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RC-01-0106

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

Attention: Ms. K. R. Cotton

Gentlemen:

Subject: VIRGIL C. SUMMER NUCLEAR STATION
DOCKET NO. 50/395
TECHNICAL SPECIFICATION AMENDMENT REQUEST - TSP 00-0075
EMERGENCY FEEDWATER SYSTEM ISOLATION VALVES

Reference: G. J. Taylor to Document Control Desk, RC-98-0083, Dated April 17, 1998,
LER 1998-004-00

South Carolina Electric & Gas Company (SCE&G), acting for itself and as agent for South Carolina Public Service Authority, hereby requests an amendment to the Virgil C. Summer Nuclear Station (VCSNS) Technical Specifications (TS). This request is being submitted pursuant to 10 CFR 50.90.

The proposed changes will add requirements to Specification 3/4.7.1.2 to assure continued operability of the Emergency Feedwater System (EFW). Six new automatic isolation valves are being added to the system to assure the capability for automatic isolation of EFW in the event of a faulted steam generator. This condition was reported in LER 1998-004-00.

The purpose for this request is to expand existing surveillance requirements, (SR) 4.7.1.2.b and 4.7.1.2.c.2, to include testing requirements for the instrument air portions of the new isolation valves. This change will assure the capability of isolating the EFW into a faulted steam generator with a worst case single failure present.

SCE&G desires that this amendment request be approved by December 31, 2001, to permit implementation of the change, including training, prior to the start of Refueling Outage 13, scheduled for April 2002.

FSAR Sections 3.6, 7.4, 9.2, 9.3, 10.1, 10.3, 10.4, 15.2, and 15.4 are affected by this change and will be reviewed for necessary revisions prior to implementation of this change.

No commitments are being proposed in association with this change. The TS amendment request is contained in the following attachments:

A 001

Attachment I	Explanation of Changes Summary Marked-up Technical Specification Pages Revised Technical Specification Pages
Attachment II	Safety Evaluation
Attachment III	No Significant Hazards Evaluation

This proposed amendment has been reviewed and approved by the Plant Safety Review Committee and the Nuclear Safety Review Committee.

There are no other TS changes in process that will affect or be affected by this change request.

A copy of this application and associated attachments is being provided to the designated South Carolina State official in accordance with 10 CFR 50.91.

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

Should you have questions, please call Mr. Philip A. Rose at (803) 345-4052.

Very truly yours,



Stephen A. Byrne

PAR/SAB/dr
Attachments (3)

c: N. O. Lorick
N. S. Carns
T. G. Eppink (w/o Attachment)
R. J. White
L. A. Reyes
K. R. Cotton
NRC Resident Inspector
Paulett Ledbetter
K. M. Sutton
M. K. Batavia
W. R. Higgins
RTS (O-L-00-0075)
File (813.20)
DMS (RC-01-0106)

Attachment to License Amendment No. XXX
To Facility Operating License No. NPF-12
Docket No. 50-395

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages

Insert Pages

3/4 7-5

3/4 7-5

SCE&G -- EXPLANATION OF CHANGES

PAGE	AFFECTED SECTION	BAR #	DESCRIPTION	REASON
3/4 7-5	4.7.1.2.b	1	Increasing scope of surveillance requirement	Include the motive force for the automatic valves being added under ECR 50157 into the surveillance requirement.
3/4 7-5	4.7.1.2.c.2	2	Increasing scope of surveillance requirement	Assure that the automatic valves, being added under ECR 50157, will continue to satisfy their licensing basis requirements.

and the six emergency feedwater automatic isolation valve air accumulators

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4. Verifying that each automatic valve in the flow path from the condensate storage tank to the steam generators is in the fully open position whenever the emergency feedwater system is placed in automatic control or when above 10% RATED THERMAL POWER.
5. Verifying that valves 1010-EF and 1007-EF are locked in the open position.
- b. At least once per 3 months by verifying that the check valve in the instrument air supply line to the six emergency feedwater control valve air accumulators closes when the normal instrument air supply is not available.
- c. At least once per 18 months during shutdown by verifying that:
 1. Each emergency feed pump starts as designed automatically upon receipt of an emergency feedwater actuation test signal.
 2. The six emergency feedwater control valves can be closed and held closed for three hours with air from the accumulators when the normal instrument air supply is not available.
 3. The turbine driven emergency feedwater pump can be manually stopped from the main control board by closing the steam supply valve with air from the accumulator when the normal instrument air supply is not available.
 4. Each automatic valve in the flow path actuates to its correct position on receipt of an emergency feedwater actuation test signal.

and the six automatic isolation valves

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4. Verifying that each automatic valve in the flow path from the condensate storage tank to the steam generators is in the fully open position whenever the emergency feedwater system is placed in automatic control or when above 10% RATED THERMAL POWER.
 5. Verifying that valves 1010-EF and 1007-EF are locked in the open position.
- b. At least once per 3 months by verifying that the check valve in the instrument air supply line to the six emergency feedwater control valve air accumulators and the six emergency feedwater automatic isolation valve air accumulators closes when the normal instrument air supply is not available.
- c. At least once per 18 months during shutdown by verifying that:
1. Each emergency feed pump starts as designed automatically upon receipt of an emergency feedwater actuation test signal.
 2. The six emergency feedwater control valves and the six automatic isolation valves can be closed and held closed for three hours with air from the accumulators when the normal instrument air supply is not available.
 3. The turbine driven emergency feedwater pump can be manually stopped from the main control board by closing the steam supply valve with air from the accumulator when the normal instrument air supply is not available.
 4. Each automatic valve in the flow path actuates to its correct position on receipt of an emergency feedwater actuation test signal.

SAFETY EVALUATION
FOR REVISING EMERGENCY FEEDWATER SYSTEM
SURVEILLANCE REQUIREMENTS IN
THE VIRGIL C. SUMMER NUCLEAR STATION
TECHNICAL SPECIFICATIONS

Description of Amendment Request

The Virgil C. Summer Nuclear Station (VCSNS) Technical Specifications (TS), Section 3/4.7.1.2 are being revised to include the emergency feedwater system automatic isolation valves into the Surveillance Requirements (SR). SR 4.7.1.2.b is including verification of the functional capability of the check valves in the instrument air system supplying the six new automatic isolation valves. SR 4.7.1.2.c.2 is to include the six new automatic isolation valves into the requirement that assures critical valves can be closed and held closed when normal instrument air is unavailable.

The emergency feedwater automatic isolation valves are being installed to assure the system can be isolated from a faulted generator without dependence on local operator action and to provide additional train separation.

Safety Evaluation

The emergency feedwater system (EF) is designed to supply the required water to the steam generators (SG) in the event that normal feedwater is unavailable. This water provides the function of preserving the heat sink capabilities of the steam generators in the event of a major secondary side steam or feed line break. EF is used, additionally, to supply feedwater to the steam generators during testing, start-up, shut-down, anticipated transients without scram events, and wet lay-up operations. Sufficient redundancy exists to deliver the required flow at design pressure, while sustaining a single active failure in the short term or a single passive failure in the long term.

Two EF lines feed each steam generator, one from the motor driven EF pumps, the other from the turbine driven EF pump. Normally open pneumatically operated flow control valves are provided for each steam generator, one valve per SG from the motor driven pumps and one valve per SG from the turbine driven pump. Air accumulators are provided for these pneumatically operated valves. The accumulator volume is sufficient to close the valves on a high flow signal for at least three hours. The high flow setpoints have been established to isolate feedwater from a faulted SG. This ensures that sufficient feedwater is provided to the SGs to maintain their heat sink function and protect the core consistent with the safety analysis.

The present plant design and configuration requires operator action to assure isolate excessive flow should a flow control valve in the EF line to the faulted SG fail to close (single active failure) in response to the accident. Under specific scenarios, it is conceivable that an operator would have to make an entry into a hostile environment to perform manual closure of the

valves. This would be required to maintain the safety analysis assumptions regarding flow to the intact SGs and environmental qualification of equipment in the vicinity of the postulated break.

Each new automatic isolation valve meets all nuclear safety-related requirements and will be installed in series with a flow control valve (FCV). The signal for high flow will be from an independent and opposite train transmitter than the signal for the FCV. Additionally the electrical power supplied to each isolation valve will be from the opposite train than the flow control valve. This will provide additional redundancy and preclude the need for operator action.

Each new isolation valve will fail open on loss of power or instrument air and will have a safety class air accumulator and accessories designed to hold the valve closed for a minimum of three hours following a signal to close.

This proposed change adds Surveillance Requirements for testing the six new automatic isolation valves (one for each flow control valve) to demonstrate that the capability of isolating flow to a faulted SG is not lost, even with a single active failure. Both the check valves in the air supply line and the capacity of the accumulators will be included into the existing surveillance requirements 4.7.1.2.b and 4.7.1.2.c.2. This change will impose the same surveillance requirements for the six new automatic isolation valves as the existing flow control valves air supply and capacity.

NO SIGNIFICANT HAZARDS EVALUATION
FOR REVISING EMERGENCY FEEDWATER SYSTEM
SURVEILLANCE REQUIREMENTS IN
THE VIRGIL C. SUMMER NUCLEAR STATION
TECHNICAL SPECIFICATIONS

Description of Amendment Request

The Virgil C. Summer Nuclear Station (VCSNS) Technical Specifications (TS), Section 3/4.7.1.2 are being revised to include the emergency feedwater system automatic isolation valves into the Surveillance Requirements (SR). SR 4.7.1.2.b is including verification of the functional capability of the check valves in the instrument air system supplying the six new automatic isolation valves. SR 4.7.1.2.c.2 is to include the six new automatic isolation valves into the requirement that assures critical valves can be closed and held closed when normal instrument air is unavailable.

The emergency feedwater automatic isolation valves are being installed to assure the system can be isolated from a faulted generator without dependence on local operator action and to provide additional train separation.

Basis for No Significance Hazards Consideration Determination

South Carolina Electric & Gas Company (SCE&G) has evaluated the proposed changes to the VCSNS TS described above against the significant hazards criteria of 10 CFR 50.92 and has determined that the changes do not involve any significant hazard. The following is provided in support of this conclusion.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

The proposed change addresses necessary changes to the VCSNS Technical Specification (TS) 4.7.1.2.b and 4.7.1.2.c.2 associated with the installation of six new automatic isolation valves in the EF system. The TS needs to be changed to assure the same level of operability for the EF system as exists with the present day configuration.

The only Final Safety Analysis Report (FSAR) analyzed accident for which the EF system could contribute as an initiator would be minor secondary line break, as described in Section 15.3.2. The addition of isolation valves in the EF piping to the steam generators will not increase the likelihood of a pipe break, since the addition will be in accordance with the same codes and standards as the corresponding, existing portions of the system. Piping stress analyses have demonstrated the addition of these valves does not result in the need to postulate any additional pipe breaks.

The accidents analyzed in the FSAR, which rely on EF to mitigate consequences, are loss of normal feedwater, loss of off-site power, and major secondary system pipe ruptures. The addition of these automatic isolation valves will eliminate the need for operator action to manually close a flow control valve in response to a major secondary system line break. The elimination of operator manual action is accomplished by the addition of a new pneumatically operated isolation valve in series with each of the six existing flow control valves. Therefore, the change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

This proposed change does not result in changes to actual operating pressures, flow rates, flow paths, or system interfaces. There are no alterations to system operability requirements. The existing system alarm setpoints are not affected, as is the information available to the operators. The addition of six new isolation valves will not change system design criteria and the surveillance testing will be the same as for the existing flow control valves.

This change does not introduce any new or different kind of failure mechanisms or limiting single failures. Piping analysis has concluded that no new pipe break locations or break sizes will result from this change. Equipment protection features are not impacted, the frequency of pump and valve operation remains the same. Independence and redundancy are actually improved. Therefore, this proposed change would not create the possibility of an accident of a different type.

3. Does this change involve a significant reduction in margin of safety?

The design basis for the EF system is to assure the required flow and pressure to remove decay heat from the core under the worst postulated conditions. An additional function of the system is to isolate flow to a faulted SG within the time assumed in the safety analysis. The proposed change eliminates the need for operators to take actions to manually close the flow control valves in the event of a single failure.

The proposed change will create a surveillance requirement for the new isolation valves that is the same as the existing flow control valves. The acceptance criteria will assure the operability of these valves. The design and installation of these isolation valves will maintain the requirements for independence, redundancy, separation and testability. The margins assumed in the safety analysis will be enhanced by this proposed change. Due to the automatic isolation capability, additional water will be available for the intact SGs and a reduced mass will be available to be released into the containment building.

No credible single failure will be capable of preventing isolation of a faulted SG upon a high flow signal.

Pursuant to 10 CFR 50.91, the preceding analyses provides a determination that the proposed Technical Specifications change poses no significant hazard as delineated by 10 CFR 50.92.

Environmental Assessment

This proposed Technical Specification change has been evaluated against criteria for and identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. It has been determined that the proposed change meets the criteria for categorical exclusion as provided for under 10 CFR 51.22(c)(9). The following is a discussion of how the proposed Technical Specification change meets the criteria for categorical exclusion.

10 CFR 51.22(c)(9): Although the proposed change involves change to requirements with respect to inspection, Surveillance, or Design Requirements,

- (i) the proposed change involves No Significance Hazards Consideration (refer to the No Significance Hazards Consideration Determination section of this Technical Specification Change Request);
- (ii) there are no significant changes in the types or significant increase in the amounts of any effluents that may be released offsite since the proposed change does not affect the generation of any radioactive effluents nor does it affect any of the permitted release paths; and
- (iii) there is no significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Based on the aforementioned and pursuant to 10 CFR 51.22 (b), no environmental assessment or environmental impact statement need be prepared in connection with issuance of an amendment to the Technical Specifications incorporating the proposed change.