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Vice President, Nuclear Operations
803.345.4622



April 19, 2001
RC-01-0088

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

Gentlemen:

Subject: VIRGIL C. SUMMER NUCLEAR STATION
DOCKET NO. 50/395
OPERATING LICENSE NO. NPF-12
FINAL REPORT PURSUANT TO 10 CFR PART 21
(SSH 2001-001)

Reference: SCE&G, Stephen A. Byrne, to Document Control Desk Letter Dated
February 14, 2001, RC-01-0036, "Interim Report Pursuant to 10 CFR
Part 21"

South Carolina Electric & Gas (SCE&G) submits this letter in accordance with the requirements of 10 CFR 21.21(a)(2) as a final report of an identified defect which was potentially associated with a substantial safety hazard.

During the monthly surveillance test STP0125.002A on 12/21/00, the "A" diesel generator experienced load swings during unloading. Replacement of the Woodward Governor EGA unit eliminated the load swing problem. Following removal of the EGA unit, an on-site bench test and inspection was performed. Although the EGA successfully passed the bench test, the inspection identified some questionable solder joints on the stability potentiometer (pot). This pot has three ring terminal connections through which wire leads are looped and then soldered. One of the connections had the wire lead looped through it, but did not appear to have any solder on it. It was suspected that if contact between the lead and terminal were intermittent on the stability pot, then the output signal from the EGA would be erratic and cause load swings and instability, as was experienced on 12/21/00. Since all of the pots in an EGA were replaced during refurbishment by Power Control Services (PCS) of Engine Systems, Inc. (a Woodward governor nuclear supplier), adequate soldering of the pot terminals during a previous refurbishment was questioned.

The EGA was sent to PCS for inspection, testing and refurbishment to determine if it caused the problems experienced during the surveillance testing.

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The interim 10 CFR Part 21 report (RC-01-0036) was submitted to allow additional evaluation by the vendor.

SCE&G Engineering review of the vendor report for potential 10 CFR Part 21 concerns has determined that a Significant Safety Hazard did not exist. Attached is the engineering justification for this position.

Should you have any questions, please call Mr. Kelley Marsh at (803) 345-4796.

Very truly yours,



Stephen A. Byrne

RKM/SAB/dr
Attachment

c: N. O. Lorick
N. S. Carns
T. G. Eppink (without attachment)
R. J. White
L. A. Reyes
K. R. Cotton
K. W. Sutton
NRC Resident Inspector
G. A. Robertson
T. A. McAlister
NSRC
RTS (O-L-00-0035, O-C-00-1876)
File (818.18, SSH 2001-001)
DMS (RC-01-0088)

NUCLEAR EXCELLENCE - A SUMMER TRADITION!

ENGINEERS

Serial- GR11674
Engineer- GAR *GAR*
Date- 03/29/01

TECHNICAL WORK RECORD

Project- NCN # 00-1876, Diesel Generator System Book- 10 Tab- 1.0 Pg. 1 of 2
Woodward Governor EGA Unit Problems
Disposition # 3

Subject-

The following provides the 10CFR Part 21 evaluation regarding the Woodward governor electronic control unit, EGA (Serial No. 1425252) which was removed following the load swing and frequency oscillations on 12/21/00. This is a follow-up to the interim report which was issued prior to receiving the evaluation of this component by the manufacturer. Also, this disposition addresses 50.72/73 reporting and cause and corrective action.

10CFR Part 21 Evaluation-

This is a follow-up to the interim report issued regarding a Woodward governor electronic control unit, EGA (Serial No. 1425252). This EGA was removed following load swings and frequency oscillations which were experienced on the "A" diesel generator during surveillance testing on 12/21/00. This unit was believed to be the cause or contributor to the stability problems experienced during this surveillance test. Although this EGA satisfactorily passed the on-site bench test, an inspection of the unit identified questionable solder joints on the stability potentiometer (pot). Therefore, the unit was returned to the manufacturer for additional testing, inspection and evaluation.

The initial as-received inspection by the manufacturer indicated that the leads to the stability pot did not appear to be soldered. However, the EGA satisfactorily passed the first as-received test without any indication of any abnormal or erratic output. The unit was then run at rated speed while tapping the pot and the circuit board to which it was connected, but the output remained normal. Tapping of the unit and the pot were also performed during the on-site test and there was also no abnormal or erratic output observed. A resistance check was then performed by the service technician on each lead of the pot and all resistance values were comparable to a normal soldered joint. Finally, an additional three hour test was performed while observing the output for spikes and none occurred. The leads were then soldered and a final 50-hour test was satisfactorily completed.

Although soldering on the leads to the stability pot appeared to be questionable, all testing indicates that they were adequately soldered to perform their design function. The leads adequately remained connected throughout on-site handling and testing, shipping and receipt inspection at Engine Systems Inc. in Rocky Mount, North Carolina and additional shipping, receiving and testing at the Woodward facility in Fort Collins, Colorado. Although it was initially believed to be a contributor to the surveillance testing problems, the load swings only occurred during unloading operation which induces instability into the speed governing system. Past problems with intermittent potentiometers resulted in load swings (spikes), with the diesel generator at steady full

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Woodward Governor EGA Unit Problems
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load operation. Considering that this EGA was in service for 3 years, all testing was satisfactory and frequency oscillations occurred following its replacement, the problems encountered during the surveillance testing are not attributable to this unit. Therefore, no substantial safety hazard existed and this is not reportable under 10CFR Part 21.

The root cause for the surveillance test failure is ongoing and is expected to be completed in the near future.

10CFR50.72/73 Reportability-

As stated above, the surveillance test problems, were not related to the EGA removed during this event. All testing indicates this EGA unit functioned properly and did not result in a loss of safety function. Therefore, this is not reportable under 10CFR50.72/73.

Cause and Corrective Action-

There are no cause and corrective actions associated with the governor EGA unit. The cause and corrective action for the surveillance test problems are being addressed under Root Cause Analysis Report RCA01-0235.