

Stephen A. Byrne
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803.345 4622



November 14, 2002
RC-02-0200

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

Attention: Ms. K. R. Cotton

Ladies and Gentlemen:

Subject: VIRGIL C. SUMMER NUCLEAR STATION
DOCKET NO. 50/395
OPERATING LICENSE NO. NPF-12
TECHNICAL SPECIFICATION AMENDMENT REQUEST - TSP 00-0032
REVISION TO ENGINEERED SAFETY FEATURE ACTUATION SYSTEM
INSTRUMENTATION TABLES
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

- References: 1. S. A. Byrne to Document Control Desk, RC-02-0112, Dated June 27, 2002
2. K. R Cotton to S. A. Byrne, TAC NO. MB5525, Dated October 16, 2002

South Carolina Electric & Gas Company (SCE&G), acting for itself and as agent for South Carolina Public Service Authority, hereby provides a response to the request for additional information (RAI) pertaining to the above referenced letter (Reference 1). The RAI was communicated verbally during a conference call on September 18, 2002, and followed up with a written request dated October 16, 2002 (Reference 2). The RAI additionally requested that a regulatory assessment be performed to assist in justifying the above referenced License Amendment Request (LAR). This assessment is attached.

The RAI specifically asked for technical justification for the 12-hour allowed outage time (AOT) for the Technical Specification Engineered Safety Features Actuation System Instrumentation Tables functional units addressed in the above referenced letter. Additional research was unable to provide further technical justification to support the requested AOT; therefore, SCE&G is committing to provide a supplemental License Amendment Request (LAR) to supersede the above referenced letter. The guidance in the Standardized Technical Specifications for these functional units will be complied with. This LAR supplement should be submitted by January 30, 2003.

Should you have questions, please call Mr. Melvin N. Browne at (803) 345-4141.

I certify under penalty of perjury that the foregoing is true and correct.

11/14/02
Executed On

Stephen A. Byrne
Stephen A. Byrne

PAR/SAB/dr
Attachment

A001

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c: N. O. Lorick
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R. J. White
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RTS (LAR 00-0032)
File (813.20)
DMS (RC-02-0200)

Response to Request For Additional Information
For the Engineered Safety Feature Actuation System Instrumentation Tables

(1) The proposed Amendment request regarding Action Statement 16 in Technical Specification Table 3.3-3 states, "With the number of OPERABLE channels one less than the Total Number of Channels, operation may continue provided the inoperable channel is placed in bypass and the Minimum Channels Operable requirements is met. Restore the inoperable channel to OPERABLE status within 12 hours otherwise... " Provide justification for selecting 12 hours for allowed outage time as proposed to 6 hours specified in other comparable Action Statements in the current TS or NUREG -0452, Revision 4 or in NUREG 1431, Revision 1.

SCE&G has performed additional research into the basis for the requested allowed outage time (AOT) and was unable to provide further technical justification to support the requested AOT; therefore, SCE&G is committing to provide a supplemental License Amendment Request (LAR) to supersede the above referenced letter. The guidance in the Standardized Technical Specifications (NUREG -0452 and NUREG -1431) for these functional units will be complied with. This LAR supplement should be submitted by January 30, 2003.

(2) Provide applicable regulatory requirements for this amendment to revise the engineered safety actuation system instrumentation tables.

Applicable Regulatory Requirements/Criteria

10 CFR 50.34(a) provides information on the types and level of detail required in the Preliminary Safety Analysis Report (PSAR). The requirement includes details on safety features that would have impact on the health and safety of the public. Also required is the details of the safety analysis that supports the assertion that the health and safety of the public is not adversely affected by the design and operation of the nuclear power plant.

The Preliminary Safety Analysis provided by SCE&G for the initial licensing of the VCSNS did not contain sufficient detail to determine if the failure mode discovered and reported in Licensee Event Report (LER) 50/395 2000-004 would exist. The investigation was initiated by review of the McGuire Nuclear Station Notification (event # 36659) and determined that a previously undetected single failure mechanism could occur and prevent automatic actuation of some of the Engineered Safety Features Actuation System actions. This could only occur if one channel of the energize-to-actuate instrumentation were placed in bypass for a significant period of time (as permitted by current Technical Specifications [TS]).

The information required to be submitted with the PSAR was provided and reviewed by the NRC staff.

10 CFR 50.34(b) provides information on the types and level of detail required in the Final Safety Analysis Report (FSAR). The requirements build on those for the PSAR but request additional detail of the design and more thorough analyses to show the identified safety functions will be accomplished.

The information is provided in the FSAR, however, the single failure vulnerability identified in Licensee Event Report (LER) 50/395 2000-004 was unknown prior to the discovery of this vulnerability.

10 CFR 50.36 (c)(2)(ii)(C), Criterion 3 states that a Limiting Condition for Operation must be established for a system, structure, or component (SSC) that is a primary success path which functions or actuates to mitigate a design basis accident that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The Engineered Safety Feature Actuation System functional units identified in LER 2000-004 have a specific LCO that requires specific action. The single failure vulnerability will possibly preclude the automatic actuation of mitigating systems due to a previously unknown failure mechanism. The LCO currently allows the affected functional units to be placed in bypass with no specified end time, and in conjunction with the loss of the opposite train of battery power during a design basis accident could cause the failure of the expected actuations. The proposed change to the TS would establish an end time for the LCO action. This will not eliminate the single failure vulnerability, but will manage the potential for occurrence to an acceptable value.

10 CFR 50.55a(a)(2) states that protection systems of all nuclear power reactors must meet the requirements identified in paragraph (h). This paragraph identifies two Institute of Electrical and Electronic Engineers (IEEE) standards, IEEE 603-91 and IEEE 279.

SCE&G complies with the requirements of these standards including the requirements concerning single failures, with the exception of the recently identified single failure vulnerability.

10 CFR 50 Appendix A, Criterion 20 states that the protection system shall be designed to initiate automatically the operation of the appropriate systems and to sense accident conditions and initiate the operation of systems and components important to safety.

The protection systems at VCSNS have been designed to this requirement.

10 CFR 50 Appendix A, Criterion 21 states that protection systems shall be designed with testability and reliability in mind. Redundancy and independence will be designed into the system such that no single failure results in the loss of the protective function.

The protection system at VCSNS was designed to satisfy this requirement. The single failure vulnerability identified recently consists of a failure mode that was not considered in the original plant design.

10 CFR 50 Appendix B, Criterion XVI Corrective Action states that measures shall be taken to assure conditions adverse to quality are identified and corrective action taken.

SCE&G complies with this requirement and has a corrective action program to identify adverse conditions and obtain appropriate corrective action. This condition was identified and reported in LER 50/395 2000-004. Immediate corrective actions to place the plant in a safe condition were implemented and a commitment to revise the TS was made to minimize the single failure vulnerability.

Generic Letter 80-30 states that the Standard Technical Specifications were formulated to preserve the single failure criterion for systems that are relied on in the safety analysis report. By and large, the single failure criterion is preserved by specifying limiting conditions for operation. When the required redundancy is not maintained, action is required within a specified time to place the plant in a safe condition. The specified time in which to take action is a temporary relaxation of the single failure criterion. These provisions have been formulated to assure that no set of equipment outages would be allowed to persist that would result in the facility being in an unprotected condition.

SCE&G agrees with the philosophy presented in this Generic Letter. The initial report (LER 2000-004) was based on the understanding that if a SSC is out of service for an indefinite time period, single failure criterion should be applicable during the entire outage time. With a specified allowed outage time for the LCO, the single failure criterion applies since further action would be required to minimize potential consequences from an accident or operational transients.

Generic Letter 89-18 states that adverse systems interactions (ASIs) involve subtle and often very complicated plant-specific dependencies between components and systems, possibly compounded by inducing erroneous human intervention. Systems interaction is defined as: Actions or inactions (not necessarily failures) of various systems (subsystems, divisions, trains), components, or structures resulting from a single credible failure within one system, component, or structure and propagation to other systems, components, or structures by inconspicuous or unanticipated interdependencies. The major difference between this type of event and a classic single-failure event is in those aspects of the initiating failure and/or its propagation that are not obvious (i.e., that are hidden or unanticipated).

SCE&G has not detected any adverse systems interaction related to this proposed TS change.