



# Pennsylvania Power & Light Company

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AUG 11 1995

U.S. Nuclear Regulatory Commission  
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SUSQUEHANNA STEAM ELECTRIC STATION  
RESPONSE TO 6/15/95 NOTICE OF DEVIATION  
PLA-4351 FILE NOS. A17-2/R41-2

Docket Nos. 50-387  
and 50-388

*References 1. Letter, J.R. White to R. G. Byram, "NRC Combined Inspection Report Nos. 50-387/95-08; 50-388/95-08 and Notice of Deviation," dated June 15, 1995.*

*2. PLA-4336, G.T. Jones to J.R. White, "Request for Extension for Response to Notice of Deviation," dated July 6, 1995.*

The purpose of this letter is to respond to the Notice of Deviation transmitted to PP&L in Reference 1. Reference 2 documents PP&L's approved request for a 30 day extension for providing the subject response. A simplified diagram of the equipment in question is attached for reference purposes.

## Statement of Deviation

The NRC statement of deviation is as follows (Reference 1):

"The Susquehanna Steam Electric Station Final Safety Analysis Report (FSAR), Section 8.3.1.8, states, in part, that each instrument AC power supply consists of one uninterruptible power supply (rectifier/charger, inverter, static transfer switch), a dedicated 250 Vdc sealed maintenance-free battery system, an external maintenance bypass switch panel, and a 208/120 V distribution panel. The FSAR further states, if the uninterruptible power supply (UPS) is inoperable or is to be removed from service for maintenance, the external maintenance bypass switch is positioned to bypass the UPS and supply the distribution panel directly from the alternate supply.

Contrary to the above, after UPS 2D240 failed a post-maintenance test on January 30, 1995, the external maintenance bypass switch was not positioned to bypass the UPS and supply the distribution panel directly from the alternate supply. The UPS was in its normal service

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alignment until April 15, 1995, when it failed to provide backup battery power or a transfer (to) its alternate supply in response to an electrical perturbation.”

## PP&L Response

### 1. *Reason for the deviation, or if contested the basis for disputing the deviation.*

Although PP&L does not believe that the FSAR establishes that a battery malfunction creates inoperability of the UPS, PP&L does not dispute the issues raised by the deviation. The deviation occurred due to the lack of sufficient administrative control governing the proper position of the maintenance bypass switch. The absence of such controls, coupled with a lack of clarity in the FSAR, resulted in the decision to leave the switch in its normal, rather than bypass, position.

### 2. *The corrective steps that have been taken and the results achieved.*

PP&L's efforts to date associated with the deviation have focused on evaluating the decision making process that led to the switch not being placed in the bypass position. It has been determined that a lack of clarity in the aforementioned FSAR statements contributed to the decision not to place the switch in bypass. The FSAR characterizes the UPS as "one uninterruptible power supply (rectifier/charger, inverter, static transfer switch)" and lists the battery as a separate part of the instrument AC power supply. Since the switch was to be placed in bypass "if the UPS is inoperable," the decision was found to be unaffected by the FSAR, because the battery, not the UPS, was malfunctioning.

This logic was based on the fact that the UPS units in question can operate without the 250 Vdc battery. Even with a loss of the battery, the UPS static transfer switch will transfer upon loss of the primary source to the alternate power source (assuming that the alternate source voltage has not degraded below minimum acceptable levels). Therefore, even though reserve battery power is unavailable, the UPS will provide a one time transfer to the alternate source, supplying uninterrupted power to the distribution panel.

The switch was left in the normal position based on the qualitative judgment of two key points: (1) the loss of both sources (i.e., failure at the 13.8 kv startup bus level or above) would produce the same end result regardless of the position of the maintenance bypass switch, i.e., the temporary deenergization of the non-vital instrument buses; and (2) if the individual loss of either the preferred or alternate source were to occur, it was more reliable to have two sources of power available for supplying the non-vital loads (with the maintenance bypass switch in the normal position, and the static transfer switch performing as described above) rather than transferring to the alternate and having no backup.

The event which occurred on April 15, 1995 resulted in a degraded voltage condition on both the primary and alternate supplies. This condition, coupled with the degraded battery, prevented power from being supplied to the non-vital instrument buses. If the external maintenance bypass switch had been placed in its bypass position (i.e., power aligned from the alternate source), power to the instrument buses would have been maintained, since the alternate source was only degraded momentarily, and was never completely lost.

Our subsequent evaluation of the potential impacts on the non-vital loads aligned to the UPS in question has led us to conclude that the optimum alignment when a battery is degraded or the UPS is inoperable is for the switch to be in the bypass position.

**3. *The corrective steps that will be taken to avoid future deviations.***

PP&L is taking the following actions to resolve this issue:

- a. Revising the FSAR to clarify the purpose of the maintenance bypass switch, and that its position will be controlled by plant procedures.
- b. Ensuring that this commitment is properly controlled through Operations procedures. This action will also ensure that the basis for any proposed future changes to this commitment are properly documented.
- c. Training of appropriate personnel on the new procedural requirements and their basis.

It should be noted that separate from these commitments, our corrective action program is addressing related issues concerning the reliability of the UPS and the associated batteries based on trending analysis of plant events associated with these components. Resolution of these issues will minimize the occurrence of off-normal conditions and thus minimize the need for using the maintenance bypass switch.

**4. *The date when corrective actions will be completed.***

Procedure revisions and training will be completed by September 1, 1995. The FSAR revision will be included in the next formal update, which is currently scheduled to occur after the upcoming Unit 2 7th refueling and inspection outage.

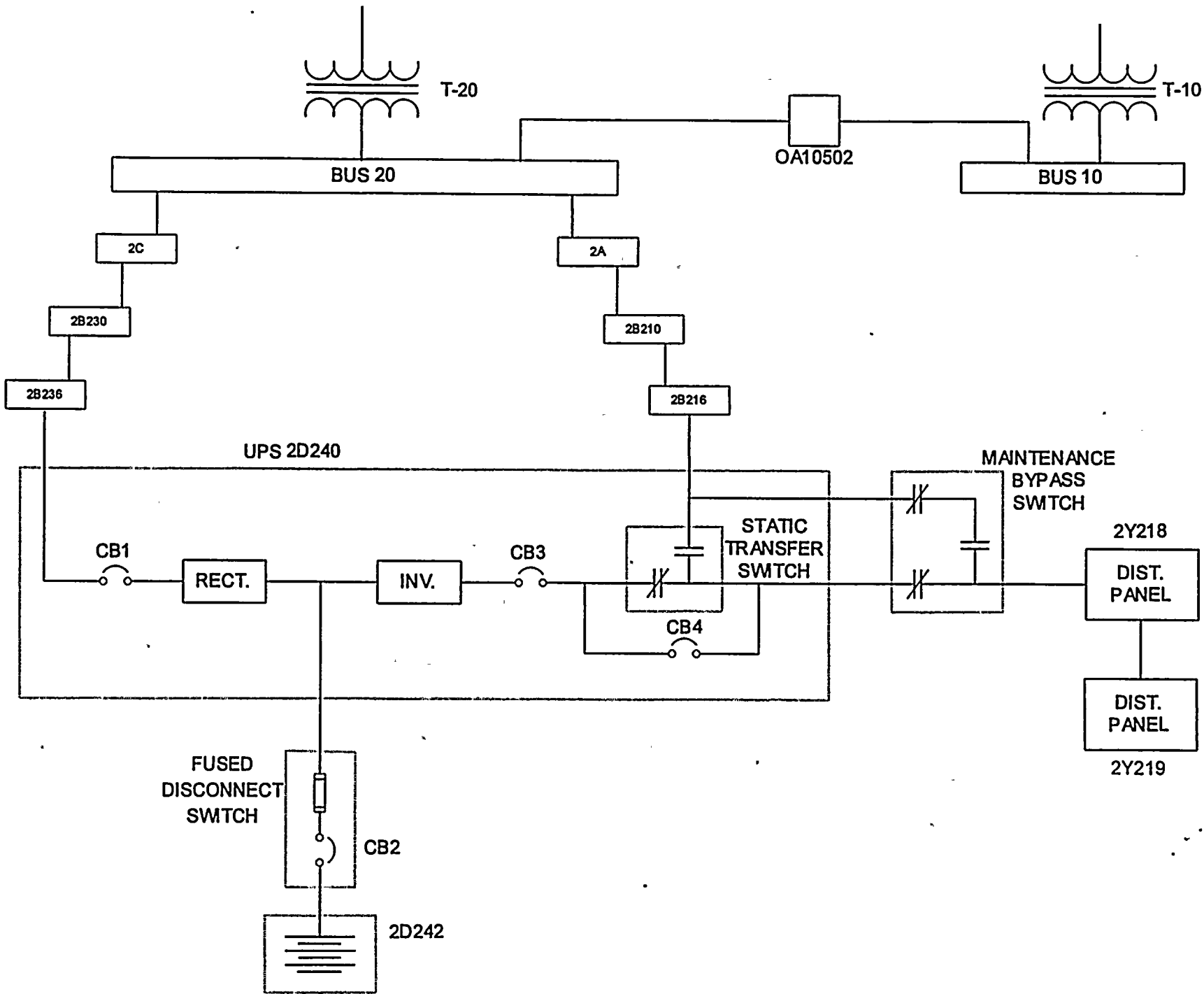
Very truly yours,

  
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copy: Regional Administrator - Region I  
Ms. M. Banerjee, NRC Sr. Resident Inspector  
Mr. C. Poslusny, Jr., NRC Sr. Project Manager  
Mr. W.P. Dornsife, Pa. DER



# UPS 2D240 POWER SUPPLY SIMPLIFIED DRAWING





# PRIORITY 1

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SUBJECT: Responds to NRC 950615 ltr re deviation noted in insp repts  
 50-387/95-08 & 50-388/95-08. Corrective actions: PP&L revising  
 FSAR to clarify purpose of maint bypass switch & that switch  
 position will be controlled by plant procedures. O  
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