

March 17, 2000

Mr. Theodore A. Sullivan
 Vice President Nuclear and Station Director
 Entergy Nuclear Generation Company
 Pilgrim Nuclear Power Station
 600 Rocky Hill Road
 Plymouth, MA 02360

SUBJECT: PILGRIM NUCLEAR POWER STATION - ISSUANCE OF AMENDMENT
 RE: EMERGENCY DIESEL FUEL (TAC NO. MA5392)

Dear Mr. Sullivan:

The Commission has issued the enclosed Amendment No. 184 to Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station. This amendment is in response to your application dated May 5, 1999, as supplemented on January 31, 2000.

This amendment will modify the licensing basis for the on-site fuel storage requirements for the emergency diesel generators (EDG) in the Updated Final Safety Analyses Report. In addition, Technical Specifications (TSs) 3.9.A.3, "Auxiliary Electrical Equipment," 4.9.A.1.d, "Auxiliary Electrical Equipment Surveillance," and the associated TS Bases Section 3.9, "Auxiliary Electrical System" will be amended to reflect the new licensing basis for the EDG on-site fuel supply system requirements.

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

Sincerely,

/RA/

Alan B. Wang, Project Manager, Section 2
 Project Directorate I
 Division of Licensing Project Management
 Office of Nuclear Reactor Regulation

Docket No. 50-293

- Enclosures: 1. Amendment No. 184 to License No. DPR-35
 2. Safety Evaluation

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

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Vice President Nuclear and Station Director
Entergy Nuclear Generation Company
Pilgrim Nuclear Power Station
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Plymouth, MA 02360

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Sincerely,

A handwritten signature in cursive script that reads "Alan Wang".

Alan B. Wang, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-293

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License No. DPR-35
2. Safety Evaluation

cc w/encls: See next page

Pilgrim Nuclear Power Station

cc:

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

ENTERGY NUCLEAR GENERATION COMPANY

DOCKET NO. 50-293

PILGRIM NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 184
License No. DPR-35

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:
 - A. The application for amendment filed by the Entergy Nuclear Generation Company (the licensee) dated May 5, 1999, as supplemented January 31, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-35 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 184, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION



James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: March 17, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 184

FACILITY OPERATING LICENSE NO. DPR-35

DOCKET NO. 50-293

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

3/4.9-1

3/4.9-3

B3/4.9-1

Insert

3/4.9-1

3/4.9-3

B3/4.9-1

LIMITING CONDITIONS FOR OPERATION

3.9 AUXILIARY ELECTRICAL SYSTEM

Applicability:

Applies to the auxiliary electrical power system.

Objective:

To assure an adequate supply of electrical power for operation of those systems required for safety.

Specification:

A. Auxiliary Electrical Equipment

The reactor shall not be made critical unless all of the following conditions are satisfied:

1. At least one off-site transmission line and the startup transformer are available and capable of automatically supplying auxiliary power to the emergency buses.
2. An additional source of off-site power consisting of one of the following:
 - a. A transmission line and shutdown transformer capable of supplying power to the emergency 4160 volt buses.
 - b. The main transformer and unit auxiliary transformer available and capable of supplying power to the emergency 4160 volt buses.
3. Both diesel generators shall be operable. Each diesel generator shall have a minimum of 36,800 gallons of diesel fuel on site. Of this volume, at least 19,800 gallons of fuel shall be stored in each EDG Class I fuel system. The balance of the 36,800 gallons/EDG shall be available in the Station Blackout diesel generator tanks.

SURVEILLANCE REQUIREMENTS

4.9 AUXILIARY ELECTRICAL SYSTEM

Applicability:

Applies to the periodic testing requirements of the auxiliary electrical systems.

Objective:

Verify the operability of the auxiliary electrical system.

Specification:

A. Auxiliary Electrical Equipment Surveillance

1. Diesel Generators

- a. Each diesel generator shall be manually started and loaded once each month to demonstrate operational readiness. The test shall continue for at least a one hour period at rated load.

During the monthly generator test the diesel generator starting air compressor shall be checked for operation and its ability to recharge air receivers. The operation of the diesel fuel oil transfer pumps shall be demonstrated, and the diesel starting time to reach rated voltage and frequency shall be logged.

- b. Once per operating cycle the condition under which the diesel generator is required will be simulated and test conducted to demonstrate that it will start and accept the emergency load within the specified time sequence. The results shall be logged.

LIMITING CONDITIONS FOR OPERATION

3.9 AUXILIARY ELECTRICAL SYSTEM

A. Auxiliary Electrical Equipment (Cont)

4. 4160 volt buses A5 and A6 are energized and the associated 480 volt buses are energized.
5. The station and switchyard 125 and 250 volt batteries are operable. Each battery shall have an operable battery charger.
6. Emergency Bus Degraded Voltage Annunciation System as specified in Table 3.2.B.1 is operable.
7. Specification:

Two redundant RPS Electrical Protection Assemblies (EPAs) shall be operable at all times on both inservice power supplies.

Action

- a. With one EPA on an inservice power supply inoperable, continued operation is permissible provided that the EPA is returned to operable status or power is transferred to a source with two operable EPAs within 72 hours. If this requirement cannot be met, trip the power source.
- b. With both RPS EPAs found to be inoperable on an inservice power supply, continued operation is permissible, provided at least one EPA is restored to operable status or power is transferred to a source with at least one operable EPA within 30 minutes. If this requirement cannot be met, trip the power source.

NOTE: Only applicable if tripping the power source would not result in a scram.

SURVEILLANCE REQUIREMENTS

4.9 AUXILIARY ELECTRICAL SYSTEM

A. Auxiliary Electrical Equipment Surveillance (Cont)

- d. Once a month the quantity of diesel fuel available on-site shall be logged.
- e. Once a month a sample of diesel fuel shall be checked for quality in accordance with ASTM D4057-81 or D4177-82. The quality shall be within the acceptable limits specified in Table 1 of ASTM D975-81 and logged.

2. Station and Switchyard Batteries

- a. Every week the specific gravity, the voltage and temperature of the pilot cell and overall battery voltage shall be measured and logged.
- b. Every three months the measurements shall be made of voltage of each cell to nearest 0.1 volt, specific gravity of each cell, and temperature of every fifth cell. These measurements shall be logged.
- c. Once each operating cycle, the stated batteries shall be subjected to a Service Discharge Test (load profile). The specific gravity and voltage of each cell shall be determined after the discharge and logged.
- d. Once every five years, the stated batteries shall be subjected to a Performance Discharge Test (capacity). This test will be performed in lieu of the Service Discharge Test requirements of 4.9.A.2.C above.

BASES:

3.9 AUXILIARY ELECTRICAL SYSTEM

The general objective of this Specification is to assure an adequate source of electrical power to operate the auxiliaries during plant operation, to operate facilities to cool and lubricate the plant during shutdown, and to operate the engineered safeguards following an accident. There are three sources of a-c electrical energy available; namely, the startup transformer, the diesel generators and the shutdown transformer. The d-c supply is required for switchgear and engineered safety feature systems. Specification 3.9.A states the required availability of a-c and d-c power; i.e., an active off-site a-c source, a back-up source of off-site a-c power and the maximum amount of on-site a-c and d-c sources.

The on-site diesel fuel supply system consists of two (2) 25,000 gallons Class I EDG storage tanks and two (2) 20,000 gallons Class II SBODG storage tanks. Level instrumentation provides operators the information necessary to ensure a minimum supply of 19,800 gallons in each Class I storage tank.

The minimum diesel fuel requirement per Class I storage tank (19,800 gallons) ensures that one EDG can operate continuously for approximately four days at rated capacity. Seven days of continuous operation of both EDGs at rated capacity is ensured by augmenting the EDG fuel supply with the minimum quantity of fuel maintained in Class II storage tanks. The minimum fuel quantity in each EDG storage tank provides adequate time to plan and execute transfer of fuel from the SBO storage tanks. Therefore, if either EDG storage tank contains less than 19,800 gallons of fuel prior to a diesel start in response to a valid start signal, the respective EDG is declared inoperable.

When one EDG is inoperable, the quantity of fuel available to the operable EDG shall consist of the volume of the fuel in the operable EDG storage tank and the SBODG storage tanks and must be at least 36,800 gallons. The use of the SBODG storage tanks permits periodic draining of a EDG storage tank for inspection without declaring both EDGs inoperable

Auxiliary power for PNPS is supplied from two sources; either the unit auxiliary transformer or the startup transformer. Both of these transformers are sized to carry 100% of the auxiliary load. If the startup transformer is lost, the unit can continue to operate since the unit auxiliary transformer is in service, the shutdown transformer is available, and both diesel generators are operational.

If the startup and shutdown transformers are both lost, the reactor power level must be reduced to a value whereby the unit could safely reject the load and continue to supply auxiliary electric power to the station.

In the normal mode of operation, the startup transformer is energized, two diesel generators and the shutdown transformer are operable. One diesel generator may be allowed out of service based on the availability of power from the startup transformer, the shutdown transformer and the fact that one diesel generator carries sufficient engineered safeguards equipment to cover all breaks. With the shutdown transformer and one diesel generator out of service, both 345kV supply lines must be available for the startup transformer.

Upon the loss of one on-site and one off-site power source, power would be available from the other immediate off-site power source and the one operable on-site diesel to carry sufficient engineered safeguards equipment to cover all breaks. In addition to these two power sources, removal of the Isolated Phase Bus flexible connectors would allow backfeed of power through the main transformer to the unit auxiliary transformer and provide power to carry the full station auxiliary load. The time required to perform this operation is comparable to the time the reactor could remain on RCIC operation before controlled depressurization need be initiated.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 184 TO FACILITY OPERATING LICENSE NO. DPR-35

ENTERGY NUCLEAR GENERATION COMPANY

PILGRIM NUCLEAR POWER STATION

DOCKET NO. 50-293

1.0 INTRODUCTION

By letter dated May 5, 1999, Boston Edison Company (BECo), requested a revision to the Technical Specifications (TSs) for the Pilgrim Nuclear Power Station (PNPS). Entergy Nuclear Generation Company (Entergy) completed its purchase of Pilgrim on July 13, 1999. By letter dated August 2, 1999, Entergy, the new licensee for Pilgrim stated they have adopted all outstanding commitments previously made by BECo for Pilgrim. Entergy supplemented the submittal by letter dated January 31, 2000. The proposed amendment revises TS sections 3.9.A.3 and 4.9.A.1.d, "Auxiliary Electrical Equipment," Bases Section 3.9, "Auxiliary Electrical Equipment," and Updated Final Safety Analysis Report (UFSAR) Sections 8.5, "Standby AC Power Source" and 8.10, "Power Generation Objective," by specifying the total volume of diesel fuel required to be stored on-site and the method of assuring sufficient supply of fuel oil to the Emergency Diesel Generators (EDGs) from the EDG and Station Blackout Diesel Generator (SBODG) storage tanks. With approval of the proposed amendment, the fuel oil storage system configuration at PNPS will meet the fuel oil storage capacity guidance in Regulatory Guide (RG) 1.137, Rev.1 (10/79), "Fuel Oil Systems for Standby Diesel Generator", and ANSI N195(ANS-59.51)-1976, "Fuel Oil Systems for Standby Diesel Generators", by being able to provide fuel oil for 7 days of continuous operation of both EDGs at the rated overload capacity (2860 KW for 2 hours and 2750 KW for 166 hours). The January 31, 2000, letter provided clarifying information and additional changes that were within the scope of the original Federal Register Notice, and did not change the staff's proposed no significant hazards consideration determination.

2.0 BACKGROUND

PNPS has two EDGs that provide the standby AC requirements. The two EDGs are of identical design and characteristics. The safety function for these diesels is to provide a Class IE, safety-related source of on-site AC power for the safe shutdown of the reactor following abnormal operational transients and postulated accidents. The diesel fuel oil supply system for the EDGs consists of two 25,000-gallon tanks which have a TS-required minimum supply of 19,800 gallons in each tank. The Class I EDG underground storage tanks have a separate supply line for each EDG. There is a cross-connection between the EDG storage tanks. PNPS also has an SBODG to provide AC power during SBO transients pursuant to 10 CFR 50.63. The diesel fuel oil supply system for the SBODG consists of two 20,000-gallon tanks.

During the licensing application for PNPS, a minimum of 19,800 gallons of fuel oil stored in the on-site underground dedicated emergency fuel oil storage tank was determined to be sufficient for 7 days of continuous EDG operation for each EDG following a loss of coolant accident (LOCA). As a result of its design-basis reconstitution, the licensee identified that due to the original methodology used in the fuel oil calculations and the additional loadings to the EDGs since the plant start-up, the above stated fuel oil inventory stored in the EDGs fuel oil storage tank was no longer sufficient for 7 days of continuous EDG operation following a LOCA. The licensee stated that there is sufficient fuel for operation of one EDG for 7 days if they credit the combined fuel available in both EDG tanks (one EDG is sufficient to handle all required electrical loads following a LOCA). However, the cross-connection between the EDG tanks is susceptible to single failure.

The licensee has proposed a licensing basis revision for the EDGs fuel storage requirements based on RG 1.137, Rev.1 (10/79) and ANSI N195(ANS-59.51)-1976. RG 1.137, Rev.1, (10/79), Regulatory Position 1.c, endorses ANSI N195-1976 standard and provides acceptable methods for determining the required on-site diesel fuel storage requirements to operate the EDGs continuously for 7 days at required capacity following the limiting design-basis accident. To meet the required storage requirements, the licensee is proposing to use the fuel oil which is stored in the Class II SBODG storage tanks as part of the required minimum inventory of fuel oil for EDG operation following a LOCA. The licensee has proposed changes to TSs 3.9.A.3, 4.9.A.1.d, and Bases B3.9 and the UFSAR for the PNPS.

2.1 Proposed TS changes

2.1.1 TS 3.9.A.3

The current TS 3.9.A.3 requires that both EDGs be operable and that each EDG shall have a minimum of 19,800 gallons of diesel fuel on site. The licensee requested approval of a revised TS that would replace the 19,800 gallons with 36,800 gallons and add the following: "of this 36,800 gallons, at least 19,800 gallons of fuel shall be stored in each EDG Class I fuel system. The balance of the 36,800 gallons/EDG shall be available in the Station Blackout diesel generator tanks." If the amount of fuel stored in the two SBODG storage tanks is less than needed to satisfy the technical specification LCO for two operable EDGs, the appropriate LCO action will be taken. If sufficient fuel remains inside one EDG tank and the SBODG tanks to support 7 days operation, then the 3-day (or 14-day if SBODG is tested per TSs) LCO would apply. If there is insufficient fuel in the SBODG tanks to support 7 days of operation for either EDG the 24-hour LCO would apply. The staff recognizes the SBODG fuel tanks will occasionally be emptied for maintenance purposes. However, only fuel remaining inside the two SBODG fuel storage tanks may be credited when determining EDG operability.

2.1.2 TS 4.9.A.1.d

Surveillance Requirement 4.9.A.1.d was augmented by adding the word "on-site" to state that: "Once a month the quantity of diesel fuel available on-site shall be logged." This is in accordance with Section SR 3.8.3.1 of NUREG-1433, Volume 1, Rev.1, Standard Technical Specifications for General Electric Plants, BWR/4.

2.1.3 TS Bases B3.9

The Bases section of TS 3.9 was augmented to reflect that the on-site diesel fuel supply consists of the two 25,000-gallon Class I EDG storage tanks and two 20,000-gallon Class II SBODG storage tanks to reflect the added fuel requirements needed. It also states that level instrumentation provides operators the information necessary to ensure a minimum supply of 19,800 gallons in each Class I storage tank and that the 19,800 gallons ensures that one EDG can operate continuously for approximately 4 days at rated capacity and that 7 days of continuous operation of both EDGs at rated capacity is ensured by augmenting the EDG fuel supply with the minimum quantity of fuel maintained in the Class II SBODG storage tanks. It also states that the minimum fuel quantity in each EDG storage tank provides adequate time to plan and execute transfer of fuel from the SBODG storage tanks. If either EDG storage tank contains less than 19,800 gallons of fuel, or the total between a SBODG and EDG storage tanks is less than 36,800 gallons, the respective EDG will be declared inoperable. The use of the SBODG storage tanks permits periodic draining of an EDG storage tank for inspection without declaring both EDGs inoperable.

2.2 Proposed UFSAR Changes

The licensee proposed changes to UFSAR Section 8.5 including table 8.5-3 and section 8.10 to reflect the new requirements and configurations discussed above.

Some of the relevant augmentation in Section 8.5 of the UFSAR includes the following two inserts:

Insert 1:

"Provisions are made to refill the EDG storage tanks from the two SBODG storage tanks. The combined on-site diesel fuel supply provides continuous seven days operation of both EDGs at full rated capacity."

Insert 2:

"The minimum quantity of fuel maintained in each EDG storage tank is sufficient to ensure continuous operation at full rated capacity of the corresponding EDG for approximately four days. The combined quantity of fuel in the two EDG and two SBODG tanks is sufficient to ensure continuous seven days operation of both EDGs at full rated capacity. A manual refilling method to transfer diesel fuel from SBODG storage tanks to the EDG storage tanks is available to provide the operating EDG with the additional fuel necessary to support continuous operation."

Table 8.5-3 was augmented to add the SBODG storage tanks, with a capacity of 20,000 gallons each, to the on-site fuel oil storage list which currently lists the day tank and the EDGs storage tanks capacity and identify these tanks as the on site fuel oil capacity.

The licensee stated that amended UFSAR pages will be issued in accordance with 10 CFR 50.71(e) upon approval of this proposed license amendment.

3.0 EVALUATION

There are two EDGs of identical design and characteristics. Each EDG has a dedicated fuel oil storage tank with a TS minimum fuel requirement in each of 19,800 gallons. The 19,800 gallons of fuel is enough fuel for approximately 4 days of operation at the rated overload capacity of 2860 KW for 2 hours and 2750 KW for 94 hours. This does not meet the guidance of RG 1.137. The licensee stated that there is sufficient fuel for operation of one EDG for 7 days if the fuel in both EDG storage tanks is credited. However, the cross-connection between the EDG storage tanks is susceptible to single failure.

To calculate the fuel oil storage requirements, the licensee used method number 1 that is identified in RG 1.137, Rev.1, Section C.1.c. This method is based on the assumption that the diesel generator operates continuously for 7 days at its rated capacity. The licensee's new calculation, as calculated per RG 1.137, determined that 35,725 gallons of fuel oil per EDG is required for an uninterrupted 7 days of operation at the rated overload capacity. This requirement was rounded up for conservatism to 36,800 gallon per EDG. The staff finds this method is acceptable since it is more conservative than the method previously used and is in accordance with RG 1.137.

The licensee has proposed to augment the fuel in the EDG storage tanks with the fuel in the SBODG storage tanks. The SBODG storage tanks have a capacity of 20,000 gallons. A minimum requirement of 36,800 gallons of fuel oil will be stored onsite for each EDG, of which at least 19,800 gallons will be in each EDG storage tank. However, the SBODG storage tanks are not Class I safety-related tanks, are not seismic Class I, have no permanent connections to the EDG storage tanks, and are not single-failure proof. The licensee has evaluated compensatory features or provided actions in order to credit the SBODG storage tanks.

The SBODG storage tanks are double walled fiberglass, non-safety-related and non-seismic tanks. The SBODG storage tanks had been installed, tested and maintained using the guidance in Generic Letter (GL) 85-06, "Quality Assurance Guidance For Anticipated Transients Without SCRAM Equipment That is Not Safety-Related." This GL provides explicit QA guidance for equipment of "lesser safety significance." The SBODG storage tanks were maintained and inspected as Q-list safety-related equipment even though they were not on the Q-list. As a part of this amendment request, the licensee has informed the staff that the SBODG tanks have been added to the Q-List with other SBODG related support equipment as Management Quality Control Items (MQCI). As such, the tanks are controlled in accordance with Appendix B.

The licensee stated that they evaluated these tanks and determined that they are "rugged" tanks and the failure of these tanks under extreme environmental conditions, such as an earthquake, would be very unlikely. The suction piping for the EDG and SBODG tanks are integrity tested every 3 years. Cathodic protection is provided for the steel suction piping on both. In addition, the suction piping for the SBODG is wrapped in a foil-like material to further protect it from corrosion. The licensee is adding a preventive maintenance for the SBODG tanks to clean them periodically like the EDG tanks. While these are not Class 1 tanks, the SBODG storage tanks will be inspected and maintained like the EDG storage tanks, therefore the integrity of these tanks will be maintained.

The quality of diesel fuel oil used is the same for the SBODG storage tanks and the EDG storage tanks. The SBODG diesel fuel is procured as "Q" and is the same fuel oil currently used in the EDG tanks. The licensee stated that the diesel fuel stored in the EDG and SBODG tanks will continue to meet the fuel oil quality specified in ASTM 975-1981 standard which is endorsed by RG 1.137 Section C.2.a and included in TS 4.9.A.1.e. The SBODG storage tanks fuel sampling and volume measurement frequencies will be made consistent with the EDG storage tanks. Therefore, the staff finds the quality of fuel used acceptable.

The 19,800 gallons in each tank can maintain each EDG for approximately 4 days at the rated overload capacity. As noted above, to meet its current licensing basis, PNPS has proposed to credit the fuel in the SBODG storage tanks which are non-safety-related tanks with no permanent connections to the EDG storage tanks. The transfer of fuel from the SBODG storage tanks to the EDG storage tanks will require an administrative procedure. However, the plant has a fuel management scheme of which this transfer scheme of the fuel from the SBODG storage tanks is only one of four options.

The first option in Procedure 2.2.8, "EDG Fuel Management Strategy," Attachment 10, requires that within 24 hours of an event the plant will order fuel to fill the tanks as required. Given that there is enough fuel for 4 days of EDG operation at rated overload capacity, the licensee stated that this should provide more than adequate time to order and fill the EDG storage tanks or determine other actions that might be required. The licensee has stated that additional supplies of fuel are readily available in Plymouth and from nearby terminals. Ample facilities exist to assure deliveries to the site within 24 hours of ordering the fuel. If it is determined that fuel cannot be delivered within the 24 hours, Procedure 2.2.8 will require that the plant perform, concurrently, the following three actions to assure the EDGs remain operable for the 7 days.

As noted earlier, with the TS required minimum of 19,800 gallons the plant can safely shut down and safely maintain the plant for approximately 4 days at full-rated overload capacity. The plant can minimize EDG loadings and still safely shut down the plant using the Emergency Operating Procedures (EOPs). By securing loads and reducing flow rates per the EOP specified loads, the 19,800 gallons will be sufficient for plant operation for 7 days following a design basis event.

Since only one EDG is required to safely shut down the plant and maintain it in a safe shutdown condition, the plant has procedures which would shut down an EDG so that sufficient fuel for operation of one EDG could be sustained for 7 days using the fuel from both EDG storage tanks only. However, the cross connect between the two tanks is not single failure proof. The design of the EDG storage tanks has a foot check valve in each tank and a single manual valve in the cross tie line. Should any one of these valves fail to operate, the fuel could not be transferred between trains. The operability of the foot check valves are confirmed monthly by the EDG test. The foot check valve must open to allow transfer of fuel to the day tank and close at the end of the test to maintain the prime on the transfer pump. If the check valve were to have failed open or closed, the transfer pump would not pump oil at the next surveillance. The licensee has committed to test the manual cross tie valve at each refueling outage to assure that fuel can be transferred from each EDG storage tank to either train. Even though the cross connect is not single failure proof, these tests provide periodic surveillances that will assure that the cross connect capability is functional. The licensee also has a procedure for an alternate method for transfer of fuel between the EDG storage tanks using hoses and an electric pump. This equipment is dedicated and pre-staged in the EDG building. In addition, as

an alternative to drawing fuel from the redundant EDG storage tank, safety bus A5 or A6 could be stripped from the operating EDG and loaded onto the SBODG. This would extend the operating time of the operating EDG using only its own safety-related storage tank.

As the third potential action, the plant will transfer fuel from the SBODG storage tanks to the EDG storage tanks. The SBODG storage tanks are not connected to the EDG storage tanks and will require operator action to transfer fuel from the SBODG storage tank to the EDG storage tank. As such the transfer mechanism would not be considered to be single failure proof. The licensee's method of supplying fuel oil from the SBODG tanks to the EDG tanks requires the attachment of connections, hoses, and an air-powered pump to refill the EDGs from the SBODGs when needed. The required fittings and hardware accessories for refilling operations are prestaged and dedicated for the task. The air supply for the pump is provided by a portable, diesel-powered air compressor. As a back-up, air can be supplied from the SBODG air receivers which are provided air by a compressor that can be powered by the shutdown transformer or the security diesel. While this supply is not safety grade, it is a maintenance quality control item (MQCI). Although not Class I, the station air receivers would also be a potential source of air for the pump. The staff requested that the licensee stage the operation for adding fuel from the SBODG to the EDG storage tanks. The licensee validated the transfer procedure using the dedicated equipment. In Inspection Report 99-05, the NRC inspector observed this operation and verified that the licensee's dedicated equipment and hoses would allow the transfer of the diesel fuel oil from the SBODG to the EDG storage tanks.

To credit the fuel in the SBODG storage tanks for meeting the design basis, the licensee has taken the following actions to compensate for the reliance on non-safety-related tanks. The maintenance and inspections for the SBODG storage tanks and the fuel in them have been upgraded to the standards of the EDG tanks and fuel. Procedure 2.2.8 has been revised to include the following actions:

- 1) The plant will order fuel within 24 hours of an event. If it is determined that fuel cannot be delivered, the plant will evaluate the following three actions concurrently to determine the best option;
- 2) Secure loads and reduce flows by following the EOPs;
- 3) Shut down an EDG and transfer safety bus A5 or A6 to the SBODG; and
- 4) Transfer fuel from the SBODG to the EDG storage tanks.

While some of these methods require the shedding of loads or shutting down an EDG, they do ensure that the plant can be safely shut down and be maintained in a safe shutdown condition. In addition, the licensee has provided several options to power the air-powered transfer pump when needed for transfer of fuel from the SBODG to EDG storage tanks. Therefore, the licensee has provided defense-in-depth by having multiple methods to ensure 7 days of EDG operation. We agree with the licensee that the 4-day supply for each EDG will provide the licensee sufficient time for obtaining the requisite fuel volume or performing various actions to ensure the licensing requirements are met. We have reviewed the TS and UFSAR changes and found that they reflect all the changes necessary to reflect the new diesel fuel quantity required and the sources of this additional fuel and found that they meet the intent of RG 1.137.

From a risk perspective, the proposed change has an impact primarily on the recovery probability of offsite power during a loss of offsite power (LOOP) event. In the past, the duration of most LOOP events did not exceed 24 hours, and LOOP events exceeding 4 days in duration have been rare. We find that the likelihood of a long-duration LOOP event is low, and the 4-day diesel fuel supply for an EDG provides sufficient time for recovery of offsite power and other measures to cope with the event. These measures include the steps to replenish diesel fuel, the load management to conserve diesel fuel, and the potential use of the remaining EDG and SBODG when available. These measures provide additional time to recover offsite power and to safely shut down the plant. Therefore, due to the low initiating event frequency and high probability of offsite power recovery, the proposed change has a negligible impact on risk. We find that risk insights support the proposed TS change.

Therefore, we conclude that the requirement to have 7 days of fuel onsite for each EDG is met and the proposed TS and UFSAR changes are acceptable.

4.0 CONCLUSION

The licensee has proposed to credit the fuel in the SBODG storage tanks to meet the licensing basis fuel storage requirements. Because these tanks were not designed, constructed or maintained as safety-related components, the licensee proposed compensatory actions. The combined required volume of the fuel in the SBODG and EDG tanks will be added to the TSs and UFSAR. The SBODG storage tanks have been added to the Q-list. As such, the inspection and maintenance of the storage tanks and fuel quality have been upgraded to be equivalent to the EDG storage tanks and fuel quality requirements. The licensee will order fuel within 24 hours of an event to assure that delivery can be made within the 4-day supply. If it is determined that the delivery cannot be made, the licensee has implemented an administrative procedure 2.2.8 to assure that the plant can be safely shut down and maintained in a safe shutdown condition. This administrative procedure 2.2.8 provides three options for operating the EDGs for 7 days with only the available onsite fuel. We conclude that the licensee will have an adequate and reliable fuel oil inventory to allow for 7 days of continuous EDG operation following a design basis event. Therefore, the proposed TS and UFSAR changes are acceptable.

5.0 STATE CONSULTATION

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

6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes a surveillance requirement. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (64 FR 29708). Accordingly, the amendment meets 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 or environmental assessment need be prepared in connection with the issuance of the amendment.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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