

# PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

(215) 841-4502

S. J. KOWALSKI  
VICE-PRESIDENT  
NUCLEAR ENGINEERING

May 13, 1988

United States Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

SUBJECT: Interim Report for Limerick Generating Station, Unit 2  
Belleville Washer Failures in Cutler Hammer MCCs  
Limerick Generating Station, Unit 2  
NRC Construction Permit No. CPPR-107

REFERENCE: Telecon of PECO to NRC dated 4/15/88

FILE: QUAL 2-10-2 (SDR #231-2)

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Dear Sir:

In compliance with 10CFR Part 50.55(e), we are hereby submitting an interim report of failures of the Belleville washers in Cutler-Hammer MCCs at Limerick Generating Station Unit 2. The Philadelphia Electric Company (PECO) discussed these failures by telephone with the USNRC Regional Office of Inspection and Enforcement on April 15, 1988, after it was determined that the failures are reportable.

On 10/21/87, during checkout for cleanliness of nonsafety-related motor control centers (MCC) our Architect Engineer (AE)/Constructor identified cracked Belleville washers. The washers are used at the connection point between the vertical and horizontal bus sections for the purpose of maintaining pressure on the connection. Our AE installed replacement washers supplied by Cutler-Hammer on all Unit 2 nonsafety-related MCCs. Washers on MCCs common to Unit 1 and 2 have not been replaced.

After this discovery our AE inspected all Unit 2 safety-related MCCs which are of the same design and manufacturer, for similar washer failures and found no visible cracks.

Subsequent to the failed washer discovery, samples of the failed washers and other supplied washers were sent to our Metallurgical Laboratory to ascertain their metallurgical characteristics and determine the probable cause for failure. Results of this examination are documented in Metallurgical Laboratory Note No. 87-293 dated March 11, 1988. The examination concluded the washers failed due to

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intergranular decohesion due to hydrogen embrittlement. The embrittlement was induced during the manufacturing process, specifically the cleaning and plating operation, as a result of a deficiency in quality control by the manufacturer. In addition the lab discovered cracks that did not penetrate the surface coating and therefore surface visual examination in the field is not a reliable inspection method.

Although no failures have been identified to date on safety-related MCCs at Limerick Generating Station Unit 2, based on the laboratory's conclusion and the fact that the safety-related MCCs were manufactured by the same manufacturer, we believe the condition to be reportable.

The manufacturer has been contacted and requested to provide additional information regarding instances of failures, and his evaluation of the entire problem including recommendations.

A detailed report will be filed after the evaluation of the problem is completed and corrective action determined. It is expected that the detailed report will be completed by July 15, 1988.

Sincerely,

*John S. Kumpf*  
*for S. J. Kowalski*

DSM/ghr/05118802

Copy to: USNRC Site Resident Inspector  
United States Nuclear Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, PA 19406