

BEFORE THE  
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of

:

Docket No. 50-387

PP&L, INC.

:


PROPOSED AMENDMENT NO. 224  
FACILITY OPERATING LICENSE NO. NPF-14  
SUSQUEHANNA STEAM ELECTRIC STATION  
UNIT NO. 1

Licensee, PP&L, Inc., hereby files proposed Amendment No. 224 to its Facility Operating License No. NPF-14 dated July 17, 1982.

This amendment contains a revision to the Susquehanna SES Unit 1 Technical Specifications.

PP&L, INC.

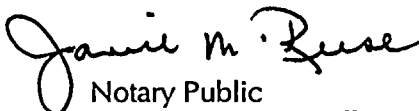
BY:



G. T. Jones

Vice President - Nuclear Engineering & Support

Sworn to and subscribed before me  
this 23<sup>rd</sup> day of November, 1998.

  
Notary Public

NOTARIAL SEAL  
JANICE M. REESE, Notary Public  
City of Allentown, Lehigh County, PA  
My Commission Expires June 11, 2001



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PDR ADOCK 05000387  
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1015 NINTH ST.  
WASHINGTON, D.C. 20540

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WASHINGTON, D.C. 20540

BEFORE THE  
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of

:

Docket No. 50-388

PP&L, INC.

:

PROPOSED AMENDMENT NO. 189  
FACILITY OPERATING LICENSE NO. NPF-22  
SUSQUEHANNA STEAM ELECTRIC STATION  
UNIT NO. 2

Licensee, PP&L, Inc., hereby files proposed Amendment No. 189 to its Facility Operating License No. NPF-22 dated March 23, 1984:

This amendment contains a revision to the Susquehanna SES Unit 2 Technical Specifications.

PP&L, INC.

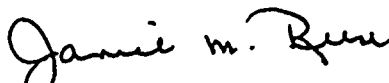
BY:



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Vice President - Nuclear Engineering & Support

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**ATTACHMENT 1 TO PLA-5004**

**SAFETY ASSESSMENT**

**SAFETY ASSESSMENT  
EMERGENCY DIESEL GENERATOR FUEL OIL STORAGE TANK VOLUME**

**I. DESCRIPTION OF PROPOSED CHANGE:**

The changes increase the FOST volume ranges in the Unit 1 and Unit 2 Technical Specification LCO 3.8.3, increase the minimum FOST volumes in Unit 1 and Unit 2 Technical Specification SR 3.8.3.1, and change the Unit 1 and Unit 2 Bases for LCO 3.8.3 and SR 3.8.3.1 to reflect that the required volumes are based on the DG continuous ratings rather than post DBA loads.

Specifically, the FOST level range in LCO 3.8.3 Condition A for DG A-D is increased from <44,900 gallons and >38,600 gallons to <47,570 gallons and >41,018 gallons. The FOST level range in LCO 3.8.3 Condition A for DG E is increased from <44,900 gallons and >38,600 gallons to <60,480 gallons and >52,340 gallons. The upper limits in these ranges equal the 7-day fuel oil consumption at the continuous DG ratings plus the unusable volume in the storage tanks. The lower limits in these ranges are equal to 6/7 times the 7-day fuel oil consumption at the continuous DG ratings plus the unusable volume in the storage tanks.

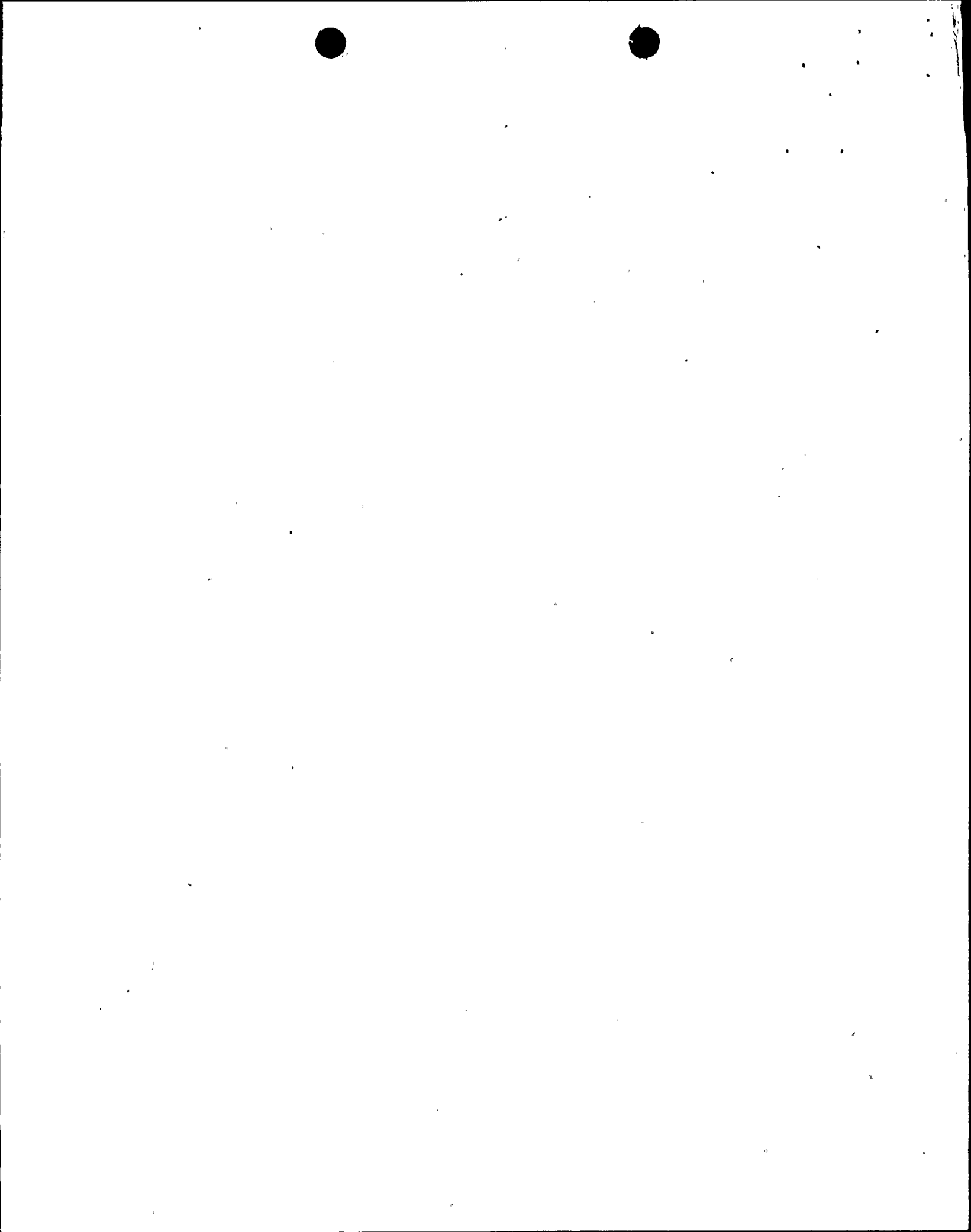
The minimum FOST level requirement in SR 3.8.3.1 is increased from 44,900 gallons to 47,570 gallons for DG A-D and from 44,900 gallons to 60,480 gallons for DG E. These volumes equal the 7-day fuel oil consumption at the continuous DG ratings plus the unusable volume in the storage tanks. These proposed values are identical to those which were specified in the SSES Technical Specifications (3/4 3.8.1.2.b.2) prior to implementation of the Improved Technical Specification format of NUREG 1433.

The Bases are changed to reflect that the 7-day supply is based on the continuous DG ratings instead of DBA loads.

**II. SYSTEM DESIGN DESCRIPTION (Ref: FSAR 9.5.4):**

The SSES FSAR Section 9.5.4 describes the EDG fuel oil system design and operation. Pertinent design descriptions contained therein are as follows:

- a) Provides onsite storage and delivery of fuel oil to the diesel generators for at least seven days of operation. This provides emergency power to meet the load requirements for the engineered safety features following loss of offsite power and a DBA.
- b) Designed so that a single failure of any active component cannot affect the ability of the system to store and deliver fuel oil as required by design basis a) above.
- c) Designed to remain operable after a Safe Shutdown Earthquake.
- d) The design complies with ANSI Standard N195-176



- e) There is physical redundancy of active components in the EDG fuel oil system. An independent fuel oil supply train is provided for each EDG. Each transfer pump is powered from the bus to which the EDG it serves is connected. Failure of one pump or EDG will not impact the operability of any component in another train. Three EDG's are required during loss of offsite power and DBA conditions to meet the engineered safety feature load requirements. The transfer pump discharge headers have a manually operated common connection line to permit fuel oil from one storage tank to be pumped to any EDG if required. Rupture of any portion of the transfer piping would impact the fuel oil supply of only one EDG.

Relevant system component descriptions contained in the SSES FSAR Section 9.5.4 are as follows:

- Fuel Oil Storage Tanks: Four 50,000 gallon storage tanks are provided for EDG's A, B, C, and D, and one 80,000 gal. storage tank is provided for EDG E. One storage tank is provided for each EDG, and each is sufficient for seven days full load continuous operation. Each tank is buried underground adjacent to the building associated with the respective EDG.
- Fuel Oil Transfer Pumps: One fuel oil transfer pump is provided for each storage tank, and its design assures that at least seven days of usable fuel from each storage tank can be provided to the associated day tank. For EDG's A, B, C, and D the pump is a submersible design. The E EDG has a horizontal, self-priming pump.
- Fuel Oil Day Tanks: EDG's A, B, C, and D have a 550 gallon day tank; EDG E has a 650 gal. day tank (these are tank volumes, not useable volumes). Connections for filling, overflow return, recirculation, level instrumentation, venting, and emptying are provided. A manhole is provided on the tank for inspection. The day tank volume is sufficient to maintain at least 60 minutes of operation at the level where oil is automatically added to the day tank at rated diesel load, plus 10 % margin.

The FSAR Section 9.5.4 describes that each transfer pump takes suction from its FOST and pumps the oil directly to the day tank. Because the capacity of the transfer pump is greater than the fuel oil consumption of the engine, the pump can supply fuel oil to the diesel and simultaneously increase the inventory of the day tank. For EDG's A, B, C, and D, the fuel oil transfer pumps are started and stopped automatically by day tank level switches. For EDG E, the fuel oil transfer pump is started and stopped automatically by day tank level switches except when an emergency start signal is received. In the emergency mode, the pump runs continuously.





### III. ANALYSIS:

The safety function of the EDG FOST is to supply the emergency diesel generators with enough fuel to ensure the availability of necessary power to ESF systems so that fuel, reactor coolant and containment system design limits are not exceeded. The post-DBA power requirements for the EDG's are delineated in FSAR Section 8.3.1.4. The current FOST volume requirements delineated in the SSES Technical Specifications were implemented concurrent with the Improved Technical Specifications (Amendments 178 and 151 for Unit 1 and Unit 2 respectively) at SSES and are based on the post DBA load profile. The proposed values for SR 3.8.3.1 are those specified in the SSES Technical Specifications prior to implementation of the Improved Technical specifications and are calculated in accordance with ANSI N195-1976.

The EDG continuous ratings (4,000 kw at .8 pf for the A-D EDG's and 5000 kw at .8 pf for the E EDG) which are the basis for the proposed new FOST volumes, are greater than the maximum post accident load profile. Thus the proposed new minimum FOST volumes increase the margin of safety. Specifically, the EDG's at the new proposed SR 3.8.3.1 FOST volumes will operate for a more than the minimum required 7 day period at post accident load profile and more than the required minimum 6 days of post accident operation will be available when in LCO 3.8.3 Condition A.

### IV. CONCLUSIONS:

Based on this safety assessment, it is concluded that the proposed changes to SSES Unit 1 and Unit 2 Technical Specification LCO 3.8.3 FOST volume requirements ensures the FOST volume is adequate to support the EDG's post accident design basis safety function to ensure the availability of necessary power to ESF systems so that fuel, reactor coolant system, and containment design limits are not exceeded.

**ATTACHMENT 2 TO PLA-5004**

**NO SIGNIFICANT HAZARDS CONSIDERATIONS**

**NO SIGNIFICANT HAZARDS CONSIDERATIONS AND ENVIRONMENTAL ANALYSIS**  
**REACTOR STEAM DOME PRESSURE-LOW ALLOWABLE VALUE**

**NO SIGNIFICANT HAZARDS CONSIDERATIONS:**

PP&L, Inc. has evaluated the proposed Technical Specification change in accordance with the criteria specified by 10 CFR 50.92 and has determined that the proposed change does not involve a significant hazards consideration. The criteria and conclusions of our evaluation are presented below.

- 1. The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.**

This proposal does not involve an increase in the probability or consequences of an accident previously evaluated. The proposed amendment increases FOST volume requirements so to increase the margin of safety thus providing further assurance that the EDG FOST volume is adequate to support the EDG's post accident design basis safety function.

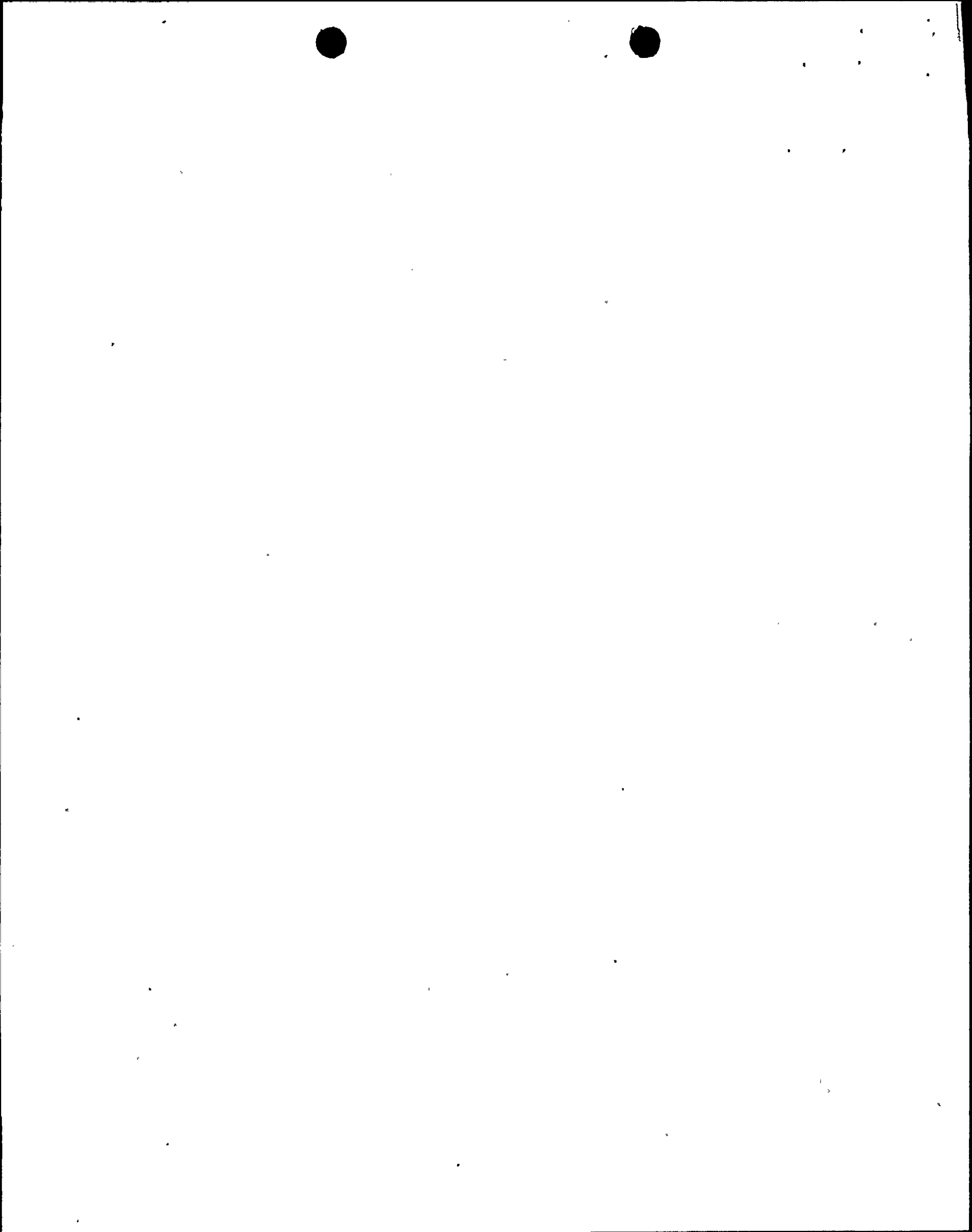
The safety function of the EDG FOST is to supply the emergency diesel generators with enough fuel to ensure the availability of necessary power to ESF systems so that fuel, reactor coolant and containment system design limits are not exceeded. The current Technical specification FOST specified volume is based on the EDG post DBA load profile. The proposed FOST volume is based on EDG continuous rated load rating which is greater than the post DBA load profile providing margin and further assurance that the EDG FOST will support the EDG safety function. The proposed required FOST volumes are calculated in accordance with ANSI N195-1976.

Based upon the above, PP&L concludes that the proposed action does not involve an increase in the probability or consequences of an accident previously evaluated.

- 2. The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

This proposal does not create the probability of a new or different type of accident from any accident previously evaluated. The FOST required minimum values do not change any plant systems, structures, or components, nor do they change any existing or create any new or different kind of accident. The proposed amendment changes FOST volume requirements so to increase the margin of safety thus providing further assurance that the EDG FOST volume is adequate to support the EDG's post accident design basis safety function.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.



**3. The proposed change does not involve a significant reduction in the margin of safety.**

The proposed change increases the margin of safety since the proposed FOST values are based on the EDG continuous rated load ratings which bound the post DBA load profile.

**ENVIRONMENTAL ANALYSIS**

An environmental assessment is not required for the proposed change because the requested change conforms to the criteria for actions eligible for categorical exclusion as specified in 10 CFR 51.22(c)(9). The requested change will have no impact on the environment. As discussed above, the proposed change does not involve a significant hazard consideration. The proposed change does not involve a change in the types or increase in the amounts of effluents that may be released off-site. In addition, the proposed change does not involve an increase in the individual or cumulative occupational radiation exposure.

**ATTACHMENT 3 TO PLA-5004**

**TECHNICAL SPECIFICATIONS MARK-UPS**

