

Mr. J. A. Scalice
 Chief Nuclear Officer and
 Executive Vice President
 Tennessee Valley Authority
 6A Lookout Place
 1101 Market Street
 Chattanooga, Tennessee 37402-2801

May 28, 1999

SUBJECT: WATTS BAR UNIT 1 - REQUEST FOR ADDITIONAL INFORMATION - GENERIC LETTER 95-07, "PRESSURE LOCKING AND THERMAL BINDING OF SAFETY-RELATED POWER-OPERATED GATE VALVES" (TAC NO. M93537)

Dear Mr. Scalice:

On August 17, 1995, the U.S. Nuclear Regulatory Commission (NRC) issued Generic Letter (GL) 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves," to request that licensees take actions to ensure that safety-related power-operated gate valves that are susceptible to pressure locking or thermal binding are capable of performing their safety functions.

In a letter of February 13, 1996, Tennessee Valley Authority (TVA) submitted its 180-day response to GL 95-07 for Watts Bar Nuclear Plant, Unit 1. In a letter dated March 15, 1996, TVA supplemented its 180-day response to GL 95-07. The NRC staff reviewed TVA's submittals and sent them a request for additional information (RAI) on June 28, 1996. In a letter of July 26, 1996, TVA provided the additional information.

The NRC staff has reviewed the TVA GL 95-07 submittals for the Watts Bar Nuclear Plant, Unit 1, and has determined that additional information, as identified in Enclosure 1, is necessary to complete its safety evaluation. The RAI in Enclosure 1 has been developed based on a discussion of the points in Enclosure 2 with representatives of your staff on May 11, 1999. More recently, your staff indicated that TVA plans to respond to the Enclosure 1 RAI within 60 days of receipt of this letter.

Sincerely,
 Original signed by:
 Robert E. Martin, Senior Project Manager, Section 2
 Project Directorate II
 Division of Licensing Project Management
 Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosures: As stated

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

May 28, 1999

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Chief Nuclear Officer and
Executive Vice President
Tennessee Valley Authority
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1101 Market Street
Chattanooga, Tennessee 37402-2801

SUBJECT: WATTS BAR UNIT 1 - REQUEST FOR ADDITIONAL INFORMATION - GENERIC
LETTER 95-07, "PRESSURE LOCKING AND THERMAL BINDING OF SAFETY-
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Sincerely,

A handwritten signature in cursive script that reads "Robert E. Martin".

Robert E. Martin, Senior Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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SECOND REQUEST FOR ADDITIONAL INFORMATION

WATTS BAR NUCLEAR PLANT, UNIT 1

RESPONSE TO GENERIC LETTER 95-07,

"PRESSURE LOCKING AND THERMAL BINDING

OF SAFETY-RELATED POWER-OPERATED GATE VALVES"

Tennessee Valley Authority's submittal dated March 15, 1996, states that the safety injection system (SIS) high-pressure injection valves 1-FCV-63-25 and 1-FCV-63-26 are susceptible to pressure locking and that the calculation that demonstrates that these valves will operate during a pressure-locking condition assumes that an SIS high-pressure pump is operating when the valves receive a signal to open. The staff requests that Tennessee Valley Authority reevaluate the potential for valves 1-FCV-63-25 and 1-FCV-63-26 to pressure lock in the event that an SIS high-pressure pump is not operating when the valves receive a signal to open and discuss the results of the evaluation. The evaluation should explain (1) when valves 1-FCV-63-25 and 1-FCV-63-26 are sequenced to automatically open in relationship to the automatic restart of the SIS high pressure pumps on a loss of off-site power concurrent with a loss of coolant accident, and (2) if there are any pressure locking scenarios where the valves will operate at locked rotor conditions until an SIS high pressure pump develops full discharge pressure.

The U.S. Nuclear Regulatory Commission has accepted operation of motor-operated valve motor actuators for approximately 1 second at locked rotor conditions because testing performed by Idaho National Engineering & Environmental Laboratory (NUREG/CR-6478) demonstrates that the capability of the actuator does not degrade for that period of time. If applicable, explain how long valves 1-FCV-63-25 and 1-FCV-63-26 would operate at locked rotor conditions. If greater than approximately one second, then explain how any reduction in actuator capability due to operation at locked rotor was accounted for or describe any testing that demonstrates that actuator capability will or will not degrade after operating at locked rotor for greater than approximately one second. Discuss long-term corrective action, and any short-term corrective action to ensure operability if long-term corrective action is not complete.

Enclosure 1

1. Valve 1-FCV-1-16, steam generator 1 steam supply to the auxiliary feedwater pump turbine, is normally shut. Explain if there are any other gate valves that are closed during normal operation that must automatically open to align steam to the turbine.

2. Your submittal dated March 15, 1996, states that the safety injection system (SIS) high pressure injection valves, 1-FCV-63-25 and 1FCV-63-26, are susceptible to pressure locking. The calculation that demonstrates that these valves will operate during a pressure locking condition assumes that the SIS high pressure pump is operating when the valves open. On a loss of off-site power do the SIS high pressure pumps stop and restart and are the valves sequenced to open after the pumps have restarted? Are there any pressure locking scenarios where the valves will operate at locked rotor conditions until the pumps develops full discharge pressure?

3. Note 28 of Attachment 3 of your March 15, 1996, submittal states that the safety injection pump cold leg injection valves, 1-FCV-63-152 & 153, are normally open and that their only active valves stroke is to close during the transition from cold leg to hot leg recirculation. Explain if these valves are required to open to transition back to cold leg recirculation and if the valves are susceptible to pressure locking when reopened.

Mr. J. A. Scalice
Tennessee Valley Authority

cc:

Senior Vice President
Nuclear Operations
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. Jack A. Bailey, Vice President
Engineering & Technical
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. Richard T. Purcell, Site Vice President
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

General Counsel
Tennessee Valley Authority
ET 10H
400 West Summit Hill Drive
Knoxville, TN 37902

Mr. N. C. Kazanas, General Manager
Nuclear Assurance
Tennessee Valley Authority
5M Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. Mark J. Burzynski, Manager
Nuclear Licensing
Tennessee Valley Authority
4X Blue Ridge
1101 Market Street
Chattanooga, TN 37402-2801

WATTS BAR NUCLEAR PLANT

Mr. Paul L. Pace, Manager
Licensing and Industry Affairs
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

Mr. William R. Lagergren, Plant Manager
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

Senior Resident Inspector
Watts Bar Nuclear Plant
U.S. Nuclear Regulatory Commission
1260 Nuclear Plant Road
Spring City, TN 37381

County Executive
Rhea County Courthouse
Dayton, TN 37321

County Executive
Meigs County Courthouse
Decatur, TN 37322

Mr. Michael H. Mobley, Director
TN Dept. of Environment & Conservation
Division of Radiological Health
3rd Floor, L and C Annex
401 Church Street
Nashville, TN 37243-1532