UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA ST., N.W., SUITE 3100
ATLANTA, GEORGIA 30303

MAR 1 [illegible] 1981

In Reply Refer To:
RII:JPO
50-491, 50-492
50-493, 50-488
50-489, 50-490

Duke Power Company
ATTN: L. C. Dail, Vice President
Design Engineering
P. O. Box 33189
Charlotte, NC 28242

Gentlemen:

The enclosed IE Information Notice No. 81-05 contains information that may be applicable to your facility regarding the consequences of a degraded dc system. No specific actions or responses are requested at this time; however, pending the results of an ongoing NRC staff evaluation of this matter, further licensee actions may be requested.

Should you have any questions regarding this information notice, please contact this office.

Sincerely,

James P. O'Reilly
Director

Enclosures:
1. IE Information Notice No. 81-05
2. List of Recently Issued
IE Information Notices

cc w/encl:
J. T. Moore, Project Manager

Q

SSINS No.: 6835
Accession No.:
8011040271
IN 81-05

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

March 13, 1981

IE INFORMATION NOTICE No. 81-05: DEGRADED DC SYSTEM AT PALISADES

Purpose:

The intent of this notice is to enhance nuclear power plant safety by improving the reliability of the direct current (dc) distribution system in nuclear power plants. Toward this end, this information notice alerts holders of operating licenses and construction permits of an event that degraded the dc system at the Palisades facility and jeopardized plant safety.

Description of Circumstances:

On January 6, 1981, while performing monthly surveillance tests on both station batteries, maintenance personnel inadvertently opened the breakers from both station batteries to their 125 volt dc buses and left them open for approximately one hour. We view this personnel error as a common-mode failure that, if left uncorrected, would lead to a complete station blackout [i.e., total loss of both alternating current (ac) and dc power].

Since the plant was in a normal mode of operation, dc power was being supplied by the ac system via the battery chargers; therefore, dc power was never interrupted during this period. Nevertheless, as described later, the safety of the plant was jeopardized. A loss of offsite power during this period would, in the absence of manual action, result in the loss of all control power, blocking the automatic transfer of power to the onsite diesel generators. In many designs, such losses would also block the starting of the diesels. In contrast, the Palisades design would not block the starting of the diesels; however, the loss of control power would block the connecting of the generators to their emergency buses so that a complete station blackout would still result. In either case, the blackout would persist until the battery breakers were manually reclosed or manual actions taken (e.g., manually closing the breakers from the diesel-generators to their emergency buses and the required down stream load breakers.) During this time the ability of the plant to remove decay heat would be severely restricted. Since the tripping of the battery breakers is not annunciated in the Palisades control room, a subsequent loss of offsite power would lead to an undetected common-mode failure. Such a failure would be difficult to diagnose, thereby limiting the operator's ability to take timely corrective action. Consequently, an inordinate amount of time could be required to bring the plant to a normal mode of decay heat removal.

Plants designed to conform with Regulatory Guide 1.47, "Bypassed and Inoperable Status Indication for Nuclear Power Plant Safety," will automatically alert the operator whenever a battery is disconnected from its bus, thereby precluding a Palisades type of event. As a corrective measure, Palisades is planning to install annunciators in the control room that will alert the operator whenever a station battery has been disconnected from its bus.

The information herein is being provided as an early notification of a possibly significant matter that is still under review by the NRC staff. Recipients should review the information for possible applicability to their facilities. If NRC evaluations so indicate, further licensee actions may be requested.

No written response to this Information Notice is required. If you desire additional information regarding this matter, contact the Director of the appropriate NRC Regional Office.

Attachment:
Recently issued IE Information Notices

Attachment
IN 81-05
March 13, 1981

RECENTLY ISSUED
IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
81-06	Failure of ITE Model K-600 Circuit Breaker	3/11/81	All power reactor facilities with an OL or CP
81-04	Cracking in Main Steam Lines	2/27/81	All power reactor facilities with an OL
81-03	Checklist for Licensees Making Notifications of Significant Events in Accordance with 10 CFR 50.72	2/12/81	All power reactor facilities with an OL
81-02	Transportation of Radiography Devices	1/23/81	All Radiography licensees
81-01	Possible Failures of General Electric Type HFA Relays	1/16/81	All power reactor facilities with an OL or CP.
80-45	Potential Failure of BWR Backup Manual Scram Capability	12/17/80	All PWR facilities with an OL or CP
80-44	Actuation of ECCS in the Recirculation Mode While in Hot Shutdown	12/16/80	All PWR facilities with an OL or CP
80-43	Failures of the Continuous Water Level Monitor for the Scram Discharge Volume at Dresden Unit No. 2	12/5/80	All power reactor facilities with an OL or CP
80-42	Effect of Radiation on Hydraulic Snubber Fluid	11/24/80	All power reactor facilities with an OL or CP

OL = Operating Licenses
CP = Construction Permits