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John L. Skolds Vice President Nuclear Operations

_ June 18,1992

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

Gentlemen:

Subject: VIRGIL C. SUMMER NUCLFAR STATION UOCKET NO. 50/395 OPERATING LICENSE NO. NPF-12 RESPONSE TO NOTICE OF VIOLATION AND NOTICE OF DEVIATION NRC INSPECTION REPORT 92-04

Attached is the South Carolina Electric & Gas Company (SCE&G) response to the three violations and the deviation delineated in Nuclear Regulatory Commission Inspection Report No. 50-395/92-04.

Should you have any questions, please contact Jacquelyn Graham at (803) 345-4056.

Very truly yours,

John L. Skolds

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RESPONSE TO NOTICE OF VIOLATION VIOLATION NUMBER 50-395/92-04-01

RESTATEMENT OF VIOLATION

1.

10 CFR 50 Appendix B, Criterion III, as implemented by Final Safety Analysis Report (FSAR) Section 17.2.3, requires the licensee to assure that design bases, such as seismic and overload protection criteria, are correctly tractisted into drawings, procedures and instructions. Additionally, 10 CFR 50 Appendix B, Criterion V, as implemented by FSAR Section 17.2.5, requires that activities affecting quality, such as installation of tubing to meet the seismic criteria and selection of thermal overload protection for motors, be performed in accordance with drawings, procedures or instructions that specify acceptance requirements which assure the activities are correctly accomplished. Together, the above requirements specify a process whereby design basis criteria are correctly translated into installed equipment.

Contrary to the above, design basis criteria were not translated into correct installations of seismic supports for tubing and thermal overloads for motors as follows:

- Unsupported span lengths for safety related tubing mounted on the Emergency Diesel Generators' (EDGs) skids exceeded the maximums specified by the applicable design calculation (Seismic Calculations for Skid Piping, Seismic Qualification File SQF-S-PS3-C05-1). Examples included a measured 84 inch span between supports versus a specified maximum of 26.9 inches for air start tubing and a measured 70 inch span versus a specified 37.7 inch maximum for a lube oil line.
- 2. Criteria developed and used in selection of thermal overload protection for safety related motors were based on rated loads. In applying these criteria the licensee failed to recognize that consideration of loads in excess of nameplate ratings would be necessary for motors that might operate in the "service factor" region during accident conditions. As a result, undersize overload protection had been installed for one safety related service water pump house ventilation fan motor and marginal protection had been installed for another. The criteria used were documented in calculation DC-820-004, Rev. 0, "Circuit Breaker Sizing Criteria." The motors involve were air-over rated motors with 1.15 service factors.

II. REASONS FOR VIOLATION

a) The translation of design bases calculations into the actual D/G construction was not followed during the building of the D/G skids. The seismic spacine parently not verified during original receipt inspection during plant construction. Attachment to Document Control Desk Letter . IE 920404 Page 2 of 7

> b) The criteria used in selection of thermal overload protection for safety related motors did not recognize that some motors might be operated in the "service factor" region during accident conditions. The thermal overloads for the two safety related service water pump house ventilation fan motors were undersized in the service factor operating region.

III. CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

- a) All accessible tubing was inspected for both EDG's. Calculations were performed using plant specific, as built configurations which demonstrated that the existing spacings of tubing supports would provide sufficient support for the postulated seismic conditions.
- b) The undersized thermal overloads for the safety related service water pumphouse ventilation fan motors were resized and replaced during the inspection. Other safety related motors that may operate in the service factor region were confirmed to be adequately sized.

IV. CORRECTIVE ACTION TAKEN TO AVOID FURTHER VIOLATIONS

- a) The tubing supports were configured as originally supplied by the EDG manufacturer. The seismic spacing was apparently not verified during original receipt inspection during plant construction. Current procurement and receipt inspection practices should preclude further violations. Tubing supports meeting the original design requirements will be installed or specific seismic analysis will be confirmed.
- b) The thermal overload sizings are an isolated case. No other similar conditions were found upon review of safety related motors operating in the service factor region. Design Engineering review of thermal overload calculations has been added to the Electrical Maintenance Procedure (EMP) controlling the sizing and testing of thermal overloads.

V. DATE FULL COMPLIANCE WILL BE ACHIEVED

- a) Tubing supports meeting the original design criteria requirements will be installed or specific analysis performed for the purpose of demonstrating the acceptability of the current tubing support configuration will be confirmed by June 1, 1993.
- b) The subject thermal overloads were changed and are in compliance with the thermal overload sizing criteria.

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> RESPONSE TO NOTICE OF VIOLATION VIOLATION NUMBER 50-395/92-04-03

I. RESTATEMENT OF VIOLATION

10CFR 50 Appendix B, Criterion VI, as implemented by FSAR Section 17.2.6, requires the licensee to assure the adequacy of documents that are issued for use in activities that effect quality.

Contrary to this requirement, drawings, a calculation, and a database issued for use in determining the acceptability of the design and installation of safety related equipment were deficient as follows:

- 1. Motor Control Center (MCC) Unit Listing 201 series drawing i, which provided electrical data on the loads powered from the MCC, had motor load data omitted in some instances and numerous incorrect entries of overload sizes, horsepower, etc. As an example of incorrect data, drawing B-201-359-05R7 showed Safety Injection Valve XVG 8889 to have a B 36.00 overload for its motor, whereas the team observed the installed overload was B 4.00. As an example of omissions, drawing B-201-359-02R5 for Component Cooling Valve XVB 9503A, failed to give the motor full load amps or locked rotor amps.
- 2. The database used to determine overload heater sizes for use in Motor Operated Valve voltage drop calculation DC-820-003, Rev. 0 (Rev. Special Attachment 11 dated 03/27/92) contained incorrect sizes for some overloads. For example, the drawing overload error referred to above was also an error in the database.
- 3. As originally issued for an assessment of the adequacy of voltage provided to MCCs, voltage drop calculation DC-820-003, Rev. 0, erroneously omitted determination of voltage drop caused by overload resistances, which can be a significant factor in assuring adequate voltage to motors under degraded voltage conditions.

II. REASON FOR VIOLATION

Various documents supporting Motor Control Center thermal overload sizing were not in agreement. B-201 drawings, used as preliminary data during construction of the plant, were used as a source of information for the MCC database and had not been updated to reflect installed hardware. Therefore, the drawings and the database contained incorrect information. Also, the current Electrical Maintenance Procedure (EMP) which allows the sizing of thermal overloads to be uprated one size from the calculated value did not require the information to be provided to engineering to update the drawings and the database. Attachment to Document Control Desk Letter - IE 920404 Page 4 of 7

111. CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

All identified discrepancies were corrected during the inspection. In addition, all vital electrical distribution panels were field verified and corrections made during the inspection. Other B-201 drawings are being updated with field walkdown date as an interim measure as the data becomes available. The MCC database is also being field verified. Additionally, a preliminary revision to calculation DC-820-003 (Revision Special Attachment dated 3/27/92) was completed during the inspection to include the correct overload relays.

IV. CORRECTIVE ACTION TAKEN TO AVOID FURTHER VIOLATIONS

The MCC database will become the design control document. The B-201 drawings will be considered "historical" and marked as such. The Electrical Mainterance Procedure (EMP 280.001), which allows the sizing of therma overloads to be uprated one size from the calculated value, has been revised to ensure that over ad heater size changes are reviewed by Design Engineering and draw g and/or database revisions are completed. Calculation DC-820-003, Rev 0, will be revised to include correct thermal overload sizes and resistances.

V. DATE FULL COMPLIANCE WILL BE ACHIEVED

The database revision, remaining B-201 drawing revisions, and the calculation revision will be complete by October 1, 1993, since some data collection requires a reactor building walkdown which is scheduled to be performed during the Refuel VII outage (March 1993).

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> RESPONSE TO NOTICE OF VIOLATION VIOLATION NUMBER 50-395/92-04-04

I. RESTATEMENT OF VIOLATION

10 CFR 50 Appendix 8, Criterion V, as implemented by the FSAR Section 17.2.5, requires the licensee to ensure that instructions, procedures or drawings include appropriate acceptance criteria for determining that important activities are satisfactorily accomplished.

Contrary to the above, the licensee had not specified criteria to ensure that .ts standard Pre-Approved Disposition (PAD) 12 would be properly applied. PAD 12 was a pre-approved engineering disposition intended for failures due to normal wear or aging of items such as bearings, gears, valve packing, molded case circuit breakers, relays. fuses, etc. It did not, however, include adequate criteria for ensuring that a failure was due to "normal wear and aging," such that use of PAD 12 would be applicable. PAD 12 had been used to replace several molded case circuit breakers (e.g., Class 1E breakers XMC1DB2X O3EH and XMC1DA2X O5EH) that failed in tests without documenting even simple disassembly and visual inspection for the condition that resulted in the failure. These examples demonstrate that the instructions for application of PAD 12 were inadequate. Without any inspection and documentation for the condition that caused the failure, the information necessary to identify adverse trends and significant conditions adverse to quality will not be available.

II. REASON FOR VIOLATION

PAD-12 is a pre-approved engineering disposition used to rework failures due to normal wear and aging. Examples of this are worn gears, bearings, and blown fuses. The 1E equipment (mild) was included in the scope of the PAD during the last revision. There was not enough guidance for the use of the PAD for 1E component replacement.

III. CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

All class 1E component replacements under PAD 12 had been stopped.

IV. CORRECTIVE ACTION TAKEN TO AVOID FURTHER VIOLATIONS

The PAD 12 program is being revised to provide further direction with regard to 1E component replacement.

V. DATE FULL COMPLIANCE WILL BE ACHIEVED

The above corrective actions will be completed on or before August 31, 1992.

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> RESPONSE TO NOTICE OF DEVIATION DEVIATION NUMBER 50-395/92-04-05

I. RESTATEMENT OF DEVIATION

Licensee FSAR Appendix 3A documents the commitment to Regulatory Guide 1.137, Fuei Oil Systems for Standby Diesel Generators, Position C.1.g, and states that the buried piping and tanks are provided with cathodic protection.

Contrary to the above, the licensee failed to assure that the cathodic protection was provided in that:

For much of the period since its installation, the cathodic protection system was not maintained or monitored in a manner which would assure that adequate protection had been provided for the piping and tanks. Recommended inspections and measurements were performed at frequencies much lower than recommended and the results obtained with one of two types of recommended measurements, ground potential, were consistently outside recommended design parameters. This was a longstanding problem, as documented in a 1991 review by a specialist. The licensee had recognized deficiencies in the cathodic protection and initiated actions which are intended to provide future correction. However, no action had been initiated to verify that degradation did not already exist in the piping and tanks due to the past period of deficient operation.

II. REASON FOR DEVIATION

The minimum current of the cathodic protection system has not always been maintained and monitored in a consistent manner. Degradation of the system anode beds was due to depletion and an improperly located bed.

III. CORRECTIVE STEPS TAKEN TO AVOID FURTHER DEVIATIONS

A plant change (MRF-22154) to upgrade the cathodic protection system has been added to the plant schedule for design and implementation.

Previous internal inspections of the two fuel oil storage tanks in 1988 and 1990, respectively, revealed the surfaces were in excellent condition. The tanks and associated buried piping were supplied and installed with a corrosion preventive coating. Based on the long term conditions required to corrode the tanks and associated piping, degradation is considered unlikely. However, a section of underground piping susceptible to degradation will be excavated and examined prior to the end of the next scheduled refueling outage.

Additionally, SCE&G will perform an ultrasonic examination to determine the condition of the fuel oil storage tanks and a nondestructive examination of at least a representative sample of the Attachment to Document Control Desk Letter - IE 920404 Page 7 of 7

associated buried piping. These examinations will necessitate the draining and opening of the tanks.

IV. DATE CORRECTIVE ACTION WILL BE COMPLETED

The section of underground piping susceptible to degradation will be excavated and examined prior to the end of the next scheduled refueling outage, Refuel VII, June 1993.

The plant change to upgrade the cathodic protection system and the examinations of the fuel oil storage tanks and representative sample of associated piping are currently scheduled to be completed before the end of Refuel IX, June 1996.

However, if examination of equipment reveals additional actions are warranted, an accelerated modification schedule will be implemented as appropriate.