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October 28, 2005
RC-05-0180

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

ATTN: Mr. Robert E. Martin

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION
DOCKET NO. 50/395
OPERATING LICENSE NO. NPF-12
LICENSE AMENDMENT REQUEST - LAR 05-3666
ALTERNATE AC POWER SUPPLY

Pursuant to 10 CFR 50.90, 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).

The proposed change will revise TS 3.8.1 and associated Bases to incorporate changes implementing requirements for an Alternate AC (AAC) power supply. The proposed change will significantly reduce the Core Damage Frequency (CDF) of the VCSNS due to a Loss of Offsite Power (LOOP) and is consistent with the amendment requests submitted by other utilities. This change will also permit extending the allowed outage time for the Emergency Diesel Generators (EDG) from 72 hours to 14 days and will enable SCE&G to schedule and perform EDG maintenance while online. Online EDG outages will increase the availability of emergency onsite electrical power during shutdown operations and allow a more focused effort on EDG preventative maintenance.

The change request is the result of installing the capability of having alternate offsite power provided from a blackstart capable hydro-electric generating station nearby.

SCE&G has evaluated the proposed license amendment request using both deterministic and probabilistic methodologies. These evaluations have shown that there are compensatory actions that can reduce overall risk. Performances of these actions during periods of extended unplanned EDG maintenance are regulatory commitments and are listed in Attachment III.

The VCSNS Final Safety Analysis Report has been reviewed and required revisions to Section 8 will occur after implementation of this LAR.

The proposed amendment has been reviewed by the VCSNS review committees. SCE&G has notified the State of South Carolina in accordance with 10 CFR 50.92(b).

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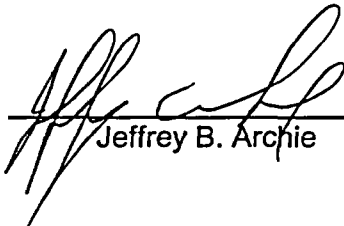
supports changing the scope of Refueling outage 16, scheduled for October 2006, by allowing planned EDG maintenance to be moved to appropriate online work windows.

It should be noted that the Alternate AC source to VCSNS does not change the existing Station Blackout (SBO) coping assessment. However, should a SBO event occur, the AAC system would be used to supply vital loads. The AAC system is intended to supply defense-in-depth during EDG online maintenance and at other times when it is available and is not intended to change the VCSNS licensing basis for compliance with SBO.

If you have any questions or require additional information, please contact Mr. Robert G. Sweet at (803) 345-4080 at your convenience.

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

10-28-05
Executed on


Jeffrey B. Archie

PAR/JBA/dr

Enclosure:

- I. Evaluation of the proposed change

Attachments:

- I. Proposed Technical Specification Change - Mark-up
- II. Proposed Technical Specification Change - Retyped
- III. List of Regulatory Commitments

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S. A. Byrne
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Subject: LICENSE AMENDMENT REQUEST - LAR 05-3666
Alternate Offsite Power Supply

1.0 - DESCRIPTION

South Carolina Electric & Gas Company (SCE&G) proposes an amendment to revise the Virgil C. Summer Nuclear Station (VCSNS) Technical Specifications (TS) to revise TS 3/4.8.1, AC Sources - Operating, and the associated Bases. The proposed change directly affects the Allowed Outage Time for an Emergency Diesel Generator (EDG) to be inoperable or out of service from 72 hours to 14 days, extends the operability verification for required systems from 2 hours to 4 hours and deletes the requirement to perform diesel maintenance every 18 months.

It should be noted that the Alternate AC (AAC) source to VCSNS does not change the existing Station Blackout coping assessment.

2.0 PROPOSED CHANGE

Specifically, the proposed changes would revise the following:

- 2.1 TS Action 3.8.1.1.b.3, the 2-hour verification of required systems, subsystems, components, and devices that depend on the remaining EDG are also Operable and that in Modes 1, 2, and 3, the Turbine Driven Emergency Feedwater (EFW) Pump is Operable, is being changed to a 4-hour verification to provide for a systematic verification not rushed by time pressures and permit an opportunity to repair minor equipment conditions to preclude putting the plant through a shutdown transient. This change was incorporated into the Improved Standardized TS (NUREG 1431, Revision 0).
- 2.2 TS Action 3.8.1.1.b.4, the 72-hour allowed outage time (AOT) to restore the EDG is being extended to 14 days (plus 6 hours) before the plant has to be in hot shutdown. This extension is based on the availability of offsite power from a blackstart capable hydro-electric generating station on owner controlled property. This change is similar to one approved for the Peach Bottom Nuclear plants (TAC NOS. M89243 and M89244 [ADAMS Accession No. ML011510094]). The extended AOT will only be applicable when the AAC source is assured to be available within one hour from the loss of one or both of the offsite sources. (Either pre-planned maintenance or emergent corrective maintenance.) Should the AAC source not be available within one hour, VCSNS will comply with 72-hour AOT and take actions as necessary to protect the plant and the public.
- 2.3 TS Surveillance 4.8.1.1.2.g.1, the 18-month manufacturer's inspection is being deleted. The EDG inspection is a preventative maintenance activity that is oriented towards long-term EDG reliability and does not have an immediate impact on EDG operability. The basis for the deletion is that plant programs implementing the Maintenance Rule require

assessment of performance. Further, the requirement for inspection is no longer in the Improved Standardized Technical Specifications (ITS) (NUREG 1431, Revision 3) and other plants have successfully removed this requirement from their TS. This change has been approved for Turkey Point Units 3 and 4, August 8, 2001, (TAC NOS MB1408 and MB1409 [ADAMS Accession No. ML012070418]).

3.0 BACKGROUND

At VCSNS, the onsite Engineered Safeguard Features (ESF) AC power source consists of two Emergency-Diesel-Generators (EDGs) and their associated auxiliary systems comprising the fuel oil, lube oil, cooling water, starting air, air intake and exhaust systems, and the automatic control circuitry. Each EDG consists of a turbo-charged, four-cycle diesel engine directly coupled to a 7.2 kV, 3-phase, 4250 kW (continuous rating) AC synchronous generator. The EDG ratings are 4250 kW continuous, 4676 kW for a 7-day rating and 5100 kW for a 30-minute rating. The Diesel Generators are capable of starting and accepting load within 10 seconds after receiving an automatic start signal.

The EDGs are seismically qualified, safety-related and located in separate rooms inside a separate structure. They are connected to separate power trains and supply emergency AC power to electrical loads needed to achieve safe shutdown of the plant or mitigate the consequences of an accident coincident with the loss of the normal AC supply. With any credible single failure, the EDGs are capable of assuring safe shutdown during a loss of offsite power (LOOP) concurrent with a loss-of-coolant accident (LOCA).

The AAC source to VCSNS has a primary purpose to support the reduction in Core Damage Frequency (CDF) and a second purpose to support a separate project to extend the Technical Specification (TS) allowed outage time (AOT) for an EDG with the unit at power. The AAC source to VCSNS will not change the coping assessment for the 10 CFR 50.63 Station Blackout coping assessment. This source is normally on, as the line is connected not only to Parr Hydro Electric (Parr), but ultimately to the 115 kV grid.

A new breaker will be added to the existing 13.8 kV common switchgear at Parr. There are six 3.0 MVA units at Parr and only three are required to supply power for starting of the ESF equipment (only two are required to support running loads). A blackstart diesel generator will be stationed at Parr to provide for operation of all generators at Parr, including the unit exciters and keep warm systems. This diesel generator will be auto starting and loading on a loss of AC power to Parr. All six units at Parr will be black startable as a result of this project.

Parr is located 3.5 miles from VCS and its elevation is greater than 150 feet below VCSNS grade. It is not susceptible to the same weather event that would disable the VCSNS switchyard. An underground cable will be installed between the Parr switchgear and a new weather protected transformer at the VCSNS switchyard. From the transformer, a cable will be run into 1DX switchgear, which is the incoming bus for the 115 kV ESF power supply. This bus can be tied to either or both onsite ESF buses. Electrical separation from the ESF power distribution system will be maintained by a minimum of two circuit breakers in series, one of

which will be a Class 1E breaker at the Class 1E ESF bus. The AAC source will not be normally connected to the onsite power systems.

An agreement is being made with the management of Parr. Personnel will be available to staff the plant during preplanned maintenance activities and personnel will be able to staff the plant within one hour for emergent conditions.

Current initiating event contributions to the VCSNS CDF have loss of offsite power as the significant contributor, approximately 60 percent. Installation of the AAC source cuts this contribution by more than half and the CDF shows a 20 to 40 percent reduction. It has been recognized that shutdown conditions also pose risks though events are generally slower moving. Therefore, the risk of performing EDG maintenance online is offset by the risk averted by removing the work from outages.

The new AAC source from the Parr Hydro will serve as backup for the EDGs. Installation of the AAC source follows the guidelines from NUMARC 87-00, Appendix B, for providing an acceptable AAC source and to also allow the AOT to be extended from 72 hours to 14 days. Installation of the AAC will support both corrective and planned maintenance. The guidelines from NUMARC 87-00, Appendix B, are being used to adopt an approach that has been demonstrated acceptable for an AAC power source.

The current 72-hour AOT is insufficient in duration to support extensive preventative maintenance. Such maintenance is required on a periodic basis, and is presently performed during refueling outages where both EDGs can be removed from service for an extended time period. This greatly lengthens and complicates outages, unnecessarily creates high risk evolutions, and typically means having to remove one or both EDGs from service during a refueling outage. Performing the work during an online maintenance evolution allows resources to be more focused on EDG maintenance, thus minimizing the potential for human error as a result of time pressures and resource allocation. The proposed 14-day AOT provides a work window which is long enough to accomplish all planned preventative maintenance activities.

SCE&G has evaluated the proposed License Amendment Request using both deterministic and probabilistic methodologies. These evaluations have determined that with the permanent installation of an AAC to serve as backup standby power supply to the emergency buses in conjunction with administrative controls there are adequate compensatory measures to ensure plant safety is not adversely affected during extended EDG maintenance while online.

4.0 ASSESSMENT

4.1 Technical Basis

4.1.1 Deterministic Evaluation

Offsite Power System

VCSNS is a single nuclear unit that shares a lake with the Fairfield pump hydro facility. Two separate sources of offsite power are provided for the Class 1E electric system, which is in compliance with General Design Criterion 17 and Regulatory Guide 1.32. One source is the SCE&G transmission grid terminating at the VCSNS 230 kV switchyard bus, which feeds the plant through a step down transformer. The second source is from the existing Parr Combustion Turbine Generating Complex over a 115 kV transmission line. This source is connected to the plant through onsite step down transformers and a separate regulating transformer. Each source is capable of supplying either or both trains of the engineered safeguards features (ESF) power. These two sources have sufficient separation and isolation so that loss of the VCSNS with the Fairfield Hydro Units off line will not degrade either of the sources below their acceptable voltage limit.

Thus, loss of the station output, in conjunction with an accident, will not result in a degraded voltage condition on either source. Likewise, loss of a line or generation on the 115 kV network will not cause a degraded condition on the Emergency Auxiliary Transformer which is fed power from the 230 kV bus. Also, no single event such as an insulator or bushing failure, transformer failure, transmission line tower failure, line breakage, or similar event can cause simultaneous disruption of both sources. The offsite power system is not designed to withstand tornadoes, exceptionally severe hurricanes or ice storms. However, the circuit breakers for isolation of the two separate onsite power systems from the offsite power system are located within two separate, missile protected rooms.

Therefore, any failure of the offsite power system, including the bus duct system between the offsite power system and the ESF buses, is isolated from the ESF buses before the emergency diesel generators are started. Bus 1DX is the alternate power source for bus 1DA and during certain evolutions can even supply power to both ESF buses.

A direct communications link is provided between the SCE&G Dispatch Office in Columbia, SC, and all SCE&G generating plants. Through this communications link, the plant operators receive the instructions from the dispatch office for setting generator kilowatt, kilovar output, voltage level, and for controlling the VAR output on the Fairfield units when they are used for pumping.

The 230 kV buses are protected by single phase bus differential voltage relays. Each 230 kV line and the 115 kV line is protected by primary and backup relaying. Each 230

kV breaker is provided with a breaker failure relay that trips the appropriate bus lockout relay when the breaker fails to trip. Each line breaker also has a multi-shot, static reclosing relay.

The 230 kV circuit breakers associated with the plant main transformer and emergency auxiliary transformers, as well as the circuit switches associated with the ESF transformers, are controlled from, and provide indication in, the control room. Also, the 230 kV circuit breakers can be tripped at the circuit breaker control panels mounted on the circuit breaker structures. Manually operated disconnect switches are provided for the 230 kV circuit breakers to isolate each from the bus and associated lines. These manual disconnects permit testing and maintenance of each circuit breaker on an individual basis while allowing the 230 kV substation to remain energized, which satisfies General Design Criterion 18. Testing and maintenance are performed periodically in accordance with a SCE&G program.

The preferred power source transformers, which are the emergency auxiliary transformers and the combination of the safeguard transformers and the voltage regulator are located out of doors and are physically separated from each other for protection.

Reliability and Performance Monitoring

Equipment relied upon for supplying electric power and mitigating the loss of power events is included in the VCSNS Maintenance Rule Program and is monitored for equipment reliability and unavailability. If the performance or condition of these systems, structures, or components (SSCs) does not meet established performance criteria, appropriate corrective action is taken.

SCE&G performs reliability studies for interconnected system performance during transient disturbances. These studies are performed and evaluated every four years or when conditions require.

It is important to note SCE&G's expectation that the extended AOT will not be used on a frequent basis. Frequent use of the extended AOT would adversely impact the system availability and may cause the EDGs to become "(a) (1)" per the VCSNS Maintenance Rule Program. If the pre-established reliability or availability goals are not met for the EDGs, plant procedures will require corrective actions and increased management attention to restore EDG performance. Excessive use of the extended AOT would also become evident through the "Emergency AC Power" NRC performance indicator crossing the threshold from green to white.

In addition, VCSNS committed to an EDG reliability of 0.95 as part of compliance with the Station Blackout Rule (SBO), 10 CFR 50.63. The reliability is based on the number of valid failures per valid starts. A Maintenance Rule performance criteria was established that is currently more restrictive than the SBO commitment. The SBO criterion would not be challenged until after the Maintenance Rule criterion is exceeded. SCE&G utilizes guidance from NUMARC 87-00, Appendix D, and Regulatory Guide

1.155, "Station Blackout" to assure the assumptions in VCSNS's SBO coping assessment are maintained.

The deletion of the requirement for the 18-month vendor specified inspection will not cause any adverse impact to the reliability or availability of the EDG. Performance based regulations, such as the Maintenance Rule, have helped establish the precedence of using performance monitoring as a basis for satisfying compliance based regulatory requirements. Performance monitoring is defined as the quantitative assessment of the degree to which a component is fulfilling its required function. Accurate, periodic performance monitoring has the potential to increase safety.

The station Maintenance Rule Program provides confidence that the proper maintenance is being performed to ensure the EDG system remains capable of performing its intended functions. Should the EDG be assessed as having degrading performance, additional resources, up to and including management attention will be directed at the problem until the confidence is restored. Diesel Generator inspections will continue to be performed and will incorporate plant equipment performance as well as considering the vendor's recommendations. The maintenance strategy implemented will ensure that the proper maintenance is performed to ensure reliability and may go beyond vendor recommendations if equipment reliability is in question. The maintenance and inspection frequency will be established based on the EDG performance level, not on some arbitrary frequency that is based on the refueling outage periodicity.

Reliability Improvements

The performance of significant online maintenance is expected to provide for a measurable improvement in EDG-reliability for the following reasons:

1. The activity will assure an increased site focus on the EDG maintenance. The EDGs would not be just another outage activity.
2. With only one significant activity occurring during this time period, there would be an increased management oversight of the activity.
3. The maintenance activity would not be competing for resources – additional resources could be assigned as needed and the best in-house resource would be involved in the activity. Additional opportunities for training would be available.
4. Planning and scheduling would improve; with online maintenance the details for each task could be better planned and job feedback could be enhanced.
5. Scheduling of the online maintenance would choose the optimum work conditions, including temperature and availability of knowledgeable personnel. Human Factors issues would be minimized.

6. Time pressures for an outage activity that is near critical path would be reduced. Although there is still a time limit, the 14-day AOT allows sufficient time to perform the schedule activities without being driven by schedule constraints.
7. Online maintenance allows the use of all permanent station employees: higher quality work is expected from personnel with more at stake and better qualified personnel will be available to perform the activity.

Activities that implement corrective actions will benefit from this extended AOT for many of the same reasons. Additionally, initiating dialog with the NRC will not have to occur to request enforcement discretion or an emergency change to the TS for emerging conditions that may require more than the current AOT of 72 hours to resolve. If a change to the TS is required to resolve the condition, sufficient time will be available to offer the public the opportunity to be involved in a TS change.

Loss of Offsite Power/Station Blackout

Upon loss of the sources of offsite power described above, power will be supplied from two automatic, fast start-up EDG units. These are sized so that either one can carry the required ESF load. Each EDG will feed its designated 7.2 kV bus. SCE&G is not intending to revise the Station Blackout coping analysis.

In an SBO event, both EDGs are assumed not to function. The increased EDG AOT is not expected to increase the overall EDG unavailability due to process inefficiencies and a reduction in corrective maintenance. Therefore, the probability of an SBO event is not ~~expected to be increased due to this proposed change.~~ SCE&G addressed the SBO Rule, 10 CFR 50.63, which postulates the loss of all AC power, by demonstrating the ability to cope without any AC power for 4 hours and did not add alternate AC capability.

The primary safety challenge caused by a SBO is loss of normal decay heat removal capability due to the interruption of forced Reactor Coolant System (RCS) flow reduction and normal primary to secondary heat removal capability supported by main feedwater. VCSNS has one fully available SBO capable means of supplying feedwater in the 100% capacity turbine driven EFW pump. This pump can provide sufficient EFW flow to maintain natural circulation.

Action Statement Change

In addition to the EDG AOT extension, SCE&G is proposing a change to Action Statement 3.8.1.1.b.3 to revise the 2-hour verification of supported equipment to a 4-hour requirement. This will allow for a more systematic verification process and preclude time pressures from impacting the verification process. This change was incorporated into ITS, Revision 0, and has been adopted by plants that have converted to ITS.

When an EDG is declared inoperable, although the main focus is on plant safety, the control room staff has their attention divided. Multiple activities are occurring at the same time and as such there is a feeling of time pressure to complete the TS required verifications in the allotted time. The additional time to complete the verification will permit prioritization of the various activities to be performed with safety in mind, instead of having to complete activities due to a TS time requirement. The 4-hour AOT also provides an opportunity for the control room staff to discover and restore any discovered inoperabilities.

Deletion of TS Required Inspection Requirement

TS 4.8.1.1.2.g.1 states that at least once every 18 months, the EDGs must be subject to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service. This inspection is a preventative maintenance activity and is oriented towards long-term EDG reliability and does not have an immediate impact on equipment operability. EDG operability is verified by the TS surveillance requirements that continue to be maintained in the TS.

The operability of the EDG is verified by performance of the periodic testing that is required by the surveillance requirements. These tests verify that the diesel generator and support systems have been maintained in an acceptable condition such that the limiting condition of operation is met and the diesel generator is capable of performing its required function. The EDG maintenance is focused on long term reliability and does not immediately affect operability. The effectiveness of the maintenance performed is verified through the surveillance testing. The maintenance strategy developed goes beyond the manufacturer recommendations and includes incorporation of industry operating experience and maintenance practices, owner group recommendations (which have been endorsed by the manufacture) and site specific operating experience. The effectiveness of the maintenance program is monitored through implementation of 10CFR50.65 requirements. If the EDG fails to meet established performance criteria, the condition is evaluated and corrective actions are initiated to restore reliability. Since the surveillance requirements verify the adequacy of the maintenance performed, a specific surveillance is not needed.

The deletion of the 18-month inspection was generically approved by the NRC for the ITS, Revision 0, as the inspection requirement did not meet the criteria in the NRC Final Policy Statement and the revised 10 CFR 50.36 rule. This request is similar to the Limerick LAR request approved via Amendment 165/128 on April 18, 2003 (TAC NO. MB4847 and MB4848 [ADAMS Accession No. ML030970732]). The deletion will facilitate future implementation of performance centered maintenance, which considers industry operating experience, site specific operating experience, accepted industry practices, and owner group maintenance recommendations. A comprehensive program entitled "Guidelines for the Performance of Maintenance on Pielstick Engines", Revision 0, December 1, 2003, was developed by the Fairbanks Morse Owners Group (FMOG) to establish a framework for expected maintenance activities required to assure consistent availability. This document was reviewed and approved by Coltec Industries/Fairbanks

Morse Engine Division who is the original equipment manufacturer for the VCSNS EDGs.

The activities performed at the specific frequencies defined in the program constitute a complete package for maintaining EDG reliability. The document considered industry operating experience and provides the framework to develop a preventative maintenance program. Strict adherence to the guideline is not required, however, justification should be provided along with documented acceptable engine performance. In addition to regular maintenance, engine and generator parameters are trended to assess the health of the diesel generator between maintenance intervals. The current procedures and practices at VCSNS were compared against this document and were determined to be closely aligned with the FMOG program.

An INPO lead assessment utilizing industry peers was recently performed and compared the maintenance currently implemented with accepted industry practice and the FMOG guideline. It was found that most of the recommendations in the guideline have already been implemented at VCSNS and recommended inclusion of some additional maintenance. The recommendations will be implemented or dispositioned either before or with the implementation of this LAR.

4.1.2 Risk-Informed Evaluation

An analysis was performed in a manner consistent with NRC Regulatory Guide 1.177, "An Approach for Plant Specific, Risk-Informed Decision Making: Technical Specifications." This analysis calculates a risk-informed quantitative impact of the proposed permanent TS change in the AOT for a single EDG train from 72 hours to 14 days (336 hours). This evaluation is plant specific using the VCSNS Probabilistic Risk Assessment (PRA) model for online operation.

PRA Quality

SCE&G maintains a living PRA with an internal process and procedures that establish the programmatic requirements for PRA update and review. The current PRA model of record, 4c, is based on plant data through December 2001, and plant modifications through March 2004.

A peer review of the VCSNS PRA was performed July 2002, as part of the Westinghouse Owners' Group (WOG) industry review process, and completed in August 2002. All significant comments ('A' or 'B' level) from the 2002 peer review have been addressed except for one 'B' level comment concerning the internal flooding analysis. This outstanding "Fact and Observation" (F&O) comment is being addressed by a detailed internal analysis that has not yet been completed or incorporated into the PRA. This F&O is not expected to impact the PRA analysis of the AAC power supply. Other significant comments were addressed either by incorporation into the PRA or through documentation of assumptions as required.

Scope of the PRA

The VCSNS PRA is a level 2 PRA containing top gates for both Core Damage Frequency (CDF) and Large Early Release Frequency (LERF). It does not address fire, seismic, or external flooding. The model covers power operation only.

PRA Modeling

SCE&G's PRA model is a large fault tree / small event tree type model. Small event trees are used to determine core damage sequences which are modeled by top logic in the large linked fault tree model. The results of the model are calculated at the cut set level. The typical truncation limit used is $1.0\text{E-}11$ for CDF and $1.0\text{E-}13$ for LERF.

During model solution, recoveries for certain failures are applied at the cut set level. The programming for this recovery process allows for exclusion of recoveries of certain types of cut sets. For example, the recovery of EFW pumps in maintenance cannot be applied for large LOCA cut sets. The recovery process also allows accounting for dependencies between Human Reliability Analysis (HRA) basic events. This is accomplished by excluding HRA based recoveries from cut sets containing certain other HRA events and by explicitly applying dependency multipliers to combinations of HRA events identified as dependent.

Common cause event probabilities are calculated using the Multiple Greek Letter method. Where possible, common cause event in the model represent failures at the component level.

Initiating events for Loss of Service Water, Loss of Component Cooling Water, Loss of Instrument Air, Loss of the 'A' DC-Bus, Loss of the 'B' DC-Bus, and Loss of Inverter Panels are incorporated into the model using fault tree logic. Other initiating events are incorporated using point estimate probabilities.

Component availability models include contributions from random failure, test, and maintenance unavailability. The 4c model uses average maintenance data for components. Failure rates for the current EDGs are developed using VCSNS specific performance data. Common cause failures between existing EDGs and the AAC system are not modeled because they are different types of generators.

A new model was created on 4c model to estimate the risk impacts of extending the AOT from 72 hours to 14 days, combined with adding the AAC as an additional power source. Several modifications were made to the existing model to account for the addition of the AAC. Logic was added to the PRA fault tree to model hardware failure and human error probabilities associated with aligning and powering the ESF buses. Additionally, logic was incorporated into the model, and recovery events were incorporated into the recovery rule file, to address the case of recovering an EDG in maintenance with credit for the AAC.

The proposed 72-hour to 14-day EDG AOT change, as well as AAC system implementation, was determined by SCE&G to have no impact on initiating event frequencies.

AAC Reliability

The AAC power source consists of six 3.0 MVA hydro electric generating units. Of the six units, only three are required to supply the starting loads and only two are required for the running loads, post accident. PRA logic models the need for three units. These must consist of one of Parr Units two or six to start and two of Parr Units one, three, four, or five. The availability of at least four units has been established as at least 97%.

AAC Support

SCE&G has reviewed the AAC support system failures and determined that failures of these systems do not significantly contribute to the failure probability of the system and are thus not included in the AAC system hardware fault tree. Most support system failures do not result in an immediate loss of function. The diesel generator at Parr will be used only when the grid is unavailable to support starting additional hydro units.

EDG Reliability

The EDG failure rate used in the PRA model is based on plant specific data and was last updated in March 2004 with data current through December 2001.

Seismic

Seismic is not explicitly modeled in the VCSNS PRA. However, it has been shown in the Individual Plant Examination (IPE) to be a relatively small contributor to risk. The AAC source is expected to be more seismically rugged than other offsite power sources at VCSNS because it is supplied from a hydro station via an underground line. Therefore, although this new power supply will reduce seismic risk at VCSNS, this risk reduction was not accounted for in the PRA model.

Fire

Fire is not explicitly included in the VCSNS PRA. However, the only new on-site source of combustible material associated with the AAC is a new transformer in the switchyard. This transformer is a type that has a very low incidence of fire. Also, the switchyard was not identified as an important fire area in the Individual Plant Examination of External Events (IPEEE). The AAC source will be able to supply power if needed to recover from a fire elsewhere in the plant, so it should somewhat reduce fire risk at VCSNS. This risk reduction was not accounted for in the PRA model.

4.1.3 Three-Tiered Approach to Assessing Risk

RG 1.177 presents a three-tiered approach risk associated with proposed TS AOT changes. Tier 1 involves an evaluation of the impact on plant risk of the proposed TS change as expressed as a change in CDF, the incremental conditional core damage probability (ICCDP), and when appropriate, the change in large early release frequency (LERF), and the incremental conditional large early release probability (ICLERP). Tier 2 involves an identification of potentially high risk configurations that could exist during the AOT. Tier 3 involves the implementation of an overall risk management program to ensure that potential configurations resulting from other maintenance or operational activities are identified, and that actions are taken to compensate for such configurations.

Tier 1: PRA Insights

Risk informed support for the proposed changes is based on an evaluation of PRA calculations performed to quantify the changes in CDF and LERF, as well as the ICCDP and the ICLERP resulting from the proposed 14-day EDG AOT.

The addition of the AAC source is expected to decrease CDF by about 31% from the 4c baseline value of $4.9238\text{E-}05$. The expected decrease in LERF is approximately 10% from the 4c baseline value of $1.1244\text{E-}06$.

The CDF and LERF risk decreases do not account for expected decreases in fire or seismic risk (due to the AAC) or the decrease in risk while in refueling outages (from having the EDGs available). Also this risk decrease does not account an increment of increased risk due to conducting more EDG maintenance while the plant is at power. A sensitivity study indicates that this potential risk increase is slight and overall, the AAC would still lead to a large (at least 28%) reduction in CDF.

The at-power, internal events ICCDP for the 14-day AOT (one EDG in maintenance) is $4.46\text{E-}07$. The corresponding at-power, internal events ICLERP is $5.68\text{E-}09$.

With a 14-day AOT, routine EDG maintenance will not typically be conducted during refueling outages. As such, the small ICCDP is generally offset by a decrease in ICCDP at shutdown. Additionally, a very low ICLERP is expected because the LERF at VCSNS is dominated by containment bypass events that are not strongly influenced by the Loss of Offsite Power initiating event (e.g. Steam Generator Tube Rupture).

Tier 2: Avoidance of Risk-Significant Plant Configurations

The configuration risk threshold corresponding to the NEI recommended "establish risk management actions" level in NEI/NUMARC 93-01, Revision 3, Chapter 11, is equivalent to an incremental core damage probability (ICDP) configuration of 1E-06. At VCSNS, the Plant Safety Review Committee must approve any scheduled configuration that would exceed the 1E-06 threshold in eight hours (the RED threshold). The General Manager of Nuclear Plant Operations or the Management Duty Supervisor must approve configurations that result in an ICDP of 1.0E-06 in less than 24 hours (the ORANGE threshold). Generally, the RED and ORANGE thresholds are avoided. The Operations Shift Supervisor or Operations Scheduling Supervisor must approve of configurations at the YELLOW threshold. This threshold is set administratively below the risk level required to reach an ICDP of 1.0E-06 in 72 hours.

Thresholds for ILERP are administered similarly based on a limit of 1.0E-07.

In addition to the above, the following guidelines apply:

- Maintenance of the Alternate AC Power source will not be scheduled to run concurrently with maintenance on either Emergency Diesel Generator.
- Major maintenance outages of the EDGs will typically be planned to occur outside of scheduled outages.

Tier 3: Risk-Informed Configuration Management

VCSNS satisfies the TIER 3 and the 10-CFR-50.65 (a)-(4) requirement for an online maintenance risk evaluation tool with our Equipment Out of Service (EOOS) model.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration Determination

In accordance with the criteria set forth in 10 CFR 50.92, SCE&G has evaluated these proposed Technical Specification changes and determined they do not represent a significant hazards consideration. The following is provided to support this conclusion.

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

No.

The proposed change revised two action statements and relocated a surveillance requirement. The first AOT extension permits one EDG to be inoperable for up to 14 days, but the AAC source will have to be available. This proposed change will be primarily used for scheduled preventative maintenance

while the plant is online. If used for corrective maintenance, the AAC source will have to be capable of providing power within one hour, otherwise the existing 72-hour AOT would apply. This assures that adequate power remains available to the ESF buses to enable the plant to safely shut down, maintain a safe shutdown condition, and/or mitigate the effects of a design basis accident.

The second AOT extension provides an additional two hours to complete the verification of supported equipment for operability. This additional time allows for a planned and systematic approach to performing this verification. Since there are other more immediate ways for the control room staff to be notified of the inoperable status of ESF equipment, (annunciators, BISI, status lights), the TS requirement is not critical in knowing the status of the plant. Should some equipment be discovered inoperable, the extended AOT provides for some opportunity to restore the status to operable.

The deletion of a surveillance requirement that requires performing a vendor recommended maintenance at a specific frequency does not impact the ability of the EDG to perform its intended function for the mission time assumed in the accident analysis. EDG maintenance will continue to be performed and controlled under station procedures. The risk associated with the maintenance will be assessed under the provisions of 10 CFR 50.65 (a) 4. The TS frequency was initially established to coincide with refueling outages, the only time that one EDG could be inoperable for any extended time. However, multiple plants have extended the time between refueling outages to 24 months with no discernable impact on reliability or availability. In addition, the Fairbanks-Morse diesel engine owners group has evaluated the maintenance requirements and determined that the TS required frequency should be based on performance and inspection results, not an arbitrary period that coincides with the best opportunity to perform the work. The Maintenance Rule requires evaluation for additional corrective actions and increased monitoring for scoped systems if the reliability and/or availability fall below pre-established criteria. This approach ensures appropriate actions in a timely manner are taken to ensure that equipment relied upon for accident mitigation is available when required.

There are no changes in operational limits or physical design of the onsite electric power systems. The proposed changes do not change the function or operation of plant equipment or affect the response of the equipment if called upon to operate. The EDGs are not the initiators of previously evaluated accidents. The EDGs are designed to mitigate the consequences of accidents. The risk informed assessment that was performed concluded that the increase in plant risk is small and consistent with the guidance in Regulatory Guide 1.174. This assessment considers the possibility of an accident occurring during the extended period that the EDG would be unavailable. The proposed changes allow for additional operational flexibility and will not cause a significant increase in the probability or consequences of an accident previously evaluated. In actuality, the installation and availability of the AAC will have an overall net reduction in core damage frequency.

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

No.

The proposed change to extend the EDG AOT to 14 days is based upon the installation of an AAC power source and the significant reduction in core damage frequency that results. There are no significant changes in installed plant equipment or operation of safety related equipment. The accident analysis considered the credible accidents and bounded those that apply. The installation of the AAC and the extended AOT for one EDG to be inoperable remain bounded by previous evaluations.

The AOT extension to provide additional time to perform the redundant equipment verification is based on the other methods available for the Control Room staff to be made aware of a change in ESF equipment status and the safety benefit of performing this verification in an unhurried manner. This verification has been extended by other plants, both those who have converted to ITS and those that have not. No plant modifications are required and operator training is unaffected. The verification process does not utilize any new or complex software and any new accident is bounded by a Loss of Site Power or Station Blackout analysis.

The deletion of a surveillance requirement to perform the manufacturer's recommended inspection and maintenance is based on the recommendations from the vendor and the Fairbanks Morse owners group. The recommendation is to continue to perform the inspections and maintenance but the frequency should not be based on the refueling outage frequency. The effectiveness of the maintenance will be assured through monitoring under the Maintenance Rule program which would require evaluation and corrective actions should the EDG not meet its performance criteria for reliability and availability.

The EDG performs a function of supplying power when the normal ESF sources are unavailable. This is a function that mitigates the effects of the event and the proposed changes cannot cause the possibility of an accident that was not previously evaluated.

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

No.

The proposed change to extend the EDG AOT to 14 days from the current 72 hours will assure that an alternative source of power for the ESF onsite distribution system is available and ready. The AAC and interfacing equipment are designed to maintain independence and separation, particularly during faulted conditions. The plant equipment will continue to respond per the design

and analysis. The performance capability of the EDGs will not be affected. Installation of the AAC will have a net reduction in the core damage frequency. In addition, administrative controls will ensure that there are adequate compensatory measures that can and will be taken during extended EDG maintenance activities to reduce overall risk.

The AOT extension to provide additional time to perform the redundant equipment verification for operability verification allows some time to discover a problem and make a minor repair prior to placing the plant in a shutdown transient. The types of corrective or preventative maintenance associated with ~~an EDG will not change.~~ Plant operating and emergency procedures will be enhanced with guidance on when to use the AAC and how to connect up to the ESF bus.

The deletion of the periodic EDG inspection per the vendor's recommendation at a proscribed frequency provides significant flexibility in when to schedule the inspection and preventative maintenance. The activities would still be performed but the frequency would be based on equipment performance and owners group recommendation. The plant analysis only considers the availability of the EDG. The TS surveillances that assure the EDG remains operable remain in place at their current frequencies and the maintenance requirement will assure that the EDG receives sufficient maintenance to remain operable.

Since the operation of the plant remains largely unaffected and the EDG or the AAC will supply power to the ESF equipment as needed, there is no significant reduction in a margin of safety.

5.2 Applicable Regulatory Requirements/Criteria

10 CFR 50, Appendix A, Criterion 17, Electric Power Systems

"An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

The AAC system that will permit the extension of the EDG AOT up to 14 days was designed to the requirements in NUMARC 87-00, Appendix B, for alternate AC power sources. This document describes criteria that must be met by a power source in order to be classified as an AAC power source. The design includes adequate capacity for the AAC to provide sufficient power to keep the plant in a safe condition during both normal operation and accident conditions.

10 CFR 50, Appendix A, Criterion 18, Inspection and Testing of Electric Power Systems

"Electric power systems important to safety shall be designed to permit appropriate periodic inspection and testing of important areas and features, such as wiring, insulation, connections, and switchboards, to assess the continuity of the systems and the condition of their components. The systems shall be designed with a capability to test periodically (1) the operability and functional performance of the components of the systems,..."

The AAC system design includes provisions for testing and maintenance as required by NUMARC 87-00, Appendix B. A testing program will be initiated for the blackstart diesel at the Parr Hydro to assure reliability and availability of that portion of the system. The Hydro units themselves are currently under a preventative maintenance and test program under the control of the Fossil-Hydro side of SCE&G. Prior to declaring the system available the first time, a test will be developed and run to assure availability and capability are as assumed. A verification of equipment maintenance and Parr Hydro staffing will be performed prior to declaring availability each time the 14-day AOT is entered.

10 CFR 50.36, Technical Specifications

"Each license authorizing operation of a production or utilization facility of a type described in § 50.21 or § 50.22 will include technical specifications. The technical specifications will be derived from the analyses and evaluation included in the safety analysis report, and amendments thereto, submitted pursuant to § 50.34." This section requires the Licensee's TS to contain Limiting Condition for Operation (LCOs), which contain an AOT for equipment that is required for the safe operation of the plant.

TS 3.8.1 currently provides an AOT for the onsite electrical power system with one EDG inoperable. This AOT is proposed to be extended, based on industry activities and probabilistic safety analysis results. The requirements in 10 CFR 50.36 will remain satisfied.

10 CFR 50.63, Loss of All Alternating Current Power

"Each light-water-cooled nuclear power plant licensed to operate must be able to withstand for a specified duration and recover from a station blackout as defined in § 50.2."

The proposed change to the EDG AOT will not have any impact on the coping analysis performed for Station Blackout. The modification to the plant to install the AAC is not intended to be credited for the Station Blackout analysis.

10 CFR 50.65, Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants

"Each holder of a license to operate a nuclear power plant under Secs. 50.21(b) or 50.22 shall monitor the performance or condition of structures, systems, or components, against licensee-established goals, in a manner sufficient to provide reasonable assurance that such structures, systems, and components, as defined in paragraph (b), are capable of fulfilling their intended functions."

SCE&G acknowledges the need to scope the AAC system per the Maintenance Rule requirements. The AAC system scoping will be completed and approved by the expert panel prior to implementing the TS change.

Regulatory Guide 1.93, Availability of Electric Power Sources

This document provides guidance with respect to operating restrictions (i.e., AOTs) if the number of available alternating current sources is less than what is required by the TS LCO. In particular, this guide prescribes a maximum AOT of 72 hours.

Regulatory guides (RG) are not the NRC's only acceptable method for meeting regulatory requirements. The guidance provided in the Regulatory Guide is one acceptable method. Other methods have to be evaluated before the NRC can find them acceptable. Other RGs provide guidance on risk informed methods that can be utilized to change a requirement in TS. As such, commitments to the RGs can be revised utilizing techniques approved by the NRC.

Regulatory Guide 1.174, An Approach for Using Probabilistic Risk Assessment in Risk Informed Decisions on Plant-Specific Changes to the Licensing Basis

This document provides a risk informed approach, acceptable to the NRC, for assessing the nature and the impact of proposed Licensing Basis changes by considering engineering issues and applying risk insights.

The guidance provided in this RG has been incorporated into the proposed change justification.

Regulatory Guide 1.177, An Approach for Plant Specific, Risk-Informed Decision-making: Technical Specifications

This document describes an acceptable risk-informed approach specifically for assessing proposed TS changes in AOTs. This RG also provides acceptance guidelines for evaluating the results of such evaluations.

The guidance provided in this RG has been incorporated into the proposed change justification.

6.0 ENVIRONMENTAL CONSIDERATION

SCE&G has determined that the proposed amendment would change requirements with respect to the installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. SCE&G has evaluated the proposed change and has determined that the change does not involve, (i) a significant hazards consideration, (ii) a significant change in the types of or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. As discussed above, the proposed changes do not involve a significant hazards consideration. Accordingly, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51, specifically 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed change is not required.

ATTACHMENT I

PROPOSED TECHNICAL SPECIFICATION CHANGES (MARK-UP)

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

3/4 8-2
3/4 8-4
B 3/4 8-1
B 3/4 8-2
B 3/4 8-3
new

Insert Pages

3/4 8-2
3/4 8-4
B 3/4 8-1
B 3/4 8-2
B 3/4 8-3
B 3/4 8-4

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	Action 3.8.1.1.b.3	1	Revise the 2 hour verification to a 4 hour verification.	Provide additional time to verify Operability and opportunity to resolve minor problems.
3/4 8-2	Action 3.8.1.1.b.4	2	Replace 72 hour AOT with 14 day AOT.	Provide risk informed AOT to permit online maintenance of EDG.
3/4 8-4	SR 4.8.1.1.2.g.1	1	Delete the requirement for vendor recommended maintenance frequency.	Recommendation from FMOG and ITS. Maintenance Rule will assure maintenance is completed based on performance.
B3/4 8.1	B 3/4.8	1	Add detail to Bases section.	Update Bases section resulting from this LAR. Note: Applicable Amendment numbers have been moved to the appropriate pages.
B3/4 8.2	B 3/4.8	1	Repaginate	
B3/4 8.3	B 3/4.8	1	Repaginate	
B3/4 8.4	B 3/4.8	1	Repaginate	

Insert 1

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, unless the following condition exists:
 - a) The requirement for restoration of the EDG to OPERABLE status within 72 hours may be extended to 14 days if the Alternate AC (AAC) power source is or will be available within 1 hour, as specified in the Bases, and
 - b) If at any time the AAC availability cannot be met, either restore the AAC to available status within 72 hours (not to exceed 14 days from the time the EDG originally became inoperable), or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the next 30 hours.

Insert 2

The requirement for restoring the EDG to OPERABLE status within 72 hours may be extended up to 14 days to perform either extended preplanned maintenance (both preventative and corrective) or extended unplanned corrective maintenance work.

To reduce the risk of performing extended EDG maintenance activities of up to 14 days while online, a non-safety related alternate AC power (AAC) source will be relied on. The AAC is designed to provide back-up power to either ESF bus whenever one of the EDGs is out of service, particularly in Modes 1 through 4 operation. The AAC is verified available and an operational readiness status check is performed when it is anticipated that one of the EDGs will be inoperable for longer than the allowed outage time of 72 hours. The design of the AAC is capable of providing the required safety and non-safety related loads in the event of a total loss of offsite power and if both EDGs fail to start and load. During these events it is assumed that there is no seismic event or an event that requires safeguards actuation, e.g., safety injection, containment spray, etc. Although the AAC is not designed for DBA loads, it is capable of supplying sufficient power to mitigate the effects of an accident. The AAC is not credited in the safety analysis.

The AAC consists of a minimum of three units at the Parr Hydro. A blackstart diesel is installed at Parr Hydro to provide for initial excitation and switching. For scheduled maintenance, Parr personnel will be at their workstations 24 hours a day. For unscheduled maintenance or an event, Parr personnel will have the units running within 1 hour of notification.

During normal operation with both EDGs OPERABLE, the AAC availability is demonstrated by performance of periodic testing. An operational readiness check is performed in addition to the periodic testing when the AAC is relied upon as the back up power source. This check includes verification of the readiness of the blackstart-diesel to automatically start and Parr to energize the selected ESF bus and verifying alignment to the selected ESF bus. This check will be performed at least once per 72 hours following the initial availability verification. Should the AAC become unavailable during the 14-day AOT and cannot be immediately restored to available status, the EDG AOT reverts back to 72 hours. The 72 hours begins with the discovery of the AAC unavailability, not to exceed a total of 14 days from the time the EDG initially became inoperable.

The extended EDG AOT is based on the Probabilistic Safety Analysis (PRA) evaluation to perform the online maintenance when the AAC is available. The results of the evaluation demonstrate that the AAC is capable of mitigating the dominant core damage sequences and provides a significant overall risk reduction for station operation. The AAC alone is adequate to supply electrical power to affect a safe shutdown of the plant.

The AOT to verify redundant equipment is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The AOT only begins on discovery that both an inoperable EDG exists and a required feature on the other train is inoperable. If at any time during the existence of this condition (one EDG is inoperable), a required feature subsequently becomes inoperable, this AOT would then begin to be tracked. Four hours from the discovery of these events existing concurrently is acceptable because it minimizes risk while allowing time for restoration before subjecting the plant to transients associated with shutdown.

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

3. Within ⁴2 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.~~ INSERT 1
- 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 preventative maintenance or testing:
 - a) determine the OPERABLE EDG is not inoperable due to a common cause failure within 8 hours, or
 - b) demonstrate the OPERABILITY of the remaining FDG 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 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 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.

* Completion of Action c.2 is required regardless of when the inoperable EDG is restored to OPERABILITY.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c) A flash point equal to or greater than 125°F; and
 - d) A clear and bright appearance when tested based on the applicable ASTM standard.
 - 2. By verifying within 30 days of obtaining the sample that the specified properties are met when tested based on the applicable ASTM standard.
 - e. At least once every 31 days by obtaining a sample of fuel oil based on the applicable ASTM standard, and verifying that total contamination is less than 10 mg/liter when checked based on the applicable ASTM standard.
 - f. At least once per 184 days by:
 - 1. Verify each EDG starts from standby conditions and:
 - a) In less than or equal to 10 seconds, achieves a voltage greater than 6480 volts (7200 - 720 volts) and a frequency greater than 58.8 Hz (60 - 1.2 Hz).
 - b) Achieve a steady state voltage greater than 6480 volts but less than 7920 volts and a steady state frequency greater than 58.8 Hz but less than 61.2 Hz.

The EDG shall be started for this test by using one of the following signals:

 - a) Simulated loss of offsite power by itself.
 - b) Simulated loss of offsite power in conjunction with an ESF actuation test signal.
 - c) An ESF actuation test signal by itself.
 - d) Simulated degraded offsite power by itself.
 - e) Manual. - 2. The generator shall be manually synchronized, loaded to an indicated 4150-4250 kW** in less than or equal to 60 seconds, and operate for at least 60 minutes.
- g. At least once every 18 months by:
 - 1.

~~Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.~~
 - 2. Verifying that on rejection of a load of greater than or equal to 729 kW, the voltage and frequency are maintained at 7200 ± 720 volts and frequency at 60 ± 1.2 Hz.
 - 3. Verifying the generator capability to reject a load of 4250 kW without tripping. The generator voltage shall not exceed 7920 volts during and following the load rejection.

** This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band shall not invalidate the test.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

3/4.8.1, 3/4.8.2 AND 3/4.8.3 A.C. SOURCES, D.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source. The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974. When one diesel generator is inoperable, there is an additional ACTION requirement to verify that all required systems, subsystems, trains, components and devices, that depend on the remaining OPERABLE diesel generator as a source of emergency power, are also OPERABLE, and that the steam-driven auxiliary feedwater pump is OPERABLE. This requirement is intended to provide assurance that a loss of offsite power event will not result in a complete loss of safety function of critical systems during the period one of the diesel generators is inoperable. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out-of-service for maintenance or other reasons. It does not mean to perform the surveillance requirements needed to demonstrate the OPERABILITY of the component.

INSERT 2 →

If it can be determined that the cause of the inoperable diesel generator does not exist on the OPERABLE diesel generator, then Surveillance 4.8.1.1.2.a.3 does not have to be performed. If the cause of the initial inoperable diesel generator cannot be confirmed not to exist on the redundant diesel generator, performance of Surveillance Requirement 4.8.1.1.2.a.3 suffices to provide assurance of continued OPERABILITY of that diesel generator. This allows for reduced start testing of the diesel generators, which has been shown to be a factor in engine degradation.

In the event that the inoperable diesel generator is restored to OPERABLE status prior to completing either the evaluation of cause or performing the surveillance requirement, the CER program will continue to evaluate the common cause possibility. This continued evaluation, however, is no longer under the 24 hour constraint imposed by the action statement. According to Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability," 24 hours is reasonable to confirm that the OPERABLE diesel generator is not affected by the same problem as the inoperable diesel generator.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

ELECTRICAL POWER SYSTEMS

Repaginated Only

BASES

A.C. SOURCES, D.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

(Continued)

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.137, "Fuel-Oil Systems for Standby Diesel Generators," Revision 1, October 1979, as modified by the NRC's review and approval of South Carolina Electric & Gas Company's June 10, 1985, December 6, 1985, and November 10, 2000 amendment requests.

The Surveillance Requirement that assures the diesel generator is capable of performing its design function follows the guidance of NUREG 1366 and NUREG 1431, Rev. 2. The surveillance tests the capability of the diesel generator to start and close its breaker in the required 10 seconds to support the accident analysis, and carry the required electrical load while maintaining the voltage and frequency limits necessary to assure OPERABILITY of the loads.

In addition to the Surveillance Requirements, the time for the diesel generator to reach steady state operation, unless the modified start method is utilized, is periodically monitored and the trend evaluated to identify degradation of the governor and voltage regulator performance.

The fuel storage system minimum volume of fuel to demonstrate operability of the diesel generators was based on fuel consumption determined from the development of time dependent loads following a design basis accident and a loss of off-site power utilizing FSAR Table 8.3-3 for seven days.

All safety-related portions of the VCSNS diesel engine fuel oil storage and transfer system, are Seismic Category I, Safety Class 2b, and designed to ANSI Standard N195-1976 with the provision listed below:

VCSNS will maintain at least 2% margin above the minimum calculated seven day required volume during Modes 1-4. This is an exception to ANSI N195-1976, "Fuel Oil Systems for Standby Diesel Generators," Section 5.4, during Modes 1-4. EDG fuel replenishment is available from multiple sources, including off-site suppliers, on-site non safety storage in the Auxiliary Boiler Fuel Tank, and the ability to provide fuel from the opposite train EDG Fuel Oil Storage Tank via the fuel oil and transfer system cross-tie.

The 10% fuel margin as recommended in Regulatory Guide 1.137, Revision 1, "Fuel-Oil Systems for Standby Diesel Generators," position C.1.c.(2) will be met during Modes 5 and 6.

The Surveillance Requirement for demonstrating the OPERABILITY of the Station batteries are based on the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1987, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage and float charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

ELECTRICAL POWER SYSTEMS

Repaginated Only

BASES

A.C. SOURCES, D.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

(Continued)

Table 4.8-2 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and .015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than .020 below the manufacturer's full charge specific gravity, with an average specific gravity of all the connected cells not more than .010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-2 is permitted for up to 7 days. During this 7 day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than .020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than .040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The surveillance requirements applicable to lower voltage circuit breakers provide assurance of breaker reliability by testing at least one representative sample of each manufacturer's brand of circuit breaker. Each manufacturer's molded case and metal case circuit breakers are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers are tested. If a wide variety exists within any manufacturer's brand of circuit breakers, it is necessary to divide that manufacturer's breakers into groups and treat each group as a separate type of breaker for surveillance purposes.

The surveillance requirements of the circuit breakers for non-Class 1E cables located in trays which do not have cable tray covers and which provide protection for cables that, if faulted, could cause failure in both adjacent, redundant Class 1E cables ensures that the integrity of Class 1E cables is not compromised by the failure of protection devices to operate in the non-Class 1E cables.

ATTACHMENT II

PROPOSED TECHNICAL SPECIFICATION CHANGES (RETYPE)

ELECTRICAL POWER SYSTEMS

LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

3. Within 4 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 4 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, unless the following condition exists:
 - a) The requirement for restoration of the EDG to OPERABLE status within 72 hours may be extended to 14 days if the Alternate AC (AAC) power source is or will be available within 1 hour, as specified in the Bases, and
 - b) If at any time the AAC availability cannot be met, either restore the AAC to available status within 72 hours (not to exceed 14 days from the time the EDG originally became inoperable), or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the next 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 preventative maintenance or testing:
 - a) determine the OPERABLE EDG is not inoperable due to a common cause failure within 8 hours, or
 - b) 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 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 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.

* Completion of Action c.2 is required regardless of when the inoperable EDG is restored to OPERABILITY.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- c) A flash point equal to or greater than 125°F; and
 - d) A clear and bright appearance when tested based on the applicable ASTM standard.
 - 2. By verifying within 30 days of obtaining the sample that the specified properties are met when tested based on the applicable ASTM standard.
 - e. At least once every 31 days by obtaining a sample of fuel oil based on the applicable ASTM standard, and verifying that total contamination is less than 10 mg/liter when checked based on the applicable ASTM standard.
 - f. At least once per 184 days by:
 - 1. Verify each EDG starts from standby conditions and:
 - a) In less than or equal to 10 seconds, achieves a voltage greater than 6480 volts (7200 - 720 volts) and a frequency greater than 58.8 Hz (60 - 1.2 Hz).
 - b) Achieve a steady state voltage greater than 6480 volts but less than 7920 volts and a steady state frequency greater than 58.8 Hz but less than 61.2 Hz.

The EDG shall be started for this test by using one of the following signals:

 - a) Simulated loss of offsite power by itself.
 - b) Simulated loss of offsite power in conjunction with an ESF actuation test signal.
 - c) An ESF actuation test signal by itself.
 - d) Simulated degraded offsite power by itself.
 - e) Manual. - 2. The generator shall be manually synchronized, loaded to an indicated 4150-4250 kW** in less than or equal to 60 seconds, and operate for at least 60 minutes.
- g. At least once every 18 months by:
 - 1. Deleted
 - 2. Verifying that on rejection of a load of greater than or equal to 729 kW, the voltage and frequency are maintained at 7200 ± 720 volts and frequency at 60 ± 1.2 Hz.
 - 3. Verifying the generator capability to reject a load of 4250 kW without tripping. The generator voltage shall not exceed 7920 volts during and following the load rejection.

** This band is meant as guidance to avoid routine overloading of the engine. Loads in excess of this band shall not invalidate the test.

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

3/4.8.1, 3/4.8.2 AND 3/4.8.3 A.C. SOURCES, D.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source. The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974. When one diesel generator is inoperable, there is an additional ACTION requirement to verify that all required systems, subsystems, trains, components and devices, that depend on the remaining OPERABLE diesel generator as a source of emergency power, are also OPERABLE, and that the steam-driven auxiliary feedwater pump is OPERABLE. This requirement is intended to provide assurance that a loss of offsite power event will not result in a complete loss of safety function of critical systems during the period one of the diesel generators is inoperable. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out-of-service for maintenance or other reasons. It does not mean to perform the surveillance requirements needed to demonstrate the OPERABILITY of the component.

The requirement for restoring the EDG to OPERABLE status within 72 hours may be extended up to 14 days to perform either extended preplanned maintenance (both preventative and corrective) or extended unplanned corrective maintenance work.

To reduce the risk of performing extended EDG maintenance activities of up to 14 days while online, a non-safety related alternate AC power (AAC) source will be relied on. The AAC is designed to provide back-up power to either ESF bus whenever one of the EDGs is out of service, particularly in Modes 1 through 4 operation. The AAC is verified available and an operational readiness status check is performed when it is anticipated that one of the EDGs will be inoperable for longer than the allowed outage time of 72 hours. The design of the AAC is capable of providing the required safety and non-safety related loads in the event of a total loss of offsite power and if both EDGs fail to start and load. During these events it is assumed that there is no seismic event or an event that requires safeguards actuation, e.g., safety injection, containment spray, etc. Although the AAC is not designed for DBA loads, it is capable of supplying sufficient power to mitigate the effects of an accident. The AAC is not credited in the safety analysis.

The AAC consists of a minimum of three units at the Parr Hydro. A blackstart diesel is installed at Parr Hydro to provide for initial excitation and switching. For scheduled maintenance, Parr personnel will be at their workstations 24 hours a day. For unscheduled maintenance or an event, Parr personnel will have the units running within 1 hour of notification.

ELECTRICAL POWER SYSTEMS

BASES

A.C. SOURCES, D.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

(Continued)

During normal operation with both EDGs OPERABLE, the AAC availability is demonstrated by performance of periodic testing. An operational readiness check is performed in addition to the periodic testing when the AAC is relied upon as the back up power source. This check includes verification of the readiness of the blackstart diesel to automatically start and Parr to energize the selected ESF bus and verifying alignment to the selected ESF bus. This check will be performed at least once per 72 hours following the initial availability verification. Should the AAC become unavailable during the 14-day AOT and cannot be immediately restored to available status, the EDG AOT reverts back to 72 hours. The 72 hours begins with the discovery of the AAC unavailability, not to exceed a total of 14 days from the time the EDG initially became inoperable.

The extended EDG AOT is based on the Probabilistic Safety Analysis (PRA) evaluation to perform the online maintenance when the AAC is available. The results of the evaluation demonstrate that the AAC is capable of mitigating the dominant core damage sequences and provides a significant overall risk reduction for station operation. The AAC alone is adequate to supply electrical power to affect a safe shutdown of the plant.

The AOT to verify redundant equipment is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The AOT only begins on discovery that both an inoperable EDG exists and a required feature on the other train is inoperable. If at any time during the existence of this condition (one EDG is inoperable), a required feature subsequently becomes inoperable, this AOT would then begin to be tracked. Four hours from the discovery of these events existing concurrently is acceptable because it minimizes risk while allowing time for restoration before subjecting the plant to transients associated with shutdown.

If it can be determined that the cause of the inoperable diesel generator does not exist on the OPERABLE diesel generator, then Surveillance 4.8.1.1.2.a.3 does not have to be performed. If the cause of the initial inoperable diesel generator cannot be confirmed not to exist on the redundant diesel generator, performance of Surveillance Requirement 4.8.1.1.2.a.3 suffices to provide assurance of continued OPERABILITY of that diesel generator. This allows for reduced start testing of the diesel generators, which has been shown to be a factor in engine degradation.

In the event that the inoperable diesel generator is restored to OPERABLE status prior to completing either the evaluation of cause or performing the surveillance requirement, the CER program will continue to evaluate the common cause possibility. This continued evaluation, however, is no longer under the 24 hour constraint imposed by the action statement. According to Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability," 24 hours is reasonable to confirm that the OPERABLE diesel generator is not affected by the same problem as the inoperable diesel generator.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and 1.137, "Fuel-Oil

ELECTRICAL POWER SYSTEMS

BASES

A.C. SOURCES, D.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

Systems for Standby Diesel Generators," Revision 1, October 1979, as modified by the NRC's review and approval of South Carolina Electric & Gas Company's June 10, 1985, December 6, 1985, and November 10, 2000 amendment requests.

The Surveillance Requirement that assures the diesel generator is capable of performing its design function follows the guidance of NUREG 1366 and NUREG 1431, Rev 2. The surveillance tests the capability of the diesel generator to start and close its breaker in the required 10 seconds to support the accident analysis, and carry the required electrical load while maintaining the voltage and frequency limits necessary to assure OPERABILITY of the loads.

In addition to the Surveillance Requirements, the time for the diesel generator to reach steady state operation, unless the modified start method is utilized, is periodically monitored and the trend evaluated to identify degradation of the governor and voltage regulator performance.

The fuel storage system minimum volume of fuel to demonstrate operability of the diesel generators was based on fuel consumption determined from the development of time dependent loads following a design basis accident and a loss of off-site power utilizing FSAR Table 8.3-3 for seven days.

All safety-related portions of the VCSNS diesel engine fuel oil storage and transfer system, are Seismic Category I, Safety Class 2b, and designed to ANSI Standard N195-1976 with the provision listed below:

VCSNS will maintain at least 2% margin above the minimum calculated seven day required volume during Modes 1-4. This is an exception to ANSI N195-1976, "Fuel Oil Systems for Standby Diesel Generators," Section 5.4, during Modes 1-4. EDG fuel replenishment is available from multiple sources, including off-site suppliers, on-site non safety storage in the Auxiliary Boiler Fuel Tank, and the ability to provide fuel from the opposite train EDG Fuel Oil Storage Tank via the fuel oil and transfer system cross-tie.

The 10% fuel margin as recommended in Regulatory Guide 1.137, Revision 1, "Fuel-Oil Systems for Standby Diesel Generators," position C.1.c.(2) will be met during Modes 5 and 6.

The Surveillance Requirement for demonstrating the OPERABILITY of the Station batteries are based on the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1987, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage and float charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

ELECTRICAL POWER SYSTEMS

BASES

A.C. SOURCES, D.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

Table 4.8-2 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and .015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than .020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than .010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-2 is permitted for up to 7 days. During this 7 day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than .020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than .040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The surveillance requirements applicable to lower voltage circuit breakers provide assurance of breaker reliability by testing at least one representative sample of each manufacturer's brand of circuit breaker. Each manufacturer's molded case and metal case circuit breakers are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers are tested. If a wide variety exists within any manufacturer's brand of circuit breakers, it is necessary to divide that manufacturer's breakers into groups and treat each group as a separate type of breaker for surveillance purposes.

The surveillance requirements of the circuit breakers for non-Class 1E cables located in trays which do not have cable tray covers and which provide protection for cables that, if faulted, could cause failure in both adjacent, redundant Class 1E cables ensures that the integrity of Class 1E cables is not compromised by the failure of protection devices to operate in the non-Class 1E cables.

ATTACHMENT III
LIST OF REGULATORY COMMITMENTS

~~_____~~ The AAC system Maintenance Rule scoping will be completed and approved by the expert panel prior to implementing the TS change.

In accordance with the provisions in 10 CFR 50.65 (a)(4), the following compensatory measures will be implemented when utilizing the extended 14-day AOT:

VCSNS will not utilize the 14-day AOT unless the AAC will be available within 1 hour after the EDG is declared inoperable.

The AAC will be declared available prior to being used as the AAC source.

Should the AAC become unavailable after the EDG is inoperable, the plant will revert back to the 72-hour AOT.

The AAC will not be connected to an ESF bus unless the EDG and the normal source for that bus are inoperable.

The design of the AAC meets the requirements of NUMARC 8700, Appendix B. - - - -

Preplanned EDG maintenance will not be scheduled when adverse weather is expected.

Elective maintenance will not be performed on the AAC system while it is considered available as the AAC source.

Elective maintenance will not be performed on the offsite sources normally supplying power to the ESF buses.

The system dispatcher will be contacted prior to removing an EDG from service and an extended AOT will not be entered to perform elective maintenance when grid stress conditions are considered high.

Maintenance of the AAC power source will not be scheduled to run concurrently with maintenance on either EDG.