UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

IE RA

January 16, 1979

Docket Nos. 50-289
50-320

Metropolitan Edison Company
ATTN: Mr. J. G. Herbein
Vice President - Generation
P. O. Box 542
Reading, Pennsylvania 19640

Gentlemen:

The enclosed IE Circular 79-02 is forwarded to you for information. If there are any questions related to your understanding of the suggested actions, please contact this office.

Sincerely,

Robert T. Carlson for Boyce H. Grier
Director

Enclosures:
1. IE Circular No. 79-02
2. List of IE Circulars Issued in the last 12 months

cc w/encls:
E. G. Wallace, Licensing Manager
J. J. Barton, Project Manager
R. C. Arnold, Vice President - Generation
L. L. Lawyer, Manager - Generation Operations - Nuclear
G. P. Miller, Superintendent
J. L. Seelinger, Unit 1 Superintendent
J. B. Logan, Unit 2 Superintendent
G. A. Kunder, Unit 2 Superintendent - Technical Support
I. R. Finfrock, Jr.
Mr. R. Conrad
G. F. Trowbridge, Esquire
Miss Mary V. Southard, Chairman, Citizens for a Safe Environment

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

IE Circular No. 79-02
Date: January 16, 1979

FAILURE OF 120 VOLT VITAL AC POWER SUPPLIES

Description of Circumstances:

On September 16, 1978, Arkansas Nuclear One - Unit 2, while in hot functional testing preceding initial criticality, suffered a degradation of both of the independent off-site power sources. This produced an undervoltage condition on the Engineering Safety Features (ESF) Buses and caused an inadvertent ESF actuation. The licensee determined that the ESF actuation occurred on a loss of at least two of the uninterruptable 120 volt vital AC power sources. Immediate investigation revealed that all four of the Solidstate Controls, Inc., (SCI) inverter static switches had automatically transferred to the alternate power supply (the 120 volt AC being supplied by transformers directly off the ESF buses rather than from the inverter output). Figure 1 (attached) shows the functional interconnection of the 120 volt AC power supply system.

A single conclusive cause of the undesired SCI inverter static switch transfer could not be identified. However, the following problems were discovered during subsequent investigation.

(a) The SCI inverters have circuitry to monitor the incoming DC voltage level which, on sensing a low voltage (nominally 104 DC volts for these inverters) will trip both input breakers to the inverter component after an adjustable time delay.

The settings of these time delay relays were not verified during either preoperational testing or subsequent maintenance. The time delay is necessary in order to accommodate transient loading conditions which may be encountered.

(b) On one SCI inverter, a DC fuse within the inverter component was found blown. The vendor indicated that this fuse will blow due to an excessive DC voltage to the inverter component caused by a transient on the 480 AC input. The licensee has subsequently reset the taps on the 480V to 120V th
limit the DC voltage to the inv
maximum rating in the event of

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