

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401  
400 Chestnut Street Tower II

April 10, 1984

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Denton:

In the Matter of the ) Docket Nos. 50-259  
Tennessee Valley Authority )

We are enclosing some additional information regarding the February 14, 1984 loss of normal shutdown cooling event on Browns Ferry unit 1. The information was requested by R. Bernero of NRC. Please let us know if you have additional questions.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

*L. M. Mills*  
L. M. Mills, Manager  
Nuclear Licensing

Subscribed and sworn to before  
me this 10<sup>th</sup> day of April 1984.

*Paulette H. White*  
Notary Public  
My Commission Expires 9-5-84

Enclosure

cc (Enclosure):

U.S. Nuclear Regulatory Commission  
Region II  
ATTN: James P. O'Reilly, Regional Administrator  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30303

Mr. R. J. Clark  
Browns Ferry Project Manager  
U.S. Nuclear Regulatory Commission  
7920 Norfolk Avenue  
Bethesda, Maryland 20814

8404160139 840410  
PDR ADDCK 05000259  
S PDR

*Aool*  
||

## ENCLOSURE

Recent news sources have quoted Representative Edward Markey as having concerns regarding the February 14, 1984 incident at Browns Ferry Nuclear Plant (BFN). We also have a copy of the letter that Representative Markey sent to your Chairman Pallidino detailing these concerns. The incident of February 14, 1984, occurred when one of the normal decay heat removal process systems became temporarily inoperable due to an electrical failure of a valve. Another normal system was used for removal of decay heat, and the plant was brought to a cold shutdown. The inoperable system was subsequently repaired. For details, see the attached sequence of events.

As we understand it, Representative Markey's particular concern is the relationship of this incident to the conclusions in the BFN Interim Reliability Evaluation Program (IREP) Report NUREG-CR/2802. That report stated that accident sequences involving failures in the Residual Heat Removal (RHR) System represent a significant contributor to core melt frequency at BFN.

TVA has numerous technical disagreements with the IREP Report, which we believe, if resolved, would have a substantial effect on the conclusions. However, it is important to note that the event which occurred at BFN should not be categorized as an accident sequence evaluated by IREP. The incident at BFN was the temporary loss of the normal shutdown cooling capability of the RHR system, which is one of two modes of RHR system operation capable of removing decay heat from the core. Another normal means of removing decay heat, the main condenser, was operating throughout the event so that cold shutdown conditions were achieved and maintained. The safety-grade portions of the RHR system were also available and would have been used had the need arisen. The accident sequences identified by the IREP study considered that normal methods for removing decay heat, such as the normal shutdown cooling function of the RHR system and the main condenser, plus all safety-grade methods were not available. The event on February 14, 1984, clearly did not approach such a degraded condition.

In summary, the event on February 14, 1984, clearly did not approach the conditions causing concern in the IREP Report and did not represent an "accident waiting to happen." We believe that BFN is being operated safely, and we believe NRC agrees with this conclusion.

## ATTACHMENT

BROWNS FERRY (BFN) ALERT ON FEBRUARY 14, 1984  
SEQUENCE OF MAJOR EVENTS

<u>Time (CST)</u>	<u>Description</u>
0107	BFN unit 2 was shut down in response to a potential design nonconformance on the air-release valves on the RHRSW/EECW pumps. Unit 3 was in a refueling outage.
0245	Unit 1 was shut down for the same reason.
0800	Units 1 and 2 were approaching cold shutdown using the condensate and CRD systems for vessel makeup with the condenser being used for heat rejection and pressure control. In addition, RWCU was being used with letdown to the condenser to aid in level control. Unit 1 was at 10 psig and 230°F indicated when the operators attempted to place the RHR system in the shutdown cooling mode. However, in attempting to realign in this mode, the common RHR shutdown (S/D) cooling suction line inboard isolation valve (FCV-74-48) failed to open. This valve failure rendered the RHR S/D cooling mode inoperable and an alert was declared as required by the BFN Radiological Emergency Plan. All TVA Emergency Centers were staffed and NRC and the State of Alabama were notified. All required safety modes of the RHR systems were still operable and unaffected by the valve failure.
0845	Obtained unit 1 drywell (DW) atmosphere sample to allow purging to de-inert the drywell. This would allow operators to enter the DW and manually open FCV-74-48.
0907	Electricians confirmed by meggar testing that the valve operator motor was shorted out.
0943	Unit 1 DW purging was begun.
0950	A spare valve operator motor was confirmed to be onsite for replacement.
1008	Unit 1 achieved cold shutdown using the condenser for heat rejection.
1038	Unit 2 was being placed in S/D cooling when the 2A RHR pump failed to start because of a faulty breaker test switch. Of the other three available RHR pumps, 2C was started and unit 2 was placed in S/D cooling.

1122 Unit 2 achieved cold S/D using the RHR system in the S/D cooling mode.

1202 Unit 2, 2A RHR pump breaker was repaired and made operable.

1334 Initially entered unit 1 DW for air sampling.

1442 DW air samples were acceptable and DW entry for valve repair was started.

1510 FCV-74-48 was confirmed visually to be closed.

1520 Lost auxiliary boilers being used to maintain steam seals and operate steam jet air ejectors on the condensers. Began losing some vacuum on unit 1. Mechanical vacuum pumps were available as a backup to steam jets.

1534 One auxiliary boiler was returned to service.

1538 Second auxiliary boiler was returned to service.

1548 FCV-74-48 was manually opened and maintenance personnel began removal of the faulty valve operator motor.

1655 Surveillance was completed on the RHR system to allow placing reactor in S/D cooling.

1657 FCV-74-48 motor was removed from valve.

1715 RHR pump 1A operated with the RHR system in S/D cooling.

1725 The alert was cancelled upon restoration of the RHR S/D cooling mode.