UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931

June 29, 2001

EA-01-150

South Carolina Electric & Gas Company
ATTN: Mr. Stephen A. Byrne
Vice President, Nuclear Operations
Virgil C. Summer Nuclear Station
P. O. Box 88
Jenkinsville, SC 29065

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION - NRC SPECIAL INSPECTION REPORT NO. 50-395/01-08

Dear Mr. Byrne:

On June 23, 2001, the Nuclear Regulatory Commission (NRC) completed an inspection at your Virgil C. Summer Nuclear Station. The purpose of the inspection was to follow up on Unresolved Item 50-395/98006-01, Licensee Controls of Steam Propagation Barriers (SPBs). The enclosed report presents the results of that inspection.

Based on the results of the inspection, one apparent violation was identified and is being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions - May 1, 2000" (Enforcement Policy), NUREG-1600. The current Enforcement Policy is included on the NRC's website at *http://www.nrc.gov/OE*. The apparent violation involved the failure to perform a safety evaluation, as required by 10 CFR 50.59, prior to making changes to the facility which increased the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report. As described in Section 4OA3, the issue involved the practice of disabling SPBs in support of maintenance. The practice was discontinued in February 1999. Prior to this time, disabling the SPB (door) to switchgear room 1DB had the potential to render both trains of emergency AC power to safety-related equipment inoperable during a high energy line break (HELB) accident. Considering the initiating event frequency of a HELB and the time the 1DB SPB was disabled during 1998, the practice appeared to have a low to moderate safety significance. This issue was not evaluated under the Reactor Oversight Process (ROP), since the issue was identified and the practice was discontinued prior to the ROP implementation. The circumstances surrounding the apparent violation, the significance of the issue, and the need for effective corrective action were discussed with you and members of your staff at the inspection exit meeting on June 29, 2001.

Before the NRC makes its enforcement decision, we are providing you an opportunity to either (1) respond to the apparent violation addressed in this inspection report within 30 days of the date of this letter or (2) request a predecisional enforcement conference. If a conference is held, it will be open for public observation. The NRC will also issue a press release to announce the conference. Please contact Mr. Kerry Landis at 404-562-4510 within 7 days of the date of this letter to notify the NRC of your intended response.

Should you choose to respond in writing, your response should be clearly marked as a "Response to An Apparent Violation in Inspection Report Number 50-395/01-08" and should include for the apparent violation: (1) the reason for the apparent violation, or, if contested, the basis for disputing the apparent violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response or presentation at the predecisional enforcement conference should include specific information relating to improvements to your 50.59 screening and safety evaluation process. Your response should be submitted under oath or affirmation and may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision or schedule a predecisional enforcement conference.

In addition, please be advised that the number and characterization of apparent violations described in the enclosed inspection report may change as a result of further NRC review. You will be advised by separate correspondence of the results of our deliberations on this matter.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if you choose to provide one) will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at *http://www.nrc.gov/NRC/ADAMS/index.html* (the Public Electronic Reading Room). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction.

Sincerely,

/RA/

Loren R. Plisco, Director
Division of Reactor Projects

Docket No.: 50-395
License No.: NPF-12

Enclosure: Inspection Report 50-395/01-08

Attachment: Supplemental Information

cc w/encl.: See page 3

<u>cc w/encl.</u>:

R. J. White
Nuclear Coordinator (Mail Code 802)
S.C. Public Service Authority
Virgil C. Summer Nuclear Station
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K. Sutton
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Henry J. Porter, Assistant Director
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Nuclear Licensing & Operating Experience (Mail Code 830)
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Distribution w/encl:
K. Cotton, NRR
RIDSNRRDIPMIIPB
OEMAIL
PUBLIC

PUBLIC DOCUMENT (circle one): YES NO

OFFICE	RII	RII	RII	RII	RII	RII	RII
SIGNATURE	lg	dr	mk	mw	ab	kl	wr
NAME	LGarner	DRich	MKing	MWidmann	ABoland	KLandis	WRogers
DATE	6/29/2001	6/27/2001	6/27/2001	6/28/2001	6/28/2001	6/27/2001	6/27/2001
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	50-395
License No.:	NPF-12
Report No.:	50-395/01-08
Licensee:	South Carolina Electric & Gas (SCE&G) Company
Facility:	Virgil C. Summer Nuclear Station
Location:	P. O. Box 88 Jenkinsville, SC 29065
Dates:	June 10 through June 23, 2001
Inspectors:	D. Rich, Acting Senior Resident Inspector M. King, Resident Inspector M. Widmann, Senior Resident Inspector
Approved by:	K. D. Landis, Chief, Reactor Projects Branch 5 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000395-01-08, on 06/10-06/23/2001, South Carolina Electric & Gas Co., Virgil C. Summer Nuclear Station, event follow-up.

This inspection consisted of an in-office examination of Unresolved Item (URI) 50-395/98006-01 which involved control of steam propagation barriers. The review was conducted by the resident inspectors. The inspectors identified one apparent violation. Since the issue was identified and the practice discontinued prior to the implementation of the Reactor Oversight Process (ROP), the issue was not evaluated under the ROP and was not assigned a color in accordance with the Significance Determination Process. However, an evaluation of the risk significance of the issue was performed and the results are included in this report. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at *http://www.nrc.gov/NRR/OVERSIGHT/index.html*.

Inspector Identified Apparent Violation

Cornerstone: Mitigating Systems

- The inspectors identified an apparent violation for not performing a detailed safety evaluation, as required by 10 CFR 50.59, for a change to the facility as described in the Final Safety Analysis Report which involved a unreviewed safety question. The licensee changed the facility by removing the mullion (center divider) in the steam propagation barrier (SPB) door at the entrance to the 1DB 7.2 kV AC switchgear room. Disabling the 1DB SPB resulted in the potential that a single high energy line break could render emergency AC power to both trains of safety-related equipment inoperable.

  The finding was of low to moderate risk significance based upon the initiating event frequency of a high energy line break accident and the cumulative time the 1DB SPB was disabled during 1998 (Section 4OA3).

Report Details

4. OTHER ACTIVITIES

4OA3 Event Follow-up

.1 (Closed) Unresolved Item (URI) 50-395/98006-01: Licensee Controls of Steam Propagation Barriers (SPBs). This URI was opened to review licensee maintenance practices concerning the disabling of SPBs and specifically, the SPB (door) located at the entrance to the 1DB safety-related 7.2 kV AC switchgear room. The inspectors concluded that disabling the 1DB SPB was of low to moderate risk significance and identified an apparent violation of 10 CFR 50.59.

In July 1998, with the reactor plant in Mode 1, inspectors noted that the licensee had disabled the SPB at the entrance to the 1DB safety-related 7.2 kV AC switchgear room by removing the mullion (center divider) and blocking the doors open in order to move equipment through the door. The inspectors questioned the frequency and duration of this operation and found that during 1998 there were seven instances where the 1DB switchgear room SPB was disabled for a total of 29 hours and 38 minutes.

The licensee defined SPBs in Fire Protection Procedure (FPP)-025, “Fire Containment,” as plant design features which minimize the flow paths available for steam propagation in the event of a postulated steam line break. SPBs are designated as either risk significant or less risk significant. Risk significant SPBs protect the risk significant areas identified in FPP-025 which are those areas within the plant that contain equipment whose failure during an event such as a steam line break would significantly degrade plant safety. The risk significant areas defined in FPP-025 include the control room, the relay room, and areas containing vital AC (i.e., 1DA and 1DB switchgear) and DC vital power. In general, breeches of risk-significant SPBs have the potential to render redundant trains of safety-related equipment inoperable. On March 25, 1997, the licensee approved Revision 1C to FPP-025, which allowed SPB barrier doors to be disabled, one at a time, for a maximum of 12 hours, with the plant in Modes 1 through 4. On February 9, 1999, the licensee approved Revision 3 to FPP 025 which allowed an SPB door to be opened only for normal ingress and egress and specifically prohibited an SPB door from being blocked open, having the mullion removed, or being otherwise disabled while in Modes 1 through 4.

Final Safety Analysis Report (FSAR) Section 3.11.1.1, “Environmental Qualifications of Mechanical and Electrical Equipment - Environmental Conditions,” defines harsh and mild environments and provided a reference to Environmental Zone drawing SS-021-018 which designates room locations IB 63-01 and IB 36-01 (1DA and 1DB switchgear rooms, respectively) as mild environments. The drawing further designated the intermediate building hallway adjacent to the 1DB switchgear room, which contains main steam and feed piping and valves, as a harsh environment. The SPB dismantled in July 1998 was the barrier necessary to minimize the potential for the 1DB switchgear to be affected by steam exposure during a high energy line break. Since the 1DB and the 1DA switchgear rooms are connected by a common ventilation system, steam penetration into either room has the potential to render both trains of safety-related 7.2 kV AC switchgear inoperable.

In order to assess the risk significance of the issue, the inspectors considered the probability of a high energy line break in the space adjacent to the 1DB 7.2 kV AC switchgear room and the consequences of such an accident given the time that the SPB to the 1DB room was disabled during 1998. Although the probability of any individual high pressure component failure is low, there is a large amount of high energy piping in the area including 2 main steam lines with 6 relief valves each, main steam isolation valves, and 3 main feed lines and associated valving. This large amount of piping increased the probability of a high energy line break in this area. The inspectors assumed that steam penetration into one 7.2 kV AC switchgear room would result in steam penetration into the opposite train room with a possible failure of both trains of 7.2 kV AC power and subsequent failure of both trains of emergency core cooling systems and support systems. Finally, the inspectors evaluated the total exposure time of 29 hours and 38 minutes that the SPB was disabled and concluded that the increase in core damage frequency was of low to moderate risk.

From March 25, 1997, to February 9, 1999, the licensee had procedures in effect which allowed risk significant SPBs to be disabled for up to 12 hours while the reactor was in Modes 1 through 4. The safety evaluation screening performed for this procedure revision was inadequate in that it failed to identify that this revision involved a Unreviewed Safety Question (USQ). Instead, the screening eliminated the need for a detailed safety evaluation, as required by 10 CFR 50.59, for a change to the facility as described in the FSAR which involved a USQ. This was a change from FSAR Section 3.11.1.1 which designated the room locations and the environment that equipment would operate under in accident conditions. Disabling the SPB could have impaired the ability of operators to place and maintain the plant in a safe shutdown condition. Disabling the SPB had the potential to render the 7.2 kV AC electrical buses unable to provide power to safety-related equipment in the event of a high energy line break. This change created an increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the safety analysis report. The licensee's failure to perform a safety evaluation is an apparent violation of 10 CFR 50.59 and is identified as AV 50-395/01008-01.

4OA6 Management Meetings

Exit Meeting Summary

The NRC Branch Chief for Reactor Projects Branch 5, Region II, and the inspectors presented the inspection results to Mr. S. Byrne and other members of the licensee's staff on June 29, 2001.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

Attachment

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

J. Archie, General Manager, Engineering Services
M. Browne, Manager, Nuclear Licensing and Operating Experience
D. Gatlin, Manager, Operations
G. Halnon, General Manager, Nuclear Plant Operations
G. Moffatt, Manager, Design Engineering
K. Nettles, General Manager, Nuclear Support Services
A. Rice, Manager, Plant Support Engineering
A. Torres, Manager, Planning and Scheduling
R. White, Nuclear Coordinator, South Carolina Public Service Authority
G. Williams, Manager, Maintenance Services

NRC

W. Rogers, Senior Reactor Analyst, RII

ITEMS OPENED AND CLOSED

Opened

50-395/01008-01	AV	Failure to perform a safety evaluation required by 10 CFR 50.59 (Section 4OA3)

Closed

50-395/98006-01	URI	Licensee controls of steam propagation barriers (Section 4OA3)