

PHILADELPHIA ELECTRIC COMPANY

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FEB 15 1983

JOHN S. KEMPER  
VICE-PRESIDENT  
ENGINEERING AND RESEARCH

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-853

Mr. Ronald C. Haynes, Director  
Office of Inspection and Enforcement Region I  
United States Nuclear Regulatory Commission  
631 Park Avenue  
King of Prussia, PA 19406

Subject: Significant Deficiency Report No. 67  
Rockwell International Hydrogen Recombiners  
Equipment Failures as a Result of Qualification Testing  
Limerick Generating Station, Units 1 and 2

Attachments: a) Letter Rockwell International  
to USNRC Region IV, 10/21/82 (#82ESG-7725)  
b) Letter Rockwell International  
to USNRC Region IV, 11/3/82 (#82ESG-7948)  
c) Letter Rockwell International  
to USNRC Region IV, 11/3/82 (#82ESG-8085)

File: QUAL 2-10-2 (SDR #67)

Dear Mr. Haynes:

By means of the attached letters, we have been advised by Rockwell International of component failures occurring as a result of qualification testing. These failures have been previously reported to the USNRC under the provisions of 10CFR Part 21 by Rockwell International. The components that failed are; 1) ITT Barton Pressure Transducers, 2) Square-D Disconnect Switch, and 3) Timetrol SCR Power Controller. The details of the failures are described in attachments a), b), and c) respectively. Hydrogen recombiners similar to those tested have been supplied by Rockwell International for use at the Limerick Generating Station.

We consider the deficiencies described in the attachments as significant per 10CFR50.55(e) and are hereby notifying you as required.

We believe that the Rockwell International reports submitted under the provisions of 10CFR, Part 21 provide the information required for 10CFR50.55(e) reporting. Therefore, we anticipate that this letter will be our only report to you on these matters.

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United States Nuclear Regulatory Commission

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We will of course assure that the reported problems associated with Limerick hydrogen recombiners are corrected in accordance with instructions received from the vendor.

Sincerely,

*John S. Kuper*

Copy to: Director of Inspection and Enforcement  
United States Nuclear Regulatory Commission  
Washington, DC 20555

S. K. Chaudhary, US NRC Resident Inspector

Energy Systems Group  
8900 De Soto Avenue  
Cerritos Park California 91304

Telephone (213) 341-1000  
TWA 910-494-1237  
Telex 161017



Rockwell  
International

October 21, 1982

In reply refer to 82ESG7725

US Nuclear Regulatory Commission  
Region IV  
611 Ryan Plaza Drive  
Arlington, Texas 76012

Attention: Mr. John Collins, Administrator, Region IV

Gentlemen:

Subject: Report of Deviation/Defect (10CFR21)

Energy Systems Group is currently undertaking a program to establish IEEE-323 qualification status of the post-LOCA Hydrogen Recombiners delivered by us. This program is designed to umbrella equipment delivered in the past as well as current designs, and therefore specifies environmental conditions severe enough to satisfy any expected customer specifications.

As a result of this qualification effort to date, it has been determined that the ITT Barton pressure transducers, 4-20 ma,  $\Delta P$  or absolute pressure, Part Number D4R-29098 will not withstand our test parameter for radiation of  $1 \times 10^7$  rads (and may not operate satisfactorily after radiation exposures in excess of  $1 \times 10^4$  rads TID due to gradual drifting in readings resulting in ultimate total failure). These pressure transducers are installed in several delivered Recombiners and are used to measure Recombiner inlet gas flow, total flow, and inlet gas pressure. A total failure of the  $\Delta P$  units would result in Recombiner shutdown, and the loss of its intended safety function. Plants to which this report applies are given in Table I, along with the radiation environment indicated by their specifications.

TABLE I

<u>Facility</u>	<u>No. of Recombiners</u>	<u>Date Shipped</u>	<u>Specified Radiation Requirement (TID)</u>
Limerick 1 & 2	4	06-77	$6 \times 10^5$ rads
La Salle Co. 1 & 2	2	08-78	$1.7 \times 10^5$ rads
Nine Mile Point 2	2	02-79	$1.7 \times 10^5$ rads

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Rockwell  
International

Mr. J. Collins  
US Nuclear Regulatory Commission  
Region IV  
Arlington, Texas

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These transducers should be replaced with nuclear rated transducers. For an operating plant (LaSalle only from the Table I list) it is possible to operate the Recombiners with a relatively simple, temporary wiring modification in the control cabinet which will allow operation of the recombiner and performance of its safety function in the manual flow control mode. An Engineering Field Bulletin will be issued to provide instructions for the temporary fix by October 29, 1982. In the meantime, a preliminary draft of the field bulletin change is described in our letter of October 21, 1982 to the La Salle plant operator notifying them of this potential problem with the transducers. The permanent modification (replacement of the transducers) can then be made during plant shutdown when access to the recombiner skid is possible.

These ITT Barton transducers were also installed in the E. I. Hatch and Fermi Recombiners. Although there were no radiation requirements for these plants, the Utilities are being notified of the transducer operational limits so that they can evaluate the impact to them and take any action deemed appropriate. Since Hatch is an operating plant, they are also receiving the temporary wiring instructions for operating in the normal flow control mode as noted above for La Salle.

If you have any further questions or need more information, please call me at (213) 700-3926.

Very truly yours,

A handwritten signature in cursive script, appearing to read "D. C. Empey".

D. C. Empey  
Director  
Quality Assurance