

SCE&G -- EXPLANATION OF CHANGES

<u>Page</u>	<u>Affected Section</u>	<u>Bar #</u>	<u>Description of Change</u>	<u>Reason for Change</u>
3/4 8.2	3.8.1.1 Action b.4	1 & 2	1) Add "****" between "hours" and "or" on the first line. 2) A footnote was added to Technical Specification 3.8.1.1 Action b.4. The footnote allows a one time AOT of 7 days to perform maintenance on EDG B during Cycle 11.	VCSNS may need to perform on-line maintenance on EDG B during Cycle 11 to replace the intercooler/injector cooling water, jacket water, and lube oil heat exchangers. This maintenance is expected to take longer than the 72 hour AOT allowed by the existing Technical Specification.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

3. Within 2 hours, verify that required systems, subsystems, trains components and devices that depend on the remaining EDG as a source of emergency power are also OPERABLE and in MODE 1, 2, or 3, that the Turbine Driven Emergency Feed Pump is OPERABLE. If these conditions are not satisfied within 2 hours be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. **
4. Restore the EDG to OPERABLE status within 72 hours* or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. |
- c. With one offsite circuit and one EDG inoperable:
 1. Demonstrate the OPERABILITY of the remaining offsite A.C. source by performing Surveillance Requirement 4.8.1.1.1 within one hour and at least once per 8 hours thereafter, and *
 2. If the EDG became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining EDG by performing Surveillance Requirement 4.8.1.1.2.a.3 within 8 hours*, and
 3. Within 2 hours, verify that required systems, subsystems, trains, components and devices that depend on the remaining EDG as source of emergency power are also OPERABLE and in MODE 1, 2, or 3, that the Turbine Driven Emergency Feed Pump is OPERABLE. If these conditions are not satisfied within 2 hours be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
 4. Restore one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours, and
 5. Restore the other A.C. power source (offsite circuit or diesel generator) to OPERABLE status in accordance with the provisions of Section 3.8.1.1 Action Statement a. or b., as appropriate, with the time requirement of that Action Statement based on the time of initial loss of the remaining inoperable A. C. power source.

*This test is required to be completed regardless of when the inoperable EDG is restored to OPERABILITY.

** A one time allowed outage time of 7 days is allowed for EDG B during Cycle 11

SUMMER - UNIT 1 for maintenance. 3/4 8-2

AMENDMENT NO. 77, 98

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

3. Within 2 hours, verify that required systems, subsystems, trains, components and devices that depend on the remaining EDG as a source of emergency power are also OPERABLE and in MODE 1, 2, or 3, that the Turbine Driven Emergency Feed Pump is OPERABLE. If these conditions are not satisfied within 2 hours be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
 4. Restore the EDG to OPERABLE status within 72 hours** or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- c. With one offsite circuit and one EDG inoperable:
1. Demonstrate the OPERABILITY of the remaining offsite A.C. source by performing Surveillance Requirement 4.8.1.1.1 within one hour and at least once per 8 hours thereafter, and
 2. If the EDG became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining EDG by performing Surveillance Requirement 4.8.1.1.2.a.3 within 8 hours*, and
 3. Within 2 hours, verify that required systems, subsystems, trains, components and devices that depend on the remaining EDG as source of emergency power are also OPERABLE and in MODE 1, 2, or 3, that the Turbine Driven Emergency Feed Pump is OPERABLE. If these conditions are not satisfied within 2 hours be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
 4. Restore one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours, and
 5. Restore the other A.C. power source (offsite circuit or diesel generator) to OPERABLE status in accordance with the provisions of Section 3.8.1.1 Action Statement a. or b., as appropriate, with the time requirement of that Action Statement based on the time of initial loss of the remaining inoperable A.C. power source.

* This test is required to be completed regardless of when the inoperable EDG is restored to OPERABILITY.

** A one time allowed outage time of 7 days is allowed for EDG B during Cycle 11 for maintenance.

SAFETY EVALUATION
FOR REVISING THE EDG B ALLOWED OUTAGE TIME
ONE TIME FOR MAINTENANCE DURING CYCLE 11
IN THE VIRGIL C. SUMMER NUCLEAR STATION
TECHNICAL SPECIFICATIONS

Description of Amendment Request

The Virgil C. Summer Nuclear Station (VCSNS) Emergency Diesel Generator (EDG) Technical Specification (TS) (3.8.1.1 Action b.4) is being revised to add a one time allowance to extend the allowed outage time (AOT) from 72 hours to 7 days for EDG B. This one time AOT extension will allow maintenance to be performed while the plant is on-line to replace EDG B intercooler/injector cooling water, jacket water, and lube oil heat exchangers (XHE0017B-HE1, HE2, & HE3) if necessary. Based on the analysis of data gathered during Refuel 10, replacement of the heat exchangers may be prudent during Cycle 11.

During Refuel 8 eddy current testing on the EDG A jacket water heat exchanger, indication of minimal tube degradation was identified. During Refuel 9 eddy current testing on the EDG A intercooler/injector cooling water and lube oil heat exchangers, indication of further tube degradation was identified. Based on the results of the eddy current testing during Refuel 9, all three EDG A heat exchangers are scheduled for replacement during Refuel 10. A detailed evaluation of the EDG A heat exchanger tubes will be performed after the heat exchangers are removed to further correlate the degradation mechanism and evaluate the impact on the EDG B heat exchangers. Based on this correlation, further evaluations may need to be performed (i.e., eddy current testing on EDG B heat exchanger tubes) to determine if the EDG B heat exchangers have sufficient margin to meet their design function. Previous eddy current testing on EDG B heat exchangers has shown only minimal tube degradation.

Safety Evaluation

VCSNS is proposing to change the TS to permit a one time extended AOT to perform maintenance on EDG B during Cycle 11 if evaluations indicate replacement of the heat exchangers is necessary. This TS change is required because the EDG B heat exchangers cannot be replaced within the current Technical Specification AOT of 72 hours. Extending the AOT and performing the maintenance on-line will not significantly increase the risk to the health and safety of the public as discussed below.

The Technical Specification change request will allow VCSNS EDG B to be out of service for 7 days while on-line maintenance is being performed. Performance of this maintenance on-line does not significantly increase the risk to the health and safety of

the general public. From an overall plant safety perspective, EDG maintenance performed during on-line conditions is at least as safe as during shutdown conditions. Emergency Diesel Generator maintenance should be performed when plant conditions more readily allow for decay heat removal via natural circulation in the Reactor Coolant System (RCS) with steam dump from the steam generators (in the case when all AC power is lost) and with no other maintenance and operational activities in progress that could affect AC power supplies. A review of recent industry loss of ESF bus events shows that the vast majority occur during plant outage conditions. There are system activities during shutdown conditions which could affect the ability to cool the core if a loss of all AC power were to occur (i.e., RCS integrity may not be established [which eliminates decay heat removal via natural circulation], no water in the Steam Generator [SG] U-tubes due to eddy current testing, no water on the SG secondary side, the turbine driven emergency feedwater pump may be out of service for maintenance, etc.). If defueled, the alternate spent fuel pool cooling would be available upon loss of AC power via inventory change-out using the diesel driven fire service water pump or gravity drain from the refueling water storage tank.

As discussed in the previous paragraph, performing EDG maintenance on-line ensures natural circulation is more readily available which allows time to restore AC power or find alternate sources of AC power before core damage can occur. Two alternate sources of offsite power available to VCSNS are the Fairfield Pumped Storage and Parr Hydro and Gas Turbine Stations. The Fairfield facility is located approximately one mile from VCSNS and consists of eight 64 MW units, two of which have black start capability, that feed through separate step-up transformers and transmission lines to the VCSNS Switchyard. During a station blackout condition, system dispatch can isolate the transmission lines at VCSNS via remote control from the dispatch office and allow the Fairfield generation to be dedicated to supply VCSNS. Fairfield is manned 24 hours a day so the capability to start the units and isolate generation can be accomplished within the 4 hour station blackout coping time (actual time is approximately 20 minutes). Parr Hydro is a 16 MW unit with black start capability (located approximately three miles from VCSNS), which feeds the switchyard at Parr. From the station service power at the switchyard, the four Gas Turbines (two 13 MW and two 17 MW units) can be started. Parr Hydro is not manned continuously and may require a call out to start, however, it can be started within the 4 hour station blackout coping time. During a station blackout condition, the transmission lines at Parr can be isolated so that the power flow can be dedicated to VCSNS. Although not specifically credited in the design basis, these sources add diverse capability and reliability to the VCSNS offsite sources. Emergency Diesel Generator work during the 7 day AOT will be coordinated with the system dispatcher to ensure the availability of these offsite sources.

Probabilistic Risk Assessments (PRA) were run to determine the affects on the core damage frequency (CDF) due to increasing the EDG AOT from 72 hours to 7 days, one time for heat exchanger maintenance. The PRA results indicate an increase of less

than 4%, not considering the offsetting benefit of increased availability of the EDG B during the outage. However, the most important factor in this analysis is EDG unavailability. A review of historical EDG unavailability data from the PRA and Maintenance Rule data bases indicate an improving trend. SCE&G credits improved maintenance practices which have led to better control of EDG unavailability, and increased reliability. It is important to note that the risk of performing one additional 72 hour outage on an EDG in the 1990 - 1991 time frame, is now comparable to performing one additional 7 day outage.

This proposed change, and the resulting EDG unavailability time, is not expected to exceed the Maintenance Rule criterion. The current performance of the EDG B, and the low unavailability time logged to date, will allow an additional 7 days of outage time without exceeding the target performance level.

Finally, performing EDG maintenance on-line allows the dedication of resources to that task without competing for resources as occurs during shutdown conditions. During shutdown conditions, Operations has to deal with many abnormal system alignments and a large number of maintenance activities that could affect AC power supplies. During power operations, no planned activities will be allowed during EDG maintenance that could degrade safety. Also, maintenance will not begin if adverse weather (i.e., tornadoes and hurricanes) is expected.

NO SIGNIFICANT HAZARDS EVALUATION
FOR REVISING THE DEFINITION FOR
EDG B ONE TIME AOT EXTENSION
IN THE VIRGIL C. SUMMER NUCLEAR STATION
TECHNICAL SPECIFICATIONS

Description of Amendment Request

The Virgil C. Summer Nuclear Station (VCSNS) Emergency Diesel Generator (EDG) Technical Specification (TS) (3.3.1.1 Action b.4) is being revised to add a one time allowance to extend the allowed outage time (AOT) from 72 hours to 7 days for EDG B. This one time AOT extension will allow maintenance to be performed while the plant is on-line to replace EDG B intercooler/injector cooling water, jacket water, and lube oil heat exchangers (XHE0017B-HE1, HE2, & HE3) if necessary. Based on the analysis of data gathered during Refuel 10, replacement of the heat exchangers may be prudent during Cycle 11.

During Refuel 8 eddy current testing on the EDG A jacket water heat exchanger, indication of minimal tube degradation was identified. During Refuel 9 eddy current testing on the EDG A intercooler/injector cooling water and lube oil heat exchangers, indication of further tube degradation was identified. Based on the results of the eddy current testing during Refuel 9, all three EDG A heat exchangers are scheduled for replacement during Refuel 10. A detailed evaluation of the EDG A heat exchanger tubes will be performed after the heat exchangers are removed to further correlate the degradation mechanism and evaluate the impact on the EDG B heat exchangers. Based on this correlation, further evaluations may need to be performed (i.e., eddy current testing on EDG B heat exchanger tubes) to determine if the EDG B heat exchangers have sufficient margin to meet their design function. Previous eddy current testing on EDG B heat exchangers has shown only minimal tube degradation.

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 will allow a one time EDG AOT increase from 72 hours to 7 days to perform on-line maintenance on EDG B during Cycle 11. This change

does not significantly affect the probability of an accident previously evaluated. Inoperability of an EDG is not an initiator of any analyzed event. Extending the EDG AOT to perform on-line maintenance will not significantly affect the consequences of an accident. During power operations, the capability of being able to remove decay heat via natural circulation is greater (in the case where all AC power is lost). This increases the likelihood of restoring AC power or finding an alternate source prior to core damage occurring. Alternate AC power sources are available which can supply AC power to VCSNS (one of the sources can be made available in approximately 20 minutes). During shutdown conditions, heat removal via natural circulation may not be available due to RCS integrity not being maintained, lack of water in the SG U-tubes, lack of water on the SG secondary side, or the turbine driven emergency feedwater pump being out of service. During power operations, no planned activities will be allowed during EDG maintenance that could degrade safety. PRA results indicate an increase in core damage frequency (CDF) of less than 4%. This increase is offset by the reduction in outage risk (most loss of ESF bus events occur during outage conditions), and the ability to better control concurrent activities and focus resources on line. 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?

The proposed change will allow a one time EDG AOT increase from 72 hours to 7 days to perform on-line maintenance on EDG B during Cycle 11. Although the change allows replacement of EDG heat exchangers, the change will not involve a significant change in the design or operation of the plant. This change will not involve any new or unusual Operator actions. The change will not impose any new or different requirements or eliminate any existing requirements. Therefore, the change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

The proposed change will allow a one time EDG AOT increase from 72 hours to 7 days to perform on-line maintenance on EDG B during Cycle 11. Extending the AOT to 7 days to replace EDG B heat exchangers on-line will not significantly affect the margin of safety. There are two alternate sources of AC power which can be made available solely to VCSNS (one of the sources can be made available in approximately 20 minutes). Performing the maintenance on-line allows natural circulation to be more readily available. Additionally, on-line performance allows dedication of resources to this task without competition from other activities that would occur during a shutdown. PRA results indicate an increase in CDF of less than 4%. This increase is offset by the reduction in

outage risk (most loss of ESF bus events occur during outage conditions), and the ability to better control concurrent activities and focus resources on-line. Therefore, the change does not involve a significant reduction in a margin of safety

Pursuant to 10 CFR 50.91, the preceding analyses provide a determination that the proposed TSCR poses no significant hazard as delineated by 10 CFR 50.92.

Environmental Assessment

This proposed Technical Specifications 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 or Surveillance Requirements,

- (i) 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 changes do not affect the generation of any radioactive effluents nor do they 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 requested.