

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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SUBJECT: Forwards response to 980316 RAI re proposed license amend,
eliminating need for entry into LCO 3.0.3 to perform EDG
testing, dtd 960111.

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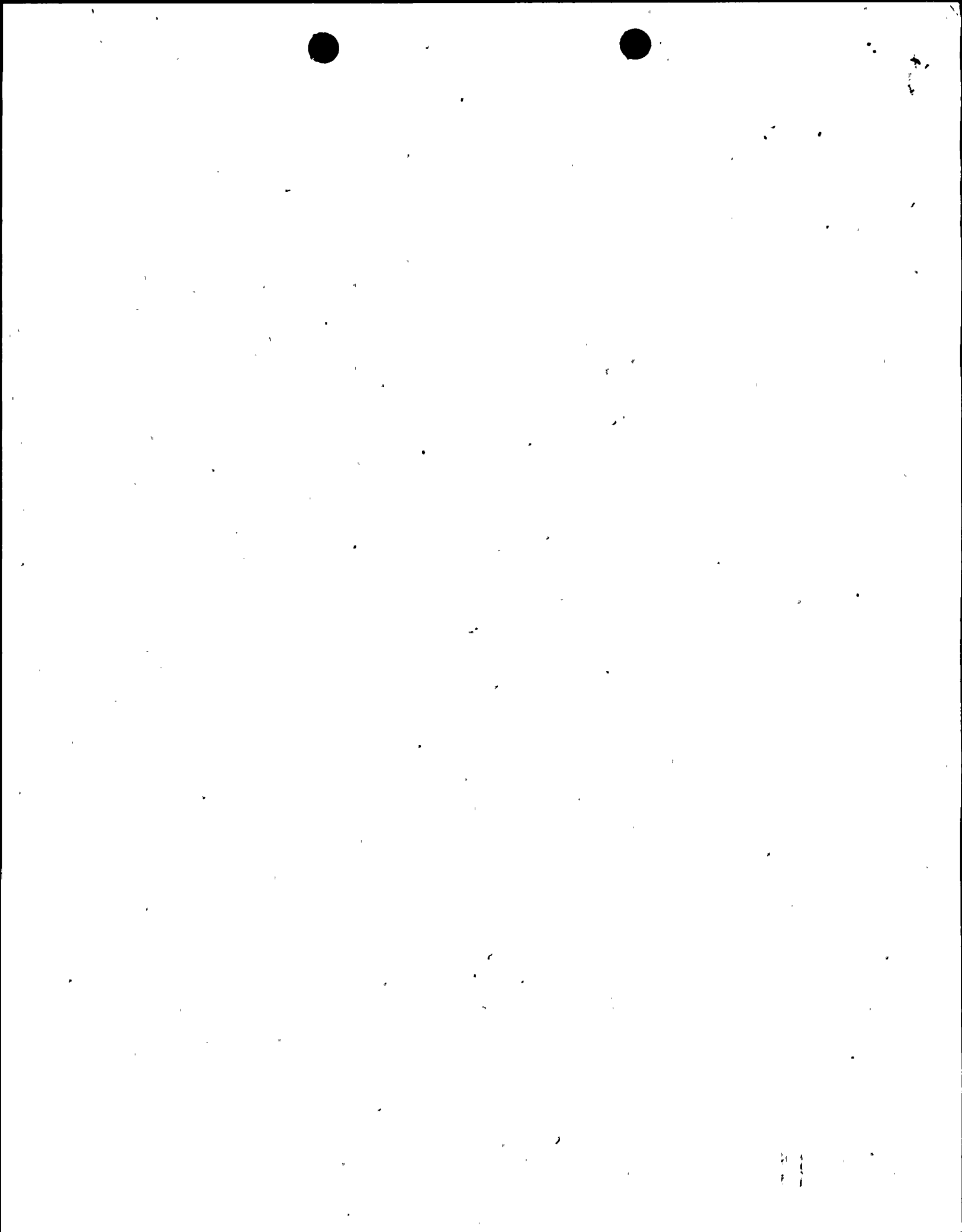
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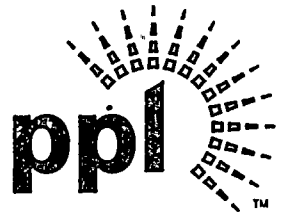
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**SUSQUEHANNA STEAM ELECTRIC STATION
RESPONSE TO NRC QUESTIONS REGARDING
PROPOSED AMENDMENT 150 TO LICENSE NO. NPF-22
PLA-4873**

Docket No. 50-388

Reference: PLA-4403, R. G. Byram to USNRC, "Proposed Amendment No. 150 to License No. NPF-22: Eliminate the Need for Entry into LCO 3.0.3 to Perform EDG Testing," dated January 11, 1996.

The purpose of this letter is to provide answers to NRC staff questions regarding the referenced proposed amendment. The attachment to this letter documents the staff's questions and PP&L's response to each, as discussed in a telecon on March 16, 1998.

If you have any questions, please contact Mr. R. R. Sgarro at (610) 774-7552.

Sincerely,

A handwritten signature in black ink, appearing to be "R. G. Byram", written over a horizontal line.

R. G. Byram

Attachment

copy: NRC Region I
Mr. V. Nerses, NRC Sr. Project Manager - OWFN
Mr. K. M. Jenison, NRC Sr. Resident Inspector - SSES
Mr. K. Kerns, PA DEP

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RESPONSE TO NRC STAFF QUESTIONS REGARDING SSES UNIT 2
PROPOSED AMENDMENT 150

1. *Provide a brief overview of the design of the relevant portions of the AC Distribution System, focusing on why sufficient equipment to support safe shutdown of Unit 2 is available (assuming no single failure) during the surveillance in question.*

Design Overview

The Class 1E AC distribution system in each SSES unit consists of four 4.16 kV Engineered Safeguards System (ESS) buses, each having a primary and alternate offsite source of power. In addition, four common diesel generators (DG's) provide emergency power for the ESS buses; each DG supplies power to one ESS bus in Unit 1 and one ESS bus in Unit 2. The distribution system is divided into two divisions (Divisions I and II), each with redundant load groups, so that loss of any one load group does not prevent the minimum functions required by the safety analyses from being performed. On a fluid system, such as Core Spray (CS), which has two subsystems with each subsystem comprised of two pumps, this scheme is implemented as follows :

ESS Bus A : Div I CS pump A
ESS Bus C : Div I CS pump C

ESS Bus B : Div II CS pump B
ESS Bus D : Div II CS pump D

Also, as defined in Technical Specification 3.8.3.1, some common components required by Unit 2 receive power through Unit 1 distribution load groups.

During the Unit 1 surveillance in question, Unit 1 is shutdown and is required by Unit 1 Technical Specification 3.8.3.2 to have either the Unit 1 Division I or the Unit 1 Division II load groups energized in order to support common loads. Unit 2 is operating and is required by Unit 2 Technical Specification 3.8.3.1 to have the load groups in both Unit 2 Divisions I and II energized. Tech Spec 3.8.3.1 also requires Unit 1 load groups that support Unit 2 to be energized. The test deenergizes one Division (two load groups) on Unit 1. The resulting combination of all four Unit 2 load groups (both divisions) and two Unit 1 load groups (one division) remain; this combination is sufficient to support accident mitigation and subsequent safe shutdown of Unit 2.



2. *Describe the control logic operations for EDGs to auto start and ESS bus energization on loss of offsite power (LOOP) with a loss of coolant accident (LOCA) signal. Supplement this description with simplified electrical drawings.*

Each diesel generator has a primary and backup start circuit. The auto start circuits for D/G "A" are depicted on drawings E-184 Sht 2. Both primary and backup auto start circuits operate if one or more of the following conditions are satisfied.

- Unit 1 LOCA signal (high drywell pressure or low reactor water level).
- Unit 2 LOCA signal (high drywell pressure or low reactor water level).
- Loss of power at the associated Unit 1 4kV ESS bus (followed by 0.5 second time delay).
- Loss of power at the associated Unit 2 4kV ESS bus (followed by 0.5 second time delay).

The diesel generator feeder breaker(s) to the associated 4kV bus(es) close if all of the following conditions are satisfied. See drawing E-105 Sht 1.

- Diesel generator frequency is above the permissive value.
- Diesel generator voltage is above the permissive value.
- 4kV bus voltage is below the U/V trip setpoint (<20%).
- Both preferred and alternate offsite feeder breakers to the 4kV bus are open.
- No 4kV bus lockout signal is present.

3. *Briefly explain how Surveillance Requirement 4.8.1.1.2.d.6.b is currently performed. Provide the plant status for each unit when performing this surveillance.*

Surveillance Requirement 4.8.1.1.2.d.6.b is performed on one division at a time with the associated unit in cold shutdown and the opposite unit in Condition 1. The Division I surveillance test is performed on the A and C 4kV buses and the Division II surveillance test is performed on the B and D 4kV buses. The 4kV buses of the opposite unit are not affected. The test involves simulating a simultaneous LOCA/LOOP from Unit 1 for each Division, one at a time.



4. *Explain why two load groups of one division are disabled as part of performing Surveillance Requirement 4.8.1.1.2.d.6.b.*

The diesel LOCA/LOOP surveillance is performed on a divisional basis because the surveillance is also a partial functional test of other systems. When performing Surveillance Requirement 4.8.1.1.2.d.6.b, it is necessary to disable the alternate offsite supplies from closing onto the buses and disabling the preferred offsite supplies from reclosing onto the buses to assure a LOOP can be simulated. This action disables both offsite power supplies to two (2) 4kV buses in the same division, at the same time, prior to simulating a LOCA/LOOP in accordance with the surveillance requirements. This effectively disables the offsite power supply to two (2) Unit 1 load groups required by the Unit 2 Technical Specifications.

5. *You only proposed TS changes for Unit 2 but not for Unit 1. In this regard, explain the differences between two units and why the proposed TS changes are not necessary for Unit 1.*

SR 4.8.1.1.2.d.6.b for Unit 1 is performed when Unit 1 is in cold shutdown and Unit 2 is in Condition 1. Since certain common loads required for Unit 2 operation are supplied by the Unit 1 4kV buses only, the Unit 1 surveillance test affects Unit 2 while it is in Condition 1. Common loads are not normally supplied by Unit 2 4kV buses and the Unit 2 surveillance test does not affect Unit 1 4kV buses. Whereas Unit 1 and common load groups are required to be energized in the Unit 2 Technical Specifications (see answer to Question 5, below), Unit 2 load groups are *not* required to be energized in the Unit 1 Technical Specifications.

6. *Expand the background section provided in your submittal dated January 11, 1996 to include the action statement you refer to that will force Unit 2 into LCO 3.0.3. In addition, identify common loads for both units and indicate which unit powers these loads.*

Unit 2 TS Section 3.8.3.1 Limiting Conditions for Operation:

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

1. Division I, consisting of:
 - a) Load group Channel “A”, consisting of:
 - 1) 4160-volt A.C. switchgear bus 1A201, 2A201
 - b) Load group Channel “C”, consisting of:
 - 1) 4160-volt A.C. switchgear bus 1A203, 2A203

2. Division II, consisting of:
 - a) Load group Channel "B", consisting of:
 - 1) 4160-volt A.C. switchgear bus 1A202, 2A202
 - b) Load group Channel "D", consisting of:
 - 1) 4160-volt A.C. switchgear bus 1A204, 2A204

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

- 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."

Since SR 4.8.1.1.2.d.6.b effectively de-energizes *two* load groups, LCO 3.8.3.1 is not met. Since Action 3.8.3.1.b applies only to *one* load group not energized, this forces entry into LCO 3.0.3.

Unit 2 TS Section 3.0.3:

"When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within one hour action shall be initiated to place the unit in an OPERATIONAL CONDITION in which the Specification does not apply by placing it, as applicable, in:

1. At least STARTUP within the next 6 hours,
2. At least HOT SHUTDOWN within the following 6 hours, and
3. At least COLD SHUTDOWN within the subsequent 24 hours.

Where corrective measures are completed that permit operation under the ACTION requirements, the ACTION may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual Specifications. This specification is not applicable in OPERATIONAL CONDITION 4 or 5."

Common loads are summarized below.

- The following common A.C. loads required for Unit 2 operation are supplied by Unit 1 4kV buses *only*:

ESW Pumps:	0P504A, B, C, D
Control Structure Chillers:	0K112A, 0K112B
480V Motor Control Centers:	0B517, 0B136, 0B527, 0B146

- The following common A.C. loads required for Unit 2 operation can be supplied from *either* Unit 1 *or* Unit 2 4kV buses through common load transfer switches:

480V Motor Control Centers: 0B516, 0B536, 0B526, 0B546

- All common D.C. loads and D.C. control power for all systems that are required for both Unit 1 and Unit 2 operation can be supplied from *either* Unit 1 *or* Unit 2 D.C. systems through common load transfer switches.