tank.

3. The fuel transfer pump starts and transfers fuel from the storage system to the engine-mounted day fuel tank.

SURVEILLANCE REQUIREMENTS (Continued)

4.* The diesel manually starts from ambient condition and accelerates to at least 600 rpm in less than or equal to 10 seconds. The generator voltage and frequency are 4160 ± 400 volts and 60 ± 3.0 hz within 10 seconds after the start signal.

5.* The diesel generator is synchronized, loaded to greater than or equal to 4000 kw in less than or equal to 90 seconds, and operates with this load for at least 60 minutes.

6. The pressure in the diesel generator air start receivers to be greater than or equal to 240 psig.

b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the engine-mounted day fuel tanks.

c. Verifying at least once per 92 days and from new fuel oil prior to addition to the storage tanks that a sample obtained in accordance with ASTM-D270-1975 has a water and sediment content of less than or equal to .05 volume percent and a kinematic viscosity @ 40°C of greater than or equal to 1.3 but less than or equal to 2.4 for 1D oil or $\geq$1.9 but $\leq$4.1 for 2D oil when tested in accordance with ASTM-D975-77, and an impurity level of less than 2 mg. of insolubles per 100 ml. when tested in accordance with ASTM-D2274-70.

d. Verifying at least once per 18 months if Specification 4.8.1.1.2.d has not been performed:

1. An inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service is performed.

2.* The diesel generators capability to reject a load of greater than or equal to 1425 kw while maintaining voltage at 4160 ± 400 volts and frequency at 60 ± 3.0 Hz.

3* The diesel generators capability to reject a load of 4000 kw without tripping. The generator voltage shall not exceed 4560 volts during and following the load rejection.

4.* The diesel generator operates for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded to greater than or equal to 4700 kW and during the remaining 22 hours of this test, the diesel generator shall be loaded to 4000 kW. The generator voltage and frequency shall be 4160 ± 400 volts and 60 ± 3.0 Hz within 10 second after the start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test.

*These tests may be conducted utilizing the test facility.

SURVEILLANCE REQUIREMENTS (Continued)

5. The following diesel generator lockout features do not prevent diesel generator starting and/or operation when not required:

   a) Engine overspeed.
   b) Generator differential.
   c) Engine low lube oil pressure.

6. Either:

   a) on a rotational basis substitute diesel generator E for diesel generator A, B, C, or D and

      i) Stimulate a loss of offsite power by itself, and:

         a) Verify deenergization of the emergency bus and load shedding from the emergency bus

         b) Verify diesel generator E starts on the auto-start signal, energizes the emergency bus with permanently connected loads within 10 seconds and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After energization, the steady state voltage and frequency of the emergency bus shall be maintained at 4160 ± 400 volts and 60 ± 3.0 Hz during this test, and

      ii) Verify that on an ECCS actuation test signal, without loss of off-site power, diesel generator E starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be 4160 ± 400 volts and 60 ± 3.0 Hz within 10 seconds after the auto-start signal; the steady state generator voltage and frequency shall be maintained within these limits during this test, and

      iii) Simulate a loss-of-offsite power in conjunction with an ECCS actuation test signal, and

         a) verify deenergization of the emergency bus and load shedding from the emergency bus.

SURVEILLANCE REQUIREMENTS (Continued)

b) Verify diesel generator E starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected loads through the load timers and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization the steady state voltage and frequency of the emergency busses shall be maintained at 4160 ± 400 volts and 60 ± 3.0 Hz during this test.

c) Verify that all automatic diesel generator trips, except engine overspeed, generator differential and engine low lube oil pressure, are automatically bypassed upon loss of voltage on the emergency bus concurrent with an ECCS actuation signal, and

iv) Verify the diesel generator E's capability to:

a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,

b) Transfer its loads to the offsite power source, and

c) Be restored to its standby status, and

v) Verify that with diesel generator E operating in a test mode and connected to its bus, a simulated ECCS actuation signal overrides the test mode by (1) returning diesel generator E to standby operation, and (2) automatically energizes the emergency loads with offsite power, or

b) On a test facility

i) Stimulate a loss-of-offsite power by itself and verify diesel generator E starts on the auto-start signal, energizes the simulated emergency bus with simulated permanently connected loads within 10 seconds and operates for greater than or equal to 5 minutes while its generator is loaded with the simulated shutdown loads. After energization, the steady state voltage and frequency of the simulated emergency bus are maintained at 4160 ± 400 volts and 60 ± 3.0 Hz during this test and

SURVEILLANCE REQUIREMENTS (Continued)

ii) Simulate an ECCS actuation test signal, without loss of offsite power and verify that diesel generator E starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be 4160 ± 400 volts and 60 ± 3.0 Hz within 10 seconds after the auto-start signal, the steady state generator voltage and frequency shall be maintained within these limits during this test,

and

iii) Stimulate a loss-of-offsite power in conjunction with an ECCS actuation test signal and verify diesel generator E starts on the auto-start signal, energizes the simulated emergency bus with simulated permanently connected loads within 10 seconds, energizes the simulated auto-connected loads and operates for greater than or equal to 5 minutes while its generator is loaded with the simulated emergency loads. After energization, the steady state voltage and frequency of the simulated emergency bus are maintained at 4160 ± 400 volts and 60 ± 3.0 Hz during this test, and

a) Verify that all automatic diesel generator trips, except engine overspeed, generator differential and engine low lube oil pressure, are automatically bypassed upon loss of voltage on the emergency bus concurrent with an ECCS actuation signal, and

iv) On a rotational basis, substitute diesel generator E for diesel generator A, B, C or D and verify diesel generator E energizes the appropriate emergency bus, and

a)** Verify the diesel generator E's capability to:

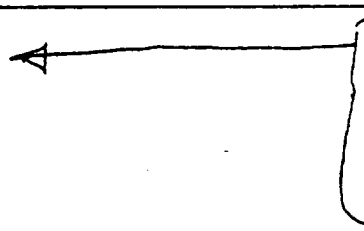
1) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,

2) Transfer its loads to the offsite power source, and

3) Be restored to standby status, and

**Test not required to be performed during initial startup of diesel generator E.

SURVEILLANCE REQUIREMENTS (Continued)



b) Verify that with diesel generator E operating in a test mode and connected to its bus, a simulated ECCS actuation signal overrides the test mode by (1) returning the diesel generator to standby operation and (2) automatically energizes the emergency loads with offsite power.

e. Verifying that once per 10 years if Specification 4.8.1.1.2f has not been performed:

1. The fuel oil storage tank has been drained, removing the accumulated sediment and cleaned using a sodium hypochlorite or equivalent solution, and

2. A pressure test of those portions of the diesel fuel oil system designed to Section III, subsection ND of the ASME Code is accordance with ASME Code Section II Article IWD-5000 has been performed.

4.8.1.1.4 Reports - All diesel generator failures, valid or nonvalid, shall be reported to the Commission in a Special Report pursuant to Specification 6.9.2 within 30 days. Reports of diesel generator failures shall include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977. If the number of failures in the last 100 valid tests, on a per diesel generator basis, is greater than or equal to 7, the report shall be supplemented to include the additional information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August 1977.

TABLE 4.8.1.1.2-2 (Continued)

UNIT 1 AND UNIT 2

DIESEL GENERATOR LOADING TIMERS

DEVICE TAG NO.	SYSTEM	LOCATION	TIME SETTING
62X-20204	Emergency Switchgear Rm Cooler B & RHR SW pp H&V Fan B	0C877B	60 sec
262X-20104	Emergency Switchgear Rm Cooler A	0C877A	120 sec
262X-20204	Emergency Switchgear Rm Cooler B	0C877B	120 sec
*62X-516	DG Rm Exh Fan A	0B516	2 min
*62X-526	DG Rm Exh Fan B	0B526	2 min
*62X-536	DG Rm Exh Fan C	0B536	2 min
*62X-546	DG Rm Exh Fan D	0B546	2 min
*CRX-5652A	DG Room Supply Fans E1 and E2	0B565	2 min
*62X-5653A	DG Room Exhaust Fan E3	0B565	1 min
*62X-5652A	DG Room Exhaust Fan E4	0B565	1 min
62X1-20304	Control Structure Chilled Water System	0C877A	3 min
62X1-20404	Control Structure Chilled Water System	0C877B	3 min
62X2-20310	Control Structure Chilled Water System	0C876A	3 min
62X2-20410	Control Structure Chilled Water System	0C876B	3 min
62X2-20304	Control Structure Chilled Water System	0C877A	3.5 min
62X2-20404	Control Structure Chilled Water System	0C877B	3.5 min
62X-K11AB	Emergency Switchgear Rm Cooling Compressor A	2CB250A	260 sec
62X-K11BB	Emergency Switchgear Rm Cooling Compressor B	2CB250B	260 sec

*When associated diesel generator is declared OPERABLE.

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. Two of the five separate and independent diesel generators each with:

1. An engine mounted day fuel tank containing a minimum of 325 gallons of fuel.

2. A fuel storage system containing a minimum of 47,570 gallons of fuel for diesel generators A, B, C and D; and 60,480 gallons of fuel for diesel generator E.

3. A fuel transfer pump.

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5 and *.

ACTION:

a. With less than the above required A.C. electrical power sources OPERABLE, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment, operations with a potential for draining the reactor vessel and crane operations over the spent fuel pool when fuel assemblies are stored therein. In addition, when in OPERATIONAL CONDITION 5 with the water level less than 22 feet above the reactor pressure vessel flange, immediately initiate corrective action to restore the required power sources to OPERABLE status as soon as practical.

b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.1.2 At least the above required A.C. electrical power sources shall be demonstrated OPERABLE per Surveillance Requirements 4.8.1.1.1, 4.8.1.1.2 and 4.8.1.1.4, except for the requirement of 4.8.1.1.2.a.5.

*When handling irradiated fuel in the secondary containment.

3/4.8.2 D.C. SOURCES

D.C. SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.1 As a minimum, the following D.C. electrical power sources shall be OPERABLE:

a. Division I, consisting of:

1. Load group Channel "A" power source consisting of:
   a) 125-volt D.C. battery bank — 1D610*, 2D610
   b) Full capacity charger — 1D613*, 2D613
2. Load group Channel "C" power source consisting of:
   a) 125-volt D.C. battery bank — 1D630*, 2D630
   b) Full capacity charger — 1D633*, 2D633
3. Load group "I" power source consisting of:
   a) 250-volt D.C. battery — 2D650
   b) Half-capacity chargers — 2D653A, 2D653B
4. Load group "I" power source consisting of:
   a) ± 24-volt D.C. battery bank — 2D670
   b) Two half-capacity chargers — 2D673, 2D674

b. Division II, consisting of:

1. Load group Channel "B" power source consisting of:
   a) 125-volt D.C. battery bank — 1D620*, 2D620
   b) Full capacity charger — 1D623*, 2D623
2. Load group Channel "D" power source consisting of:
   a) 125-volt D.C. battery bank — 1D640*, 2D640
   b) Full capacity charger — 1D643*, 2D643
3. Load group "II" power source consisting of:
   a) 250-volt D.C. battery bank — 2D660
   b) Full capacity charger — 2D663
4. Load group "II" power source consisting of:
   a) ± 24-volt D.C. battery bank — 2D680
   b) Two half-capacity chargers — 2D683, 2D684

c. Diesel Generator E

1. Load group power source, consisting of:
   a) 125 volt DC battery bank — 0D595
   b) Full capacity charger — 0D596

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3

*Not required to be OPERABLE when the requirements of ACTION b have been satisfied.

3/4.8.2 D.C. SOURCES

D.C. SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION (Continued)

ACTION:

a. With one of the above required Unit 2 125-volt or 250-volt D.C. load group battery banks inoperable, restore the inoperable battery bank to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

b. With one or more of the above required Unit 1 125-volt D.C. load group battery banks inoperable, within 2 hours either:

1. Restore the inoperable battery bank(s) to OPERABLE status, or
2. Transfer the common loads aligned to the inoperable Unit 1 battery bank(s) to the corresponding Unit 2 battery bank(s).

Otherwise, declare the common loads aligned to the inoperable Unit 1 battery bank(s) inoperable and take the ACTION required by the applicable Specification(s).

c. With one of the above required ± 24-volt D.C. load group battery banks inoperable, declare the associated equipment inoperable and take the ACTION required by the applicable Specification(s).

d. With one of the above required Division I or Division II chargers inoperable, demonstrate the OPERABILITY of its associated battery bank by performing Surveillance Requirement 4.8.2.1a.1. within 1 hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare the battery inoperable.

e. With the above required diesel generator E 125 volt DC load group battery bank inoperable and diesel generator E not aligned to the Class 1E distribution system, restore the battery bank to OPERABLE status with 2 hours or verify that all ESW valves associated with diesel generator E are closed and diesel generator E is not running within 2 hours. The provisions of Specification 3.0.4 are not applicable.

f. With the above required diesel generator E 125 volt DC load group battery bank inoperable and diesel generator E aligned to the Class 1E distribution system, restore the battery bank to OPERABLE status within 2 hours or declare diesel generator E inoperable and take the ACTION required by specification 3.8.1.1.

g. With the above required diesel generator E 125 volt DC charger inoperable and diesel generator E aligned to the Class 1E distribution system, demonstrate the OPERABILITY of the associated battery bank by performing Surveillance Requirement 4.8.2.1.a.1 within one hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare diesel generator E inoperable and take the ACTION required by specification 3.8.1.1.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

h. With the above required diesel generator E charger inoperable and diesel generator E not aligned to the Class 1E distribution system, demonstrate the OPERABILITY of its associated battery bank by performing Surveillance Requirement 4.8.2.1.a.1 within 1 hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare the battery inoperable, and take the ACTION required by specification 3.8.2.1.e. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.2.1 Each of the above required ± 24-volt, 125-volt, and 250-volt batteries and chargers shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

1. The parameters in Table 4.8.2.1-1 meet the Category A limits, and

2. There is correct breaker alignment to the battery chargers, and total battery terminal voltage is greater than or equal to 26, 129, 258 volts on float charge.

b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 22, 110, or 220 volts, as applicable, or battery overcharge with battery terminal voltage above 30, 150 or 300 volts, as applicable, by verifying that:

1. The parameters in Table 4.8.2.1-1 meet the Category B limits,

2. There is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150×10^{-6} ohm, and

3. The average electrolyte temperature of 4, 10, or 20, as applicable, of connected cells for the 24, 125, and 250 volt batteries is above 60°F.

SURVEILLANCE REQUIREMENTS (Continued)

c. At least once per 18 months by verifying that:

1. The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,

2. The cell-to-cell and terminal connections are clean, tight, free of corrosion, and coated with anticorrosion material,

3. The resistance of each cell-to-cell and terminal connection of each 125-volt and 250-volt battery is less than or equal to 150×10^{-6} ohm, and

4. The battery charger, for at least 4 hours, will supply at least:

a) For the ± 24-volt batteries, 25 amperes at a minimum of 25.7 volts.

b) For the 125-volt batteries, 100 amperes at a minimum of 127.8 volts.

c) For the 250-volt batteries, 300 amperes at a minimum of 255.6 volts.

d) For the 125 volt generator E batteries, 200 amperes at a minimum of 127.8 volts

d. At least once per 18 months by verifying that either:

1. The battery capacity is adequate to supply and maintain in OPERABLE status all of the actual emergency loads for the design duty cycle when the battery is subjected to a battery service test, or

2. The battery capacity is adequate to supply a dummy load of the following profile, which is verified to be greater than the actual emergency loads, while maintaining the battery terminal voltage greater than or equal to ± 21, 105 or 210 volts, as applicable.

a) For ± 24-volt battery banks 2D670, 2D670-1, 2D680, and 2D680-1, 9.37 amperes for the entire 4-hour test.

b) For 125-volt batteries:
1) Channel "A" battery 1D612: 325 amperes for 60 seconds
107 amperes for the remainder of the 4 hour test
2) Channel "B" battery 1D622: 323 amperes for 60 seconds
105 amperes for the remainder of the 4 hour test
3) Channel "C" battery 1D632: 340 amperes for 60 seconds
121 amperes for the remainder of the 4 hour test
4) Channel "D" battery 1D642: 323 amperes for 60 seconds
104 amperes for the remainder of the 4 hour test.
5) Channel "A" battery 2D612: 328 amperes for 60 seconds
112 amperes for the remainder of the 4 hour test
6) Channel "B" battery 2D622: 326 amperes for 60 seconds
110 amperes for the remainder of the 4 hour test

SURVEILLANCE REQUIREMENTS (Continued)

7) Channel "C" battery 2D632: 343 amperes for 60 seconds
128 amperes for the remainder of the 4 hour test
8) Channel "D" battery 2D642: 326 amperes for 60 seconds
111 amperes for the remainder of the 4 hour test
9) Channel "H" battery 0D595: 286 amperes for the first
60 seconds, 95 amperes for the next 238 minutes,
155 amperes for the last minute of the 4 hour test.

c) For 250-volt batteries:

1) Battery bank 2D650:
458 amperes for 60 seconds
251 amperes for 239 minutes

2) Battery bank 2D660:
1119 amperes for 60 seconds
244 amperes for 239 minutes

e. At least once per 60 months by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60-month interval, this performance discharge test may be performed in lieu of the battery service test.

f. Annual performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

SURVEILLANCE REQUIREMENTS (Continued)

c) For 250-volt batteries:

1) Battery bank 2D650:
458 amperes for 60 seconds
251 amperes for 239 minutes

2) Battery bank 2D660:
1119 amperes for 60 seconds
244 amperes for 239 minutes

e. At least once per 60 months by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60-month interval, this performance discharge test may be performed in lieu of the battery service test.

f. Annual performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

TABLE 4.8.2.1-1

BATTERY SURVEILLANCE REQUIREMENTS

Parameter	CATEGORY A(1)	CATEGORY B(2)	
	Limits for each designated pilot cell	Limits for each connected cell	Allowable(3) value for each connected cell
Electrolyte Level	>Minimum level indication mark, and ≤ ¼" above maximum level indication mark	>Minimum level indication mark, and ≤ ¼" above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 volts	≥ 2.13 volts(c)	> 2.07 volts
Specific Gravity(a)	≥ 1.200(b)	≥ 1.195(b) Average of all connected cells > 1.205(b)	Not more than 0.020 below the average of all connected cells Average of all connected cells ≥ 1.195(b)

(a) Corrected for electrolyte temperature and level.

(b) Or battery charging current is less than 0.01, 0.1 and 0.25 amperes for the ±24, 125 and 250 volt batteries respectively, when on float charge.

(c) May be corrected for average electrolyte temperature.

(1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all Category A and B parameter(s) are restored to within limits within the next 6 days.

(2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that the Category B parameters are within their allowable values and provided the Category B parameter(s) are restored to within limits within 7 days.

(3) Any Category B parameter not within its allowable value indicates an inoperable battery.

ELECTRICAL POWER SYSTEMS

D.C. SOURCES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, Division I and diesel generator E or Division II and diesel generator E of the D.C. electrical power sources shall be OPERABLE with:

a. Division I consisting of:

1. Load group Channel "A" power source, consisting of:
   a) 125-volt D.C. battery bank — 1D610**, 2D610
   b) Full capacity charger — 1D613**, 2D613

2. Load group Channel "C" power source, consisting of:
   a) 125-volt D.C. battery bank — 1D630**, 2D630
   b) Full capacity charger — 1D633**, 2D633

3. Load group "I" power source, consisting of:
   a) 250-volt D.C. battery bank — 2D650
   b) Half-capacity chargers — 2D653A, 2D653B

4. Load group "I" power source, consisting of:
   a) ± 24-volt D.C. battery bank — 2D670
   b) Two half-capacity chargers — 2D673, 2D674

b. Division II consisting of:

1. Load group Channel "B" power source, consisting of:
   a) 125-volt D.C. battery bank — 1D620**, 2D620
   b) Full capacity charger — 1D623**, 2D623

2. Load group Channel "D" power source, consisting of:
   a) 125-volt D.C. battery bank — 1D640**, 2D640
   b) Full capacity charger — 1D643**, 2D643

3. Load group "II" power source, consisting of:
   a) 250-volt D.C. battery bank — 2D660
   b) Full capacity charger — 2D663

4. Load group "II" power source, consisting of:
   a) ± 24-volt D.C. battery bank — 2D680
   b) Two half-capacity chargers — 2D683, 2D684

c. Diesel Generator E

1. Load group power source, consisting of:
   a) 125 volt DC battery bank — 0D595
   b) Full capacity charger — 0D596

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5, and *.

*When handling irradiated fuel in the secondary containment.
**Not required to be OPERABLE when the requirements of ACTION b have been satisfied.

ELECTRICAL POWER SYSTEMS

D.C. SOURCES - SHUTDOWN

LIMITING CONDITION FOR OPERATION

ACTION:

a. With less than the above required Unit 2 125-volt Division I or Division II and/or 250-volt D.C. load group battery banks OPERABLE, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

b. With less than the above required Unit 1 125-volt D.C. load group battery banks OPERABLE, either:

1. Suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel, or

2. Transfer the common loads aligned to the inoperable Unit 1 battery bank(s) to the corresponding Unit 2 battery bank(s).

Otherwise, declare the common loads aligned to the inoperable Unit 1 battery bank(s) inoperable and take the ACTION required by the applicable Specification(s).

c. With the above required ± 24-volt D.C. load group battery banks inoperable, declare the associated equipment inoperable and take the ACTION required by the applicable Specification(s).

d. With the above required Division I or Division II charger(s) inoperable, demonstrate the OPERABILITY of the associated battery by performing Surveillance Requirement 4.8.2.1.a.1 within one hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare the battery inoperable.

e. The provisions of Specification 3.0.3 are not applicable.

f. With the above required diesel generator E 125 volt DC load group battery bank inoperable and diesel generator E not aligned to the Class 1E distribution system, restore the battery bank to OPERABLE status with 2 hours or verify that all ESW valves associated with diesel generator E are closed and diesel generator E is not running within 2 hours. The provisions of Specification 3.0.4 are not applicable.

g. With the above required diesel generator E 125 volt DC load group battery bank inoperable and diesel generator E aligned to the Class 1E distribution system, restore the battery bank to OPERABLE status within 2 hours or declare diesel generator E inoperable and take the ACTION required by specification 3.8.1.1.

h. With the above required diesel generator E 125 volt DC charger inoperable and diesel generator E aligned to the Class 1E distribution system, demonstrate the OPERABILITY of the associated battery bank by performing Surveillance Requirement 4.8.2.1.a.1 within one hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare diesel generator E inoperable and take the ACTION required by specification 3.8.1.1.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

i. With the above required diesel generator E charger inoperable and diesel generator E not aligned to the Class 1E distribution system, demonstrate the OPERABILITY of its associated battery bank by performing Surveillance Requirement 4.8.2.1.a.1 within 1 hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8.2.1-1 is not met, declare the battery inoperable, and take the ACTION required by specification 3.8.21.1.f. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.2.2 At least the above required battery and charger shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.1.

3/4.8.3 ONSITE POWER DISTRIBUTION SYSTEMS

DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.3.1 The following power distribution system divisions shall be energized with tie breakers open both between redundant buses within the unit and between units at the same station:

a. A.C. power distribution:

1. Division I, consisting of:
   a) Load group Channel "A", consisting of:
      1) 4160-volt A.C. switchgear bus — 1A201, 2A201
      2) 480-volt A.C. load center — 1B210, 2B210
      3) 480-volt A.C. motor control centers — 0B516, 0B517, 1B216, 2B216, 1B217, 2B217
      4) 208/120-volt A.C. instrument panels — 1Y216, 2Y216
   b) Load group Channel "C", consisting of:
      1) 4160-volt A.C. switchgear bus — 1A203, 2A203
      2) 480-volt A.C. load center — 1B230, 2B230
      3) 480-volt A.C. motor control centers — 0B536, 0B136, 1B236, 2B236, 2B237
      4) 208/120-volt A.C. instrument panels — 1Y236, 2Y236
   c) Isolated 480 volt A.C. swing bus, including: 2B219
      1) Preferred power source
      2) Preferred power source MG set
      3) Alternate power source
      4) Automatic transfer switch

2. Division II, consisting of:
   a) Load group Channel"B", consisting of:
      1) 4160-volt A.C. switchgear bus — 1A202, 2A202
      2) 480-volt A.C. load center — 1B220, 2B220
      3) 480-volt A.C. motor control centers — 0B526, 0B527, 1B226, 2B226, 1B227, 2B227
      4) 208/120-volt A.C. instrument panels — 1Y226, 2Y226
   b) Load group Channel "D", consisting of
      1) 4160-volt A.C. switchgear bus — 1A204, 2A204
      2) 480-volt A.C. load center — 1B240, 2B240
      3) 480-volt A.C. motor control centers — 0B546, 0B146
      4) 208/120-volt A.C. instrument panels — 1Y246, 2Y246
   c) Isolated 480-volt A.C. swing bus, including: 2B229
      1) Preferred power source
      2) Preferred power source MG set
      3) Alternate power source
      4) Automatic transfer switch

3/4.8.3 ONSITE POWER DISTRIBUTION SYSTEMS

DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3. Diesel Generator E, when aligned to the Class 1E system
   a) Load group consisting of:
      1) 480 volt A.C. motor control center 0B565

LIMITING CONDITION FOR OPERATION (Continued)

b. D.C. power distribution:
   1. Division I, consisting of:
      a) Load group Channel "A", consisting of:
         1) 125-volt D.C. buses — 1D612**, 1D614**, 2D612, 2D614
         2) Fuse box — 1D611**, 2D611
      b) Load group Channel "C", consisting of:
         1) 125-volt D.C. buses — 1D632**, 1D634**, 2D632, 2D634
         2) Fuse box — 1D631**, 2D631
      c) Load group "I", consisting of:
         1) 250-volt D.C. buses — 2D652, 2D254
         2) Fuse box — 2D651,
      d) Load group "I", consisting of:
         1) ± 24-volt D.C. buses — 2D672
         2) Fuse box — 2D671
   2. Division II, consisting of:
      a) Load group Channel "B" consisting of:
         1) 125-volt D.C. buses — 1D622**, 1D624**, 2D622, 2D624
         2) Fuse box — 1D621**, 2D621
      b) Load group Channel "D" consisting of:
         1) 125-volt D.C. buses — 1D642**, 1D644**, 2D642, 2D644
         2) Fuse box — 1D641**, 2D641
      c) Load group "II" consisting of:
         1) 250-volt D.C. buses — 2D662, 2D264, 2D274
         2) Fuse box — 2D661
      d) Load group "II" consisting of:
         1) ± 24-volt D.C. buses — 2D682
         2) Fuse box — 2D681
   3. Diesel Generator E
      a) Load group, consisting of:
         1) 125 volt DC bus — 0D597

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With one of the above required Unit 2 Division I or Division II A.C. distribution system load groups not energized, reenergize the load group within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With one of the above required Unit 1 and common A.C. distribution system load groups not energized, re-energize the load group within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

**Not required to be OPERABLE when the requirements of ACTION d have been satisfied.

LIMITING CONDITION FOR OPERATION (Continued)

c. With one of the above required Unit 2 Division I or Division II D.C. distribution system load groups not energized, reenergize the load group within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

d. With one or more of the above required Unit 1 D.C. distribution system load groups not energized, within 2 hours either:

1. Reenergize the load group(s), or

2. Transfer the common loads aligned to the deenergized Unit 1 load group(s) to the corresponding Unit 2 load group(s).

Otherwise, declare the common loads aligned to the deenergized Unit 1 load group(s) inoperable and take the ACTION required by the applicable Specification(s).

e. With one or both of the isolated 480-volt A.C. swing busses inoperable, declare the associated LPCI loop inoperable (see Specification 3.5.1).

f. With the above required diesel generator E A.C. distribution system load group not energized and diesel generator E aligned to the Class 1E distribution system, re-energize the load group within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

g. With the above required diesel generator E 125 volt D.C. distribution system load group not energized and diesel generator E not aligned to the Class 1E distribution system, re-energize the load group within 2 hours or shutdown diesel generator E and close all ESW valves associated with diesel generator E within 2 hours. The provisions of Specification 3.0.4 are not applicable.

h. With the above required diesel generator E 125 volt D.C. distribution system load group not energized and diesel generator E aligned to the Class 1E distribution system, re-energize the load group within 2 hours or declare diesel generator E inoperable and take the ACTION required by specification 3.8.1.1.

SURVEILLANCE REQUIREMENTS

4.8.3.1.1 Each of the above required power distribution system load groups shall be determined energized at least once per 7 days by verifying correct breaker alignment and voltage on the busses/MCCs/panels.

4.8.3.1.2 The isolated 480-volt A.C. swing bus automatic transfer switches shall be demonstrated OPERABLE at least once per 31 days by actuating the load test switch or by disconnecting the preferred power source to the transfer switch and verifying that swing bus automatic transfer is accomplished.

LIMITING CONDITION FOR OPERATION

3.8.3.2 As a minimum, the following power distribution system divisions shall be energized:

a. For A.C. power distribution, Division I and diesel generator E or Division II and diesel generator E with:

1. Division I consisting of:
   a) Load group Channel "A", consisting of:
      1) 4160-volt A.C. switchgear bus — 1A201, 2A201
      2) 480-volt A.C. load center — 1B210, 2B210
      3) 480-volt A.C. motor control centers — 0B516, 0B517, 1B216, 2B216, 1B217, 2B217
      4) 208/120-volt A.C. instrument panels — 1Y216, 2Y216
   b) Load group Channel "C", consisting of:
      1) 4160-volt A.C. switchgear bus — 1A203, 2A203
      2) 480-volt A.C. load center — 1B230, 2B230
      3) 480-volt A.C. motor control centers — 0B536, 0B136, 1B236, 2B236, 2B237
      4) 208/120-volt A.C. instrument panels — 1Y236, 2Y236
   c) Isolated 480 volt A.C. swing bus, including: — 2B219*
      1) Preferred power source
      2) Preferred power source MG set
      3) Alternate power source
      4) Automatic transfer switch
2. Division II consisting of:
   a) Load group Channel "B", consisting of:
      1) 4160-volt A.C. switchgear bus — 1A202, 2A202
      2) 480-volt A.C. load center — 1B220, 2B220
      3) 480-volt A.C. motor control center — 0B526, 0B527, 1B226, 2B226, 1B227, 2B227
      4) 208/120-volt A.C. instrument panels — 1Y226, 2Y226
   b) Load group Channel "D", consisting of:
      1) 4160-volt A.C. switchgear bus — 1A204, 2A204
      2) 480-volt A.C. load center — 1B240, 2B240
      3) 480-volt A.C. motor control center — 0B546, 0B146, 1B246, 2B246, 2B247
      4) 208/120-volt A.C. instrument panels — 1Y246, 2Y246
   c) Isolated 480 volt A.C. swing bus, including: — 2B229*
      1) Preferred power source
      2) Preferred power source MG set
      3) Alternate power source
      4) Automatic transfer switch

*The swing bus shall be OPERABLE if the Division I LPCI subsystem alone is fulfilling the requirements of Specification 3.5.2.

LIMITING CONDITION FOR OPERATION (Continued)

3. Diesel Generator E
   a) Load Group, consisting of:
      1) 480 volt A.C. motor control center — 0B565

b. For D.C. power distribution, Division I or Division II, with:

1. Division I consisting of:
   a) Load group Channel "A", consisting of:
      1) 125-volt D.C. buses — 1D612***, 1D614***, 2D612, 2D614
      2) Fuse box — 1D611***, 2D611
   b) Load group Channel "C", consisting of:
      1) 125-volt D.C. buses — 1D632***, 1D634***, 2D632, 2D634
      2) Fuse box — 1D631***, 2D631
   c) Load group "I", consisting of:
      1) 250-volt D.C. buses — 2D652, 2D254
      2) Fuse box — 2D651
   d) Load group "I", consisting of:
      1) ± 24-volt D.C. buses — 2D672
      2) Fuse box — 2D671

2. Division II consisting of:
   a) Load group Channel "B", consisting of:
      1) 125-volt D.C. buses — 1D622***, 1D624***, 2D622, 2D624
      2) Fuse box — 1D621***, 2D621
   b) Load group Channel "D", consisting of:
      1) 125-volt D.C. buses — 1D642***, 1D644***, 2D642, 2D644
      2) Fuse box — 1D641***, 2D641
   c) Load group "II", consisting of:
      1) 250-volt D.C. buses — 2D662, 2D264, 2D274
      2) Fuse box — 2D661
   d) Load group "II", consisting of:
      1) ± 24-volt D.C. buses — 2D682
      2) Fuse box — 2D681

3. Diesel Generator E
   a) Load group, consisting of:
      1) 125 volt DC bus — 0D597

APPLICABILITY: OPERATIONAL CONDITIONS 4, 5, and **.

*The swing bus shall be OPERABLE if the Division II LPCI subsystem alone is fulfilling the requirements of Specification 3.5.2.
**When handling irradiated fuel in the secondary containment.
***Not required to be OPERABLE when the requirements of ACTION c have been satisfied.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION:

a. With less than the Division I or Division II load groups of the above required A.C. distribution system energized, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.

b. With less than the Division I or Division II load groups of the above required Unit 2 D.C. distribution system energized, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.

c. With less than Division I or Division II of the above required Unit 1 D.C. distribution system energized, either:

   1. Suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel, or

   2. Transfer the common loads aligned to the deenergized Unit 1 load group(s) to the corresponding Unit 2 load group(s).

   Otherwise, declare the common loads aligned to the deenergized Unit 1 load group(s) inoperable and take the ACTION required by the applicable Specification(s).

d. With one or both of the isolated 480 volt A.C. Swing busses inoperable, declare the associated LPCI loop inoperable (see Specification 3.5.2).

e. The provisions of Specification 3.0.3 are not applicable.

f. With the above required diesel generator E A.C. distribution system load group not energized and diesel generator E aligned to the Class 1E distribution system, re-energize the load group within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

g. With the above required diesel generator E 125 volt D.C. distribution system load group not energized and diesel generator E not aligned to the Class 1E distribution system, re-energize the load group within 2 hours or shutdown diesel generator E and close all ESW valves associated with diesel generator E within 2 hours. The provisions of Specification 3.0.4 are not applicable.

h. With the above required diesel generator E 125 volt D.C. distribution system load group not energized and diesel generator E aligned to the Class 1E distribution system, re-energize the load group within 2 hours or declare diesel generator E inoperable and take the ACTION required by specification 3.8.1.2.

4.8.3.2.1 At least the above required power distribution system divisions shall be determined energized at least once per 7 days by verifying correct breaker alignment and voltage on the busses/MCCs/panels.

4.8.3.2.2 The isolated A.C. swing bus automatic transfer switches shall be demonstrated OPERABLE at least once per 31 days by actuating the load test switch or by disconnecting the preferred power source to the transfer switch and verifying that swing bus automatic transfer is accomplished.

ELECTRICAL POWER SYSTEMS

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

PRIMARY CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.1 All primary containment penetration conductor overcurrent protective devices shown in Table 3.8.4.1-1 and all fuses tested pursuant to Specification 4.8.4.1.a.2 shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

ACTION:

a. With one or more of the above required containment penetration conductor overcurrent devices shown in Table 3.8.4.1-1 and/or fuses tested pursuant Specification 4.8.4.1.a.2 inoperable:

   1. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping, racking out, or removing the alternate device or racking out or removing the inoperable device within 72 hours, and

   2. Declare the affected system or component inoperable, and

   3. Verify at least once per 7 days thereafter the alternate device is tripped, racked out, or removed, or the device is racked out or removed.

   Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. The provisions of Specification 3.0.4 are not applicable to overcurrent devices which have the inoperable device racked out or removed or, which have the alternate device tripped, racked out, or removed.

SURVEILLANCE REQUIREMENTS

4.8.4.1 Each of the primary containment penetration conductor overcurrent protective devices required above shall be demonstrated OPERABLE:

a. At least once per 18 months:

   1. By selecting and functionally testing a representative sample of at least 10% of each type of lower voltage circuit breakers. Circuit breakers selected for functional testing shall be selected on a rotating basis. Testing of these circuit breakers shall consist of injecting a current with a value equal to 300% of the pickup of the thermal (long time delay) element of Types HFB-TM and KB-TM (thermal magnetic) circuit breakers, and verifying that the circuit breaker operates within the time delay band-width for

effective upon startup following the Unit 2 fifth Refueling Outage

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effective upon startup following the first refueling outage for Unit 2

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION - CONTINUOUS

LIMITING CONDITION FOR OPERATION

3.8.4.2.1 The thermal overload protection of each valve shown in Table 3.8.4.2.1-1 shall be bypassed continuously by an OPERABLE bypass device integral with the motor starter.

APPLICABILITY: Whenever the motor-operated valve is required to be OPERABLE unless otherwise specified

ACTION:

a. With thermal overload protection for one or more of the above required valves not bypassed continuously by an OPERABLE integral bypass device, take administrative action to continuously bypass the thermal overload within 8 hours or declare the affected valve(s) inoperable and apply the appropriate ACTION statement(s) for the affected system(s).

b. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.4.2.1.1 The thermal overload protection for the above required valves shall be verified to be bypassed continuously by an OPERABLE integral bypass device by verifying that the thermal overload protection is bypassed:

a. At least once per 18 months, and

b. Following maintenance on the motor starter.

4.8.4.2.1.2 The thermal overload protection shall be verified to be bypassed following activities during which the thermal overload protection was temporarily placed in force.

TABLE 3.8.4.2.1-1

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION CONTINUOUS

VALVE NUMBER	SYSTEM(S) AFFECTED
HV-01222A	RHRSW
HV-01222B	RHRSW
HV-01224A1	RHRSW
HV-01224B1	RHRSW
HV-01224A2	RHRSW
HV-01224B2	RHRSW
*HV-01112A	ESW
*HV-01112B	ESW
*HV-01122A	ESW
*HV-01122B	ESW
*HV-01112C	ESW
*HV-01112D	ESW
*HV-01122C	ESW
*HV-01122D	ESW
*HV-01110A	ESW
*HV-01110B	ESW
*HV-01120A	ESW
*HV-01120B	ESW
*HV-01110C	ESW
*HV-01110D	ESW
*HV-01120C	ESW
*HV-01120D	ESW
*HV-01110E	ESW
*HV-01120E	ESW
*HV-01112E	ESW
*HV-01122E	ESW
HV-21144A	ESW
HV-21144B	ESW
HV-08693A	ESW
HV-08693B	ESW
HV-01201A1	RHRSW
HV-01201A2	RHRSW
HV-01201B1	RHRSW
HV-01201B2	RHRSW
HV-21210A	RHRSW
HV-21210B	RHRSW
HV-21215A	RHRSW
HV-21215B	RHRSW
HV-25766	Cont. Isol.
HV-25768	Cont. Isol.
HV-22603	Cont. Isol.

*Continuous bypass not required when corresponding diesel generator is not aligned to the Class 1E distribution system.

TABLE 3.8.4.2.1-1 (Continued)

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION CONTINUOUS

VALVE NUMBER	SYSTEM(S) AFFECTED
HV-21345	Cont. Isol.
HV-21313	Cont. Isol.
HV-21346	Cont. Isol.
HV-21314	Cont. Isol.
HV-E11-2F009	RHR
HV-E11-2F040	RHR
HV-G33-2F001	RWCU
HV-E11-2F103A	RHR
HV-E11-2F075A	RHRSW
HV-E11-2F048A	RHR
HV-E11-2F006C	RHR
HV-E11-2F004C	RHR
HV-E11-2F015A	RHR
HV-E11-2F024A	RHR
HV-E21-2F015A	CS
HV-E41-2F002	HPCI
HV-B21-2F016	NSSS
HV-E11-2F022	RHR
HV-E11-2F010A	RHR
HV-E11-2F011A	RHR
HV-E11-2F004A	RHR
HV-E11-2F006A	RHR
HV-E11-2F027A	RHR
HV-E11-2F007A	RHR
HV-E11-2F104A	RHR
HV-E11-2F026A	RHR
HV-E11-2F028A	RHR
HV-E11-2F047A	RHR
HV-E11-2F073A	RHRSW
HV-E11-2F003A	RHR
HV-E11-2F017A	RHR
HV-E21-2F001A	CS
HV-E21-2F031A	CS
HV-E21-2F004A	CS
HV-E21-2F005A	CS
HV-E11-2F021A	RHR
HV-E11-2F016A	RHR
HV-25112	RHR
HV-E51-2F007	RCIC
HV-E51-2F084	RCIC
HV-E11-2F027B	RHR
HV-E11-2F048B	RHR
HV-E11-2F015B	RHR
HV-E11-2F006B	RHR

TABLE 3.8.4.2.1-1 (Continued)

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION CONTINUOUS

VALVE NUMBER	SYSTEM(S) AFFECTED
HV-E11-2F021B	RHR
HV-E11-2F010B	RHR
HV-E11-2F011B	RHR
HV-E11-2F004B	RHR
HV-E11-2F007B	RHR
HV-E11-2F104B	RHR
HV-E11-2F026B	RHR
HV-E11-2F028B	RHR
HV-E11-2F047B	RHR
HV-E11-2F016B	RHR
HV-E11-2F003B	RHR
HV-E11-2F017B	RHR
HV-E21-2F031B	CS
HV-E21-2F001B	CS
HV-E11-2F103B	RHR
HV-E11-2F075B	RHRSW
HV-E11-2F073B	RHRSW
HV-E11-2F006D	RHR
HV-E11-2F004D	RHR
HV-E11-2F024B	RHR
HV-E21-2F015B	CS
HV-E21-2F004B	CS
HV-E21-2F005B	CS
HV-E32-2F001K	MSIV
HV-E32-2F002K	MSIV
HV-E32-2F003K	MSIV
HV-E32-2F001P	MSIV
HV-E32-2F002P	MSIV
HV-E32-2F003P	MSIV
HV-E32-2F001B	MSIV
HV-E32-2F002B	MSIV
HV-E32-2F003B	MSIV
HV-E32-2F001F	MSIV
HV-E32-2F002F	MSIV
HV-E32-2F003F	MSIV
HV-E32-2F006	MSIV
HV-E32-2F007	MSIV
HV-E32-2F008	MSIV
HV-E32-2F009	MSIV
HV-E51-2F045	RCIC
HV-E51-2F012	RCIC
HV-E51-2F013	RCIC
HV-25012	RCIC

Table 3.8.4.2.1-1 (Continued)

MOTOR-OPERATED VALVES THERMAL OVERLOAD PROTECTION CONTINUOUS

VALVE NUMBER	SYSTEM(S) AFFECTED
HV-E51-2F046	RCIC
HV-E51-2F008	RCIC
HV-E51-2F031	RCIC
HV-E51-2F010	RCIC
HV-E51-2F019	RCIC
HV-E51-2F060	RCIC
HV-E51-2F059	RCIC
HV-E51-2F022	RCIC
HV-E51-2F062	RCIC
HV-E41-2F012	HPCI
HV-E41-2F001	HPCI
HV-E41-2F011	HPCI
HV-E41-2F006	HPCI
HV-E41-2F079	HPCI
HV-E41-2F059	HPCI
HV-E41-2F004	HPCI
HV-E41-2F003	HPCI
HV-E41-2F042	HPCI
HV-E41-2F075	HPCI
HV-E41-2F008	HPCI
HV-E41-2F007	HPCI
HV-E41-2F066	HPCI
HV-G33-2F004	RWCU
HV-B21-2F019	NSSS
HV-E11-2F008	RHR
HV-E11-2F023	RHR
HV-E11-2F049	RHR
HV-B31-2F032A	Rx Recirc
HV-B31-2F032B	Rx Recirc
HV-B31-2F031A	Rx Recirc
HV-B31-2F031B	Rx Recirc
HV-24182A	RWCU
HV-24182B	RWCU

ELECTRICAL POWER SYSTEMS

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION - AUTOMATIC

LIMITING CONDITION FOR OPERATION

3.8.4.2.2 The thermal overload protection of each valve shown in Table 3.8.4.2.2-1 shall be bypassed automatically by an OPERABLE bypass device integral with the motor starter.

APPLICABILITY: When diesel generator E is not aligned to the Class 1E distribution system.

ACTION:

a. With thermal overload protection automatic bypass inoperable for one or more valves listed above, take administrative action to continuously bypass the thermal overload within 8 hours, or verify that all diesel generator E ESW valves are closed and diesel generator E is not running within 8 hours.

b. The provision of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.8.4.2.2.1 The automatic bypass of thermal overload protection for those valves listed above shall be demonstrated OPERABLE at least once per 18 months.

TABLE 3.8.4.2.2-1

MOTOR OPERATED VALVES THERMAL OVERLOAD PROTECTION - AUTOMATIC

Valve Number	System(s) Affected
HV-01110E	ESW
HV-01120E	ESW

BASES

3/4.8.1, 3/4.8.2 and 3/4.8.3 A.C. SOURCES, D.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS

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 General Design Criteria 17 of Appendix "A" to 10 CFR 50.

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 three of the onsite A.C. and the corresponding D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of one other onsite A.C. source. The plant configuration consists of four diesel generators A, B, C, and D and a spare fifth diesel generator E which can be substituted for any one of the four diesel generators.

The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974. When one diesel generator is inoperable, there is an additional ACTION requirement to verify that all required systems, subsystems, trains, components and devices, that depend on the remaining OPERABLE diesel generator as a source of emergency power, are also OPERABLE. This requirement is intended to provide assurance that a loss of offsite power event will not result in a complete loss of safety function of critical systems during the period one of the diesel generators is inoperable. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out-of-service for maintenance or other reasons. It does not mean to perform the surveillance requirements needed to demonstrate the OPERABILITY of the component.

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 unit status.

The surveillance requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies", March 10, 1971, Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants", Revision 1, August 1977 and Regulatory Guide 1.137 "Fuel-Oil Systems for Standby Diesel Generators", Revision 1, October 1979.

A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

The surveillance requirements for demonstrating the OPERABILITY of the unit batteries are in accordance with the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants", February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage onfloat charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8.2.1-1 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and .015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than .020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than .010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8.2.1-1 is permitted for up to 7 days. During this 7 day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than .020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity ensures that an individual cell's specific gravity will not be more than .040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 61 TO FACILITY OPERATING LICENSE NO. NPF-14 AND

AMENDMENT NO. 32TO FACILITY OPERATING LICENSE NO. NPF-22

PENNSYLVANIA POWER & LIGHT COMPANY

SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2

DOCKET NOS. 50-387 AND 50-388

1.0 INTRODUCTION

The Pennsylvania Power & Light Company, by letters dated February 10, March 4, June 24, August 29, and October 1, 1986, and January 21, 1987, has proposed Technical Specification changes to include a fifth (E) diesel generator for Susquehanna, Units 1 and 2.

The Susquehanna Steam Electric Station, Units 1 and 2 provides four diesel generators that are shared between the two units. The Technical Specifications permit a diesel generator to be inoperable for 72 hours and after 72 hours, if the diesel is not returned to service, a two unit shutdown is required. A fifth diesel generator is being added as a replacement and will have the capability of supplying the emergency loading for any one of the four existing diesel generators. The purpose of the fifth diesel generator is to allow maintenance to be performed on any one of the four existing diesel generators without necessitating any unit shutdown.

The fifth diesel generator building is a Seismic Category 1, two-story structure consisting primarily of reinforced concrete walls, floor slab, and roof. The diesel generator pedestal is also constructed of reinforced concrete. Unlike other Category 1 buildings, there are no masonry walls or high energy pipelines in the facility. Absence of the high energy pipelines significantly lowers the design loads and load combinations imposed on the structure.

Fire protection for Diesel Generator E Building consists of a pre-action sprinkler system installed throughout the 656 ft. 6 in. and 675 ft. 6 in. levels. Automatic fire detection capability is installed throughout the building (including the 708 ft. level) and consists of ionization, infrared (flame) and heat detectors. All three types of detectors are tied together to alarm in the control room and to open the automatic valve that admits water to the pre-action sprinkler system. Manual fire fighting capability is provided by hand held extinguishers and standpipe and hose stations located throughout the building.

In both buildings engine exhaust is so arranged as to minimize the possibility of exhaust being drawn into the combustion/ventilation air supply intake openings to the outside.

A separate battery back-up power supply is provided for the fire detection systems in both buildings to assure continuous detection capability, even

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with the loss of off-site power. Fire Detection Systems for both buildings are connected to the plant multiplexing systems which alarm in the control room.

Bulk fuel oil supply consists of outside buried storage tanks. Four 50,000 gallon capacity tanks provide the primary supply for each of the A, B, C, & D diesel generators. A new 80,000 gallon capacity tank provides the primary supply for the new E diesel generator. Transfer pumps, piping and valves are so arranged that each bulk storage tank normally supplies fuel to a single diesel. However, necessary valves and piping permit filling any engine day tank from any bulk fuel storage tank. The five bulk storage tanks are not themselves interconnected.

Because the presence of a fifth diesel display instrumentation in the control room could cause unnecessary confusion in a four-division (channel) system, the fifth diesel generator utilizes the same metering and controls used for any one of the existing four diesel generators that is being replaced by the fifth diesel. The use of a transfer switching system reduces electrical wiring separation problems, conserves space and minimizes changes in the main control room.

The transfer switches in the specific transfer panels in the fifth diesel generator building are used to select the path to the controls of the specific diesel generator to be replaced. The transfer switch at the individual transfer panel in each existing diesel generator building is used to transfer the controls of the specific diesel generator to the fifth diesel generator.

New alarms and indications are dedicated to the fifth diesel generator facility and are located on the main control board in the control room. The alarm devices annunciate the 4.16 kv systems, DC systems, control switches not properly aligned, building sump level high, and HVAC failure. A series of five indicating lights is provided to indicate the replacement status of the fifth diesel generator and whether or not it is aligned as replacement for the diesel generator A, B, C, or D, respectively.

The electrical system design adopted for the fifth diesel generator for Susquehanna was not reviewed by the staff, because the licensee elected to modify the facility under the provisions of the Commission's regulation 10 CFR 50.59.

2.0 EVALUATION

Structural Design Evaluation

The criteria used in the analysis, design, and construction of the fifth diesel generator building to account for anticipated loadings and postulated conditions that may be imposed upon each structure during its service lifetime are in conformance with established criteria, codes, standards, and specifications acceptable to the staff.

The use of these criteria, as defined by applicable codes, standards, specifications, the loads, loading combinations, the design and analysis procedures, the structural acceptance criteria, the materials, and quality control, provide reasonable assurance that, in the event of winds, tornadoes, earthquakes and various postulated accidents occurring within the structures, the structures will withstand the specified design conditions without impairment of structural integrity or the performance of required safety functions. Conformance with these criteria, codes, specifications, and standards constitutes an acceptable basis for satisfying, in part, the requirements of 10 CFR 50, Appendix A, General Design Criteria 2 and 4.

Fire Protection Evaluation

The design and installation of the fifth diesel generator conforms to applicable NRC fire protection guidelines and is acceptable. In addition, we find the proposed changes to Technical Specification pages 3/4 3-80, 7-19, and 7-24 for Unit 1, and 3/4 3-81, 7-21, and 7-26 for Unit 2 meet the staff's acceptance criteria and are acceptable.

Electrical Systems

The fifth diesel electrical systems design was analysed by the licensee in accordance with the requirements of the Commission's regulations 10 CFR 50.59. The staff has reviewed the proposed preoperational testing and Technical Specification changes (to incorporate the fifth diesel generator) against the preoperational testing and current Technical Specifications previously accepted for the four existing diesel generators. The staff has concluded that the fifth diesel generator will be OPERABLE in accordance with the surveillance test program specified in the proposed Technical Specifications consistent with the Technical Specifications for the four existing diesel generators, except as evaluated below.

1. Specification 3.8.1.1

   The footnote for this specification has been revised to allow the removal of an OPERABLE diesel generator from service for a period of eight hours, when substituting the fifth diesel generator to the Class 1E distribution system, without declaring an LCO. If, however, the substitution cannot be successfully completed in eight hours, an LCO must be declared and the appropriate ACTION followed with the time requirements in the ACTION statement being measured from the time of unavailable diesel generator to the emergency power system.

   When an OPERABLE diesel generator is being substituted by the fifth diesel generator, testing of the remaining operable three diesel generators is not required. Immediate testing of diesel generators is required when one diesel generator becomes inoperable due to equipment failures, in order to detect any potential common cause failures and to assure power supply to safety related equipment required for safe shutdown of the plant during accident conditions. Since, however, an OPERABLE diesel generator is being removed from service for replacement,

testing of the remaining operable three diesel generators is not needed. The licensee has committed that, if substitution of the diesel generator cannot be successfully completed in eight hours, LCO will be declared and the appropriate ACTION(s) followed with the time being measured from the time substitution began. Therefore, this revision does not impact safety and does not degrade availability of diesel generators and is acceptable.

2. Specification 4.8.1.1.3

This is a new section of the Technical Specifications and delineates the surveillance test requirements for demonstrating that the fifth diesel generator is OPERABLE. The surveillance test requirements for the fifth diesel generator are equivalent to the requirements in the current Technical Specifications (T.S.) and are acceptable including the following differences:

(a) Starting test of the diesel by, i) simulated loss of offsite power; ii) simulated loss of offsite power in conjunction with an engineered safety feature (ESF) actuation test signal; and iii) an ESF actuation signal alone, will not be conducted for the fifth diesel generator every 31 days. Only manual start of the diesel will be performed every 31 days.

The testing facility for the fifth diesel generator does not provide the capability to simulate an ESF actuation signal and a loss-of-offsite power signal. Therefore, when the fifth diesel generator is not aligned to the Class 1E system, starting can only be accomplished by a manual start signal. This test verifies that the required voltage and frequency are automatically attained within acceptable time limits. The tests not conducted every 31 days will be performed during the 18 month surveillance interval.

(b) The fifth diesel generator which has a full load carrying capacity of 5000 kw will be testing to 4000 kw of the continuous rating consistent with the surveillance test requirements of the existing diesel generators.

(c) The current T.S. requires verification that the loading sequence timer is operable within its setpoint. Since the timer is separate from the diesel generator, this verification is not necessary for the fifth diesel generator test program. Therefore, omission of this test from the surveillance requirements is acceptable.

3. In its letter dated January 21, 1987, the licensee stated that the fifth diesel can not be loaded with emergency loads while the units are at power. Therefore, the preoperational test program requirement to verify a diesel generator's capability to synchronize with an off-site power source can not be met without plant shutdown. There are no planned plant shutdowns prior to initial startup of the fifth diesel

generator. The licensee, therefore, requested an exception from the offsite power synchronization surveillance requirement (Section 4.8.1.1.3.d.6.b.iv) for preoperational testing of the fifth diesel.

The licensee stated that the requested exception will not degrade the reliability of fifth diesel. Alternate tests which are judged to be equivalent to the tests for which exception is requested will be performed as follows.

The fifth diesel generator will be loaded with simulated emergency loads on the load bank. With the fifth diesel generator in the emergency mode, the test will demonstrate that the fifth diesel generator can synchronize to offsite power by voltage and frequency of the diesel generator side through an offsite power breaker while loaded.

After the synchronization check is satisfied, the offsite power breaker can close. Immediately upon closure of the offsite power breaker, the diesel generator output breaker will receive a trip signal. This will demonstrate the ability of the fifth diesel generator to reject a load equal to the emergency load rating without tripping and then to return to a standby status.

Based on our review of the alternate surveillance testing and justification to demonstrate compliance, the staff has concluded that exception from the surveillance test 4.8.1.1.3.d.6.b.iv) during preoperational testing and proposed alternate testing is acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

These amendments involve a change in the installation and use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. The 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 these amendments involve no significant hazards consideration, and there has been no public comment on such finding. Accordingly, these 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 environmental impact statement nor environmental assessment need be prepared in connection with the issuance of these amendments.

4.0 CONCLUSION

The Commission made a proposed determination that the amendments involve no significant hazards consideration which was published in the Federal Register

(51 FR 33956) on September 24, 1986, and (52 FR 4416) on February 11, 1987, and consulted with the state of Pennsylvania. No public comments were received, and the state of Pennsylvania did not have any comments.

The staff 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security nor to the health and safety of the public.

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