February 1, 1996

Mr. C. K. McCoy
Vice President - Nuclear
Vogtle Project
Georgia Power Company
P. O. Box 1295
Birmingham, AL 35201

SUBJECT: DRAFT SAFETY EVALUATION OF PROPOSED IMPROVED TECHNICAL SPECIFICATIONS, VOGTLE ELECTRIC GENERATING PLANT, UNITS 1 AND 2 (TAC NOS. M92131 AND M92132)

Dear Mr. McCoy:

This letter forwards the remaining portion of the draft safety evaluation (SE) for the proposed conversion to the improved standard Technical Specifications (TS) that was forwarded to you in part by letter dated January 17, 1996. The SE is being provided for your review to verify its accuracy in describing your technical basis for the proposed TS conversion. Please provide any comments on the enclosure in writing by February 9, 1996. This requirement affects nine or fewer respondents and, therefore, it is not subject to the Office of Management and Budget review under P.L. 96-511. If you have any questions regarding this action, do not hesitate to contact me at (301) 415-1444.

Sincerely,
Original signed by:

Louis L. Wheeler, Senior Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-424 and 50-425

Enclosure: Draft Safety Evaluation

cc w/encl: See next page

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NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 1, 1996

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Enclosure: Partial Draft Safety Evaluation

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3.4 STS Differences

In electing to adopt STS Chapter 3.0, the licensee proposed the following differences between the improved TS and the STS. These differences are numbered separately for each improved TS Chapter 3.0 section. The discussions generally follow the presentation order of the individual specifications in the improved TS. As appropriate, the improved TS Chapter 3.0 specification is given in italics before the discussion of each difference or differences that apply.

General Differences from STS Chapter 3.0

(1) In a number of cases, the STS contains Notes in the Frequency column which modify the specified Surveillance Frequency or establish conditions relative to performing the Surveillance. The licensee has chosen to place all such Notes in the Surveillance column, to be consistent with the examples given in Section 1.4, "Frequency." In all these cases, the STS requirement (unless otherwise modified) has effectively been adopted. Therefore, this administrative difference in presentation is acceptable.

3.4.3.0 LCO and SR Applicability

(1) CTS include an LCO 3.0.5 which addresses the fact that the TS for both Units 1 and 2 are contained in one document. This is part of the current licensing basis and has been retained as improved TS LCO 3.0.8, as the VEGP improved TS will also address both units.

(2) STS LCO 3.0.7, "Special Test Exceptions," is revised to reflect the single test exception used by VEGP. The other test exceptions have been deleted. The deletion of these Test Exceptions is addressed in Subsection 3.1.3.1 and of Part III of this safety evaluation.

3.4.3.1 Reactivity Control Systems

3.1.1 Shutdown Margin (SDM)

(1) All SHUTDOWN MARGIN (SDM) limits (for MODES 1 through 5) are specified in the VEGP Core Operating Limits Report (COLR). Thus, CTS 3.1.1.1 (MODES 1 and 2) and CTS 3.1.1.2 (MODES 3, 4, and 5) both require the SDM to be greater than or equal to the limit specified in the COLR. Explicit values for the SDM limits are not given in the CTS or the improved TS (a number of STS specification are affected).

STS 3.1.1, "SDM $T_{avg} > 200°F$," and STS 3.1.2, "SDM $T_{avg} \leq 200°F$," only differ in the explicit value of the SDM limit specified in the LCO. As such, there is no reason to have two specifications for SDM in the VEGP improved TS because both LCOs would require SDM to be greater than or equal to the limit specified in the COLR. Thus, the improved TS only contain one specification for SDM, corresponding to both STS 3.1.1 and 3.1.2. (The remaining STS Section 3.1 specifications adopted have been renumbered accordingly.)

However, the STS Applicability condition of MODE 2 with $K_{eff} < 1.0$ has not been adopted, leaving the improved TS 3.1.1 Applicability as MODES 3, 4, and 5. Mode 2 with $K_{eff} < 1.0$ was included in the STS for those plants that declare entry into MODE 2 upon initial withdrawal of

the shutdown banks. Plants that employ this practice could be in MODE 2 with the shutdown banks withdrawn for extended periods (i.e., days). Thus, the Applicability of STS 3.1.1 under such conditions would be appropriate. However, this is not the case at VEGP. VEGP declares entry into MODE 2 upon initial withdrawal of the control banks which is done only for the purpose of achieving criticality. At VEGP, criticality is achieved through a continuous process with no extended delays attributable to minor administrative matters permitted during the approach to criticality. Therefore, there are no extended periods during the approach to criticality in which the control rods would be maintained at a fixed position withdrawn from the core.

Furthermore, the SDM requirements during MODES 1 and 2 with $K_{eff} \geq 1.0$ are ensured by the rod insertion limits. However, during the time in MODE 2 with $K_{eff} < 1.0$, the SDM requirements are ensured by verifying that the estimated critical position is also within the insertion limits. Therefore, the SDM requirements for MODE 2 with $K_{eff} < 1.0$ have been appropriately moved to the TRM along with the remaining MODE 1 and 2 SDM requirements.

3.1.3 Moderator Temperature Coefficient (MTC)

(2) In adopting STS 3.1.4, VEGP specific terminology, such as BOL and EOL (beginning and end of cycle life) for upper and lower MTC limits, has been used.

In addition, the LCO statement of the MTC limits in CTS 3.1.1.3 has been retained. Because the MTC limits at VEGP are in the COLR, STS Figure 3.1.4-1, "MTC vs, Power Level," has not been adopted.

In addition, STS 3.1.4, Required Action B.1 has been modified, as improved TS 3.1.3, Required Action B.1, to require the unit to be placed in MODE 3 within 6 hours rather than in MODE 2 with $K_{eff} < 1.0$. If the MTC is not within its BOL limit and administrative withdrawal limits are not established within 24 hours, the unit should be shut down.

(3) STS SR 3.1.4.2 has not been adopted. The verification accomplished by this SR is only required to determine the next Frequency for performing STS SR 3.1.4.3 (improved TS SR 3.1.3.2). Identifying this requirement as an individual SR implies that it must be met for the LCO to be met (per SR 3.0.1). This is not true for the 300 ppm surveillance limit specified in the COLR. STS SR 3.1.4.3 contains a Note that addresses the accelerated testing required if the 300 ppm surveillance limit is not met. STS SR 3.1.4.2 is, therefore, redundant to STS SR 3.1.4.3. It is not required to accomplish the intended verification of the MTC lower limit.

3.1.4 Rod Group Alignment Limits

(4) STS 3.1.5, Required Action B.1, to restore rod to within alignment limits, has not been adopted in improved TS 3.1.4. The option to restore the system/component to meet the LCO always exists and need not always be specifically stated. Appropriate changes have been made to adjust the numbering of the remaining Required Actions for Condition B.

(5) The word "(trippability)," which appears to be equated with rod freedom of movement in STS SR 3.1.5.2, has been omitted from corresponding improved TS SR 3.1.4.2. This SR verifies rod freedom of movement and is

not necessarily a verification of trippability. The judgement of trippability (i.e., OPERABILITY) would take into consideration the results of this SR. This change is consistent with the STS Bases for this SR.

(6) The word "physical" was inserted into STS SR 3.1.5.3 (improved TS SR 3.1.4.3) to distinguish the "physical" fully withdrawn position (for conducting the rod drop time test) from the all rods out position defined in the COLR. In addition, the CTS value of T_{avg} ($\geq$ 551°F instead of $\geq$ 500°F) for conducting the rod drop time test has been retained.

3.1.5 Shutdown Bank Insertion Limits

(7) The Applicability of STS 3.1.6 has been revised in corresponding improved TS 3.1.5, "Shutdown Bank Insertion Limits," to just MODES 1 and 2. The phrase "with any control bank not fully inserted", that modified MODE 2, has been omitted. The modifying phrase does not add anything. At VEGP, upon entry into MODE 2, control banks are not fully inserted.

3.1.7 Rod Position Indication

(8) The Note modifying the ACTIONS of STS 3.1.8 has been modified in corresponding improved TS 3.1.7 to clarify that no more than one inoperable DRPI (digital rod position indication) system per group or one inoperable demand position indicator per bank is allowed for separate Condition entry of each group or bank, respectively. This clarification does not change the STS restrictions on separate Condition entry for this specification.

(9) The words "position indicators" in Condition B of STS 3.1.8 ACTIONS has been replaced with "DRPIs" in corresponding Condition B of improved TS 3.1.7 ACTIONS to clarify that Condition B only applies to rods with inoperable DRPIs.

3.1.8 Physics Tests Exceptions - MODE 2

(10) STS 3.1.9, "PHYSICS TESTS Exceptions - MODE 1," has not been adopted. The physics requiring this test exception were the RCCA pseudo ejection test, RCCA pseudo drop and misalignment test, and Xenon stability measurements. These tests were part of the initial plant startup testing program and are not required for post refueling startup testing. Therefore, this test exception may be omitted from the improved TS.

(11) In order to provide a limit for THERMAL POWER as referenced in Condition B ("THERMAL POWER not within limit.") of STS 3.1.10 ACTIONS, corresponding improved TS 3.1.8 has added a new requirement to the LCO statement which specifies THERMAL POWER to be $\leq$ 5% RTP.

(12) STS 3.1.11, "SHUTDOWN MARGIN (SDM) Test Exceptions," has not been adopted. This test exception was originally required to support rod worth measurements to the N-1 condition. The use of other rod worth measurement techniques will maintain SDM during the entire measurement process and still provide the necessary physics measurement

verification. Since this measurement technique is no longer used, the SDM test exception may be omitted from the improved TS.

3.4.3.2 Power Distribution Limits

3.2.1 Heat Flux Hot Channel Factor ($F_Q(Z)$)

(1) STS 3.2.1B has been adopted as improved TS 3.2.1 with changes to make it consistent the current VEGP methodology for verifying that $F_Q(Z)$ is maintained within limits. This methodology represents VEGP current licensing basis and uses the INCORE computer code for calculating and verifying that $F_Q(Z)$ is maintained within limits.

In particular, the term $F_Q^B(Z)$ is not used to define the transient limit. Therefore, the term $F_Q^B(Z)$ is not needed for improved TS 3.2.1 and has been deleted. With the term $F_Q^B(Z)$ not used, there is no need to call out a term $F_Q^B(Z)$, and $F_Q^B(Z)$ may be replaced by simply $F_Q(Z)$. The Required Actions for Condition A are applicable to the case where $F_Q(Z)$ exceeds the steady state limit, so Condition A and the appropriate Required Actions are revised to refer to the steady state limits. Similarly, the Required Actions of Condition B are applicable to the case where $F_Q(Z)$ does not meet the transient limit. Therefore, Condition B has been revised appropriately. In addition, Required Action B.1 has been revised to explicitly state that AFD must be controlled within the reduced limits.

SRs 3.2.1.1 and 3.2.1.2 have been revised to reference the steady state and transient limits for $F_Q(Z)$, respectively. The Note to SR 3.2.1.2 is revised as follows:

The words "$F_Q^B(Z)$ is within limits and" are deleted on the basis that $F_Q(Z)$ must be checked for an increasing trend regardless of whether or not $F_Q(Z)$ is within the transient limit at the time the surveillance is performed. Furthermore, if $F_Q(Z)$ is not within the transient limit, it is not sufficient to simply reduce the AFD limits. Rather, $F_Q(Z)$ should also be checked for an increasing trend.

Item a of the Note has been revised to apply the penalty factor specified in the COLR. This is consistent with VEGP current licensing basis. Item a of the Note has also been revised to reference the transient limit as opposed to $F_Q^B(Z)$.

Item b of the Note has been revised to clarify that <u>either</u> $F_Q(Z)$ can be shown to have sufficient margin based on the penalty factor or two successive flux maps can indicate no increase. As worded in the STS, it would imply that only two successive flux maps indicating no increase will satisfy item b of the Note.

(2) CTS require $F_Q(Z)$ to be determined initially after each refueling outage at any power level above 50% RTP. This was approved by the NRC on September 19, 1991, as part of the initial loading of VANTAGE-5 fuel into VEGP Unit 1. The basis for this requirement is that above 50% RTP equilibrium Xenon conditions approach more closely those present at 100% RTP. In addition, the Note modifying the surveillances has not been adopted. It has been replaced by the language "after achieving equilibrium power conditions" in the Frequency column for SRs 3.2.1.1 and 3.2.1.2.

(3) Consistent with the current VEGP licensing basis, the 12-hour time limit in the Frequencies for completing SRs 3.2.1.1 and 3.2.1.2 has not been adopted. STS SRs 3.2.1.1 and 3.2.1.2 require a flux map within 12 hours after achieving equilibrium condition following a specified increase in power above the power at which Fo(Z) was last verified. Corresponding CTS 4.2.2.2.e does not specify a time limit for the performance of this flux map. The CTS SR is based on NRC-approved methodology for the Fo(Z) LCO and SR as documented in WCAP-10216-P-A. In addition, Fo(Z) generally decreases with increasing power and, during a power increase, the plant is required to be controlled within the TS limits for control rod alignment, rod insertion, and power distribution (such as AFD and QPTR). Thus, there is reasonable assurance that Fo(Z) has stayed within its limit after a power increase. Therefore, specifying the 12-hour limit after power is increased is an unnecessary restriction on plant operation.

(4) The CTS require Fo(Z) to be determined after exceeding the THERMAL POWER at which Fo(Z) was last determined by 20% RTP. This was approved by the NRC on September 19, 1991, as part of the initial loading of VANTAGE-5 fuel at VEGP Unit 1. The basis was that prior to the installation of the VANTAGE-5 fuel, VEGP used the F_{xy} methodology (to verify compliance with Fo(Z) requirements), and under those requirements F_{xy} had to be remeasured after a 20% increase if the last computed F_{xy} at less than full power conditions was greater than the F_{xy} limit at RTP but less than the applicable limit for that power level. Therefore, remeasuring Fo(Z) after a 20% increase was consistent with the F_{xy} requirement. Furthermore, the remeasurement requirement is not an assumption in the safety analyses. It is, however, considered prudent to ensure that the Fo(Z) limit is not exceeded after raising the reactor power level from the power level at which Fo(Z) was last measured. The requirement to remeasure Fo(Z) following a 20% increase in power provides more operating flexibility without jeopardizing plant safety or violating fuel design limits. The requirement to remeasure Fo(Z) after a 10% increase in power may result in taking additional flux maps that are unnecessary.

(5) In adopting STS SR 3.2.1.2, Item a of the associated Note was revised to specify that the factor by which Fo(Z) would be increased will be specified in the Core Operating Limits Report (COLR). This is based on Revision 1 to WCAP 10216-P which was approved by the NRC on November 26, 1993. The proposed change would incorporate burnup-dependent penalty factors calculated based on NRC approved methodology to account for core designs that experience monthly increases in measured Fo(Z) greater than 2.0%.

3.2.3 *Axial Flux Difference* (AFD)
(Relaxed Axial Offset Control (RAOC) Methodology)

(6) The phrase "in % flux difference units" given in STS LCO 3.2.3 has been omitted from improved TS LCO 3.2.4 because the AFD is defined as a difference in flux signals and the actual limit is contained in the COLR. Thus, the phrase "in % flux difference units" is repetitive and unnecessary.

3.2.4 Quadrant Power Tilt Ratio (QPTR)

(7) The wording of STS 3.2.4, Required Action A.1, has been revised from

> Reduce THERMAL POWER to ≥ 3% RTP for each 1% of QPTR > 1.00.

to

> *Limit* THERMAL POWER *to* ≥ 3% RTP for each 1% of QPTR > 1.00.

It is not unusual, upon startup, for QPTR to be > 1.02 because of transient core conditions. These transient conditions are usually self-correcting as a direct result of power ascension. Since ACTION A of STS 3.2.4 provides for continued operation for an unlimited period, it is acceptable per STS LCO 3.0.4 to enter the applicability of STS 3.2.4 with QPTR in excess of 1.02, provided the Required Actions are met. Stating Required Action A.1 to require *limiting* rather than *reducing* THERMAL POWER is more compatible with the case where the Applicability of STS 3.2.4 is entered with QPTR in excess of 1.02.

(8) STS 3.2.4 Required Action A.2 has been adopted as Required Actions A.2.1 and A.2.2 in order to make it clear that if the once-per-12-hour QPTR measurement determines that an additional reduction in power is required, below the level initially determined by Required Action A.1, then 2 hours are allowed to complete the additional power reduction. A Note has been added to the Completion time column to clarify that the 2-hour Completion Time of Required Action A.2.2 begins upon completion of the 12-hour QPTR measurement. These differences from STS Required Action A.2 are considered clarifications of the intent of the STS and are acceptable.

(9) As discussed in Subsection 3.2.3.2 of part III of this safety evaluation, the initial Completion Time for STS 3.2.4, Required Action A.3, has been modified from "24 hours" to "24 hours after achieving equilibrium conditions with THERMAL POWER limited by Required Action A.1," in improved TS 3.2.4, Required Action A.3.

(10) A new Note would be added to STS 3.2.4 ACTION A, in the Condition column, to clarify that improved TS 3.2.4 Required Action A.6 must be completed whenever Required Action A.5 is implemented. This is based on the concern that completion of Required Action A.5 would restore compliance with the LCO and Required Action A.6 would never be performed.

(11) Required Action A.5 of STS LCO 3.2.4 states that the excore detectors should be calibrated to show zero QPTR. Quadrant power tilt is expressed in terms of a ratio. Thus, the absence of a tilt will manifest itself as QPTR = 1.00 rather than zero. Therefore, Required Action A.5 of improved TS 3.2.4 requires calibrating to show QPTR = 1.00.

(12) The Note 1 to STS SR 3.2.4.1 (which is consistent with the last sentence of the CTS definition of QPTR) has been adopted in improved TS SR 3.2.4.1 but has been revised to reflect the fact that the three-channel measurement is valid at any power level above 50% RTP, not just below 75% RTP. When THERMAL POWER is ≥ 75% RTP, the incore detectors are used

to confirm the accuracy of the excore detectors per SR 3.2.4.2. STS SR 3.2.4.1 Note 2 has not been adopted because with the change to Note 1, it would be redundant.

The Note to STS SR 3.2.4.2 has also been adopted but has been revised to require performance of this surveillance when one power range neutron flux channel is inoperable, instead of when *one or more* channels are inoperable. This difference clarifies the intent of the existing requirements and the STS, and is therefore, acceptable.

(13) STS SR 3.2.4.2 has been adopted with more appropriate wording as improved TS SR 3.2.4.2. The new wording reflects the fact that the incore detectors do not measure QPTR (see the definition of QPTR). The INCORE computer code determines power tilts - not QPTR, and QPTR can equal 1.00 with power tilts in excess of 1.00. (See discussion (8) of Subsection 3.1.3.? of Part III of this safety evaluation.) SR 3.2.4.2 is performed to confirm the accuracy of the excore measurement when THERMAL POWER is ≥ 75% RTP and one power range channel is inoperable.

3.4.3.3 Instrumentation

3.3.1 Reactor Trip System (RTS) Instrumentation

The improved TS RTS instrument function or functions are listed in italics before each discussion or discussions that apply.

General Differences from STS 3.3.1

(1) Improved TS 3.3.1 omits STS 3.3.1 ACTION O and the RTS instrument function (STS 3.3.1.11) for the reactor coolant pump breaker position, because VEGP does not have this instrument function.

(2) ACTIONS D, E, M, N, and P of STS 3.3.1 pertain to one channel of the associated RTS trip function being inoperable. These ACTIONS each contain a Note permitting the inoperable channel to be bypassed for up to 4 hours for surveillance testing and setpoint adjustment of other channels. The licensee adopted this Note with changes to conform to the existing requirements. Corresponding ACTIONS D, E, M, N, and O of improved TS 3.3.1 contain a Note that permits bypassing an OPERABLE channel, as well as an inoperable channel, for 4 hours without restriction. RTS trip functions affected by this difference from the STS are:

3.3.1.2.a	Power Range Neutron Flux - High
3.3.1.2.b	Power Range Neutron Flux - Low
3.3.1.3.a	Power Range Neutron Flux High Positive Rate
3.3.1.6	Overtemperature ΔT
3.3.1.7	Overpower ΔT
3.3.1.8	Pressurizer Pressure
3.3.1.9	Pressurizer Water Level - High
3.3.1.10	Reactor Coolant Flow - Low
3.3.1.13	SG Water Level - Low Low
3.3.1.14.a	Turbine Trip - Low Fluid Oil Pressure

VEGP previously installed the Bypass Test Panel which was approved along with TS changes in 1993 (SER transmitted in NRC letter dated September

30, 1993, from D. Hood to C. K. McCoy). The Bypass Test Panel provides indication of channel bypass in the control room and allows bypassing a channel without the use of lifted leads or jumpers. With this license amendment, the action statements in CTS Table 3.3-1 were changed to allow bypassing "a channel" and are not limited to "the inoperable channel". Therefore, retaining the current allowance in the corresponding Notes in the improved TS is acceptable.

However, the following instrument channels do not have this installed bypass capability:

3.3.1.11 Undervoltage RCPs
3.3.1.12 Underfrequency RCPs

Thus, ACTION M of improved TS 3.3.1 differs from corresponding ACTION M of STS 3.3.1 (and the other improved TS ACTIONS noted above) by the addition of a separate Note addressing bypass of these channels. Without installed bypass capability these channels can not be routinely tested or maintained in bypass. They can only be bypassed to allow testing another channel in trip. The Note for these functions is similar to the standard note in the STS addressing channel bypass, except that it applies only to the undervoltage and underfrequency instrument channels. The separate Note for these functions is consistent with the CTS and licensing basis.

(3) The Frequency of improved TS SR 3.3.1.8, CHANNEL OPERATIONAL TEST, is consistent with the Frequency specified in CTS Table 4.3-1 and Notation 1 for the following RTS instrumentation functions:

3.3.1.2.b Power Range Neutron Flux - Low
3.3.1.4 Intermediate Range Neutron Flux
3.3.1.5 Source Range Neutron Flux

In place of the STS Frequency of 92 days, the Frequency is specified as "prior to reactor startup," and is further modified by a SR Note to only require performance if not performed within the previous 31 days.

In addition, for these functions and function 3.3.1.2.a, "Power Range Neutron Flux - High," improved TS SR 3.3.1.11, 18-month CHANNEL CALIBRATION, contains a second Note, not included in STS SR 3.3.1.11, that retains the requirement of Notation (5) of CTS Table 4.3-1, to obtain and evaluate detector plateau curves.

(4) STS SR 3.3.1.12 has not been adopted because VEGP no longer uses a RTD bypass loop. The required RTDs are mounted directly on the RCS loops.

(5) STS RTS function 3.3.1.3.8, "Power Range Neutron Flux - High Negative Rate," has not been adopted because this function is no longer used at VEGP, having been deleted in a previous amendment.

3.3.1.1 Manual Reactor Trip

(6) STS 3.3.1 Required Action B.2.2 has not been adopted because corresponding ACTION 1 of CTS Table 3.3-1 for the manual reactor trip function only requires placing the unit to MODE 3 within 54 hours; it does not require opening the RTBs one hour later.

After reaching MODE 3 with one channel inoperable, ACTION 11 of CTS Table 3.3-1 would apply. It permits 48 hours to restore the channel to OPERABLE status, and then specifies opening the RTBs within the following hour. Thus, the CTS potentially would allow up to 48 hours before requiring the RTBs to be opened. The licensee has elected to retain its current requirements and will not backfit.

ACTION 11 was retained as improved TS 3.3.1 ACTION C.

3.3.1.4 Intermediate Range Neutron Flux

(7) ACTION F of STS 3.3.1 applies when THERMAL POWER is between the P-6 and P-10 interlock setpoints and one intermediate range channel is inoperable. This ACTION permits 2 hours to exit this power interval. CTS 3.3.1 does not limit operation with THERMAL POWER below P-10 with one inoperable intermediate range channel. Thus the licensee proposed to allow 24 hours to exit the P-6 to P-10 interval. This proposal is acceptable for the following reasons: (a) Adequate protection is still provided by the remaining intermediate range (IR) channel and the four power range (PR) channels. (b) If the second IR channel is not available, ACTION G would require no positive reactivity additions and reduction of power to below P-6 within 2 hours. (c) The PR low setpoint is the safety analysis credited protection for power excursions between P-6 and P-10. If a PR low setpoint channel is not available, ACTION E would require that channel to be placed in trip within 6 hours (or be in MODE 3 within 12 hours) thus fulfilling the safety function for that power range channel. Furthermore, with one PR low setpoint channel inoperable (the credited safety analysis instrumentation) the requirement to be in Mode 3 within 12 hours is less restrictive than the STS requirement to increase power to above P-10 in 2 hours. With more than one PR channel inoperable, LCO 3.0.3 would be applicable.

With the remaining IR and PR channels OPERABLE, the change from 2 hours to 24 hours is reasonable. If the remaining IR or any of the PR channels are inoperable, more restrictive actions would apply.

Therefore, a limit of 24 hours is conservative with respect to current licensing basis, while providing a more reasonable time frame for accomplishing the required action (i.e., a slow and controlled power adjustment above P-10 or below P-6, as the STS Bases state).

3.3.1.5 Source Range Neutron Flux

(8) Note 1 to improved TS SR 3.3.1.7 is an additional Note, not contained in the STS, that retains the requirements of Notation (9) of CTS Table 4.3-1, for the quarterly CHANNEL OPERATIONAL TEST for the source range instrumentation.

3.3.1.6 Overtemperature ΔT; and
3.3.1.7 Overpower ΔT

(9) Notes 1 and 2 of STS Table 3.3.1-1 for the overtemperature ΔT and overpower ΔT instrument functions have been adopted in improved TS Table 3.3.1-1, but with an enhanced presentation and format consistent with Notes 1 and 2 of CTS Table 2.2-1.

3.3.1.8.a Pressurizer Pressure - Low

(10) Note g of improved TS Table 3.3.1-1, which is not included in the STS, retains Note ** of CTS Table 2.2-1 to specify the required time constants for lead-lag controller for the pressurizer pressure - low instrument function trip setpoint.

3.3.1.14.a Turbine Trip - Low Fluid Oil Pressure; and
3.3.1.14.b Turbine Trip - Turbine Stop Valve Closure

(11) STS 3.3.1, ACTION P is written for both turbine trip functions and allows for only one inoperable channel. Improved TS 3.3.1 contains two ACTIONS in place of STS ACTION P - ACTIONS O and P - which are consistent with the current licensing basis. ACTION 12 of CTS Table 3.3-1 for the turbine stop valve closure channels allows more than one channel to be inoperable and placed in trip. Since all stop valve channels are required to be tripped (valves not fully open) to generate a reactor trip, allowing more than one channel to be placed in trip at a time is acceptable. In order to conform to the CTS and licensing basis, ACTION P has been added to address inoperable stop valve closure channels and the allowance to place one or more inoperable channels in trip. STS ACTION P remains applicable to the low fluid oil pressure turbine trip function, and has been retained as improved TS ACTION O.

3.3.1.16 Reactor Trip System (RTS) Interlocks

(12) Improved TS 3.3.1 ACTIONS R and S, in contrast to corresponding STS 3.3.1 ACTIONS S and T, respectively, address more than one RTS interlock channel being inoperable. This conforms to ACTION 8 of CTS Table 3.3-1, and is therefore, acceptable.

(13) The surveillance requirements for the interlock P-7 in improved TS Table 3.3.1-1 differ from those in the STS by only requiring the ACTUATION LOGIC TEST (SR 3.1.1.5). The interlock P-7 is different from the other specified RTS interlocks in that the inputs to the P-7 card are digital input signals from interlocks P-10 and P-13. There is no analog or varying electrical signal input into the P-7 card. Also, the output is digital. SR 3.3.1.7, quarterly CHANNEL OPERATIONAL TEST (COT), and SR 3.3.1.10, 18-month CHANNEL CALIBRATION, are not appropriate for P-7 because the P-7 card has no setpoints to verify, no adjustments to be made, and no aspects that would require any injection of varying inputs.

The appropriate test for P-7 is a logic test which would consist of a combination of digital inputs and verification of the proper output in response to them to ensure the card is functioning properly. This test is precisely the test currently performed every 62 days as the ACTUATION LOGIC TEST (specified in CTS Table 4.3-1 for Functional Unit 20 and associated Notation 7, retained as improved TS Table 3.3.1-1, Function 19, "Automatic Trip Logic").

In the ACTUATION LOGIC TEST, the proper output of the logic cards in the solid state protection system (SSPS) are verified to occur in response to all possible combinations of inputs for each card, including the P-7 card. This is accomplished by the logic tester component of SSPS. The logic tester produces time sequenced test inputs which are applied to the inputs of the logic circuits through switches located on

the logic test panel. The logic circuit outputs are checked through the same switches and compared with a set of correctly sequenced responses. The tester provides outputs to lamps on the logic test panel to indicate the status and results of the testing.

The ACTUATION LOGIC TEST fully addresses the aspects of the P-7 interlock that can be tested to verify proper operation. This card is fully tested in the performance of the actuation logic test, which is the surveillance that satisfies the requirements of STS (and improved TS) SR 3.3.1.5, the monthly staggered ACTUATION LOGIC TEST, as required by Function 19 of improved TS Table 3.3.1-1. The omission of the 18-month COT and CHANNEL CALIBRATION requirements for P-7 conforms to the current licensing basis, and is acceptable.

3.3.1.17 Reactor Trip Breakers (RTBs)

(14) STS 3.3.1 ACTION R contains two Notes (a) allowing one RTB train to be bypassed for 2 hours for surveillance testing, and (2) allowing one RTB to be bypassed for 2 hours for maintenance on the undervoltage or shunt trip mechanism, provided the other train is OPERABLE in both cases. Corresponding improved TS 3.3.1 ACTION T contains a single Note that combines the allowances of the STS Notes. In particular, this Note allows the 2-hour bypass of a train for any maintenance on a RTB, not just maintenance on the undervoltage and trip mechanisms.

The effect of the change is to eliminate the restriction of maintenance to the undervoltage or shunt trip mechanisms. The consequences of eliminating this restriction are small since the time limit for being bypassed is unchanged. It will allow an extra hour for maintenance that could avoid an unnecessary unit shutdown due to a minor repair to a RTB that involved components other than an undervoltage or shunt trip mechanism.

3.3.1.18 Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms

(15) Required Action U.2.2 of STS 3.1.1, to open the RTBs within an hour of entry into MODE 3 (55 hours after the associated trip mechanism for a RTB was discovered to be inoperable), has not been adopted, consistent with retained ACTION 13 (first part) of CTS Table 3.3-1.

3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

The improved TS ESFAS instrument function or functions are listed in italics before each discussion or discussions that apply.

General Differences

(16) CTS do not contain the following ESFAS instrument functions given in STS Table 3.3.2-1:

1.e.(2)	Safety Injection - Steam Line Pressure - High Differential Pressure Between Steam Lines
1.f and 1.g	Safety Injection - High Steam Line Flow in Two Steam Lines
2.c	Containment Spray - Containment Pressure - High -3 (two loop plants)

3.b	Containment Isolation - Phase B Isolation
4.e and 4.f	Steam Line Isolation - High Steam Line Flow in Two Steam Lines
4.g and 4.h	Steam Line Isolation - High Steam Line Flow
6.b	Auxiliary Feedwater - Automatic Actuation Logic and Actuation relays (Balance of Plant ESFAS)
6.f	Auxiliary Feedwater - Undervoltage Reactor Coolant Pump
6.h	Auxiliary Feedwater - AFW Pump Suction Transfer on Suction Pressure - Low
7.c	Automatic Switchover to Containment Sump - RWST Level - Low
8.c	ESFAS Interlocks - T_{avg} - Low Low, P-12
8.d	ESFAS Interlocks - SG Water Level - High High, P-14

Therefore, these functions have not been adopted in Specification 3.3.2. The Notes in Table 3.3.2-1 have been renumbered accordingly.

(17) The ESFAS action statements in the CTS allow bypassing "a channel" and are not limited to "the inoperable channel." The corresponding Notes in the improved TS 3.3.2 ACTIONS C, D, E, G, H, I, and K have been revised to agree with the CTS. All esfas instrumentation functional groups except Number 8, ESFAS Interlocks, reflect this STS difference. (Specifically, Functions 1.b, 1.c, 1.d, and 1.e; 2.b and 2.c; 3.(b); 4.b, 4.c, and 4.d; 5.a, 5.b, and 5.c; 6.a and 6.b; and 7.a and 7.b.)

3.3.2.1.a Safety Injection - Manual Initiation;
3.3.2.2.a Containment Spray - Manual Initiation;
3.3.2.3.a Phase A Containment Isolation - Manual Initiation;
3.3.2.4.a Steam Line Isolation - Manual Initiation; and
3.3.2.8.a ESFAS Interlocks - Reactor Trip, P-4

(18) The word "train" in STS ACTIONS B and F, and Function 2.a of Table 3.3.2-1, were not adopted, consistent with the CTS terminology for single channel trains.

3.3.2.4 Steam Line Isolation

(19) At VEGP, each steam line has two isolation valves in series. Each isolation valve has a bypass valve associated with it. Only one isolation valve and associated bypass must be closed to isolate a steam line. Applicability Note (i) of STS Table 3.3.2-1 has not been adopted. Instead corresponding Note (c) of Table 3.3.2-1 retains the requirement of Notation f of CTS Table 3.3-2, to be consistent with VEGP design.

3.3.2.5 Turbine Trip and Feedwater Isolation

(20) At VEGP, each feedwater line has two isolation valves (includes the feedwater regulating valve which is a credited isolation at VEGP) in series. Each isolation valve has a bypass valve associated with it. Only one isolation valve and associated bypass must be closed in each feedwater line to isolate feedwater. Applicability Note (j) of STS Table 3.3.2-1 has not been adopted. Instead corresponding Note (f) of Table 3.3.2-1 has been adopted to be consistent with VEGP design. This new VEGP-specific Note recognizes that Vogtle has two main isolation valves per main feedwater line (MFIV and MFRV) each with its own bypass

line and bypass isolation valve. Each main and bypass valve receives the feedwater isolation signal and closing either set of main and bypass valves will isolate the main feedwater line and accomplish the safety function assumed in the safety analysis.

(21) ESFAS Functional Unit 5.b.1 of CTS Table 3.3-2 for feedwater isolation on low RCS T_{avg}, which has been retained as Function 5.b in Table 3.3.2-1 (STS Function 5.b has been renumbered 5.c), is not contained in the STS.

3.3.2.6 Auxiliary Feedwater (AFW)

(22) STS SR 3.3.2.3, ACTUATION LOGIC TEST, and SR 3.3.2.7, Trip Actuating Device Operational Test (TADOT), are not contained in improved TS 3.3.2. The ACTUATION LOGIC TEST is only used for balance of plant relay testing on STS Function 6.b for the auxiliary feedwater (AFW) system. VEGP does not currently specify nor does it have such relays for AFW actuation. The TADOT only applies to STS Functions 6.e, loss of offsite power (ESF bus undervoltage), and 6.f, undervoltage reactor coolant pump (RCP). VEGP does not have the RCP undervoltage start function for the AFW pumps. At VEGP the ESF bus loss/degraded voltage channels are the same channels used to start the diesel generators. The DG loss/degraded voltage start channels are contained in a separate specification (STS 3.3.5). In order to avoid the confusion of these channels appearing in two different specifications, the VEGP AFW start function is also addressed in Specification 3.3.5. Therefore, STS SR 3.3.2.7 is omitted from the VEGP ESFAS TS, but is contained in improved TS 3.3.5 as SR 3.3.5.1, as a CHANNEL OPERATIONAL TEST (COT) in lieu of a TADOT. This is acceptable for reasons given in discussion (23) of Subsection 3.2.3.3 of Part III of this safety evaluation. The remaining surveillances in Specification 3.3.2 have been renumbered accordingly.

3.3.2.6.d Auxiliary Feedwater (AFW) - Trip of all Main Feedwater (MFW) Pumps

(23) Applicability Note (g) of Table 3.3.2-1 retains Note ** of CTS Table 3.3-2 with editorial changes. This Note is not contained in STS Table 3.3.2-1. It modifies the MODE 2 Applicability for the AFW pump start on trip of all MFW pumps such that the trip of all MFW pumps function is only required when MFW is supplying the steam generators. During a normal plant startup, entry is made into MODE 2 while feeding the steam generators using the AFW system.

In addition, a trip setpoint value has not been included for the trip of all MFW pumps auto start of AFW pumps. As this function is not included in the Westinghouse ESFAS setpoint study for VEGP, there is no allowable value or trip setpoint specifically calculated or assumed in any analysis for these instruments

3.3.2.7 Semi-automatic Switchover to Containment Sump

(24) The ECCS pump suction switchover to the containment sump is not automatic at VEGP. Operator action is required to complete the switchover. Therefore, the function title begins with semi-automatic instead automatic, consistent with corresponding Functional Unit 7 of CTS Table 3.3-2.

3.3.2.7.a Semi-automatic Switchover to Containment Sump - Automatic Actuation Logic and Actuation Relays

(25) Applicability Note (h) for Function 7a is not contained in the STS or the CTS. It has been added to require only one train of actuation logic and relays to be OPERABLE in MODE 4. This change is consistent with the requirement in LCO 3.5.3 for only one train of RHR to be OPERABLE in this MODE. This change, which provides consistency between the instrumentation and system LCOs, is also addressed in discussion (14) of Subsection 3.2.3.3 of Part III of this safety evaluation.

3.3.2.8.a ESFAS Interlocks - Reactor Trip, P-4

(26) The Frequency of once per reactor trip breaker cycle for STS SR 3.3.2.11, the TADOT of ESFAS interlock P-4, has not been adopted in corresponding improved TS SR 3.3.2.9. The existing 18-month Frequency of CTS 4.3.2.1 has been retained instead.

3.3.2.8.b ESFAS Interlocks - Pressurizer Pressure, P-11

(27) ACTIONS Condition L of Specification 3.3.2 differs from STS Condition L by addressing more than one, as well as one, inoperable channel. This is consistent with corresponding ACTION 21 of CTS Table 3.3-2. In addition, since at VEGP Condition L addresses only the P-11 pressurizer pressure channels, it has been made specific to these channels.

(28) STS SR 3.3.2.1, the once per 12 hours CHANNEL CHECK of the Pressurizer Pressure, P-11 ESFAS Function 8.b of STS Table 3.3.2-1 has not been adopted because it is not required by the CTS Table 3.3-2 for corresponding Functional Unit 9.a. The actual P-11 interlock function is verified OPERABLE by the performance of a 92-day COT and an 18-month Channel Calibration. Proper operation of the pressurizer pressure channels associated with the P-11 interlock are also confirmed by the pressurizer pressure reactor trip and safety injection function CHANNEL CHECKS required by the RTS and ESFAS TS for the same channels. Therefore, the STS-required CHANNEL CHECK of the interlock status lights would have no impact on the reliability or OPERABILITY of the P-11 interlock at VEGP.

3.3.3 PAM Instrumentation

(29) The ACTIONS of improved TS 3.3.3 contain three significant differences from the ACTIONS of STS 3.3.3. First, they address diverse indication for instruments with only one channel specified. The diverse indication taken credit for in the VEGP specific ACTIONS are identified and approved in the VEGP response to Regulatory Guide 1.97. In order to support the basis for a 30-day allowed outage time (i.e., redundant or diverse instrumentation available), VEGP unique ACTIONS were constructed to clearly identify the OPERABILITY requirements for the diverse indicating channels to the operators. The need to address the issue of diverse PAM instrumentation on a plant specific basis was discussed at the ITS lead plant meeting in Orlando, Florida, on May 20, 1993. The NRC minutes of that meeting recognized that plant specific implementations would be required. In addition, the proposed ACTIONS

are consistent with the ACTIONS in CTS Table 3.3-8 and CTS 3/4.3.3.6, which clearly define the diverse channel OPERABILITY requirements.

Second, the format and presentation of the proposed ACTIONS more closely match the format and presentation of the STS reactor trip system (RTS) TS and ESFAS TS. The VEGP specific ACTIONS work the same way (same Condition A to reference applicable Conditions from the Table) as the STS RTS and ESFAS specifications. Since the STS PAM TS use a different format and addresses the Conditions listed on the associated Table differently than the STS RTS and ESFAS TS, the VEGP specific PAM ACTIONS represent a human factors and consistency improvement over the STS PAM TS. Note that this change combined with the proposed ACTIONS Table change in the Remote Shutdown TS make all the VEGP instrument TS ACTIONS Tables work and look similar.

Third, the proposed ACTIONS Conditions contain Notes for the containment isolation valve position indication channels. The Notes allow the Condition to be entered on a per penetration basis for this function. Without this allowance, Condition entry for a second valve position indication channel on a different penetration could be interpreted to be prohibited by the Condition wording of "One required channel inoperable". This change is considered a clarification of the intent of the STS to allow this Condition to be entered on a per penetration basis. The addition of this Note is consistent with the application of this type of Note in other areas of the STS for similar purposes.

(30) The phrase in STS SR 3.3.3.1 "that is normally energized" describing PAM instrument functions requiring a CHANNEL CHECK has been omitted from SR 3.3.3.1. All PAM instrument channels listed in improved TS Table 3.3.3-1 are normally energized. Thus, this condition to the SR is not necessary at VEGP.

(31) VEGP-specific Note (a) of Table 3.3.3-1 clarifies that only one set of condensate storage tank level instrumentation is required OPERABLE to be consistent with Specification 3.7.6, which requires only one of the two condensate storage tanks in each unit to be OPERABLE. This Note is not found in STS Table 3.3.3 because only one tank is assumed in the plant design upon which the STS is based. Accordingly, STS Notes (a), (b), and (c) have been renumbered as (b), (c), and (d) in improved TS Table 3.3.3-1.

3.3.4 Remote Shutdown System

(32) The word "monitoring" has been inserted in the STS wording of SR 3.3.4.1, CHANNEL CHECK, and SR 3.3.4.3, CHANNEL CALIBRATION, to describe to which instrumentation these surveillances apply. VEGP-specific Table 3.3.4-1 contains two types of instruments, "Monitoring" and "Transfer and Control Circuits". SR 3.3.4.1 and SR 3.3.4.3 apply only to indicating (monitoring) instrument channels. This clarification is consistent with CTS 4.3.3.5.1.a and 4.3.3.5.1.b, and also the intent of the STS.

3.3.5 4.16 kV ESF Bus Loss of Power (LOP) Instrumentation

(33) The ACTIONS of improved TS 3.3.5 differ from the ACTIONS of STS 3.3.5 because of plant-specific design and existing TS requirements that have

been retained. These differences are illustrated by the following table. Wording differences are given in bold type for emphasis.

STS 3.3.5 ACTIONS		Improved TS 3.3.5 ACTIONS	
A.	One or more Functions with one channel **per bus** inoperable.	A.	One or more Functions with *only* one channel **on one or both buses** inoperable.
A.1	Place channel in trip. 6 hours	A.1	Place channel in trip. 6 hours
B.	One or more Functions with two or more channels **per bus** inoperable.	B.	One or more Functions with two or more channels **on one bus** inoperable.
B.1	Restore **all but one** channel to OPERABLE status. 1 hour	B.1	Restore **at least three** channels to OPERABLE status. **12 hours**
B.	One or more Functions with two or more channels **per bus** inoperable.	C.	One or more Functions with two or more channels **on two buses** inoperable.
B.1	Restore **all but one** channel to OPERABLE status. 1 hour	C.1	Restore **at least three channels on one bus** to OPERABLE status. 1 hour
		D.	Required Action and associated Completion Time not met in **MODES 1, 2, 3, or 4.**
		D.1	Be in MODE 3. 6 hours
		AND	
		D.2	Be in MODE 5. 36 hours
C.	Required Action and associated Completion time not met.	E.	Required Action and associated Completion time not met **when the associated DG is required to be OPERABLE by LCO 3.8.2.**

STS 3.3.5 ACTIONS	Improved TS 3.3.5 ACTIONS
C.1 Enter applicable Condition(s) and Required Action(s) for the associated DG made inoperable by LOP DG start instrumentation. Immediately	E.1 Enter applicable Condition(s) and Required Action(s) for the associated DG made inoperable by LOP DG start instrumentation. Immediately

The licensee stated that the STS phrase "per bus" could be interpreted to mean that channels on both ESF buses must be inoperable in order for STS Conditions A or B to apply. To prevent this misinterpretation, this phrase has been replaced by the phrase "on one or both buses" which more clearly describes the situation addressed by STS Conditions A and B. In addition, the word "only" has been added to render Condition A exclusive with respect to the other conditions in which multiple channels are inoperable. This was necessary because with multiple channels inoperable, placing more than one channel of one function on the same bus in trip would result in actuation of the diesel generators, which was not the intent of STS Required Action A.1.

Condition B has been divided into improved TS Conditions B and C. Improved TS Condition B clearly addresses the situation in which one or two functions with two or more channels inoperable on a single bus. Once in this Condition, the affected instrument function (loss of or degraded voltage) may no longer be single failure proof or may no longer be functional for the affected bus. In this case, operation in the Applicability of the LCO must be limited. Improved TS ACTION B allows 12 hours to restore the instrument function to the capability of continued operation permitted by ACTION A. The 12-hour Completion Time is based on the improved TS allowance for an inoperable ESF bus load sequencer. This time is appropriate because the affected instrument channels (loss of or degraded voltage) are inputs to the load sequencer and rely on sequencer circuits to perform their required actuations. Thus, the inoperability of more than one channel of either the loss of voltage or degraded voltage function, associated with a given ESF bus, is no worse than the inoperability of a load sequencer associated with that bus. Since the actuation logic and relays for the loss of power instruments (both AF pump and diesel generator start) are an integral part of the sequencer, an inoperable sequencer may prevent the loss of power instruments from performing their intended functions. Therefore 12 hours provides a reasonable and consistent Completion Time, based on the time allowed for an inoperable sequencer, for these instruments when Condition B becomes applicable.

Improved TS Condition C corresponds to the situation in which both buses each have at least one function with at least two inoperable channels. In this Condition, STS Required Action B.1 has been revised to require restoring at least three channels of the affected function to OPERABLE status on one of the buses within 1 hour. The effect of this action would be to return to the situation addressed by improved TS Condition B, with provided its 12-hour Completion Time has not expired.

Improved TS ACTION D has been added to the Actions of STS 3.3.5 to provide the appropriate shutdown actions if improved TS ACTION A, B, or C have not been met when in MODES 1, 2, 3, or 4. Unlike STS Required

Action C.1, improved TS Required Actions D.1 and D.2 do not direct entry into the AC sources specification upon failure to meet the preceding action requirements. ACTION D requires a unit shutdown to MODE 5, which is consistent with the actions required by the AC sources - operating specification and bounds the requirements for the AFW system.

Finally, improved TS ACTION E is consistent with STS ACTION C when the unit is in MODE 5 at the time. Condition E has been revised to clarify that a function is only required to be OPERABLE when the associated DG is required to be OPERABLE by improved TS LCO 3.8.2, "AC Sources - Shutdown," consistent with the Applicability of Specification 3.3.5.

These differences from the ACTIONS of STS 3.3.5 are acceptable because they are based upon plant design and result in ACTIONS that more clearly present the intent of the STS.

(34) ACTION 29.b of CTS Table 3/4.3-2 has been retained as a Note in improved TS 3.3.5, ACTION A. The format and presentation of this Note is consistent with that of similar ACTIONS Notes in the RTS and ESFAS instrumentation specifications. This Note allows an "additional" channel to be bypassed, not just the inoperable channel. The VEGP current allowance to bypass an "additional" channel means a channel other than the one placed in trip may be bypassed. This CTS allowance differs from the STS Note which only allows the inoperable channel to be bypassed. The net effect is the same. If the inoperable channel is bypassed, the OPERABLE channel must be tested in trip. If the OPERABLE channel is tested while it is bypassed, the inoperable channel must remain in trip. Either way, one channel will be bypassed and one channel will be in trip. Therefore, this difference is consistent with current licensing basis.

(35) At VEGP, the loss of power instrumentation actuates the auxiliary feedwater pumps as well as the diesel generator. The loss of voltage and degraded voltage AFW functions have been moved from the ESFAS TS into the improved TS 3.3.5 to consolidate the functions performed by this instrumentation. STS 3.3.5 does not contain a response time testing requirement for the emergency diesel generator on loss of voltage and degraded voltage signals. However, the VEGP safety analyses include assumptions for the AFW system response to automatic start signals with and without offsite power available. VEGP FSAR Table 16.3-2 contains an explicit line item for the AFW system response to both loss of voltage and degraded voltage on the ESF buses. In addition, the current ESFAS TS contains a surveillance for response time testing of this instrument function. Therefore, a VEGP-specific response time test surveillance, improved TS SR 3.3.5.3, has been retained to verify the AFW system response time to loss of voltage and degraded voltage on the 4.16 kV ESF buses. This surveillance is equivalent to the ESFAS response time test requirement of CTS 4.3.2.2 that applies to the current AFW Loss of voltage and degraded voltage functions in the ESFAS TS. This surveillance also includes a Note that allows a delay in testing the turbine-driven AFW pump until steam generator pressure reaches an appropriate value for operating the pump. This Note is consistent with the Note in the STS ESFAS TS for other AFW response time testing

3.3.6 Containment Ventilation Isolation Instrumentation

(36) AT VEGP, specific combinations of the particulate, gaseous, and iodine monitors and the area low range radiation monitors can make up the two required radiation monitoring channels for the containment ventilation isolation function. Therefore, the wording of Conditions A, B, and C in Specification 3.3.6 was revised from the STS wording of "One radiation monitoring channel inoperable" (Condition A) and "Two or more radiation monitoring channels inoperable" (Conditions B and C) to the improved TS wording of "Only one radiation monitoring channel OPERABLE" and "No radiation monitoring channels OPERABLE" to clarify the Conditions for the VEGP specific design.

(37) Consistent with CTS 4.3.2.2, improved TS 3.3.6 contains a surveillance requirement for response time testing of the containment ventilation isolation instrumentation (containment area radiation and ventilation radiation functions), SR 3.3.6.8. This surveillance requirement, which is not contained in STS 3.3.6, is necessary to ensure that containment ventilation isolation occurs within the time assumed in the accident analyses.

(38) STS 3.3.6 and STS Table 3.3.6-1 have been adopted with changes to conform to VEGP terminology and design, and also to conform to the requirements of CTS 3/4.3.2.b. The four Notes in Table 3.3.6-1 correspond to existing Notes in CTS Tables 3.3-2 and 3.3-3 (see attached Table 2-3).

3.3.7 Control Room Emergency Filtration System (CREFS) Actuation Instrumentation

(39) STS 3.3.7 and Table 3.3.7-1 have been adopted with changes to conform to VEGP terminology and design, and also to conform to the requirements of CTS 3/4.3.10. The major difference from the STS is the ACTIONS table. The proposed ACTIONS are equivalent to the CTS requirements and address the four train, common control room, 400% capacity CREFS at VEGP. See discussion (28) of Subsection 3.1.3.3 of Part III of this safety evaluation.

(40) STS SR 3.3.7.4, MASTER RELAY TEST, and SR 3.3.7.5, SLAVE RELAY TEST, are not required in the CTS for the CREFS, and have not been adopted. In addition, the control room atmosphere radiation monitor function has not been adopted. VEGP only uses air intake monitors.

(41) Consistent with CTS 4.3.2.2, improved TS 3.3.7 contains a surveillance requirement for response time testing of the radiogas monitor actuation instrumentation, SR 3.3.7.6. The radiogas monitors are required to actuate CREFS for a fuel handling accident in the fuel handling building. The analysis associated with this postulated event assumes a response time which includes the radiogas monitor actuation.

3.3.8 High Flux at Shutdown Alarm

(42) ACTION L of STS 3.3.1 has been split between improved TS 3.3.1, ACTION L, and improved TS 3.3.8, "High Flux at Shutdown Alarm (HFASA)." STS Required Actions L.2 and L.3 have been moved to the ACTIONS of

Specification 3.3.8, as Required Actions B.3 and B.2, respectively. Because the source range instrumentation supports the OPERABILITY of the HFASA instrumentation, improved TS 3.3.1, ACTION L, contains a Note requiring entry into the ACTIONS of Specification 3.3.8 for HFASA channels made inoperable by the source range instrumentation. As discussed in Subsection 3.1.3.1 of Part III of this safety evaluation, improved TS 3.3.1 ACTION L and Specification 3.3.8 maintain the existing action requirements for the source range and HFASA instrumentation.

3.4.3.4 Reactor Coolant System (RCS)

General RCS Specification STS Differences

(1) The following STS specifications have not been adopted because they do not apply to the VEGP current design or licensing basis.

STS 3.4.17, "RCS Loop Isolation Valves"
STS 3.4.18, "RCS Isolated Loop Startup"
STS 3.4.19, "RCS Loops - Test Exceptions"

3.4.1 RCS Pressure, Temperature, and Flow DNB Limits

(2) New Condition B has been added to STS 3.4.1 to address the case where the 12-hour surveillance of the RCS flow indicators shows a detectable degradation in RCS flow. At VEGP, the RCS flow instrumentation indicates from 0% to 120% as opposed to actual flow in gallons per minute. Therefore, the flow instrumentation is used to detect degradation in flow rather than confirm flow is greater than or equal to the limit. Degradation is defined as a change in indicated percent flow which is greater than the instrument channel inaccuracies and parallax errors. Accordingly, STS SR 3.4.1.3, RCS flow verification, has been revised to only require monitoring for flow degradation. This is consistent with corresponding CTS 4.2.5.2, and therefore, reflects the current licensing basis and plant design.

(3) The Note to STS SR 3.4.1.4, RCS precision heat balance, has been revised to require the surveillance to be performed within 7 days rather than 24 hours after THERMAL POWER ≥ 90% RTP. The 7-day interval is the existing requirement in corresponding CTS 4.2.5.3 and therefore constitutes current licensing basis. The licensee, citing an increase in operational burden without a commensurate safety benefit, has chosen to retain the 7-day requirement and will not backfit the STS 24-hour requirement.

3.4.5 RCS Loops - MODE 3;
3.4.6 RCS Loops - MODE 4; and
3.4.7 RCS Loops - MODE 5, Loops Filled

(4) Surveillance Requirements 3.4.5.2, 3.4.6.2, and 3.4.7.2 differ from the corresponding STS surveillances by requiring the secondary side water level to be above the highest point of the steam generator U-tubes for the required RCS loops. This will ensure that the required steam generators are capable of functioning as a heat sink under all conditions without tying the water level to a specific instrument scale. The operators can then use the wide range instrumentation or narrow

range instrumentation as appropriate, and the specific water level can vary over the range of steam generator operating conditions so long as the highest point of the U-tubes remains covered. Plant procedures will provide the minimum indicated levels to ensure the U-tubes are completely submerged. See discussion (3) of Subsection 3.3.3.4 of Part III of this safety evaluation.

3.4.6 RCS Loops - MODE 4

(5) Note 2 and Note 3 to STS LCO 3.4.6 and 3.4.7, respectively, have been adopted with changes to conform with Note ** to CTS 3.4.1.3 regarding required conditions for starting idle RCS loops in MODE 4, and Note *** for starting idle RCS loops in MODE 5 with loops filled.

3.4.8 RCS Loops - MODE 5, Loops Not Filled

(6) Specification 3.4.8 retains the existing requirement of CTS 3/4.4.1.4.2 to isolate unborated water sources. This requirement, not contained in STS 3.4.8, is necessary to preclude a boron dilution event in MODE 5 with the RCS loops not filled.

3.4.9 Pressurizer

(7) The 18-month Frequency of SR 3.4.9.2, pressurizer heater capacity verification, which was a change in the 92-day Frequency of corresponding CTS 4.4.3.2, also differs from the 92-day Frequency of STS SR 3.4.9.2. The change from 92 days to 18 months was based on the recommendations of Generic Letter 93-05. At VEGP, the pressurizer heaters are in constant use during normal power operation and operators should be aware of any problems that may arise with the heaters. Therefore, a surveillance interval of 18 months is appropriate. See discussion (6) of Subsection 3.2.3.4 of Part III of this safety evaluation.

3.4.10 Pressurizer Safety Valves

(8) The Note to the Applicability of STS LCO 3.4.10, regarding the setting of the pressurizer code safety valves under ambient conditions, has not been adopted because the pressurizer code safety valves at VEGP are tested in MODE 3 on the way down for a refueling outage. If the valves are tested successfully, they remain in place awaiting startup. If the valves must be removed for maintenance, they are bench tested under conditions simulating actual operating ambient conditions. Therefore, the Note modifying the Applicability of STS 3.4.10 is not applicable to VEGP.

3.4.10 Pressurizer Safety Valves; and
3.4.12 Cold Overpressure Protection Systems (COPS)

(9) The MODE 4 Applicability of STS 3.4.10 and STS 3.4.12 (MODE 4 with RCS cold leg temperature > 275°F and ≤ 275°F, respectively) has not been adopted because the VEGP cold overpressure protection system (COPS) enable temperature is 350°F, the transition temperature between MODES 3 and 4. The COPS is required to be OPERABLE in MODES 4, 5, and 6 with

the vessel head on and thus provides the necessary overpressure protection for low temperature operation in MODE 4.

3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

(10) The Note to STS SR 3.4.11.1 states that the quarterly cycling of a block valve is not required if the block valve is closed in accordance with ACTION B or E. The corresponding improved TS Note also includes ACTION A, in the event one or more PORVs are inoperable and capable of being manually cycled. When a PORV has been isolated by closing the block valve with the RCS pressurized, and the block valve is stroked, the PORV will open momentarily as it responds to the pressure differential. This could be undesirable depending on the reason the PORV was isolated. This is also consistent with ACTION a of CTS 3/4.4.4.

3.4.12 Cold Overpressure Protection Systems (COPS)

(11) STS 3.4.12, "Low Temperature Overpressure Protection System," has been adopted with the title "Cold Overpressure Protection Systems (COPS)" consistent with CTS 3/4.4.9.3. In addition, STS LCO 3.4.12 has been revised to reflect the safety analysis assumption that the safety injection pumps are incapable of injecting into the RCS in MODES 4, 5, and 6 with the reactor vessel head on.

Applicability Note 2 of improved TS 3.4.12 is not contained in the STS, but is consistent with the provisions of CTS 4.5.3.2, to verify safety injection pumps are inoperable within 4 hours after entering MODE 4 from MODE 3 before temperature of an RCS cold leg decreases below 325°F.

(12) The Completion Time of immediately of Required Action A.1 of STS 3.4.12, to initiate action to verify no safety injection pumps are capable of injecting into the RCS, has been replaced by a 4-hour Completion Time consistent with the ACTION of CTS 3/4.5.3.2.

(13) The third part of Condition G of STS 3.4.12, references Condition D, implying that Condition D constitutes a reason for declaring COPS inoperable. Corresponding improved TS Condition F, however, does not reference corresponding Condition C, because Condition C does not describe a reason for the COPS to be inoperable. It is actually just a default condition for failing to meet ACTION B (an unisolated accumulator).

(14) The 8-hour Completion Time of ACTION G of STS 3.4.12, and also of corresponding ACTIONS a, b, and c of CTS 3/4.4.9.3, has been increased to 12 hours in corresponding ACTION F of improved TS 3.4.12. A Completion Time of 12 hours provides additional margin for achieving a completely depressurized state as part of a controlled evolution. See discussion (12) of Subsection 3.2.3.4 of Part III of this safety evaluation.

(15) The 12-hour Frequency of STS SR 3.4.12.1, to verify the safety injection pumps are incapable of injecting into the RCS, has been adopted with a modification to allow 4 hours after entry into MODE 4 from MODE 3 for rendering the safety injection pumps inoperable. This modification retains the allowance of corresponding CTS 4.5.3.2.

(16) The Frequency of CTS 4.4.9.3.2, which requires the RHR suction isolation valves to be verified open at least once per 72 hours, has been retained in improved TS SR 3.4.12.3 in lieu of adopting the 12-hour Frequency of corresponding STS SR 3.4.12.4. This is appropriate because the auto-closure interlock has been removed from the VEGP design. This minimizes the potential for spurious closure of the suction isolation valves. As a result, there is no need to lock open a suction isolation valve with operator power removed.

3.4.13 RCS Operational Leakage

(17) The Frequency of STS SR 3.4.13.1 has been clarified regarding the situation after initial entry into Mode 3 or 4 and steady state operation has been achieved. In this situation, the initial performance of SR 3.4.13.1 would be due within 12 hours after achieving steady state operation. Subsequent performances of SR 3.4.13.1 would be due 72 hours thereafter. However, the second Note (moved from the Frequency column location of the STS) of improved TS SR 3.4.13.1 states that the SR is only required to be performed during steady state operation. If a transient occurs after the initial performance of SR 3.4.13.1, and the duration of the transient is such that the 72-hour interval plus the 25% extension (18 hours) would be exceeded, the surveillance would not be required again until steady state operation was reestablished. The proposed revision to the Frequency would allow 12 hours for performance of the surveillance, consistent with Note 1 for the initial entry into MODE 3 or 4 during a startup. See discussion (10) of Subsection 3.3.3.4 of Part III of this safety evaluation regarding this potentially more restrictive provision.

3.4.14 RCS PIV Leakage

(18) Condition C of STS 3.4.14 has been adopted but has been modified to reflect a previous VEGP design change to remove the RHR system automatic closure feature on increasing RCS pressure. Condition C of improved TS 3.4.14 refers to an inoperable RHR system suction isolation valve open permissive interlock.

Similarly, STS SR 3.4.14.2, to verify the interlock prevents valve operation, has been revised to address the open permissive interlock, not the automatic closure interlock.

(19) STS SR 3.4.14.1, to verify RCS PIV leakage within limits, has been adopted with existing exceptions to performing the surveillance post shutdown and post valve actuation for RHR suction isolation valves, HV-8701A/B and HV-8702A/B, in the second and third Frequencies. These exceptions are currently contained in CTS 4.4.6.2.2.d and 4.4.6.2.2.c, respectively.

In addition, the words "due to automatic or manual actuation or flow through the valve," contained in the third Frequency of STS SR 3.4.14.1, have not been adopted. It is sufficient to specify within 24 hours following valve actuation. At VEGP, due to the exception for the RHR suction isolation valves, this Frequency applies only to check valves, so deleting the reference to automatic or manual action is appropriate. Also, the language "or flow through the valve" does not allow for minor forward leakage through a check valve. Minor forward

leakage through a check valve should not result in the need to retest the valve.

Finally, the third Frequency of STS SR 3.4.14.1 has been adopted with the modification that leakage verification following actuation is only required for PIVs in systems rated at less than 50% RCS design pressure. This is the existing requirement of CTS 4.4.6.2.2.c.

3.4.15 RCS Leakage Detection Instrumentation

(20) Improved TS 3.4.15 is consistent with the format of STS 3.4.15, but reflects the VEGP RCS leakage detection system design and terminology, and also the requirements of CTS 3/4.4.6.1, which have been retained. In particular, the allowance of CTS 3.4.6.1.c to substitute the containment atmosphere gaseous or particulate radioactivity monitors for containment air cooler condensate flow rate, has been retained.

Improved TS ACTION A, for the Condition of one non-indicating sump (one sump monitor inoperable), is not contained in the ACTIONS of STS 3.4.15 because the STS only assumed a single containment sump. ACTION A allows plant operation to continue indefinitely provided an RCS water inventory balance (SR 3.4.13.1) is performed once per 24 hours. This is acceptable because the diversity of the indication provided by the remaining two sump monitors, radioactivity monitors, and/or containment cooler condensate flow rate monitor, in addition to the regular performance of the RCS water inventory balance, will ensure timely detection of RCS leakage. In the event two or all three sump monitors are inoperable, improved TS ACTION B would apply, consistent with STS ACTION A, and would allow 30 days to restore at least two sump monitors to OPERABLE status.

The allowance of improved TS ACTION A is an acceptable deviation from the STS because it is based upon the design difference between the VEGP containment sump level monitoring system and the system design assumed in the STS. In addition, this new allowance is acceptable for the reasons given in discussion (16) of Subsection 3.2.3.4 of Part III of this safety evaluation.

3.4.3.5 Emergency Core Cooling Systems (ECCS)

3.5.1 Accumulators

(1) STS SR 3.5.1.4 indicates that the value for change in instrument indication (percent of indicated level) corresponding to the specified solution volume increase in gallons should be stated in the second Frequency. This value is contained in the Bases for improved TS SR 3.5.1.4. The important parameter from a safety analysis standpoint is the actual limit in gallons. Specifying the indicated value in the Bases allows a change in the scaling of the instrument without necessitating a change to the TS. Because the STS requirement remains the same, this difference is acceptable.

3.5.2 ECCS — Operating

(2) Applicability Note 1 of STS 3.5.2 allows isolating both safety injection pump flow paths in MODE 3 by closing the isolation valves for up to 2 hours for pressure isolation valve testing per SR 3.4.14.1. Note * to CTS 4.5.2.a, for RHR pump cold leg injection pressure isolation valve

testing, only provides for isolation of one train at a time. Also, the 2-hour limit is not specified the CTS. NRC has accepted Georgia Power Company's practice at VEGP of closing one isolation valve at a time for the time required to perform pressure isolation valve testing on valves HV 8809A and HV 8809B. See Melanie Miller to J. P. O'Reilly dated November 5, 1987 (TAC 66461).

(3) STS SR 3.5.2.7, verification of throttle valve position, has not been adopted. The STS Bases for this surveillance refers to valves that realign on a safety injection signal. At VEGP, the throttle valves are needle valves which are locked in position after flow balancing and controlled via the VEGP locked valve program.

3.5.3 ECCS — Shutdown

(4) Action B of Specification 3.5.3 addresses the situation in which the required ECCS centrifugal charging subsystem (i.e., train) is inoperable, but at least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train is available. Although not contained in STS 3.5.3, this ACTION is consistent with a similar ACTION in STS 3.5.2. See discussion (5) of Subsection 3.2.3.5 of Part III of this safety evaluation.

3.5.4 Refueling Water Storage Tank (RWST)

(5) ACTIONS B and C of Specification 3.5.4 are two CTS ACTIONS for the non-safety grade RWST mixing system isolation valves and are not included in STS 3.5.4. These valves are required to isolate on an RWST low-level signal. The RWST low-level signal corresponds to the TS required RWST volume of borated water. Isolation of the mixing system at this level ensures the required volume of RWST water will be available in the event of a failure (breach) of the non-safety grade mixing system.

In addition, an existing plant-specific surveillance requirement to verify isolation of the non-safety mixing system from the RWST has been retained as SR 3.5.4.4.

3.5.5 Seal Injection Flow

(6) LCO 3.5.5, Required Action A.1, and SR 3.5.5.1 for seal water injection flow differ from STS LCO 3.5.5 and STS SR 3.5.5.1 by locating the value for the seal injection flow limit in the Bases. The STS limit on flow rate at a given charging pump discharge pressure is better expressed graphically with a pressure-flow curve than by a single point on the curve. Therefore, the improved TS Bases contain the seal injection flow limit curve in Figure B 3.5.5-1, as addressed in discussion (11) of Subsection 3.2.3.5 of Part III of this safety evaluation. The surveillance requirement specifies seal injection flow to be within ECCS safety analysis limits. Therefore, the figure in the Bases must maintain those limits. Hence, the TS requirements will continue to maintain ECCS performance within the envelope of the safety analysis. In addition, since the seal water injection inlet header pressure indication is downstream of the charging flow control valve, the requirement for the position of the charging flow control valve in STS LCO 3.5.5 does not apply to VEGP and has not been adopted.

(7) As previously addressed in discussion (10) of Subsection 3.2.3.5 of Part III of this safety evaluation, required Action A.1, to adjust manual seal injection throttle valves to restore flow to within limits, has a Completion Time of 8 hours instead of the STS time of 4 hours. In addition, the Frequency Note in SR 3.5.5.1 states that the verification of throttle valve adjustment for proper flow is not required to be performed until 8 hours after RCS pressure has stabilized instead of 4 hours as specified by the STS Note.

3.5.6 ECCS Recirculation Fluid pH Control System

(8) STS 3.5.6, "Boron Injection Tank," has not been adopted because VEGP does not use a boron injection tank. In its place, CTS 3/4.5.5 has been retained.

3.4.3.6 Containment Systems

General

(1) The following STS containment specifications do not apply to the VEGP design and have thus not been adopted: 3.6.4B, 3.6.5B, 3.6.5C, 3.6.6B, 3.6.6C, 3.6.6D, 3.6.6E, 3.6.7, 3.6.9, 3.6.10, 3.6.11, 3.6.12, 3.6.13, 3.6.14, 3.6.15, 3.6.16, 3.6.17, 3.6.18, and 3.6.19.

The following STS containment specifications do apply to the VEGP design and have been adopted (with differences noted below):

STS No.	Improved TS No.	Title
3.6.1	3.6.1	Containment
3.6.2	3.6.2	Containment Air Locks
3.6.3	3.6.3	Containment Isolation Valves
3.6.4A	3.6.4	Containment Pressure
3.6.5A	3.6.5	Containment Air Temperature
3.6.6A	3.6.6	Containment Spray and Cooling System
3.6.8	3.6.7	Hydrogen Recombiners

3.6.1 Containment; and
3.6.2 Containment Air Locks

(2) SR 3.6.1.1 and SR 3.6.2.1 reflect the adoption of Option B of Appendix J to 10 CFR Part 50, regarding containment leakage rate testing. This change is addressed in Subsections 3.1.3.6 and 3.2.3.6 of Part III of this safety evaluation. Although not contained in Revision 1 of NUREG-1431, appropriate optional provisions have been accepted by the staff for inclusion in Revision 2, in accordance with the STS generic change process. The Option B provisions in the improved TS conform these provisions.

3.6.3 Containment Isolation Valves (CIVs)

(3) The Notes in Conditions A and B of STS 3.6.3 are only required to clarify the difference between these Conditions and Condition C. Condition C is essentially the same as Condition A except that Condition C is structured specifically for GDC-57 systems (closed system inside containment and single automatic isolation valve, not a check valve, outside containment). At VEGP, containment isolation valves covered by

Specification 3.6.3 are listed in FSAR table 16.3-4. None of these valves are associated with closed systems. Rather, the associated system TS governs OPERABILITY of such valves. Therefore, there is no need for STS Condition C and no need for the Notes to Conditions A and B. Accordingly, these provisions have not been adopted.

In addition, STS ACTION D, pertaining to shield building leakage, does not apply to the VEGP design, and has also not been adopted. STS ACTIONS E, and F have thus been designated as ACTIONS C and D in Specification 3.6.3.

(4) CTS 4.6.1.7.2, leak test requirement for valves with resilient seals (containment ventilation purge and exhaust isolation valves at VEGP), was revised by Amendment Nos. 89 and 67, on July 7, 1995, to change the Frequency from 3 months to 18 months (refueling outage). Corresponding improved TS SR 3.6.3.6 retains this 18-month Frequency. Consequently, the 92-day Frequency of corresponding STS SR 3.6.3.6 and Required Action E.3 of STS 3.6.3, with its 92-day periodic Completion Time for performing this surveillance when such valves are used for isolating an inoperable penetration, have not been adopted. The licensee has proposed to retain the existing requirement and will not backfit. The 18-month Frequency of purge valve leakage testing ensures that a purge valve with resilient seals used for isolation in accordance with improved TS 3.6.3, ACTION C (corresponding to STS ACTION E), will be in the current test interval (i.e., OPERABLE) in the event its isolation function is needed. Therefore, this STS difference is acceptable.

(5) As previously addressed in discussion (14) of Subsection 3.2.3.6 of Part III of this safety evaluation, the conditions under which CTS 3.6.1.7.b allows the 14-inch purge valves to be opened have been broadened in corresponding improved TS SR 3.6.3.2. The revised conditions stipulate, however, that administrative control of the purge or vent operation is in place. This change is less restrictive than the conditions given in STS SR 3.6.3.2 for opening the 14-inch valves.

(6) Note 2 to SR 3.6.3.4 is not contained in STS SR 3.6.3.4, but is consistent with the last sentence of Note * to CTS 4.6.1.1.a. This Note clarifies the requirement for checking the blind flange on the fuel transfer canal.

(7) Specification 3.6.3 omits the following STS surveillances that do not apply to the VEGP design: SR 3.6.3.6, SR 3.6.3.9, SR 3.6.3.10, and SR 3.6.3.11. STS SR 3.6.3.7 and SR 3.6.3.8 have accordingly been designated SR 3.6.3.6 and SR 3.6.3.7, respectively, in Specification 3.6.3.

3.6.6 Containment Spray and Cooling Systems

(8) Consistent with CTS 3/4.6.2.1 and 3/4.6.2.3, improved TS 3.6.6 does not contain ACTIONS D, E, and F of STS 3.6.6. But STS ACTIONS A, B, and C, corresponding to improved TS ACTIONS A, C, and B, have been adopted with the following difference. ACTION B specifies 3 days, not 7 days, to restore an inoperable cooling train to OPERABLE status.

3.4.3.7 Plant Systems

General

(1) The following STS specifications have not been adopted:

STS 3.7.11, "Control Room Emergency Air Temperature Control System"
Instead of a dedicated chiller system, the VEGP control room is cooled by a combination of the CREFS and the essential chilled water system. Because these systems are addressed in the improved TS, there is no need to add a separate specification for their control room cooling function. Therefore, STS 3.7.11 has not been adopted.

STS 3.7.12, "ECCS Pump Room Exhaust Air Cleanup System"
A function similar to that of the STS ECCS pump room exhaust air cleanup system is accomplished by the VEGP piping penetration area filtration and exhaust system (PPAFES). CTS 3/4.7.7 for the PPAFES has been retained as Specification 3.7.13. Therefore, STS 3.7.12 has not been adopted.

STS 3.7.13, "Fuel Building Air Cleanup System"
The CTS requirements corresponding to STS 3.7.13 have been relocated to the TRM, as described in discussion (3) of Subsection 3.5 of Part III of this safety evaluation. Therefore, STS 3.7.13 has also not been adopted.

STS 3.7.16, "Fuel Storage Pool Boron Concentration"
The spent fuel pool boron concentration specification of the STS is not required because the VEGP-specific accident analysis for the spent fuel pit does not credit a specific boron concentration; rather the analysis assumes that the spent fuel pit boron concentration is administratively maintained at a value that exceeds any requirements that might be specified in the accident analysis. This is consistent with the VEGP current licensing basis. In addition, the fuel pool at VEGP does not have multiple regions. Vogtle has only a single region of racks. No region of the VEGP pool is more prone than any other region to contribute to a criticality accident. Therefore, Vogtle does not have a concern about accidents that misplace fuel between regions and does not need to perform the verifications contained in STS 3.7.16. Therefore, STS 3.7.16 has not been adopted

STS 3.7.17, "Spent Fuel Assembly Storage"
VEGP does not have a multiple region fuel storage pool. Any type of fuel may be stored in any location in the pool. Therefore, STS 3.7.17 has not been adopted.

3.7.1 Main Steam Safety Valves (MSSVs)

(2) Required Action A.1 of STS 3.7.1, to reduce power, is not sufficient for VEGP in the event of an inoperable MSSV. As addressed previously in discussion (1) of Subsection 3.2.3.7 of Part III of this safety evaluation, improved TS 3.7.1, Required Action A.2, to reduce the power range neutron flux high trip setpoint, is also necessary. Reducing the power range high trip setpoint is consistent with the current VEGP licensing basis and is consistent with the recommendations of the

Westinghouse Nuclear Safety Advisory Letter NSAL-94-001, dated January 20, 1994. The Westinghouse letter advises retention of the power range high trip setpoint reduction action in technical specifications for plants with a positive moderator temperature coefficient. The reason being, that from an initial condition of partial power operation with inoperable MSSVs, the reactor trips credited in the analyses to mitigate the loss of load/turbine trip transient (high pressurizer pressure, or overtemperature ΔT) may not act quickly enough to prevent overpressurization (> 110% of design pressure) of the secondary system due to the normal operation of pressurizer pressure control system and the core thermal margins existing at lower power. The power range high trip setpoint reduction ensures the early mitigation of the transient and is implicitly credited in the applicable safety analysis. Therefore, Required Action A.2 has been retained as a VEGP specific action requirement.

(3) Condition A of STS 3.7.1 refers to the "required" MSSVs. However, at VEGP, all the MSSVs are required to be OPERABLE. Accordingly, the term "required" has been omitted. In addition, improved TS 3.7.1, Condition B, unlike STS Condition B, addresses the VEGP-specific number of inoperable MSSVs for which a unit shutdown is required. This number is consistent with the number of MSSVs given in improved TS Table 3.7.1-1. This number is expressed as the number of inoperable MSSVs, not OPERABLE MSSVs. The statement of this Condition in terms of inoperable MSSVs is consistent with the way Conditions are stated throughout the STS (action is taken for inoperable equipment not OPERABLE equipment).

(4) STS Table 3.7.1-1 has not been adopted; rather an equivalent VEGP-specific table has been retained in its place. Table 3.7.1-1 requires power range high trip setpoint reductions in accordance with Required Action A.2, discussed previously. This has the practical effect of requiring a reduction in THERMAL POWER below the adjusted setpoint, as required by Required Action A.1. In addition, VEGP specific power levels are listed on the table. The specified power levels are consistent with the recommended methodology in the Westinghouse Nuclear Safety Advisory Letter NSAL-94-001, dated January 20, 1994 and the current VEGP licensing basis. The Bases discussion regarding the determination of the required power levels has also been revised to be consistent with the recommended equation in the Westinghouse NSAL-94-001 and the current VEGP licensing basis.

3.7.2 Main Steam Isolation Valves (MSIVs)

(5) LCO 3.7.2 differs from STS LCO 3.7.2 because it reflects CTS 3/4.7.1.5 and the unusual design of the VEGP MSIV system. The VEGP main steam system design incorporates redundant MSIVs and redundant bypass line isolation valves in each steam line. Together, an MSIV and its associated bypass line isolation valve are referred to as an MSIV system. See discussions (2), (3), and (4) of Subsection 3.2.3.7, and discussion (2) of Subsection 3.3.3.7 of Part III of this safety evaluation.

3.7.3 Main Feedwater Isolation Valves (MFIVs) and Main Feedwater Regulation Valves (MFRVs) and Associated Bypass Valves

(6) ACTION D of STS 3.7.3, in the event two valves in the same flow path are inoperable, has been adopted with changes to make it appropriate for the VEGP main feedwater system design. Unlike the design assumed in the STS, the VEGP design incorporates redundant automatic isolation capability in each main feedwater line. Thus, the improved TS ACTION D addresses the situation of both isolation systems inoperable in one or more feedwater lines. This wording more clearly identifies when multiple inoperable valves result in a situation that requires more immediate action than the 72 hours allowed by ACTIONS A, B, and C for individual valve types. The wording of STS ACTION D would impose an excessively short Completion Time for any two inoperable valves in the same flow path, even if 100% isolation capability from the remaining set of redundant OPERABLE valves was still available. The STS Bases for ACTION D cites "common mode failure" as the reason for the 8-hour Completion Time for all cases of inoperability. The MFIVs and MFRVs in VEGP have diverse motive power (electro-hydraulic and air) and each valve actuator has two separate class 1E power supplies. Each bypass valve actuator has two separate class 1E powered solenoids. In addition, all these valves are designed to fail close. The two sets of isolation valves provide a redundant isolation function similar to other redundant ESF systems and should therefore retain a Completion Time similar to that which typically exists for one inoperable train of an ESF system (72 hours). Condition D, which accurately identifies the situation where less than 100% isolation capability exists, is consistent with the VEGP design and the intent of STS ACTION D, and specifies the 8-hour Completion Time of the STS either to restore isolation capability or to isolate the affected feedwater line. Therefore, ACTION D is acceptable.

(7) The Note to SR 3.7.3.1 is not in the STS, but retains current plant operating practice to test the MFIVs and the MFRVs, and associated bypass valves these valves in Mode 2, consistent with CTS 4.7.1.6(a).

3.7.4 Atmospheric Relief Valves (ARVs)

(8) In MODE 4, the ARVs (ADVs in the STS) are not required OPERABLE because at VEGP the RHR system is available to provide the safety grade heat removal function (in addition to the nonsafety condenser steam dumps). Also, because of the temperature and pressure limitations in MODE 4, the probability of a steam generator tube rupture (SGTR) event is low. Thus, the Applicability condition of STS 3.7.4 "MODE 4 when the steam generator is relied upon for heat removal" has not been adopted. In conjunction with this difference, the wording of shutdown Required Action C.2 have been appropriately modified.

(9) Instead of the 7-day Completion Time for ACTION A in STS 3.7.4, improved TS ACTION A specifies a 30-day Completion Time to restore a single inoperable required ARV to OPERABLE status. This is acceptable based on a VEGP specific risk assessment of the probability of a SGTR coincident with a loss of offsite power occurring during the additional 23 days. Since the ARVs would only be required if a loss of offsite power occurs during the SGTR event (the preferred heat removal method being the

condenser steam dumps which would not be available with a loss of offsite power), it is reasonable to consider the plant specific risk insights involving the probability of both events occurring at the same time when developing the allowed outage time for one required ARV. The impact of the proposed change on the Individual Plant Examination (IPE) model was analyzed and the result is an increase in the core damage frequency (CDF) of 2.34E-07 per reactor year (a 0.5% increase), and an increase in the large early release frequency (LERF) of 1.61E-07 per reactor year (a 9.5% increase). These values fall within the NEI draft guidance for permanent changes to plant risk. The maximum allowed increases in risk for VEGP are 15% of the baseline CDF and 24% of the baseline LERF. These analyses were based on the assumption that the VEGP TS currently contained a specification with a 7-day allowed outage time for an ARV. In fact, no operational limitations are imposed by the CTS for inoperable ADVs. Therefore, a 30-day Completion Time represents a safety enhancement and is acceptable.

(10) STS SR 3.7.4.2, to verify the operation of the block valves for the Atmospheric Dump Valves (ARVs) has not been adopted. This surveillance is not required at VEGP because the ARV block valves are manual valves. There is no remote manual operated actuator to cycle these valves.

3.7.5 Auxiliary Feedwater (AFW) System

(11) The VEGP safety analysis does not assume AFW OPERABILITY in MODE 4. Therefore, the Applicability condition of "MODE 4 when the steam generator is relied upon for heat removal" and the related Note to STS LCO 3.7.5 have not been adopted. In addition, MODE 4 related requirements in STS ACTIONS B, C, D, and E, and SR 3.7.5.3 and SR 3.7.5.4 have also not been adopted. Although the Bases of improved TS 3.7.5 discuss using the AFW system for decay heat removal in MODE 4, they clearly explain that AFW is not relied upon to ensure plant safety in MODE 4.

(12) STS SR 3.7.5.5 is required for those plants that do not use AFW during startup. At VEGP the AFW system is used to supply feedwater to the steam generators until enough heat is being generated to provide sufficient steam to run the main feedwater pumps. Therefore, this surveillance requirement has not been adopted.

(13) Specification 3.7.5 retains the requirements of CTS 3/4.7.13, for the AFW pumphouse ESF HVAC system, in SR 3.7.5.5 and SR 3.7.5.6. These VEGP-specific requirements, which are not contained in the STS, are addressed further in discussion (10) of Subsection 3.1.3.7 of Part III of this safety evaluation.

3.7.6 Condensate Storage Tank (CST)

(14) See discussion (6) of Subsection 3.3.3.7 of Part III of this safety evaluation regarding the proposed improved TS 3.7.6a, which retains existing requirements of CTS 3/4.7.1.3 for non-redundant CSTs, and improved TS 3.7.6, which will apply upon implementation of a planned modification to the AFW pump recirculation lines to make the two CSTs redundant. Differences from the STS in the LCO, Applicability, ACTIONS, and the surveillance requirement are editorial to reflect the existing

requirements or the requirements that will apply following completion of the modification.

(15) Consistent with CTS 3/4.7.1.3, improved TS 3.7.6a and 3.7.6 do not contain the CST MODE 4 OPERABILITY requirement of STS 3.7.6. In MODE 4, with a reduced heat load and with RHR available, the CST is not necessary to ensure adequate heat removal from the core. The related MODE 4 requirement in STS 3.7.6 Required Action B.2 has also not been adopted.

3.7.9 Ultimate Heat Sink (UHS)

(16) In place of ACTION A of STS 3.7.9 for the ultimate heat sink (UHS), the licensee has chosen to retain the VEGP-specific requirements of CTS 3/4.7.5 in ACTIONS A, B, and C of improved TS 3.7.9. STS ACTION B has been adopted as improved TS ACTION D. The existing UHS ACTIONS have been revised to be consistent with the STS format and presentation, but are otherwise consistent with the current VEGP Actions for the UHS including the use of VEGP-specific terminology for the nuclear service cooling water (NSCW). See discussion (14) of Subsection 3.1.3.7 of Part III of this safety evaluation.

(17) STS SR 3.7.9.4, to verify the automatic start of each cooling tower fan, has not been adopted. The VEGP NSCW fans do not auto start on safety injection or blackout signals. And the number of operating fans is controlled by basin water temperature. Thus, this surveillance is not applicable to VEGP. In its place, the licensee has retained CTS 4.7.5.c, to verify NSCW basin transfer pump operation, as SR 3.7.9.4. The transfer pumps ensure that the combined capacity of both NSCW basins (> 30 days cooling water supply) is available to either of the NSCW trains.

3.7.10 Control Room Emergency Filtration System (CREFS) - Both Units Operating;
3.7.11 CREFS - One Unit Operating; and
3.7.12 CREFS - Both Units Shutdown

(18) The combination of LCOs, ACTIONS, and Applicabilities in CTS 3/4.7.6 for the CREFS has been retained with administrative changes to conform to the format and content of STS 3.7.10. However, as described more fully in discussion (15) of Subsection 3.1.3.7 of Part III of this safety evaluation, the improved TS has divided the current specification into three specifications. In addition, the Applicability of Specification 3.7.12 (both units shutdown) is based on T_{avg} instead of MODES in order to cover fuel movement when defueled and no MODE is applicable.

(19) STS SR 3.7.10.1, the monthly surveillance to operate each CREFS train for ≥ 10 continuous hours with the heaters energized, has been adopted as SR 3.7.10.2, with the following difference, consistent with corresponding CTS 4.7.6.b. The VEGP surveillance only requires that the heater control circuit be energized because the CREFS heaters at VEGP are controlled by the humidity of the air flow and can not be energized manually. The heaters turn on automatically at 70% relative humidity. Monthly operation of the CREFS for ≥ 10 continuous hours with the relative humidity of the air flow less than 70% ensures that the

moisture content accumulated in the filters has been reduced to less than or equal to 70% relative humidity (an assumption of the applicable safety analysis).

(20) CTS 4.7.6.a, the VEGP-specific surveillance to monitor control room air temperature every 12 hours, has been retained as SR 3.7.10.1. This surveillance ensures that the control room cooling function of the CREFS is OPERABLE. The VEGP CREFS contains the cooling coils that provide control room air temperature control after a control room isolation (CRI). The chilled water is supplied by the essential chilled water system which is covered by CTS 3/4.7.11, "ESF Room Coolers and Safety-Related Chiller Systems," that has been retained as Specification 3.7.14. The essential chilled water system supplies other systems in addition to the CREFS. The maintenance of the control room air temperature below 85°F ensures the operational requirements of equipment located in the control room will not be exceeded. The design cooling capacity of the essential chilled water system combined with the CREFS and the limitation of the normal control room ambient temperature (before CRI) ensure the capability of the CREFS to maintain the control room temperature within limit after a CRI.

3.7.14 ESF Room Cooler and Safety-Related Chiller System

(21) CTS 3/4.7.11 for the ESF room cooler and safety-related chiller system has been retained as VEGP-specific Specification 3.7.14, which is not contained in the STS.

3.4.3.8 Electrical Power Systems

General

3.8.1 AC Sources - Operating

(1) The automatic load sequencers are listed in STS LCO 3.8.1 as AC Sources. Although an automatic load sequencers may affect an AC Source, it does not constitute an AC Source distinct from the offsite circuits and diesel generators. Thus, LCO 3.8.1 has been worded differently from STS LCO 3.8.1 to differentiate the automatic load sequencers from the list of AC Sources.

(2) The ACTIONS of Specification 3.8.1 differ from the ACTIONS of STS 3.8.1 because of the reliance on the standby auxiliary transformer (SAT) to justify longer allowed outage times (AOTs) for a diesel generator (DG) in one unit at a time. Specifically, improved TS ACTIONS C and H are not contained in the STS. Anytime a DG becomes inoperable and the SAT is verified to be available as a backup standby AC source, ACTION C allows 7 days to restore the DG to OPERABLE status. Once per refueling cycle each DG may be made inoperable solely with the intention of performing manufacturer recommended maintenance (i.e., partial tear-down maintenance and inspection) provided the SAT is available as a backup standby AC source, by entering ACTION H, instead of ACTION C. ACTION H specifies either a 14-day or a 21-day AOT to complete the maintenance and to restore the DG to OPERABLE status. Specification 3.8.1 also contains Notes at the beginning of the ACTIONS table and in ACTIONS A, B, C, and H to specify the correct use of these VEGP-specific ACTIONS.

This safety evaluation contains detailed evaluations of the ACTIONS of Specification 3.8.1 in discussion (1) of Subsection 3.1.3.8, discussions (2) through (5) of Subsection 3.2.3.8, and discussions (1) through (5) of Subsection 3.3.3.8.

(3) For the condition of both a required offsite circuit and a DG inoperable, the word "any" in the Note to ACTION D of STS 3.8.1 has been replaced by "one or more" in corresponding ACTION E of Specification 3.8.1. This clarification provides the user with a better understanding of the application of this Note and is acceptable.

(4) As described in discussion (7) of Subsection 3.3.3.8 of Part III of this safety evaluation, improved TS SR 3.8.1.9, the DG full-load rejection test, and SR 3.8.1.13, the DG 24-hour full-load run test, specify the STS power factor limit of 0.9 indirectly by specifying kVAR load values for the specified kW loads to ensure that the DG operates with a power factor of 0.9 or less during the test. The licensee proposed this presentation difference because kVAR load can be read directly from a meter in the control room. Because the STS power factor limit is satisfied by this difference, it is acceptable.

(5) CTS 4.8.1.1.2.i, the surveillance to verify the fuel storage system cross-connect capability, is not contained in the STS, but has been retained as SR 3.8.1.19.

3.8.2 AC Sources - Shutdown

(6) The Applicability condition of STS 3.8.2 of during movement of irradiated fuel assemblies has not been adopted because the only system served by the DGs during this condition is the control room emergency filtration system (CREFS). The CREFS consists of 4 100% capacity independent trains (2 per unit). Any one of the four is adequate to serve the common control room. This level of redundancy in the CREFS is sufficient and provides adequate assurance that the control room is protected. The OPERABILITY of the CREFS with one or both units shutdown is addressed in Specifications 3.7.11 and 3.7.12. These specifications require the CREFS be OPERABLE during movement of irradiated fuel assemblies.

3.8.3 Diesel Fuel Oil, Lube Oil, Starting Air, and Ventilation

(7) Consistent with CTS 3/4.7.13, requirements for the DG building ventilation supply fans, which are required for DG OPERABILITY, have been retained in Specification 3.8.3. These VEGP-specific requirements are not in the STS. See discussion (12) of Subsection 3.2.3.8 of Part III of this safety evaluation for additional information regarding these requirements.

3.8.4 DC Sources - Operating

(8) Consistent with CTS 4.8.2.1.b.2, but unlike STS SR 3.8.4.2, improved TS SR 3.8.4.2 only specifies a single connection resistance limit for inter-cell, inter-rack, inter-tier and terminal connections. The Bases explains that the limit for inter-rack and inter-tier connections is corrected for cable resistance. This is consistent with the intent of

the TS to confirm connection resistance (which can increase over time) and not cable resistance (which does not change unless a cable is changed). Including the cable resistance factors in the TS may require future TS changes when a connecting cable is changed. In addition, different correction factors are used for individual connections on the same battery and VEGP has four batteries per unit each using a separate set of correction factors for cable resistance.

(9) The once per 60 month limit in Note 1 of STS SR 3.8.4.7 for substitution of the modified performance discharge test for the service test has not been adopted. This substitution is permitted at any time by Note 1 of improved TS SR 3.4.8.7 because the modified performance discharge test envelopes the service test with respect to the discharge current and the amp-hours removed.

3.8.6 Battery Cell Parameters

(10) Note (c) on Table 3.8.6-1, Battery Cell Parameters, differs from the STS Note, but is consistent with Note (5) of CTS Table 4.8-2, by allowing the unrestricted use of charging current in place of specific gravity readings for the Category A requirement and the Category C average of all connected cells requirement. The quarterly requirement to verify the Category B limits still requires that the specific gravity be checked. The use of charging current for the Category A and C requirements is also acceptable based on proposed changes to the IEEE standard further endorsing the use of charging current.

3.4.3.9 Refueling Operations

3.9.2 Unborated Water Source Isolation Valve

(1) Note # to CTS 3.9.1 allows valves in the flow path from the RMWST, through the chemical mixing tank, to the suction of the charging pumps, to be opened under administrative control if certain conditions are met. This VEGP-specific Note has been retained as a Note in LCO 3.9.2 and is the same as Note 3 in LCO 3.4.8.

(2) Instead of the 4-hour Completion Time of Required Action A.3 of STS 3.9.2 (to verify boron concentration using SR 3.9.1.1), the licensee has chosen to retain the 12-hour limit of ACTION b of CTS 3/4.9.1. The 12-hour time is acceptable based on the requirement for the source range monitors and the high flux at shutdown alarm to be OPERABLE and provide indication/alarm of the core status. In addition, the SR number in the Required Action is annotated with a reference to explain what the SR is.

3.9.3 Nuclear Instrumentation

(3) As described in discussion (3) of Subsection 3.3.3.9 of Part III of this safety evaluation, the 12-hour Completion Time of ACTION b of CTS 3/4.9.1 has been retained for corresponding Required Action B.2 of Specification 3.9.3. The additional 4-hour Completion Time of the STS has not been adopted because it is not currently required.

3.9.4 Containment Penetrations

(4) CTS 3.9.4.b allows the containment personnel airlock to be open during CORE ALTERATIONS or movement of irradiated fuel within the containment. This allowance, which is not in the STS, has been retained as improved TS LCO 3.9.4.b.

3.4.3.10 Summary

The proposed differences from STS Chapter 3.0 described in the preceding material are consistent with VEGP design features and existing requirements and commitments. Therefore, they are acceptable.