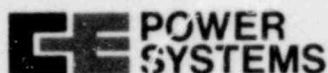


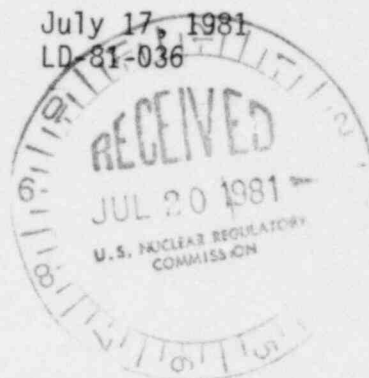
C-E Power Systems
Combustion Engineering, Inc.
1000 Prospect Hill Road
Windsor, Connecticut 06095

Tel. 203/688-1911
Telex: 99297



Designated Original
P. Paskal

Mr. Victor Stello, Jr., Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555



Subject: Steam Generator Feeding Damage

Dear Mr. Stello:

Combustion Engineering (C-E) was recently informed of the discovery of severe damage to the steam generator feeding in one steam generator at San Onofre Unit 2 which is currently in the final stages of construction and testing. Attached for your information is C-E Infobulletin 81-04 which summarizes the currently known details. It is presumed that the damage occurred during a feedline water-hammer test conducted on March 30, 1981.

Preliminary evaluation indicates that the water-hammer test conditions at San Onofre were considerably more severe than those conducted at other C-E plants. Periodic steam generator inspections at other C-E plants have not revealed feeding damage nor have operational difficulties with feedwater flow been observed. C-E is currently in the process of informing owners of C-E NSSS's of this event.

Very truly yours,

COMBUSTION ENGINEERING

E. A. Kennedy
for A. E. Scherer
Director
Nuclear Licensing

AES:dac

Attachment

cc: D. Eisenhut NRC/NRR

IE 22
S/1
ADD: C E
V STELLO 11

8107210328 810717
PDR ADDCK 05000361
S PDR

AN ADVISORY CONCERNING A TECHNICAL DEVELOPMENT RELATED TO THE APPLICATION OR OPERATION OF NUCLEAR PLANT EQUIPMENT SUPPLIED BY COMBUSTION ENGINEERING.

July 16, 1981

STEAM GENERATOR FEEDRING DAMAGE

Introduction

An internal inspection of a steam generator several months after performing a feedline water-hammer test at a plant under construction revealed that a portion of the feedring in one steam generator was severely damaged. The second steam generator (not involved in the water-hammer test) was also inspected and found undamaged. This Infobulletin provides preliminary notification and currently known details concerning this event.

Discussion

On March 30, 1981, while performing the feedline water-hammer test during hot functional testing, plant personnel noted a noise believed to be associated with the test. Subsequent visual inspections of the main feedwater system did not identify any failed or displaced components external to the steam generator. Therefore, the noise was attributed to check valve slamming during the test. Following completion of the water-hammer test further hot functional testing was completed, the plant cooled down and the steam generators were placed in wet layup. No indication of difficulty in injecting feedwater into the steam generators was noted.

The water-hammer test performed on the damaged steam generator deliberately uncovered the feedring for over two hours and therefore was not operationally representative. Full cold auxiliary feedwater flow from two pumps was then rapidly initiated.

Damage is described as collapse of the feedring from its nominal 12" diameter to as little as a 4" minor axis oval. The damaged portion of the feedring is reported to extend through an arc of approximately 235° around the feedring. Pieces of the feedring support system and some parts attached to the feedring were also noted to be damaged or missing.

Status

A detailed inspection and evaluation by both C-E and the utility is in progress to assess damage to the feedring and its support system and to assist the utility in performing needed repairs. Preliminary evaluation suggests that much slower feed restoration ramp rates in the case of sustained abnormally low steam generator inventory provide adequate system performance and greatly reduce component duty. Automatic actuation of auxiliary feedwater flow immediately after a transient is not impacted.

THE INFORMATION CONTAINED IN THIS ENGINEERING INFOBULLETIN IS PROVIDED BY C-E, UNDER THE TERMS OF THE NUCLEAR STEAM SUPPLY SYSTEM CONTRACT FOR THE APPLICABLE PLANT, AS A SERVICE TO YOUR ORGANIZATION. AS A RESULT, AND SINCE OPERATION OF YOUR PLANT IS COMPLETELY WITHIN YOUR CONTROL AND RESPONSIBILITY, AND INVOLVES MANY FACTORS NOT WITHIN C-E'S KNOWLEDGE, THIS INFORMATION MAY BE UTILIZED ONLY WITH THE UNDERSTANDING THAT C-E MAKES NO WARRANTIES OR REPRESENTATIONS, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, WITH RESPECT TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION CONTAINED IN THIS BULLETIN, AND THAT C-E DISCLAIMS, AND YOU ASSUME, ALL LIABILITY, IN NEGLIGENCE OR OTHERWISE, AS A RESULT OF YOUR USE OF THIS INFORMATION.