



South Carolina Electric & Gas Company  
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July 8, 1988

Document Control Desk  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: Virgil C. Summer Nuclear Station  
Docket No. 50/395  
Operating License No. NPS-12  
NRC Bulletin No. 88-04  
Potential Safety-Related Pump Loss

Gentlemen:

This letter is provided in response to NRC Bulletin No. 88-04 which requested South Carolina Electric & Gas (SCE&G) to perform an investigation and correct as applicable two miniflow design concerns. The first concern involves the potential for dead-heading of one or more pumps in safety-related systems that have a miniflow line common to two or more pumps or other piping configurations that do not preclude pump-to-pump interaction during miniflow operation. A second concern was whether or not the installed miniflow capacity is adequate for even a single pump in operation.

The analysis performed by SCE&G focused on active safety-related centrifugal pumps which perform safety functions required to avoid or mitigate the consequences of abnormal operational transients or accidents. A summary of the components are as follows:

<u>Component</u>	<u>Tag Number</u>
Centrifugal Charging Pumps	XPP-43A, B, C-CS
Residual Heat Removal Pumps	XPP 31A, B-RH
Reactor Building Spray Pumps	XPP-38A, B-SP
Spent Fuel Cooling Pumps	XPP-32A, B-SF
Component Cooling Pumps	XPP-01A, B, C-CC
Service Water Pumps	XPP-39A, B, C-SW
Service Water Booster Pumps	XPP-45A, B-SW
Emergency Feedwater Pumps (Motor)	XPP-21A, B-EF
Emergency Feedwater Pump (Turbine)	XPP-08-EF
HVAC Chilled Water Pumps	XPP-48A, B, C-VU
Diesel Generator Intercooler Pumps	XPP-1A/B-PP9-DG
Diesel Generator Jacket Water Pumps	XPP-1A/B-PP8-DG

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Upon completion of the analysis on all components, except the emergency feedwater pumps, it was concluded that there was no active safety-related centrifugal pump with miniflow piping system configuration that has a pump-to-pump interaction that could result in the dead-heading of one or more pumps. The analysis results to date indicate that in each case the required thermal minimum flow is well below the actual minimum pump flow (i.e., the actual pump minimum flow is adequate to prevent pump overheating, cavitation and potential short-term failure) and the actual pump minimum flows are sufficient to preclude long-term wear and eventual failure due to mechanical (vibration from internal recirculation) mechanisms.

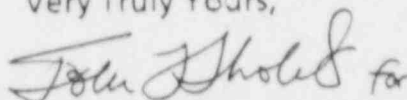
SCE&G has requested information on the minimum flow required to prevent degradation from hydraulic instability from the manufacturer of the emergency feedwater pumps. This vendor information is expected to be received by July 29, 1988. The emergency feedwater pumps meet the original vendor's design minimum flow rate during standby recirculation. Furthermore, during testing these pumps are observed and measured for elements such as flow rate, discharge head, bearing temperature and pump vibration to identify any pump operational problems. Therefore, it is concluded that the current operation of the motor driven pumps is acceptable until the vendor can verify the adequacy of the minimum flow. An additional response will be provided within 30 days following completion of the analysis for the emergency feedwater pumps.

At the present time, SCE&G considers the system design for the active safety-related centrifugal pumps at VCSNS to be adequate to preclude pump degradation as identified in the Bulletin. This conclusion is based on the current analysis and the operating and maintenance history of the components since plant startup.

Evaluations completed during this analysis of NRC concerns will be maintained for a minimum of two (2) years in accordance with the requirements of the Bulletin. The information contained in this letter is true and correct to the best of my knowledge, information and belief.

If you have any questions, please advise.

Very Truly Yours,



O. S. Bradham  
Vice President,  
Nuclear Operations

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