



Prochnow PT21

GE Nuclear Energy

General Electric Company  
175 Curtner Avenue, San Jose, CA 95126

November 15, 1989  
GBSLTR.056  
MFN-087-89

U.S. Nuclear Regulatory Commission  
Office of Nuclear Reactor Regulation  
Washington, D. C. 20555

**Subject:            Germane to Safety - Single Turbine Control  
Valve Closure**

**Attention:        Carl H. Berlinger, Chief  
Generic Communications Branch**

Please find the attached memo of my telephone call to R. J. Kiessel of your office on November 15, 1989. The call provided information about a postulated single Turbine Control Valve closure event recently evaluated.

Very truly yours,

G. B. Stramback  
Safety Evaluation Programs Manager

Attachment

cc: L. S. Gifford (GE-Rockville)  
R. C. Mitchell  
PRC File

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PDR PT21 EMVGENE  
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MEMO OF TELEPHONE CALL

DATE: November 15, 1989  
TIME: 10:30 AM  
PERSON CALLING: G. B. Stramback *GBS*  
PERSON CALLED: Dick Kiessel (NRC-NRR, 301-492-1154)  
SUBJECT: Single Turbine Control Valve Closure Event

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Dick Kiessel was called in order to inform the NRC of a condition determined to be not reportable but considered to be Germane-to-Safety. This conclusion is based upon GE completing its evaluation as to reportability under 10 CFR Part 21.

Background

Hardware single failure potential exists in all reactors. Some of these potential failures in a BWR could cause closure of one turbine control valve (TCV) with only high neutron flux or high pressure scram protection available. If a turbine control valve closes slowly, the neutron flux rise may not be sufficient to initiate protective action and a scram would be delayed until the pressure setpoint is reached. Under these conditions a large  $\Delta$ CPR (relative to the GETAB transients) may occur with the potential for exceeding the Minimum Critical Power Ratio (MCPR) safety limit.

GE has evaluated this potential event and determined that BWR/2-6 plants have sufficient margin to stay above the MCPR safety limit. When a plant is operated in accordance with the GE specification for the maximum combined steam flow limiter (MCFL) setting, sufficient total steam flow capacity exists to avoid exceeding the MCPR safety limit. However, there is the possibility that a utility may not operate with their MCFL setpoint consistent with the GE specification. Because of this, and each utility's ability to change this operating value in the future, it is prudent to inform all the utilities of this potential concern.

### Basis

Sensitivity studies were performed to evaluate the effect of valve closing time on  $\Delta$ CPR. The results of this engineering assessment show that BWR/2 through BWR/5 plants have sufficient margin to accommodate a single turbine control valve closure. This same conclusion applies to the BWR/6 plants provided that the control system adjustments permit at least 97% total steam flow (including bypass) with one TCW closed. This will be the case when the MCFL setpoint established by GE is in place. Because of this, it is determined that a reportable condition does not exist within GE's scope of supply.

### Corrective Actions

GE will inform all BWR utilities of this information as Germane to Safety. Because it is possible that some plants may now or in the future be operating with a lower than specified MCFL setting, GE will also issue a Service Information Letter (SIL) to advise all BWR owners of the need to maintain the MCFL setpoint at the GE specified valve so that a Technical Specification safety limit is not exceeded. In addition, the SIL will advise BWR/6 owners that the other multiple settings and adjustments of the control system are interrelated with MCFL and can contribute to an inadvertent reduction of existing MCPR operating margins.