

August 8, 2003

Dr. Jon M. Owings, MD, FACS  
111 Jenni Leigh Dr.  
Huntsville, AL 35806

Dear Dr. Owings:

I am responding to your May 29, 2003, letter to Senator Richard Shelby which was recently forwarded to the U.S. Nuclear Regulatory Commission (NRC). In your letter, you discussed concerns related to the main steam safety/relief valves (S/RVs) at the Browns Ferry Nuclear Plant. Your concerns are related to steam corrosion causing deterioration and sticking of the reactor's main steam pressure relief valves, leakage of steam, and overpressurization if sticking valves do not release. Also, you expressed concerns about the increased operating cost, lost revenue associated with steam leakage through the valve, and unscheduled shutdowns for repairs.

Although your letter did not specifically mention the S/RV pilot disks, we are aware that corrosion of pilot disks, an internal component in the S/RV, has resulted in setpoint drift. Therefore, it is our understanding that you are concerned about the current S/RV pilot disks and the need to replace them with a new design. Our evaluation of your concerns is discussed below.

Regarding the tendency of the S/RV pilot disks to stick during valve opening and, thus, cause the S/RVs to open at higher pressures than designed, the licensee performs routine setpoint testing of the S/RVs in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) to ensure that the necessary setpoint criteria are met. The operational history has shown that the installed pilot disks may develop corrosion bonding, which can raise the opening setpoints of the S/RVs above values allowed by plant technical specifications. At Browns Ferry Units 2 and 3, the facility mentioned in your letter, the licensee installed pressure switches that ensure the S/RVs will open at the correct setpoints. The pressure switches provide a signal to the S/RV pneumatic actuators which in turn provide a large motive force to open the pilot disks, thereby, opening the S/RVs even if there is corrosion bonding. The installed pilot disks, the amount of setpoint increase experienced, and the installed pressure switches are described in more detail in Licensee Event Report 50-296/2000-006-00 (enclosed). Even without the pressure actuation switch system, the setpoint drift experienced would not have caused any safety limits to be exceeded or resulted in a serious overpressurization event. There are multiple S/RVs installed at Browns Ferry Units 2 and 3 such that adequate overpressure protection is provided, even if several S/RVs have significant setpoint drift. In addition, the control room operator can manually open the S/RVs to depressurize the reactor if necessary.

Regarding the tendency for the S/RVs to leak steam into the suppression pool, the licensee also performs leakage testing on the S/RVs in accordance with the ASME Code to ensure that leakage is within applicable, allowable regulatory limits. However, the operational history has shown that S/RV pilot disks may develop seat leakage occasionally during a plant operational cycle. In accordance with the plant administrative guidelines, the licensee will take specific actions, including shutdown, if the leakage exceeds specified limits. Such leakage is directed to

the suppression pool where it is condensed, resulting in no challenge to plant safety systems. In the unlikely event that seat leakage results in inadvertently opening the S/RV, the full S/RV discharge is also directed to the suppression pool where it is condensed. The consequences of such an event are bounded by the licensee's safety analysis, which demonstrates that no safety limits are exceeded. Your letter specifically refers to a recently leaking S/RV. Among other items, this S/RV was replaced by the licensee during a brief planned Unit 3 outage in June 2003. Your letter also refers to the increased operating cost and lost revenue associated with steam leakage through the valve seats, and unscheduled shutdowns for repairs. While of concern to the licensee, these are not public health and safety issues regulated by the NRC.

Regarding the need to replace the installed S/RV pilot disks with a new design, the NRC staff has determined that the currently installed S/RVs meet NRC's regulations and that the issue of setpoint drift in the S/RVs due to corrosion bonding to the valve seats has been acceptably resolved at Browns Ferry Units 2 and 3. Any modifications to or replacement of the valves to improve their reliability are made at the licensee's discretion. However, any licensee who elects to modify these valves must ensure that the valves continue to meet all regulatory requirements.

Based on the above, we find that the current S/RVs at Browns Ferry are adequate to protect the public health and safety and, therefore, we do not plan any further action on your concerns. Thank you for bringing these issues to the attention of the NRC, and we hope you find this information responsive to your concerns.

Sincerely,

*/RA/*

William D. Travers  
Executive Director  
for Operations

Docket Nos. 50-260 and 50-296

Enclosure: As stated

cc w/encl: See next page

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Sincerely,

/RA/

William D. Travers  
Executive Director  
for Operations

Docket Nos. 50-260 and 50-296

Enclosure: As stated

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Distribution: See attached list

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**Response: ML032040036 Package: ML032040026**

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Tennessee Valley Authority

**BROWNS FERRY NUCLEAR PLANT**

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Dated: August 8, 2003

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