SCE&G
A SCANA Company

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Ollie S. Bradham
Vice President
Nuclear Operations

November 9, 1989

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

Attention: Mr. John J. Hayes, Jr.

SUBJECT: Virgil C. Summer Nuclear Station
Docket No. 50/395
Operating License No. NPF-12
Additional Information on July 11, 1989
Loss of Offsite Power

Gentlemen:

In the attachment, South Carolina Electric & Gas Company (SCE&G) is providing the response to your September 6, 1989, letter to me.

Please contact Mr. Wesley R. Higgins of my staff at extension 803-345-4042 if you have any questions.

Very truly yours,

O. S. Bradham

WRH/OSB:lcd
Attachment

c: D. A. Nauman/O. W. Dixon, Jr./T. C. Nichols, Jr.
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File (818.05)

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ENCLOSURE

The NRC staff requested that SCE&G provide the following information:

1. **The finalized plan for long-term corrective actions as a result of this event and a schedule for implementing them.**

   The following long term corrective actions have either been completed or are scheduled:

   Voltage regulators for the 230/7.2 KV Emergency Auxiliary Transformer and the 115/7.2 KV Emergency Safety Features Transformers are to be installed no later than the sixth refueling outage which is scheduled for October through November 1991. Every effort will however be utilized to install these regulators during the fifth refueling outage which is scheduled to begin in March 1990.

   120 MVARS of capacitors are scheduled to be added to the 115KV transmission system in December 1990.

   The CEB-13 generator backup relays at the McMeekin, Saluda Hydro, and Fairfield Pump Storage Plants have been reset to provide increased protection from operating unnecessarily.

2. **Demonstrate by using a load flow study that the required reactive power (VAR) contribution to support your grid system voltage at the Virgil C. Summer Nuclear Station (VCSNS) is redistributed to other generating units so that a sudden loss of generation (440 MVARS or above) at VCSNS would not cause degraded grid voltage conditions at the on-site safety buses.**

   With the generator CEB-13 backup relays reset to 175% of generator MVA rating to prevent inadvertant loss of other generating units, the load flow study shows that the degraded voltage relays for both bus XSW1DA and XSW1DB would not have actuated. The load flow study does show that the VCSNS MVAR load would have been redistributed to the other generating stations.

   The degraded voltage relay on bus XSW1DA is set to operate at 91.92% of nominal voltage with a calculated operating range of 90.66% to 93.18% of nominal. The voltage resulting from the above conditions at bus XSW1DA is 93.85% of nominal. The degraded voltage relay on bus XSW1DB is set to operate at 92.17% with a calculated operating range of 90.90% to 93.43% of nominal. The voltage resulting from the above conditions at bus XSW1DB is 94.95% of nominal.

3. **Provide the results of a stability study with new settings of generator backup relays at the affected generating stations to demonstrate that it will prevent tripping of other generators in the SCE&G grid system on the loss of VCSNS supply 440 MVARS of reactive power.**

   The transient stability study suggests that the system impedance which results from the loss of generation at VCSNS approaches a limit significantly below the new 175% setting of the generator backup relays which are most responsive to this condition.