**Department of Energy**
Washington, D.C. 20545

Docket No. 50-537
HQ:S:83:206

FEB 02 1983

Dr. J. Nelson Grace, Director
CRBR Program Office
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C.  20555

Dear Dr. Grace:

CLINCH RIVER BREEDER REACTOR PLANT - CONTROL AND PROTECTION SYSTEM
INTERACTION

Reference:  Letter HQ:S:82:147, Longenecker to Check, "Instrumentation
            (Chapter 7) Working Meeting - Additional Information,"
            dated December 14, 1982

Enclosed are two pages that were inadvertently left out of our response
to November item 1 transmitted by the referenced letter.  The revised
Preliminary Safety Analysis Report (PSAR) pages will be incorporated
into a future PSAR amendment.

Any questions regarding the information provided or further activities
can be addressed to Mr. R. Rosecky (FTS 626-6149) or Mr. A. Meller
(FTS 626-6355) of the Project Office Oak Ridge staff.

Sincerely,

John R. Longenecker
Acting Director, Office of
  Breeder Demonstration Projects
Office of Nuclear Energy

Enclosure

cc:  Service List
     Standard Distribution
     Licensing Distribution

Handling and Display system alerts the operator to significant deviations between redundant RSS analog instrumentation used to monitor a reactor or plant parameter for the RSS.

## Control and Protection System Interaction

The Reactor Shutdown System and the Plant Control System have been designed to assure stable reactor plant operation and to protect the reactor plant in the event of worst case postulated Plant Control System failures. The RSS is designed to protect the plant regardless of control system action or lack of action. Isolation devices will be used between protection and control functions. Where this is done, all equipment common to both the protection and control function is classified as part of the RSS. Equipment sharing between protection and control is minimized. Where practical, separate equipment (sensors, signal conditioning, cabling penetrations, raceways, cabinets, monitoring etc.) is provided. The sharing of components does not lead to a situation where a single event both initiates an incident through Plant Control System malfunction and prevents the appropriate RSS action.

REPLACE WITH [INSERT 7.2-15a]

## Periodic Testing

The Reactor Shutdown System is designed to permit periodic testing of its functioning including actuation devices during reactor operation. In the Primary RSS, a single instrument channel is tested by inserting a test signal at the sensor transmitter and verifying it at the comparator output. A logic train is tested by inserting a very short test signal in 2 comparator inputs and verifying that the voltage on the scram breaker trip coils decrease. Because of the time response of the undervoltage relay coils of the scram breakers and very short duration of the test signal, the reactor does not trip. In the Secondary RSS, an instrument channel can be tested from sensor

Amend. 73
Nov. 1982

INSERT 7.2-15a

The sharing of components does not lead to a situation where a single event both initiates an incident through Plant Control System malfunctions and prevents reactor shutdown system action. Where such a malfunction in a shared component requires action by the shutdown systems this will take place with any resulting core transient no greater than that associated with the normal operation of the shutdown systems. Also, this performance will not be affected by the removal from service of a shutdown system channel for testing and the simultaneous presence of a single random failure in the shutdown system in addition to the malfunction which initiates the transient (both are assumed to occur in the particular shutdown system affected by the malfunction).

Median select circuits are used by the plant control systems for those instrumentation channels common to both protection and control systems. This allows continued operation of the control systems during testing of the reactor shutdown systems. These circuits will be seismically qualified for an operational basis earthquake.