Advanced Passive 1000 (AP1000)
Generic Technical Specification Traveler (GTST)

Title: Revision of AP1000 GTS Subsections 5.5.1 through 5.5.14

I. Technical Specifications Task Force (TSTF) Travelers, Approved Since Revision 2 of STS NUREG-1431, and Used to Develop this GTST

TSTF Number and Title:

GTS Subsection 5.5.1: Offsite Dose Calculation Manual (ODCM)

TSTF-369-A, Rev. 1: Removal of Monthly Operating Report and Occupational Radiation Exposure Report

GTS Subsection 5.5.2: Radioactive Effluent Controls Program

TSTF-258-A, Rev. 4: Changes to Section 5.0, Administrative Controls
(Note: This TSTF applies to WOG STS Rev. 1 - see comment in Section IV of this GTST)

GTS Subsection 5.5.3: Inservice Testing Program

TSTF-279-A, Rev. 0: Remove “applicable supports” from Inservice Testing Program
(Note: This TSTF applies to WOG STS Rev. 1 - see comment in Section IV of this GTST)
TSTF-479-A, Rev. 0: Changes to Reflect Revision of 10 CFR 50.55a
TSTF-497-A, Rev. 0: Limit Inservice Testing Program SR 3.0.2 Application to Frequencies of 2 Years or Less

GTS Subsection 5.5.4: Steam Generator (SG) Program

TSTF-449-A, Rev. 4: Steam Generator Tube Integrity
TSTF-510, Rev. 2: Revision to Steam Generator Program Inspection Frequencies and Tube Sample Selection

GTS Subsection 5.5.7: Safety Function Determination Program (SFDP)

TSTF-273-A, Rev. 2: SFDP Clarifications (Note: This TSTF applies to WOG STS Rev. 1 - see comment in Section IV of this GTST)

GTS Subsection 5.5.8: Containment Leakage Rate Testing Program

TSTF-343-A, Rev. 1: Containment Structural Integrity

GTS Subsection 5.5.11: Battery Monitoring and Maintenance Program

TSTF-451-T, Rev. 0: Correct the Battery Monitoring and Maintenance Program and the Bases of SR 3.8.4.2
TSTF-500, Rev. 2: DC Electrical Rewrite - Update to TSTF-360

GTS Subsection 5.5.12: Main Control Room Envelope Habitability Program

TSTF-448-A, Rev. 3: Control Room Habitability Section 5.5.13: Ventilation Filter Testing Program

STS NUREGs Affected:

TSTF-369-A, Rev. 1: NUREG-1430, -1431, -1432, -1433, -1434
TSTF-258-A, Rev. 4: NUREG-1430, -1431, -1432, -1433, -1434
TSTF-273-A, Rev. 2: NUREG-1430, -1431, -1432, -1433, -1434
TSTF-279-A, Rev. 0: NUREG-1430, -1431, -1432, -1433, -1434
TSTF-343-A, Rev. 1: NUREG-1430, -1431, -1432, -1433, -1434
TSTF-448-A, Rev. 3: NUREG-1430, -1431, -1432, -1433, -1434
TSTF-449-A, Rev. 4: NUREG-1430, -1431, -1432
TSTF-451-T, Rev. 0: NUREG-1430, -1431, -1432, -1433, -1434
TSTF-479-A, Rev. 0: NUREG-1430, -1431, -1432, -1433, -1434
TSTF-497-A, Rev. 0: NUREG-1430, -1431, -1432, -1433, -1434
TSTF-500, Rev. 2: NUREG-1430, -1431, -1432, -1433, -1434
TSTF-510, Rev. 2: NUREG-1430, -1431, -1432

NRC Approval Date:

TSTF-369-A, Rev. 1: 23-Jun-04
TSTF-258-A, Rev. 4: 29-Jun-99
TSTF-273-A, Rev. 2: 16-Aug-99
TSTF-279-A, Rev. 0: 16-Jul-98
TSTF-343-A, Rev. 1: 06-Dec-05
TSTF-448-A, Rev. 3: 17-Jan-07
TSTF-449-A, Rev. 4: 06-May-05
TSTF-451-T, Rev. 0: 21-Jul-03
TSTF-479-A, Rev. 0: 06-Dec-05
TSTF-497-A, Rev. 0: 04-Oct-06
TSTF-500, Rev. 2: 01-Sep-11
TSTF-510, Rev. 2: 27-Oct-11

TSTF Classification:

TSTF-369-A, Rev. 1: Technical Change
TSTF-258-A, Rev. 4: Improve Specifications
TSTF-273-A, Rev. 2: Correct Specifications
TSTF-279-A, Rev. 0: Improve Specifications
TSTF-343-A, Rev. 1: Technical Change
TSTF-448-A, Rev. 3: Technical Change
TSTF-449-A, Rev. 4: Technical Change
TSTF-451-T, Rev. 0: Technical Change
TSTF-479-A, Rev. 0: Technical Change
TSTF-497-A, Rev. 0: Technical Change
TSTF-500, Rev. 2: Technical Change

TSTF-510, Rev. 2: Technical Change

II. Reference Combined License (RCOL) Standard Departures (Std. Dep.), RCOL COL Items, and RCOL Plant-Specific Technical Specifications (PTS) Changes Used to Develop this GTST

RCOL Std. Dep. Number and Title:

None

RCOL COL Item Number and Title:

None

RCOL PTS Change Number and Title:

The Vogtle Electric Generating Plant Units 3 and 4 License Amendment Request 12-002 (VEGP LAR) proposed changes to the initial version of the PTS (referred to as the current TS by the VEGP LAR). These changes, which include Administrative Changes (A) and Less Restrictive Changes (L), and More Restrictive Changes (M), are described in the VEGP LAR in enumerated discussions of change (DOCs). The following DOCs are applicable to the listed GTS subsections:

GTS Subsection 5.5.1: Offsite Dose Calculation Manual (ODCM)

DOC A118: Administrative editorial/clarification changes
DOC L02: Renumbering TS 5.6.5 and TS 5.6.6 in the Definitions

GTS Subsection 5.5.2: Radioactive Effluent Controls Program

DOC A118: Administrative editorial/clarification changes
DOC L23: Allow for provisions SR 3.0.2 and SR 3.0.3

GTS Subsection 5.5.3: Inservice Testing Program

DOC A119: Revise the wording of paragraph 5.5.3.a
DOC L24: Revise the wording of paragraph 5.5.3.b

GTS Subsection 5.5.7: Safety Function Determination Program (SFDP)

DOC A118: Renumbers the paragraphs within each individual program of the subsection
DOC A120: Revises the wording of paragraph 5.5.7.a and 5.5.7.a.3

GTS Subsection 5.5.8: Containment Leakage Rate Testing Program

DOC A118: Renumbers the paragraphs within each individual program of the subsection
DOC A122: Revises Type B and Type C acceptance criterion

GTS Subsection 5.5.9: System Level OPERABILITY Testing Program

DOC A003: Revises the reference to Subsection 3.9.6 and the Tables by including the word “FSAR” before the Section or Table number

GTS Subsection 5.5.10: Component Cyclic or Transient Limit

DOC A003: Revises the reference to Table 3.9-1 by including the word “FSAR”
DOC A121: Revises the reference to Table 3.9-1A by eliminating the letter “A”

Section 5.5.13: Ventilation Filter Testing Program (VFTP)

DOC A118: Renumbers the paragraphs within each individual program of the subsection.
DOC A123: Revises the phrase “after any” to “following” in the second paragraph item iv).
DOC D14: Replaces text in paragraphs 'a' and 'b' with the phrase “VES makeup flow rate.”

Subsection 5.5.14: Setpoint Program (SP)

DOC A124: Inserts the word “surveillance” in paragraph c.1.i
DOC M01: Deletes the reference to “Reactor Trip Channel Operational Test (RTCOT)” in paragraph c.

III. Comments on Relations Among TSTFs, RCOL Std. Dep., RCOL COL Items, and RCOL PTS Changes

This section discusses the considered changes that are: (1) applicable to operating reactor designs, but not to the AP1000 design; (2) already incorporated in the GTS; or (3) superseded by another change.

GTS Subsection 5.5.1: Offsite Dose Calculation Manual (ODCM)

This subsection is equivalent to Subsection 5.5.1 in WOG STS Rev. 4.

TSTF-369-A, Rev. 1 changes the bracketed references to Specification numbers [5.6.2] and [5.6.3] in WOG STS 5.5.1.b, Rev. 2. These changes are related to this TSTF's elimination of WOG STS Subsection 5.6.1, Occupational Radiation Exposure Report, from WOG STS Rev. 3.0. The updated subsection numbers correspond to the renumbering of the subsections in WOG STS Section 5.6, beginning with WOG STS Rev. 3.1. These changes are not included in GTS 5.5.1.b.

DOC L02 adopted the same changes discussed above for TSTF-369-A, Rev. 1.

DOC A118 renumbers the paragraphs within this subsection. These changes are editorial and improve clarity.

The above changes will be adopted by this traveler in AP1000 STS 5.5.1.

GTS Subsection 5.5.2: Radioactive Effluent Controls Program

This subsection is equivalent to Subsection 5.5.4 in WOG STS Rev. 4.

TSTF-258-A, Rev. 4 inserts a sentence at the end of this subsection (WOG STS 5.5.4, Rev. 1) to allow applying the provisions of SR 3.02 and SR 3.0.3. This change is not implemented in the AP1000 GTS 5.5.2, Rev. 19. Based on this TSTF, this GTST will implement this change in AP1000 STS 5.5.2 as it appears in the corresponding subsection in WOG STS 5.5.4, Rev. 4.

DOC L23 adopts the same change mentioned above for TSTF-258-A, Rev. 4.

DOC A118 renumbers the paragraphs within this subsection. These changes are editorial and improve clarity.

The above changes will be adopted by this traveler in the AP1000 STS 5.5.2.

GTS Subsection 5.5.3: Inservice Testing Program

This subsection is equivalent to Subsection 5.5.8 in WOG STS Rev. 4.

TSTF-279-A, Rev. 0 makes a change in the introductory sentence of the corresponding section in WOG STS 5.5.8, Rev. 1. It removes the phrase "including applicable supports." The change is not implemented in the AP1000 GTS 5.5.3, Rev. 19. This GTST will implement this change in AP1000 STS 5.5.3 as it appears in Subsection 5.5.8 of WOG STS Rev. 4.

TSTF-479-A, Rev. 0 made technical changes to Subsection 5.5.8 of WOG STS Rev. 2 in paragraphs 5.5.8.a regarding the table of frequencies that follows it; paragraph 5.5.8.b regarding the provisions of SR 3.0.1 and SR 3.0.2; and paragraph 5.5.8.d regarding the ASME code.

Details of these changes are discussed in Section VI "Traveler Information - Description of TSTF Changes." These TSTF changes were implemented in Subsection 5.5.8 of WOG STS Rev. 3 and maintained in Rev. 4, but not all of these changes were implemented in corresponding Subsection 5.5.3 of GTS Rev. 19.

DOC A119 applies the TSTF-479-A changes mentioned above to VEGP PTS paragraph 5.5.3.a, which is same as paragraph 5.5.3.a of GTS Rev. 19.

DOC L24 applies the TSTF-479-A changes mentioned above to VEGP PTS paragraph 5.5.3.b, which is same as paragraph 5.5.3.b of GTS Rev. 19.

GTS Subsection 5.5.4: Steam Generator (SG) Program

This subsection is equivalent to Subsection 5.5.9 in WOG STS Rev. 4.

TSTF-449-A, Rev. 4 revised the title of WOG STS 5.5.9, Rev. 2.2, from "Steam Generator (SG) Tube Surveillance Program" to "Steam Generator (SG) Program." This change is implemented in WOG STS 5.5.9, Rev. 4 and AP1000 GTS 5.5.4, Rev. 19.

Furthermore, this TSTF deleted the "Reviewer's Note" and replaced the one sentence that follows it with a new text that lists in detail a Steam Generator Program which ensures that SG tube integrity is maintained and describes the SG condition monitoring, performance criteria, repair methods, repair criteria, and inspection intervals. These changes are implemented in WOG STS 5.5.9, Rev. 4. However, some of the changes add optional SG tube repair criteria that are not applicable to corresponding GTS Subsection 5.5.4 because such options do not currently exist for AP1000 plants. Such optional provisions are therefore not included in AP1000 STS Subsection 5.5.4

TSTF-510, Rev. 2 revised Subsection 5.5.9 of WOG STS Rev. 3.1. It made several editorial changes to the introductory paragraph and in paragraphs 5.5.9.b.1, 5.5.9.b.2, 5.5.9.c, and 5.5.9.d. TSTF-510 also made several technical changes to paragraphs 5.5.9.d.1, 5.5.9.d.2, and 5.5.9.d.3. These changes, however, were not implemented in Subsection 5.5.9 of WOG STS, Rev. 4, or in corresponding Subsection 5.5.4 of AP1000 GTS, Rev. 19. Some of these changes will be implemented by this GTST in AP1000 STS Subsection 5.5.4.

Details of the changes made to GTS 5.5.4 are discussed in Section VI, "Traveler Information - Description of TSTF changes."

Subsection 5.5.5: Secondary Water Chemistry Program

This subsection is equivalent to Subsection 5.5.10 in WOG STS Rev. 4.

GTS Subsection 5.5.6: Technical Specifications (TS) Bases Control Program

This subsection is equivalent to Subsection 5.5.14 in WOG STS Rev. 4.

GTS Subsection 5.5.7: Safety Function Determination Program (SFDP)

This subsection is equivalent to Subsection 5.5.15 in WOG STS Rev. 4.

TSTF-273-A, Rev. 2 is not applicable to the AP1000 design. The AP1000 design does not rely on power from the offsite system to accomplish safety functions.

DOC A118 renumbers the paragraphs within plant-specific TS Subsection 5.5.7. These changes are editorial and improve clarity.

DOC A120 made editorial correction to paragraph 5.5.7.a (change “supported system” to “support system”) and to paragraph 5.5.7.a.3 (change “support systems” to “support system”).

GTS Subsection 5.5.8: Containment Leakage Rate Testing Program

This subsection is equivalent to Subsection 5.5.16 in WOG STS Rev. 4.

TSTF-343-A, Rev. 1 is not applicable to the AP1000 design.

DOC A118 renumbers the paragraphs within PTS Subsection 5.5.8. These changes are editorial and provide for clarity.

DOC A122 revised PTS Subsection 5.5.8 paragraph d.1, by changing the acceptance criterion from “≤ 0.60 L_a” to “< 0.60 L_a.”

GTS Subsection 5.5.9: System Level OPERABILITY Testing Program

This subsection, which does not exist in WOG STS Rev. 4, is a distinct requirement of GTS Rev. 19, and is retained in the AP1000 STS as Subsection 5.5.9.

DOC A003 revised the second sentence of PTS Subsection 5.5.9 by inserting the word “FSAR” before the Section number and Table number. A similar change is made by inserting the word “FSAR” before Table 3.9-17 in paragraph 5.5.9.a.

GTS Subsection 5.5.10: Component Cyclic or Transient Limit

This subsection is equivalent to Subsection 5.5.5 in WOG STS Rev. 4.

DOC A003 revised PTS Subsection 5.5.10 by inserting the word “FSAR” before the Table 3.9-1.

DOC A121 revised the reference to Table 3.9-1A in PTS Subsection 5.5.10 by eliminating the letter suffix, A.

GTS Subsection 5.5.11: Battery Monitoring and Maintenance Program

This subsection corresponds to Subsection 5.5.17 in WOG STS Rev. 4.

TSTF-451-T, Rev. 0 proposed revising Specification 5.5.17.b of WOG STS Rev. 2 to be more consistent with IEEE Standard 450-1995, which was the basis for the content of the entire subsection. However, neither Rev. 3.0 nor Rev. 3.1 of WOG STS Subsection 5.5.17 implemented the changes proposed by TSTF-451-T, Rev. 0.

TSTF-500, Rev. 2 pointed out that "The NRC has not reviewed or endorsed IEEE-450-1995." Instead, "The NRC has endorsed IEEE-450-2002 in Regulatory Guide 1.129 Revision 2." Accordingly, TSTF-500, Rev. 2 entirely rewrote Subsection 5.5.17 of WOG STS Rev. 3.1 based on IEEE-450-2002. The revised subsection was implemented in Rev. 4 of the WOG STS. The changes made by TSTF-500, Rev. 2 and implemented in Subsection 5.5.17 of WOG STS Rev. 4, included the changes previously proposed by TSTF-451-T. Details of the changes made by TSTF-500, Rev. 2 are discussed in Sections V, VI, and VII of this GTST.

However, GTS Rev. 19, Subsection 5.5.11 does not include the changes proposed by the above two TSTFs; it matches the content of Subsection 5.5.17 of WOG STS Rev. 3.1.

APOG commented that the AP1000 DC system design differs from the design assumed for the standard plant basis for TSTF-500, Rev. 2. As such, the changes and possible options provided in TSTF-500 are not necessarily applicable to the AP1000 design. APOG recommended removing TSTF-500 from the AP1000 STS and supporting GTSTs.

SPSB commented that it agrees to withdraw changes made by TSTF-500 that are not appropriate to the AP1000 design. However, SPSB indicated that changes made by TSTF-500, Rev. 2 that include the requirements for monitoring battery parameters (i.e., specific gravity, electrolyte level, cell temperature, float voltage, connection resistance, and physical condition) that were approved by NRC.

Accordingly, this GTST will include those changes (without the brackets around the voltage) in AP1000 STS Subsection 5.5.11.

GTS Subsection 5.5.12: Main Control Room Envelope Habitability Program

This subsection corresponds to Subsection 5.5.18 in WOG STS Rev. 4. However, the first word in its title "Main" is not included in the title of WOG STS 5.5.18.

TSTF-448-A, Rev. 3 added this subsection to the end of Section 5.5 of WOG STS Rev. 3.1 as Subsection 5.5.18 of WOG STS Rev. 4. Subsection 5.5.12 of GTS Rev. 19 has only minor differences with WOG STS Subsection 5.5.18. In particular, the GTS includes the word 'Main' before the title phrase "Control Room Envelope Habitability Program" and the title is abbreviated by the acronym 'MCRE.'

GTS Subsection 5.5.13: Ventilation Filter Testing Program

This subsection corresponds to Subsection 5.5.11 in WOG STS Rev. 4.

The text of Subsection 5.5.13 of GTS Rev. 19 is different from the text in the corresponding Subsection 5.5.11 of WOG STS Rev. 4, but has the same technical content and conforms to Regulatory Guide 1.52, Revision 3 and ASME N510-1989. Subsection 5.5.13 of GTS Rev. 19 does not include the reviewer's note provided in Subsection 5.5.11 of WOG STS Rev. 4. However, GTS Subsection 5.5.13 does include information that is technically equivalent to that

of the reviewer's note. Also GTS Subsection 5.5.13 does not include the bracketed paragraph '[e]' that appears in the WOG STS as there is no need for it. The GTS includes all the ventilation filter testing requirements with performance specified at the recommended frequencies.

However, for clarification, this GTST includes the following editorial changes to GTS Subsection 5.5.13 that are included in AP1000 STS Subsection 5.5.13:

(1) Define the acronym "HEPA" for the first occurrence in the second paragraph of 5.5.13.a (as renumbered); so it reads "high efficiency particulate air (HEPA)." Delete the subsequent definition of "HEPA" in paragraph 5.5.13.a.1.

(2) Omit the "ESF" modifier from each of the 5.5.13.a VES filter test subsection column headings in STS 5.5.13.a.1 through 5.5.13.a.4.

The above changes are included by this GTST in AP1000 STS Subsection 5.5.13.

DOC A118 renumbers the paragraphs within plant-specific TS Subsection 5.5.13, VFTP. These changes are editorial and improve clarity; they do not result in any technical changes.

DOC A123 revises the phrase "after any detection of" to "following detection of" after item 'iv)' in the second paragraph of plant-specific TS Subsection 5.5.13. This administrative change is included by this GTST in AP1000 STS Subsections 5.5.13.

DOC D14 replaces the following text of PTS Subsection paragraphs 5.5.13.a and 5.5.13.b:

> greater than the flow measured by VES-FT-003A/B. The flow rate being measured is a combination of the VES breathable air supply flow and the recirculation flow drawn through the eductor.

with:

> greater than the VES makeup flow rate.

DOC D14 also replaces the phrase "VES supply flow" with "VES makeup flow rate" in the same paragraphs. These changes, which remove design and procedural details from TS, are included by this GTST in AP1000 STS Subsection 5.5.13.

GTS Subsection 5.5.14: Setpoint Control Program

This subsection corresponds to subsection 5.5.19 in WOG STS Rev. 4.

The text of Subsection 5.5.14 of GTS Rev. 19 is different from the text in corresponding Subsection 5.5.19 of WOG STS Rev. 4, which incorporated TSTF-493-A. This GTST does not consider this TSTF for the AP1000 STS because the GTS setpoint program Specification predates the setpoint program Specification proposed by the TSTF, which is oriented towards currently operating plants licensed under 10 CFR Part 50. Although GTS Subsection 5.5.14 format and phrasing differs from that of WOG STS Subsection 5.5.19, it has the same technical content. The text in both the GTS and WOG STS conforms to the regulatory requirement of 10 CFR 50.36(c)(1)(ii)(A). In addition, the GTS references the NRC-approved setpoint methodology technical report, WCAP-16361-P, "Westinghouse Setpoint Methodology for Protection Systems - AP1000," February 2011.

GTS Rev. 19 does not include brackets around this subsection as does WOG STS Rev. 4. Neither does GTS Rev. 19 include the reviewer's note of WOG STS 5.5.19, Rev. 4. However, GTS Subsection 5.5.14 includes information that is technically equivalent to the content of the

WOG STS reviewer's note. GTS Subsection 5.5.14 also does not include a list of the LCOs applicable to the Setpoint Program as does the WOG STS. Instead, the GTS states in paragraph 'a' that the Setpoint Program "will include items in the category of limiting safety system settings (LSSS), which are settings for automatic protective devices related to those variables having significant safety functions." In addition, all surveillance requirements in GTS Sections 3.1 through 3.9 that verify instrumentation calibration and setpoints are within limits explicitly require performing the surveillance in accordance with the Setpoint Program.

DOC A124 inserts the word "surveillance" in paragraph c.1.i of plant-specific TS Subsection 5.5.14. This administrative change is included by this GTST in AP1000 STS Subsection 5.5.14.

DOC M01 deletes the reference to "Reactor Trip Channel Operational Test (RTCOT)" in plant-specific TS paragraph 5.5.14.c, because the RTCOT definition is replaced with the existing Channel Operational Test (COT) definition, which is more restrictive. This administrative change, which is related to a more restrictive change, is included by this GTST in AP1000 STS paragraph 5.5.14.c.

Accordingly, this GTST makes no changes to this subsection except what is proposed by DOC A124 and DOC M01 as discussed above.

IV. Additional Changes Proposed as Part of this GTST (modifications proposed by NRC staff and/or clear editorial changes or deviations identified by preparer of GTST)

NRC staff recommended changes

Replace first occurrence of “VES” with “Main Control Room Emergency Habitability System (VES)” in first paragraph of Subsection 5.5.13, renumbered as 5.5.13.a.

Spell out the word “HEPA” for the first occurrence in the second paragraph of Subsection 5.5.13, renumbered as 5.5.13.a., so it reads “high efficiency particulate air (HEPA).”

Insert the abbreviation “(RH)” after the phrase “relative humidity” in 5.13.a.3. As “RH” is used in the title below it, it should be defined.

APOG Recommended Changes to Improve Specification 5.5

GTS Subsection 5.5.7: Safety Function Determination Program (SFDP)

Correct the typographical error of a misplaced closing quotation mark in the last line for the quoted reference in Specification 5.5.8.a. (APOG # 523)

GTS Subsection 5.5.13: Ventilation Filter Testing Program

With the above change proposed by the staff, the spelling out of what “HEPA” stands for in GTS paragraph 5.5.13.a (STS 5.5.13.a.1) is replaced with just the acronym; so it reads“ (HEPA).” (APOG # 527)

Delete the “ESF” modifier from each of the 5.5.13.a VES test specification paragraph column headings in STS 5.5.13.a.1 through 5.5.13.a.4. (APOG # 528)

V. Applicability

Affected Generic Technical Specifications and Bases:

Section 5.5, Programs and Manuals

Changes to the Generic Technical Specifications and Bases:

GTS Subsection 5.5.1: Offsite Dose Calculation Manual (ODCM)

Change the references to Specifications 5.6.2 and 5.6.3 in PTS subsection 5.5.1.b to Specifications 5.6.1 and 5.6.2, respectively. (TSTF-369-A, Rev. 1 and DOC L02)

Renumber the paragraphs following subsection 5.5.1.b. (DOC A118)

GTS Subsection 5.5.2: Radioactive Effluent Control Program

Renumber the paragraphs within this subsection. (DOC A118)
Insert a sentence at the end of this subsection to allow applying the provisions of SR 3.02 and SR 3.0.3. (TSTF-258-A, Rev. 4 and DOC L23)

GTS Subsection 5.5.3: Inservice Testing Program

Delete the phrase “including applicable supports” in the introductory sentence of this subsection. (TSTF-279-A, Rev. 0)

Modify the underlined phrase in “Testing frequencies specified in the ASME OM Code and applicable Addenda as follows” for section 5.5.3.a. (TSTF-479-A, Rev. 0 and DOC A119)

Modify the phrase in section 5.5.3.b from “required Frequencies for performing” to “required Frequencies and other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing.” (TSTF-479-A, Rev. 0, TSTF-497-A, Rev. 0, and DOC L24)

GTS Subsection 5.5.4: Steam Generator (SG) Program

Delete the word “provisions” at the end of the introductory paragraph. (TSTF-510, Rev. 2)

Make an editorial correction to paragraph 5.5.4.b.1 because the closing parenthesis is misplaced. (TSTF-510, Rev. 2)

Replace the phrase “An assessment of degradation” with “A degradation assessment” in GTS 5.5.4.d. (TSTF-510, Rev. 2)

Modify the phrase “following installation” in GTS 5.5.4.d.1 with “following SG installation” in STS 5.5.4.d.1 for clarity. (TSTF-510, Rev. 2)

Replace the content of paragraph 5.5.4.d.2 with new content from TSTF-510, except omit the associated reviewer’s note of TSTF-510 from STS 5.5.4.d.2. (APOG #517).

Modify GTS 5.5.4.d.3 to clarify the intent of the SG inspection. (TSTF-510, Rev. 2)

GTS Subsection 5.5.7: Safety Function Determination Program (SFDP)

Renumber the paragraphs within PTS Subsections 5.5.7. (DOC A118)

Make editorial correction to paragraph 5.5.7.a (change “supported system” to “support system” and to paragraph 5.5.7.a.3 (change “support systems” to “support system”). (DOC A120)

GTS Subsection 5.5.8: Containment Leakage Rate Testing Program

Move closing quotation mark to correct location in 5.5.8.a. (APOG # 523)

Renumber the paragraphs within plant-specific TS 5.5.8.d.2. (DOC A118)

Remove the modifier “primary” from “primary containment” in 5.5.8.c. (NRC proposed change) (APOG #521)

Replace “≤ 0.60 L_a” with “< 0.60 L_a.” in plant-specific TS 5.5.8.d.1. (DOC A122)

GTS Subsection 5.5.9: System Level OPERABILITY Testing Program

Revise the second sentence of the first paragraph by inserting the word “FSAR” before the Section number and Table number and also before the Table number in paragraph 5.5.9.a. (DOC A003)

GTS Subsection 5.5.10: Component Cyclic or Transient Limit

Insert the word “FSAR” before the Table number in paragraph. (DOC A003)

Revise the reference to Table 3.9-1A by eliminating the letter suffix A. (DOC A121)

GTS Subsection 5.5.11: Battery Monitoring and Maintenance Program

Replace the text of this section with new text based on IEEE-450-2002 as endorsed by Regulatory Guide 1.129, Revision 2. (TSTF-500, Rev. 2) (APOG #16, 478)

GTS Subsection 5.5.13: Ventilation Filter Testing Program (VFTP)

Renumber the paragraphs within plant-specific TS Subsection 5.5.13. (DOC A118)

Replace VES with Main Control Room Emergency Habitability System (VES) in first paragraph. (NRC staff)

Spell out the word “HEPA” for the first occurrence in the second paragraph of PTS Subsection 5.5.13; so it reads “high efficiency particulate air (HEPA).” (Editorial - APOG # 527)

Revise the phrase “after any detection of” to “following detection of” after item 'iv)' in the second paragraph of PTS Subsection 5.5.13. (DOC A123)

Replace the following text of PTS Subsection paragraphs 5.5.13.a and 5.5.13.b:

> greater than the flow measured by VES-FT-003A/B. The flow rate being measured is a combination of the VES breathable air supply flow and the recirculation flow drawn through the eductor.

with:

greater than the VES makeup flow rate. (DOC A124)

Replace the phrase “VES supply flow” with “VES makeup flow rate” in the paragraphs 5.5.13.a and 5.5.13.b. (DOC A124)

Delete the “ESF” modifier from each of the 5.5.13.a subsection column headings in STS 5.5.13.a.1 through 5.5.13.a.4. (Editorial - APOG # 528)

Insert the abbreviation “(RH)” after the phrase “relative humidity” in 5.13.a.3. As “RH” is used in the title below it, it should be defined. (Editorial)

GTS Subsection 5.5.14: Setpoint Program

Insert the word “surveillance” in paragraph c.1.i of plant-specific TS Subsection 5.5.14. (DOC A124)

Delete the reference to “Reactor Trip Channel Operational Test (RTCOT)” in PTS paragraph 5.5.14.c. (DOC M01)

VI. Traveler Information

Description of TSTF changes:

GTS Subsection 5.5.1: Offsite Dose Calculation Manual (ODCM)

TSTF-369-A, Rev.1, updates the subsection numbers referred to in Subsection paragraph 5.5.1.b of WOG STS Rev. 2, by replacing "Specification [5.6.2] and Specification [5.6.3]" with "Specification [5.6.1] and Specification [5.6.2]."

The above editorial changes are implemented in later versions of the WOG STS Subsection 5.5.1. However, paragraph 5.5.1.b of GTS Rev. 19 did not implement these changes and omits the square brackets. This GTST will include the changes made by TSTF-369-A, Rev. 1, which were also made to VEGP Units 3 and 4 plant-specific TS by VEGP LAR DOC L02 and approved in VEGP Units 3 and 4 COL Amendment 13.

However, this GTST will not place square brackets around the report specification numbers in AP1000 STS 5.5.1 as done in subsection 5.5.1 of WOG STS Rev. 4. APOG comments that placing square brackets around the report specification numbers in AP1000 STS 5.5.1 is inappropriate because these referenced Specifications are not optionally numbered (i.e., bracketed) in GTS Section 5.6.

GTS Subsection 5.5.2: Radioactive Effluent Controls Program

This subsection is equivalent to Subsection 5.5.4 in WOG STS Rev. 4.

Based on TSTF-258-A, Rev. 4 and VEGP LAR DOC L23, this GTST adds a new provision at the end of GTS Subsection 5.5.2, which states, "The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency." This change makes AP1000 STS Subsection 5.5.2 consistent with Subsection 5.5.4 of WOG STS Rev. 4.

GTS Subsection 5.5.3: Inservice Testing Program

This subsection is equivalent to Subsection 5.5.8 in WOG STS Rev. 4.

Based on TSTF-279-A, Rev. 0, this GTST deletes the underlined phrase shown in the following introductory sentence of Subsection 5.5.3 of AP1000 GTS, Rev. 19:

> This program provides control for inservice testing of ASME Code Class 1, 2, and 3 components including applicable supports.

This change is implemented by this GTST to make the introductory sentence of AP1000 STS Subsection 5.5.3 consistent with TSTF-279-A and Subsection 5.5.8 of WOG STS Rev. 4.

TSTF-479-A, Rev. 0 made changes to Subsection 5.5.8 of WOG STS Rev. 2. Based on this TSTF, this GTST makes these changes to Subsection 5.5.3 of GTS Rev. 19 and implements them in Subsection 5.5.3 of the AP1000 STS, as follows:

(1) In paragraph 5.5.3.a, the phrase "Testing frequencies specified in the ASME OM Code and applicable Addenda as follows:" is changed to "Testing frequencies applicable to the ASME

Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code) and applicable Addenda as follows:" The changed text is underlined.

(2) In the heading of the table that follows paragraph 5.5.3.a and also in paragraph 5.3.3.d, the phrase "ASME Boiler and Pressure Vessel Code" is changed to "ASME OM Code." Note that this change has already been implemented in Subsection 5.5.3 of GTS Rev. 19.

(3) In paragraph 5.5.3.b, the phrase "required Frequencies for performing" is changed to "required Frequencies and other normal and accelerated Frequencies specified in the Inservice Testing Program for performing …" The added text is underlined.

These changes make AP1000 STS Subsection 5.5.3 consistent with Subsection 5.5.8 of WOG STS Rev. 4.

DOC A119 made the same changes to PTS Subsection paragraph 5.5.3.a that are included in TSTF-479-A, Rev. 0, which are being applied to paragraph 5.5.3.a of GTS Rev. 19, as described above,

TSTF-497-A, Rev. 0 made a change to paragraph 5.5.8.b of WOG STS Rev. 3.1, regarding the applicability of the provisions of SR 3.0.2, by adding a 2-year IST test-interval restriction. This GTST makes the same change to paragraph 5.5.3.b of GTS, Rev. 19, and implements it in paragraph 5.5.3.b of the AP1000 STS. The modified text of this paragraph reads as follows (The added text is underlined.):

The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities.

This change makes AP1000 STS Subsection paragraph 5.5.3.b consistent with Subsection paragraph 5.5.8.b of WOG STS Rev. 4.

DOC L24 made the same change to PTS paragraph 5.5.3.b that was made by TSTF-497-A to Subsection paragraph 5.5.8.b of the WOG STS.

GTS Subsection 5.5.4: Steam Generator (SG) Program

This subsection is equivalent to Subsection 5.5.9 in WOG STS Rev. 4.

TSTF-449-A, Rev. 4 revised the title of Subsection 5.5.9 of WOG STS Rev. 3 from "Steam Generator (SG) Tube Surveillance Program" to "Steam Generator (SG) Program." This change is implemented in WOG STS 5.5.9, Rev. 4 and in GTS 5.5.4, Rev. 19.

Furthermore, TSTF-449-A, Rev. 4 deleted the "Reviewer's Note" and replaced the one sentence that follows it with a new text that lists in detail a Steam Generator Program which ensures that SG tube integrity is maintained and describes the SG condition monitoring, performance criteria, repair methods, repair criteria, and inspection intervals.

These changes are implemented in WOG STS 5.5.9, Rev. 4. However, the changes regarding SG tube repair criteria options are not implemented in the corresponding GTS subsection 5.5.4. APOG commented that since neither of the issued COL TS includes these changes, and each represented AP1000 Utility is committed to maintaining standardization, there is currently no basis for an AP1000 STS that differs from the GTS and the issued COL plant-specific TS.

TSTF-510, Rev. 2 revised Subsection 5.5.9 of WOG STS Rev. 3.1, by making several editorial changes to the introductory paragraph, and paragraphs 5.5.9.b.1, 5.5.9.b.2, 5.5.9.c, and 5.5.9.d. This TSTF also made several technical changes to paragraphs 5.5.9.d.1, 5.5.9.d.2, and 5.5.9.d.3. Based on TSTF-510, the following changes to Subsection 5.5.4 of GTS Rev. 19 are included in Subsection 5.5.4 of the AP1000 STS.

(1) An editorial correction is made to the introductory paragraph. The word "provisions" is deleted from the last sentence that states "In addition, the Steam Generator Program shall include the following provisions:" Subsequent paragraphs a, c, d, e, and f all start with "Provisions for …" Stating "provisions" in the introductory paragraph is duplicative.

(2) An editorial correction is made to paragraph 5.5.4.b.1. The closing parenthesis is misplaced. It currently states "All in-service steam generator tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down, and all anticipated transients included in the design specification) and design basis accidents."

As stated in TSTF-510, "This inappropriately includes anticipated transients in the description of normal operating conditions." The sentence is revised to state, "All in-service steam generator tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down), all anticipated transients included in the design specification, and design basis accidents."

(3) Clarifications are made to paragraph 5.5.4.d. The phrase "An assessment of degradation" is replaced with "A degradation assessment" to be consistent with the terminology used in the industry program documents.

Paragraph 5.5.4.d.1 (5.5.9.d.1 in WOG STS Rev. 4) is revised from "Inspect 100% of the tubes in each SG during the first refueling outage following SG replacement" to "Inspect 100% of the tubes in each SG during the first refueling outage following SG installation."

This change of wording will allow the steam generator program to apply to both existing plants and new plants. Note that this change is already included in paragraph 5.5.4.d.1 of GTS Rev.19.

NRC staff had proposed incorporating TSTF-510 changes including an associated reviewer's note related to paragraph 5.5.4.d.2. The note states "A licensee may elect to retain historical and existing inspection period lengths in order to not revise those inspection periods." Since this note would likely never apply to AP1000 units, it is omitted from AP1000 STS 5.5.4.d.2.

The content of GTS 5.5.4.d.2 is replaced by the following content from TSTF-510:

> After the first refueling outage following SG installation, inspect each SG at least every 72 effective full power months or at least every third refueling outage (whichever results in more frequent inspections). In addition, the minimum number of tubes inspected at each scheduled inspection shall be the number of tubes in all SGs divided by the number of SG inspection outages scheduled in each inspection period as defined in a, b, c and d below. If a degradation assessment indicates the potential for a type of degradation to occur at a location not previously inspected with a technique capable of detecting this type of degradation at this location and that may satisfy the applicable tube repair criteria, the minimum number of locations inspected with such a capable inspection technique during the remainder of the inspection period may be prorated. The fraction of locations to be inspected for this potential type of degradation at this location at the end of the inspection period shall be no less than the ratio of the number of times

the SG is scheduled to be inspected in the inspection period after the determination that a new form of degradation could potentially be occurring at this location divided by the total number of times the SG is scheduled to be inspected in the inspection period. Each inspection period defined below may be extended up to 3 effective full power months to include a SG inspection outage in an inspection period and the subsequent inspection period begins at the conclusion of the included SG inspection outage.

a) After the first refueling outage following SG installation, inspect 100% of the tubes during the next 144 effective full power months. This constitutes the first inspection period;

b) During the next 120 effective full power months, inspect 100% of the tubes. This constitutes the second inspection period;

c) During the next 96 effective full power months, inspect 100% of the tubes. This constitutes the third inspection period; and

d) During the remaining life of the SGs, inspect 100% of the tubes every 72 effective full power months. This constitutes the fourth and subsequent inspection periods.

(4) An editorial change is made to paragraph 5.5.4.d.3 of GTS Rev. 19 to clarify the intent of the SG inspection. The first sentence, which states (changed words are indicated by underlining),

3. If crack indications are found in any SG tube, then the next inspection for each SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever <u>is less</u>).

is changed to state,

3. If crack indications are found in any SG tube, then the next inspection for each <u>affected and potentially affected</u> SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever <u>results in more frequent inspections</u>).

The above TSTF-510 changes apply to GTS subsection 5.5.4 and subsection 5.5.9 of WOG STS, but have not yet been incorporated. This GTST incorporates these changes into AP1000 STS subsection 5.5.4.

TSTF-510, Rev. 2 proposed other changes potentially applicable to GTS subsection 5.5.4. These changes were made to add language to account for SG tube repair optional criteria that do not currently exist for AP1000 plants. In addition, the licensing bases for VEGP Units 3 and 4 and V.C. Summer Units 2 and 3 include no NRC accepted optional SG tube repair criteria. Therefore, such provisions are not being included in AP1000 STS subsection 5.5.4 at this time.

<u>GTS Subsection 5.5.7: Safety Function Determination Program (SFDP)</u>

This subsection is equivalent to Subsection 5.5.15 of WOG STS Rev. 4.

TSTF-273-A, Rev. 2 made two changes to Subsection 5.5.15 of WOG STS Rev. 1. It added to paragraph 5.5.15.d the phrase “no concurrent loss of offsite power, or loss of onsite diesel generator(s)” to the explanation of a loss of safety function.

APOG comments that “in the AP1000 Final Safety Evaluation Report, NUREG-1793, Section 8.2.3.2: The AP1000 design does not rely on power from the offsite system to accomplish safety functions. As such this change from TSTF-273 is not applicable to the AP1000 design. Since neither issued COL TS for VEGP or V.C. Summer include this option, and since each represented AP1000 Utility is committed to maintaining standardization, there currently is no basis for an AP1000 STS that differs from the GTS and the issued COLs.” (APOG comment #519)

Accordingly, this added phrase will not be included in AP1000 STS Subsection 5.5.7.

TSTF-273-A, Rev. 2 also inserted new text at the end of this subsection. Since the inserted text is already included in GTS Subsection 5.5.7, it is retained in AP1000 STS Subsection 5.5.7.

GTS Subsection 5.5.8: Containment Leakage Rate Testing Program

This subsection is equivalent to Subsection 5.5.16 in WOG STS Rev. 4.

TSTF-343-A, Rev 1 added two specific exceptions in paragraph 5.5.8.a. This TSTF indicates that the changes are made assuming that “the containment consists of a prestressed, reinforced concrete, cylindrical structure with a hemispherical dome.” Since this containment design does not apply to the AP1000 design, these two specific exceptions are not included by this GTST in AP1000 STS Subsection paragraph 5.5.8.a.

However, it is noted that subsection paragraph 5.5.8.c of GTS Rev. 19 includes the word ‘primary’ before the word ‘containment.’ According to TSTF-343-A, Rev. 1, the term ‘containment’ is used for pressurized water reactors while the term ‘primary containment’ is used for boiling water reactors. Based on that, the term ‘primary containment’ does not exist in Subsection 5.5.16 of WOG STS Rev. 4. Because the AP1000 is a pressurized water reactor, the word ‘primary’ will not be included by this GTST when referring to ‘containment’ in AP1000 STS Subsection 5.5.8, which is consistent with WOG STS Rev. 4.

GTS Subsection 5.5.11: Battery Monitoring and Maintenance Program

This subsection corresponds to Subsection 5.5.17 of WOG STS Rev. 4.

TSTF-451-T, Rev. 0 revised Subsection paragraph 5.5.17.b of WOG STS Rev. 2 to be consistent with IEEE Standard 450-1995. This TSTF indicates that IEEE Standard 450-1995 was the basis for the entire content of WOG STS Subsection 5.5.17. The battery monitoring and maintenance program is revised to require actions to equalize and test battery cells with electrolyte level below the top of the plates, not below the minimum established design limit, as it is written in paragraph 5.5.17.b of WOG STS Rev. 2.

However, neither Subsection 5.5.17 of WOG STS Rev. 3.1 nor Subsection 5.5.11 of GTS Rev. 19 include the above change of TSTF-451-T, Rev. 0.

TSTF-500, Rev. 2 states that “The NRC has not reviewed or endorsed IEEE-450-1995.” Instead, “The NRC has endorsed IEEE-450-2002 in Regulatory Guide 1.129, Revision 2.” Accordingly, TSTF-500, Rev. 2 entirely rewrote Subsection 5.5.17 of WOG STS Rev. 3.1 based on IEEE-450-2002.

TSTF-500, Rev. 2, replaced the following text of Section 5.5.17 of WOG STS Rev. 3.1:

> This Program provides for battery restoration and maintenance, based on the recommendations of IEEE Standard 450-1995, “IEEE Recommended Practice for

Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications, or of the battery manufacturer including the following:

a. Actions to restore battery cells with float voltage < 2.13 V, and

b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the minimum established design limit.

with the following text, which has been implemented in Section 5.5.17 of WOG STS Rev. 4:

This Program provides controls for battery restoration and maintenance. The program shall be in accordance with IEEE Standard (Std) 450-2002, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," as endorsed by Regulatory Guide 1.129, Revision 2 (RG), with RG exceptions and program provisions as identified below:

a. The program allows the following RG 1.129, Revision 2 exceptions:

1. Battery temperature correction may be performed before or after conducting discharge tests.

2. RG 1.129, Regulatory Position 1, Subsection 2, "References," is not applicable to this program.

3. In lieu of RG 1.129, Regulatory Position 2, Subsection 5.2, "Inspections," the following shall be used: "Where reference is made to the pilot cell, pilot cell selection shall be based on the lowest voltage cell in the battery."

4. In Regulatory Guide 1.129, Regulatory Position 3, Subsection 5.4.1, "State of Charge Indicator," the following statements in paragraph (d) may be omitted: "When it has been recorded that the charging current has stabilized at the charging voltage for three consecutive hourly measurements, the battery is near full charge. These measurements shall be made after the initially high charging current decreases sharply and the battery voltage rises to approach the charger output voltage."

5. In lieu of RG 1.129, Regulatory Position 7, Subsection 7.6, "Restoration," the following may be used: "Following the test, record the float voltage of each cell of the string."

b. The program shall include the following provisions:

1. Actions to restore battery cells with float voltage < [2.13] V;

2. Actions to determine whether the float voltage of the remaining battery cells is ≥ [2.13] V when the float voltage of a battery cell has been found to be < [2.13] V;

3. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates;

4. Limits on average electrolyte temperature, battery connection resistance, and battery terminal voltage; and

5. A requirement to obtain specific gravity readings of all cells at each discharge test, consistent with manufacturer recommendations.

Regarding Specification 5.5.11, APOG commented that the AP1000 DC electrical power system design differs from the DC electrical power system design of a standard Westinghouse four loop plant, which is the assumed design for the changes proposed by TSTF-500, Rev. 2. As such, the changes and possible options provided in TSTF-500 are not necessarily applicable to the AP1000 design. APOG recommended not incorporating TSTF-500 changes in the AP1000 STS.

Staff agreed to withdraw TSTF-500 changes that are not appropriate to the AP1000 design. However, TSTF-500 changes regarding the requirements for monitoring battery parameters (i.e., specific gravity, electrolyte level, cell temperature, float voltage, connection resistance, and physical condition) that were approved by NRC will be included in AP1000 STS Specification 5.5.11, but without the brackets around voltage values.

GTS Subsection 5.5.12: Main Control Room Envelope Habitability Program

This subsection corresponds to Subsection 5.5.18 in WOG STS Rev. 4. However, the first word in its title “Main” is not included in the title of WOG STS 5.5.18.

TSTF-448-A, Rev. 3 added this subsection to the end of Section 5.5 of WOG STS Rev. 3.1 as Subsection 5.5.18 of WOG STS Rev. 4. Subsection 5.5.12 of GTS Rev. 19 has only minor differences with WOG STS Subsection 5.5.18. In particular, the GTS includes the word ‘Main’ before the title phrase “Control Room Envelope Habitability Program” and the title is abbreviated by the acronym ‘MCRE.’

Rationale for TSTF changes:

GTS Subsection 5.5.1: Offsite Dose Calculation Manual (ODCM)

According to TSTF-369-A, Rev. 1, the change of the Specification subsection numbers referred to in section 5.5.1.b is editorial. The change is adopted to be consistent with the updated numbering system for Section 5.6 in WOG STS Rev. 4.

GTS Subsection 5.5.2: Radioactive Effluent Controls Program

According to TSTF-258-A, Rev. 4, “The provisions of SR 3.0.2 are applied to the Radioactive Effluent Controls Program surveillance frequencies [by modifying WOG STS paragraph 5.5.2.e] to allow for scheduling flexibility. SR 3.0.2 permits a 25% extension of the interval specified in the Frequency, which is 31 days. Allowing a 25% extension in the frequency of performing the monthly cumulative dose and projected dose calculation for the current quarter/year will have no effect on the outcome of the calculations.”

GTS Subsection 5.5.3: Inservice Testing Program

TSTF-279-A, Rev. 0 deletes the phrase, “including applicable supports” from the introductory sentence of this subsection to improve the specification. According to this TSTF, “The Inservice Testing Program (IST) provides controls for testing Code Class 1, 2 and 3 components. The discussion of the IST Program in Section 5.5 of the STS was revised by the NRC to include the “applicable supports” in February 1992 due to concerns related to the relocation of the Snubber LCO from the STS NUREGs. However, this is inappropriate; supports are addressed under the

Inservice Inspection Program not the IST Program. Thus, the reference to the applicable supports in the IST Program description in Section 5.5 was deleted."

TSTF-479-A, Rev. 0 made several technical changes regarding the specification of the testing frequencies. According to this TSTF, "This specification is revised to indicate that the Inservice Testing Program shall include testing frequencies applicable to the ASME Code for Operations and Maintenance (ASME OM Code). It is also revised to indicate that there may be some non-standard Frequencies utilized in the Inservice Testing Program in which the provisions of SR 3.0.2 are [also] applicable."

TSTF-497-A, Rev. 0 revised the changes made by TSTF-479-A, Rev. 0 to paragraph 5.5.8.b of WOG STS Rev. 3.1 regarding the frequency provisions of SR 3.0.2. Paragraph 5.5.8.b of WOG STS Rev. 4 now reads, "The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities," where the change is indicated by underlining.

According to TSTF-497-A, Rev. 0, "TSTF-479-A, Rev. 0 declined to develop a technical justification for applying SR 3.0.2 to IST Frequencies specified as greater than 2 years at this time due to inadequate cost benefit. Therefore, this Traveler [TSTF] is an administrative change to the ISTS [improved STS] NUREGs which modifies the Inservice Testing Program, paragraph 'b,' to remove the provisions that were not deemed by the NRC to be adequately justified in TSTF-479."

GTS Subsection 5.5.4: Steam Generator (SG) Program

According to TSTF-449-A, Rev. 4, the single sentence of Subsection 5.5.9 of WOG STS Rev. 3 is replaced by the detailed provisions of a Steam Generator Program that ensures SG tube integrity is maintained, and describes SG condition monitoring, performance criteria, repair methods, repair criteria, and inspection intervals. The new text is an improvement to the existing SG inspection requirements and provides additional assurance that the plant licensing basis will be maintained between SG inspections.

According to this TSTF, the revised inspection requirements "are more effective in detecting SG degradation and prescribing corrective actions than those required by current technical specifications." "As a result, these … changes will result in added assurance of the function and integrity of SG tubes."

APOG (#515) commented that since neither issued COL TS for VEGP Units 3 and 4 and V.C. Summer Units 2 and 3 include the changes made by TSTF-449-A, Rev. 4, and since each represented AP1000 Utility is committed to maintaining standardization, there is currently no basis for an AP1000 STS that differs from the GTS and the issued COLs.

APOG commented (# 516) "At the time of a future submittal for NRC approval of repair criteria, the STS changes would also be appropriate to include at that time."

TSTF-510, Rev. 2 changed paragraph 5.5.9.d.1 of WOG STS Rev. 3.1 as indicated by the following markup (added text is underlined, removed text is lined out).

> Inspect 100% of the tubes in each SG during the first refueling outage following SG ~~replacement~~ installation.

By changing “replacement” to “installation” this provision of the Steam Generator Program becomes suitable for both currently operating and new reactor plants; this change is already included in GTS Rev. 19.

Based on TSTF-510, Rev. 2, paragraph 5.5.4.d.2 of GTS Rev. 19 is revised to modify the frequency of verification of SG tube integrity and SG tube sample selection required by the Steam Generator (SG) Program. This revision reduces the implementation issues experienced with the previous specification. The revised specification is consistent with the existing specification in that it continues to be based on SG tube material type, age, condition and cycle length, and continues to address the time dependence of degradation and prevent front end or back end loading of inspections. In addition, the maximum interval allowed between inspections remains the same as in GTS Rev. 19.

Furthermore, according to TSTF-510, Rev. 2, a technical change is made to paragraph 5.5.4.d.3 of GTS Rev. 19, which states (text being changed is underlined):

> If crack indications are found in any SG tube, then the next inspection for each SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (<u>whichever is less</u>).

The text is changed to (added text is underlined):

> If crack indications are found in any SG tube, then the next inspection for each <u>affected and potentially affected</u> SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever <u>results in more frequent inspections</u>).

The above changes are made in order to clarify the intent of the SG inspection.

<u>GTS Subsection 5.5.7: Safety Function Determination Program (SFDP)</u>

This subsection with its title is equivalent to subsection 5.5.15 in WOG STS Rev. 4.

TSTF-273-A, Rev. 2 made two changes to subsection 5.5.15 of WOG STS Rev. 1. It added to paragraph STS 5.5.15.d, the wording “no concurrent loss of offsite power, or loss of onsite diesel generator(s)” to the explanation of a loss of safety function. This text is not included in AP1000 GTS 5.5.7, Rev. 19. The use of diesel generators is not applicable to the AP1000.

Also, APOG commented that “in the AP1000 Final Safety Evaluation Report, NUREG-1793, Section 8.2.3.2: The AP1000 design does not rely on power from the offsite system to accomplish safety functions. As such this change from TSTF-273 is not applicable to the AP1000 design. Since neither issued COL plant-specific TS for VEGP or V.C. Summer include this option, and since each represented AP1000 Utility is committed to maintaining standardization, there currently is no basis for an AP1000 STS that differs from the GTS and the issued COLs. Accordingly, this added phrase will not be included in AP1000 STS 5.5.7.”

TSTF-273-A, Rev. 2 also inserted new text at the end of this subsection. The inserted text is included in the AP1000 GTS 5.5.7.

GTS Subsection 5.5.8: Containment Leakage Rate Testing Program

This subsection is equivalent to Subsection 5.5.16 of WOG STS Rev. 4.

WOG STS 5.5.16, Rev. 4 offers three (bracketed) options in this subsection for the containment leakage rate testing program, i.e., [OPTION A], [OPTION B], and [OPTION A/B Combined]. This is consistent with the requirements of 10 CFR 50.54(o) and 10 CFR 50, Appendix J. However, GTS Rev. 19 elected to include only the text for OPTION B in the GTS for the testing program. Accordingly, this GTST retains the current Option B requirements in AP1000 STS Subsection 5.5.8.

Also Subsection paragraph 5.5.8.c of GTS Rev. 19 includes the word 'primary' before the word 'containment.' According to TSTF-343-A, Rev. 1, the term 'containment' is used for pressurized water reactors while the term 'primary containment' is used for boiling water reactors. The term 'primary containment' does not exist in Subsection 5.5.16 of WOG STS Rev. 4. Because the AP1000 is a pressurized water reactor, the word 'primary' is not included by this GTST when referring to 'containment' in AP1000 STS Subsection 5.5.8, which is consistent with WOG STS Rev. 4.

GTS Subsection 5.5.11: Battery Monitoring and Maintenance Program

TSTF-451-T, Rev. 0 revised WOG STS 5.5.17.b, Rev. 2 to require actions to equalize and test battery cells with electrolyte level below the top of the plates, not below the minimum established design limit as previously stated in WOG STS 5.5.11. This change was made to conform to IEEE-450-1995, the supporting standard.

However, TSTF-500, Rev. 2 indicates that "The NRC has not reviewed or endorsed IEEE-450-1995." Instead, "The NRC has endorsed IEEE-450-2002 in Regulatory Guide 1.129, Revision 2." Accordingly, TSTF-500, Rev. 2 entirely revised subsection 5.5.17 of WOG STS, Rev. 3.1 based on IEEE-450-2002. All the changes made by TSTF-500, Rev. 2 were implemented in WOG STS 5.5.11, Rev. 4.

APOG commented (#16, #478) that the AP1000 Class 1E DC electrical power system design differs from the standard plant design assumed as the basis for TSTF-500, Rev. 2. As such, the changes and possible options provided in TSTF-500 are not necessarily applicable to the AP1000 design. APOG recommended removing all TSTF-500 changes from the AP1000 STS and supporting GTSTs.

NRC staff agreed to withdraw TSTF-500 changes not appropriate for the AP1000 design, but decided to implement applicable NRC approved TSTF-500 changes that explicitly specify monitoring battery parameters such as specific gravity, electrolyte level, cell temperature, float voltage, connection resistance, and physical condition.

Accordingly, this GTST will include those changes, but without the brackets around cell voltage values, in AP1000 STS Subsection 5.5.11.

GTS Subsection 5.5.12: Main Control Room Envelope Habitability Program

This subsection corresponds to Subsection 5.5.18 in WOG STS Rev. 4. However, the first word in its title "Main" is not included in the title of WOG STS 5.5.18.

TSTF-448-A, Rev. 3 added this subsection to WOG STS 5.5.18, Rev. 3.1 as a new subsection at the end of the STS Section 5.5. According to this TSTF, NRC alerted licensees that existing technical specification surveillance requirements for the CREFS at facilities may not be

adequate. Specifically, the results of tracer gas tests at facilities indicated that the differential pressure surveillance is not a reliable method for demonstrating control room envelope (CRE) integrity. This TSTF adds this subsection as a new administrative controls program. This program describes the programmatic and testing requirements necessary to maintain CRE habitability. It addresses definitions, maintaining integrity, assessing habitability, inleakage testing, differential pressure testing, and inleakage limits.

According to this TSTF, "The introductory paragraph addresses the purpose of the program and uses, to the extent possible, the wording of GDC 19. It provides the relationship between CRE habitability and OPERABILITY of the CREFS." Also, this TSTF indicates that the required program elements of this subsection are divided into five parts: definitions, maintaining CRE boundary integrity, inleakage testing and assessing habitability, differential pressure testing, and inleakage limits.

Description of changes in RCOL Std. Dep., RCOL COL Item(s), and RCOL PTS Changes:

GTS Subsection 5.5.1: Offsite Dose Calculation Manual (ODCM)

DOC A118 renumbers the paragraphs within each individual program of subsection 5.5.1. These changes are editorial and improve clarity and they do not result in any technical changes. Accordingly, these changes are adopted by this GTST in AP1000 STS Subsection 5.5.1. These changes are shown in GTST Section XI.

DOC L02 changes the references to Specifications 5.6.2 and 5.6.3 in plant-specific TS Subsection 5.5.1 to Specifications 5.6.1 and 5.6.2, respectively. These changes are related to the elimination of Subsection 5.6.1 from Section 5.6 of WOG STS Rev. 2 and the renumbering of the subsequent subsections. These changes are similar to the changes in TSTF-369-A, Rev. 1, which are discussed above in this Section (Section VI "Traveler Information - Rationale for TSTF Changes").

GTS Subsection 5.5.2: Radioactive Effluent Controls Program

DOC A118 renumbers the paragraphs within each individual program of subsection 5.5.2. These changes are editorial and improve clarity and they do not result in any technical changes. Accordingly, these changes are adopted by this GTST in AP1000 STS Subsection 5.5.2. These changes are shown in GTST Section XI.

DOC L23 inserts the following sentence at the end of plant-specific TS Subsection 5.5.2:

> The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

This change is identical to the change made by TSTF-258-A, Rev. 4. Based on this TSTF, this GTST includes this change in AP1000 STS Subsection 5.5.2, consistent with Subsection 5.5.4 of WOG STS Rev. 4.

GTS Subsection 5.5.3: Inservice Testing Program

DOC A119, similar to TSTF-479-A, Rev. 0, revises the wording of plant-specific TS and GTS paragraph 5.5.3.a by changing the following phrase (Changed text is indicated by underlining.):

> Testing frequencies specified in the ASME OM Code and applicable Addenda as follows:

to:

> Testing frequencies applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code) and applicable Addenda as follows:

DOC L24 modifies the wording of plant-specific TS paragraph 5.5.3.b. The modified paragraph reads as follows (with added text indicated by underlining):

> The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities.

As previously discussed by this GTST, these changes are similar to the changes made by TSTF-479-A, Rev. 0 and TSTF-497-A, Rev. 0. Accordingly, these changes are implemented by this GTST in paragraph 5.5.3.b of the AP1000 STS. These changes are also consistent with Subsection 5.5.8 of WOG STS Rev. 4.

GTS Subsection 5.5.7: Safety Function Determination Program (SFDP)

VEGP LAR A118 renumbers the paragraphs within each individual program of plant-specific TS subsection 5.5.7. These changes are editorial and improve clarity. Accordingly, these changes will be adopted by this traveler in AP1000 STS 5.5.7. These changes are shown in the GTS markup in Section XI of this GTST.

VEGP LAR A120 makes corrections to paragraph plant-specific TS 5.5.7.a (change “supported system” to “support system”) and to paragraph 5.5.7.a.3 (change “support systems” to “support system”). These changes are shown in the GTS markup in Section XI of this GTST.

GTS Subsection 5.5.8: Containment Leakage Rate Testing Program

VEGP LAR A118 renumbers the paragraphs within each individual program of subsection 5.5.8. These changes are editorial and provide for clarity. Accordingly, these changes will be adopted by this traveler in AP1000 STS 5.5.8. These changes are shown in the GTS markup in Section XI of this GTST.

VEGP LAR A122 revised GTS 5.5.8 paragraph d.1, Type B and Type C acceptance criterion, from “≤ 0.60 La,” to “< 0.60 La.”

GTS Subsection 5.5.9: System Level OPERABILITY Testing Program

VEGP LAR A003 revised the second sentence in plant-specific TS 5.5.9 by inserting the word “FSAR” before the section number or Table number. The edited phrase is: “specified in FSAR Section 3.9.6 and FSAR Table 3.9-17.”

GTS Subsection 5.5.10: Component Cyclic or Transient Limit

VEGP LAR A121 revised the reference to Table 3.9-1A in GTS 5.5.10 by eliminating the letter suffix, A.

VEGP LAR A003 revised plant-specific TS 5.5.10 by inserting the word “FSAR” before “Table 3.9-1.”

Section 5.5.13: Ventilation Filter Testing Program (VFTP)

DOC A118 renumbers the paragraphs within plant-specific TS Subsection 5.5.13, VFTP. These changes are editorial and improve clarity; they do not result in any technical changes.

DOC A118 was modified in response to NRC staff RAI Question 16-35 (Ref. 6), that requested changing the proposed new numbering scheme to cover the entire text of plant-specific TS Subsection 5.5.13. In its response (Ref. 7) Southern Nuclear Operating Company (SNC) concurred with this request. Accordingly, this administrative change to paragraph numbering is included by this GTST in AP1000 STS Subsection 5.5.13.

DOC A123 revises the phrase “after any detection of” to “following detection of” after item 'iv)' in the second paragraph of plant-specific TS Subsection 5.5.13. This administrative change is included by this GTST in AP1000 STS Subsection 5.5.13.

DOC D14 replaces the following text of PTS Subsection paragraphs 5.5.13.a and 5.5.13.b:

> greater than the flow measured by VES-FT-003A/B. The flow rate being measured is a combination of the VES breathable air supply flow and the recirculation flow drawn through the eductor.

with:

> greater than the VES makeup flow rate.

DOC D14 also replaces the phrase “VES supply flow” with “VES makeup flow rate” in the same paragraphs. These changes, which remove design and procedural details from TS, are included by this GTST in AP1000 STS Subsection 5.5.13.

Subsection 5.5.14: Setpoint Program (SP)

DOC A124 inserts the word “surveillance” in paragraph c.1.i of plant-specific TS Subsection 5.5.14. This administrative change is included by this GTST in AP1000 STS Subsection 5.5.14.

DOC M01 deletes the reference to “Reactor Trip Channel Operational Test (RTCOT)” in plant-specific TS Subsection paragraph 5.5.14.c, because the RTCOT definition is replaced with the existing Channel Operational Test (COT) plant-specific TS definition, which is more restrictive. The current GTS and plant-specific TS subsection 5.5.14 reference to RTCOT is not appropriate, because the GTS and plant-specific TS Section 1.1 definition of RTCOT does not include a requirement for a Channel Calibration. Therefore reference to RTCOT is deleted. This is acceptable because testing requirements for RTCOT that are intended to involve Channel Calibration have been revised to include the COT, as appropriate, and Setpoint Program requirements for COT are retained.

This administrative change, which is related to a more restrictive change, is included by this GTST in AP1000 STS Subsection paragraph 5.5.14.c.

Rationale for changes in RCOL Std. Dep., RCOL COL Item(s), and RCOL PTS Changes:

VEGP LAR DOC A118 renumbers the paragraphs within each individual program of PTS Subsections 5.5.1 and 5.5.2. These changes are editorial and improve clarity.

VEGP LAR DOC A120 makes corrections to paragraph 5.5.7.a (change “supported system” to “support system”) and to paragraph 5.5.7.a.3 (change “support systems” to “support system.” These changes are editorial and improve clarity.

Changes made by DOCs A119, L02, L23, and L24 to the plant-specific TS are similar to the NRC approved changes made by TSTF-369-A, Rev. 1, TSTF-479-A, Rev. 0, TSTF-258-A, Rev. 4, and TSTF-497-A, Rev. 0, respectively. The rationale for these changes and for other DOCs is discussed above in this GTST Section (Section VI “Traveler Information - Rationale for TSTF Changes”).

Description of additional changes proposed by NRC staff/preparer of GTST:

Replace first occurrence of “VES” with “Main Control Room Emergency Habitability System (VES)” in first paragraph of Subsection 5.5.13, renumbered as 5.5.13.a. (NRC staff)

Spell out the word “HEPA” for the first occurrence in the second paragraph of Subsection 5.5.13, renumbered as 5.5.13.a., so it reads “high efficiency particulate air (HEPA).” (NRC staff)

Correct the typographical error of a misplaced closing quotation mark in the last line for the quoted reference in Specification 5.5.8.a. (APOG # 523)

With the above change proposed by the staff, the spelling out of what “HEPA” stands for in GTS paragraph 5.5.13.a (STS 5.5.13.a.1) is replaced with just the acronym; so it reads “(HEPA).” (APOG # 527)

Delete the “ESF” modifier from each of the 5.5.13.a VES test specification paragraph column headings in STS 5.5.13.a.1 through 5.5.13.a.4. (APOG # 528)

Rationale for additional changes proposed by NRC staff/preparer of GTST:

All of the changes listed above were made to conform to writer’s guide (Ref. 4) guidance, improve clarity, or correct typographical errors; they affect no technical requirements and are therefore administrative.

VII. GTST Safety Evaluation

Technical Analysis:

GTS Subsection 5.5.3: Inservice Testing Program

TSTF-279-A, Rev. 0 deleted the phrase “including applicable supports” from the introductory sentence. According to this TSTF, the Inservice Testing Program (IST) provides controls for testing Code Class 1, 2 and 3 components. The discussion of the IST Program in the STS was revised by the NRC to include the “applicable supports” in February 1992 due to concerns related to the relocation of the Snubber LCO from the improved STS NUREGs. However, this is inappropriate; supports are addressed under the Inservice Inspection Program not the IST Program. Thus, the reference to the applicable supports in the IST Program description in STS Section 5.5 was deleted. This change is acceptable because it improves the clarity of the specification.

According to TSTF-479-A, Rev. 0, the phrase “required Frequencies for performing” in paragraph 5.5.8.b of WOG STS Rev. 2 (paragraph 5.5.3.b of GTS Rev. 19) is changed to “required Frequencies and other normal and accelerated Frequencies specified in the Inservice Testing Program for performing …” where the added text is underlined. As stated by TSTF-479-A, Rev. 0, “This specification is revised to indicate that the Inservice Testing Program shall include testing frequencies applicable to the ASME Code for Operations and Maintenance (ASME OM Code). It is also revised to indicate that there may be some non-standard Frequencies utilized in the Inservice Testing Program in which the provisions of SR 3.0.2 are applicable.”

TSTF-497-A, Rev. 0 revised the changes made by TSTF-479-A, Rev. 0 in paragraph 5.5.8.b regarding the frequency provisions of SR 3.0.2. Paragraph 5.5.8.b now reads, “The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities.” where the added text is underlined.

According to TSTF-497-A, Rev. 0, TSTF-479-A, Rev. 0 “declined to develop a technical justification for applying SR 3.0.2 to IST Frequencies specified as greater than 2 years at this time, due to inadequate cost benefit. Therefore, this Traveler is an administrative change to the ISTS [improved STS] NUREGs which modifies the Inservice Testing Program, paragraph ‘b,’ to remove the provisions that were not deemed by the NRC to be adequately justified in TSTF-479.” This change is more restrictive because it removes an allowance to extend test intervals for components with test with intervals of greater than 2 years; it is therefore acceptable.

GTS Subsection 5.5.4: Steam Generator (SG) Program

According to TSTF-449-A, Rev. 4, the adopted new text for this subsection lists in detail a Steam Generator Program that ensures that the SG tube integrity is maintained, and describes the SG condition monitoring, performance criteria, repair methods, repair criteria, and inspection intervals. The new text is an improvement to the existing SG inspection requirements and provides additional assurance that the plant licensing basis will be maintained between SG inspections. The inspection requirements adopted in the inserted text “are more effective in detecting SG degradation and prescribing corrective actions than those required by current technical specifications.” “As a result, these … changes will result in added assurance of the function and integrity of SG tubes.”

Regarding the RCS operational LEAKAGE limit, TSTF-449-A, Rev. 4 states that “the primary to secondary LEAKAGE for all SGs is 1 gallon per minute or increases to 1 gallon per minute as a result of accident induced stresses.” However, this TSTF also states that “The proposed technical specification change includes a reduction in the current technical specification RCS operational LEAKAGE limit. The limit of 150 gallons per day [gpd] of primary to secondary LEAKAGE through any one SG is based on operating experience as an indication of one or more tube leaks. The operational leakage rate criterion in conjunction with the implementation of the Steam Generator Program is an effective measure for minimizing the frequency of steam generator tube ruptures.”

Because the GTS Subsection 5.5.4 limit of 150 gpd is more conservative than the 1 gpm limit, the 150 gpd limit will be included by this GTST in paragraph 5.5.4.b.2 of the AP1000 STS.

Also according to TSTF-510, Rev. 2, AP1000 GTS 5.5.4.d.2 is revised to modify the frequency of verification of SG tube integrity and SG tube sample selection of the Steam Generator (SG) Program. This revision reduces the implementation issues experienced with the previous specification. The revised specification is consistent with the existing specification in that it continues to be based on SG tube material type, age, condition and cycle length, and continues to address the time dependence of degradation and prevent front end or back end loading of inspections. In addition, the maximum interval allowed between inspections remains the same as specified in GTS 5.5.4.d.2 in STS 5.5.4.d.2. Therefore, the revision is acceptable.

TSTF-510, Rev. 2 proposed other changes to GTS 5.5.2. These changes were made to account for optional SG tube repair criteria that do not currently exist for AP1000 plants. These changes are not included in AP1000 STS 5.5.4, as previously explained.

Subsection 5.5.9 of WOG STS Rev. 3 uses the terms “interval” and “period” when referring to the steam generator inspections. According to TSTF-510, Rev. 2 and for consistency, the term “period” is used in the revised GTS subsection 5.5.4.d.2 when referring to the overall inspection period and the term “interval” is used when referring to the time between steam generator inspections as stated in AP1000 STS Subsection 5.5.4.d.2. This administrative terminology convention affects no technical requirements, and is, therefore, administrative and acceptable.

GTS Subsection 5.5.11: Battery Monitoring and Maintenance Program

TSTF-451-T, Rev. 0 proposed revising paragraph 5.5.17.b of WOG STS Rev. 2 to require actions to equalize and test battery cells with electrolyte level below the top of the plates, not below the minimum established design limit, in conformance with IEEE-450-1995, the supporting standard. However, as discussed in TSTF-500, Rev. 2, the NRC has not reviewed or endorsed IEEE-450-1995, but has endorsed IEEE-450-2002 in Regulatory Guide 1.129, Revision 2. Accordingly, TSTF-500 entirely rewrote Subsection 5.5.17 of WOG STS Rev. 3.1 based on IEEE-450-2002.

TSTF-500, Rev. 2 states that “The monitoring of the current battery parameters (i.e., specific gravity, electrolyte level, cell temperature, float voltage, connection resistance, and physical condition) is relocated to this program. This will ensure that the battery parameter values will continue to be controlled and that actions will be implemented should the battery parameter value not be met. Furthermore, the battery and its preventive maintenance and monitoring program are under the regulatory requirements of 10 CFR 50.65. The licensee's program should include a provision to obtain specific gravity readings of all cells at each discharge test, per manufacturer and NRC recommendations.”

Furthermore, TSTF-500, Rev. 2 indicates that the exceptions to Regulatory Guide 1.129, Revision 2 (that are included in the new text) are “needed to make the Regulatory Guide

requirements consistent with the proposed Technical Specification requirements, allow reasonable technical approaches, and be applicable to operating plants." TSTF-500, Rev. 2 discusses in detail each of the five exceptions listed in the text.

The TSTF-500 changes being incorporated in AP1000 STS subsection 5.5.11 include the requirements for monitoring battery parameters (i.e., specific gravity, electrolyte level, cell temperature, float voltage, connection resistance, and physical condition) that were approved by NRC, and improve the effectiveness of this specification. They are therefore acceptable.

References to Previous NRC Safety Evaluation Reports (SERs):

None

VIII. Review Information

Evaluator Comments:

The following are the GTS subsections discussed in this GTST with their titles and the corresponding subsections in the WOG STS Rev. 4:

GTS Subsection 5.5.1, “Offsite Dose Calculation Manual (ODCM),” is equivalent to WOG STS Subsection 5.5.1.

GTS Subsection 5.5.2, “Radioactive Effluent Controls Program,” is equivalent to WOG STS Subsection 5.5.4.

GTS Subsection 5.5.3, “Inservice Testing Program,” is equivalent to WOG STS Subsection 5.5.8.

GTS Subsection 5.5.4, “Steam Generator (SG) Program,” is equivalent to WOG STS Subsection 5.5.9.

GTS Subsection 5.5.5, “Secondary Water Chemistry Program,” is equivalent to WOG STS Subsection 5.5.10.

GTS Subsection 5.5.6, “Technical Specifications (TS) Bases Control Program,” is equivalent to WOG STS Subsection 5.5.14.

GTS Subsection 5.5.7, “Safety Function Determination Program (SFDP),” is equivalent to WOG STS Subsection 5.5.15.

GTS Subsection 5.5.8, “Containment Leakage Rate Testing Program,” is equivalent to WOG STS Subsection 5.5.16.

GTS Subsection 5.5.9, “System Level OPERABILITY Testing Program,” does not exist in WOG STS Rev. 4. It is included in AP1000 STS Section 5.5 as Subsection 5.5.9.

GTS Subsection 5.5.10, “Component Cyclic or Transient Limit,” is equivalent to WOG STS Subsection 5.5.5.

GTS Subsection 5.5.11, “Battery Monitoring and Maintenance Program,” corresponds to WOG STS Subsection 5.5.17.

GTS Subsection 5.5.12, “Main Control Room Envelope Habitability Program,” corresponds to WOG STS Subsection 5.5.18. However, the first word of its title “Main” is not included in WOG STS Subsection 5.5.18.

GTS Subsection 5.5.13, “Ventilation Filter Testing Program,” corresponds to WOG STS Subsection 5.5.11.

Subsection 5.5.14, “Setpoint Program,” corresponds to WOG STS Subsection 5.5.19.

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Review Information:

Availability for public review and comment on Revision 0 of this traveler approved by NRC staff on 5/22/2014.

APOG Comments (Ref. 7) and Resolutions:

1. (Internal #514) 5.5: APOG requested that each "continued" Section title should be underlined. APOG comments that the Writer's Guide for Plant-Specific Improved Technical Specifications, TSTF-GG-05-01, Revision 1, Section 2.6.2.c.2, details the use of underlines for Section Titles. NUREG-1431 provides consistent use of underlines for "continued" Section titles. This error was inadvertent; it is resolved by underlining any missed "continued" Section title.

GTS Subsection 5.5.1: Offsite Dose Calculation Manual (ODCM)

1. (Internal #512) Regarding Specification 5.5.1, in GTST Rev. 0 staff proposed a change to GTS 5.5.1.c.3 by modifying the phrase "copy of the changed portion of the ODCM" to include a bracketed optional phrase from the WOG STS 5.5.1 "copy of the entire ODCM."

   APOG proposed to not include this optional phrase because neither VEGP Units 3 and 4 nor V.C. Summer Units 2 and 3 COL plant-specific TS include it, each represented AP1000 Utility (both COL holders and COL applicants) is committed to maintaining standardization of AP1000 plant-specific TS, and there is currently no basis for an AP1000 STS that differs from the GTS and the issued COL plant-specific TS. Accordingly, this issue is resolved by removing the proposed brackets and the optional phrase from AP1000 STS 5.5.1.c.3; thus retaining the GTS text in STS 5.5.1.c.3.

2. (Internal #513 and #518) Regarding Specification 5.5.1, in GTST Rev. 0 staff proposed placement of square brackets around the report specification numbers in AP1000 STS 5.5.1 (to be consistent with subsection 5.5.1 of WOG STS Rev. 4). APOG commented that this is inappropriate because the referenced Specifications are not optionally numbered (i.e., bracketed) in GTS Section 5.6. Accordingly, as recommended by APOG, the proposed brackets around the references to Specification 5.6.1 and Specification 5.6.2 are removed.

GTS Subsection 5.5.4: Steam Generator (SG) Program

1. (Internal #511) Regarding Specification 5.5.4, APOG commented that the enumeration of the continuation title of this subsection should be corrected from 5.4 to 5.5.4. This inadvertent error is resolved by making the recommended change.

2. (Internal #515) Regarding Specification 5.5.4, in GTST Rev. 0 staff proposed eight (8) changes based on TSTF-449-A to GTS Subsection 5.5.4 for incorporation in AP1000 STS Subsection 5.5.4. APOG commented that these changes reflect optional (i.e., bracketed) material applicable to SG repair criteria that does not currently exist for AP1000 plants.

   APOG further commented that since neither issued COL TS for VEGP or V.C. Summer include this option, and since each represented AP1000 Utility is committed to maintaining

standardization, there is currently no basis for an AP1000 STS that differs from the GTS and the issued COL plant-specific TS.

Accordingly, as recommended by APOG, the proposed eight changes based on TSTF 449-A are omitted from AP1000 STS Specification 5.5.4.

3. (Internal #516) Regarding Specification paragraphs 5.5.4.c and 5.5.4.d, in Rev. 0 of this GTST staff proposed changes based on TSTF-510 for incorporation in AP1000 STS Subsection 5.5.4. APOG commented that listed changes “(4)” and “(5)” on page 12 in Section VI of Rev. 0 of this GTST reflect optional (i.e., bracketed) material applicable to SG repair criteria that does not currently exist for AP1000 plants.

   APOG further commented that since the licensing bases and the plant-specific TS for VEGP Units 3 and 4 and V.C. Summer Units 2 and 3 currently include no NRC approved optional SG tube repair criteria, and since each represented AP1000 Utility is committed to maintaining standardization, there currently is no basis for an AP1000 STS Specification 5.5.4 that includes SG tube repair options other than tube plugging. At the time an AP1000 COL holder submits a license amendment request for NRC approval of additional SG tube repair criteria, APOG indicated it would consider corresponding changes in STS Subsection 5.5.4.

   Accordingly, staff agreed to omit the bracketed references to SG tube repair options from AP1000 STS Specification 5.5.4.c and 5.5.4.d, which were based on TSTF-510, and to also remove related material from this GTST.

4. (Internal #517) Regarding Specification 5.5.4, in Rev. 0 of this GTST, Section VI, staff proposed changes based on TSTF-510. APOG commented that listed change “(6)” reflects acceptable changes to the GTS; however, the “Reviewer's Note” included with the changes, suggests optional content which may never apply to an AP1000 plant. APOG further commented that since each represented AP1000 Utility is committed to maintaining standardization, there currently is no basis for an AP1000 STS that suggests alternatives differing from the plant-specific TS of the issued COLs. Accordingly, as recommended by APOG, the Reviewer’s Note is omitted from AP1000 STS Specification 5.5.4.d.2, since it addresses optional content which does not apply to AP1000 at this time.

GTS Subsection 5.5.7: Safety Function Determination Program (SFDP)

1. (Internal #519) Regarding Specification 5.5.7, in Rev. 0 of this GTST, staff inserted into paragraph 5.5.7.b the phrase “or no concurrent loss of offsite power” based on a change included in TSTF-273. However, APOG commented that the AP1000 Final Safety Evaluation Report, NUREG-1793, Section 8.2.3.2, states: “The AP1000 design does not rely on power from the offsite system to accomplish safety functions.” As such this change from TSTF-273 is not applicable to the AP1000 design. Since neither issued COL plant-specific TS for VEGP or V.C. Summer include this option, and since each represented AP1000 Utility is committed to maintaining standardization, there currently is no basis for an AP1000 STS that differs from the GTS and the issued COL plant-specific TS.

   Accordingly, this issue is resolved by omitting the phrase “or no concurrent loss of offsite power,” which was proposed based on TSTF 273, from AP1000 STS.

2. (Internal #520) Regarding Specification 5.5.7, APOG commented that VEGP LAR DOC A120 changes are not included in either the Description of changes in RCOL Std. section or in the Rationale for changes in the RCOL Std. section in Section VI of this GTST. This

issue is resolved by adding the description and rationale for DOC A120 changes in Section VI of this GTST.

GTS Subsection 5.5.8: Containment Leakage Rate Testing Program

1. (Internal #521) Regarding Specification 5.5.8, based on TSTF-343-A, Rev. 1, in Rev. 0 of this GTST staff proposed deleting the word 'primary' when referring to 'containment' in AP1000 STS Subsection 5.5.8. However, APOG commented that "primary containment" is utilized in the AP1000 DCD (and COL FSARs). APOG continued that since neither issued COL TS for VEGP or V.C. Summer includes this change, and since each represented AP1000 Utility is committed to maintaining standardization, there currently is no basis for an AP1000 STS that differs from the GTS and the issued COLs.

   Staff commented that this change is based on TSTF-343-A, Rev. 1. Although the FSAR uses "primary containment", the GTS do not except for paragraph 5.5.8.c. SPSB prefers consistency within the TS and Bases. If "primary" is not removed from 5.5.8.c, then it would need to be added in multiple other locations in TS and bases. Accordingly, the word "primary" will be omitted from AP1000 STS 5.5.8.c.

2. (Internal #522) Regarding Specification 5.5.8, in Rev. 0 of this GTST staff proposed to replace, in paragraph 5.5.8.a, the phrase "as modified by approved exceptions" with a bracketed phrase to list the specific exemptions. APOG commented that since neither issued COL plant-specific TS for VEGP or V.C. Summer include this change, and since each represented AP1000 Utility is committed to maintaining standardization, there currently is no basis for an AP1000 STS that differs from the GTS and the issued COL plant-specific TS. Accordingly, this issue is resolved by retaining the text of GTS 5.5.8.a in STS 5.5.8.a.

3. (Internal #523) Regarding Specification 5.5.8, APOG commented that there is a typographical error of a misplaced closing quotation mark in the quoted reference of GTS Specification 5.5.8.a. This issue is resolved by correcting this typographical error.

4. (Internal #524) Regarding Specification 5.5.8, APOG commented that VEGP LAR DOC A122 changed Specification 5.5.8.d.1 Type B and Type C leakage rate acceptance criteria from "≤ 0.60" to "<0.60." Although this change is discussed in the GTST, the affected GTST Section XI and Section XII pages do not reflect the change. This inadvertent error is resolved by adding the change to the markup of GTS Specification 5.5.8.d.1 in Section XI and the smooth version in Section XII of this GTST.

GTS Subsection 5.5.11: Battery Monitoring and Maintenance Program

1. (Internal #16, # 478) Regarding Specification 5.5.11, APOG commented that the AP1000 DC electrical power system design differs from the DC electrical power system design of a standard Westinghouse four loop plant, which is the assumed design for the changes proposed by TSTF-500, Rev. 2. As such, the changes and possible options provided in TSTF-500 are not necessarily applicable to the AP1000 design. APOG recommended not incorporating TSTF-500 changes in the AP1000 STS.

   Staff agreed to withdraw TSTF-500 changes that are not appropriate to the AP1000 design. However, TSTF-500 changes regarding the requirements for monitoring battery parameters (i.e., specific gravity, electrolyte level, cell temperature, float voltage, connection resistance, and physical condition) are appropriate to the AP1000 design and, therefore, will be included in AP1000 STS Specification 5.5.11, but without the brackets around voltage values.

GTS Section 5.5.13: Ventilation Filter Testing Program (VFTP)

1. (Internal #525) Regarding Specification 5.5.13, in Rev. 0 of this GTST, Section VI, APOG commented that in GTST Section X, Ref. (4) and Ref. (5), which are listed as references for the changes based on DOC A118, should be Ref. (6) and Ref. (7). This inadvertent error is resolved by making the correction.

2. (Internal #526) Regarding Specification 5.5.13.a, APOG commented that the staff-proposed editorial change "(1)" to GTS Subsection 5.5.13.a, as listed in Section III of Rev. 0 of this GTST, which adds references to RG 1.52 and ASME N510, is not needed because these references are adequately and more specifically presented in each of the individual VES filter test specification paragraphs. Therefore, APOG recommended removing the proposed editorial change. This issue is resolved by withdrawing the change, as recommended.

3. (Internal #527) Regarding Specification 5.5.13, APOG commented that the staff-proposed editorial change "(2)" to GTS Subsection 5.5.13.a, as listed in Section III of Rev. 0 of this GTST, which adds what "HEPA" stands for at the term's first occurrence, failed to delete the same definition that subsequently occurs in paragraph 5.5.13.a.1. Also, APOG noted in its comment that the GTST Section XI and Section XII mark-up and clean- typed NUREG pages did not reflect this change. APOG proposed to resolve this issue by retaining the proposed edit and also by removing the subsequent definition of "HEPA" from paragraph 5.5.13.a.1. This issue is resolved by making the proposed additional change and including both changes in GTST Sections XI and XII.

4. (Internal #528) Regarding Specification 5.5.13.a, APOG commented that staff-proposed editorial change "(3)" to GTS Subsection 5.5.13 adds a definition for "ESF" that creates awkward wording ("the Engineering Safety Feature (ESF) of the VES"). APOG noted that the need to spell out "ESF" can be eliminated by deleting the modifier "ESF" from each of the 5.5.13.a VES test specification paragraph column headings, leaving the heading as just "Ventilation System." This makes for a more logical editorial change.

   This issue is resolved by removing the proposed addition of a definition for "ESF" and deleting the "ESF" modifier from each of the 5.5.13.a VES test specification paragraph column headings in STS 5.5.13.a.1 through 5.5.13.a.4, in Sections XI and XII of the GTST.

GTS Subsection 5.5.14: Setpoint Program (SP)

1. (Internal #529) Regarding Specification 5.5.14, APOG commented that the GTST Section VII, Technical Analysis points to the Section VI description for the analysis. However, the DOC M01 description does not technically justify why the change to 5.5.14 was made; it describes only the change to Section 1.1, Definitions. APOG recommended revising the description of DOC M01 in Section VI as proposed. This issue is resolved by including the proposed revised text in Section VI of this GTST.

NRC Final Approval Date: 12/14/2015

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IX. Evaluator Comments for Consideration in Finalizing Technical Specifications and Bases

None

X. References Used in GTST

1. AP1000 DCD, Revision 19, Section 16, “Technical Specifications,” June 2011 (ML11171A500).

2. Southern Nuclear Operating Company, Vogtle Electric Generating Plant, Units 3 and 4, Technical Specifications Upgrade License Amendment Request, February 24, 2011 (ML12065A057).

3. NRC Safety Evaluation (SE) for Amendment No. 13 to Combined License (COL) No. NPF-91 for Vogtle Electric Generating Plant (VEGP) Unit 3, and Amendment No. 13 to COL No. NPF-92 for VEGP Unit 4, September 9, 2013, ADAMS Package Accession No. ML13238A337, which contains:

ML13238A355	Cover Letter - Issuance of License Amendment No. 13 for Vogtle Units 3 and 4 (LAR 12-002).
ML13238A359	Enclosure 1 - Amendment No. 13 to COL No. NPF-91
ML13239A256	Enclosure 2 - Amendment No. 13 to COL No. NPF-92
ML13239A284	Enclosure 3 - Revised plant-specific TS pages (Attachment to Amendment No. 13)
ML13239A287	Enclosure 4 - Safety Evaluation (SE), and Attachment 1 - Acronyms
ML13239A288	SE Attachment 2 - Table A - Administrative Changes
ML13239A319	SE Attachment 3 - Table M - More Restrictive Changes
ML13239A333	SE Attachment 4 - Table R - Relocated Specifications
ML13239A331	SE Attachment 5 - Table D - Detail Removed Changes
ML13239A316	SE Attachment 6 - Table L - Less Restrictive Changes

   The following documents were subsequently issued to correct an administrative error in Enclosure 3:

ML13277A616	Letter - Correction To The Attachment (Replacement Pages) - Vogtle Electric Generating Plant Units 3 and 4-Issuance of Amendment Re: Technical Specifications Upgrade (LAR 12-002) (TAC No. RP9402)
ML13277A637	Enclosure 3 - Revised plant-specific TS pages (Attachment to Amendment No. 13) (corrected)

4. TSTF-GG-05-01, “Writer's Guide for Plant-Specific Improved Technical Specifications,” June 2005.

5. RAI Letter No. 01 Related to License Amendment Request (LAR) 12-002 for the Vogtle Electric Generating Plant Units 3 and 4 Combined Licenses, September 7, 2012 (ML12251A355).

6. Southern Nuclear Operating Company, Vogtle Electric Generating Plant, Units 3 and 4, Response to Request for Additional Information Letter No. 01 Related to License Amendment Request LAR-12-002, ND-12-2015, October 04, 2012 (ML12286A363 and ML12286A360).

7. APOG-2014-008, APOG (AP1000 Utilities) Comments on AP1000 Standardized Technical Specifications (STS) Generic Technical Specification Travelers (GTSTs), Docket ID NRC-2014-0147, September 22, 2014 (ML14265A493).

XI. MARKUP of the Applicable GTS Subsection for Preparation of the STS NUREG

The entire section of the Specifications and the Bases associated with this GTST is presented next.

Changes to the Specifications and Bases are denoted as follows: Deleted portions are marked in strikethrough red font, and inserted portions in bold blue font.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

The following programs shall be established, implemented, and maintained.

5.5.1 Offsite Dose Calculation Manual (ODCM)

a. The ODCM shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm and trip setpoints, and in the conduct of the radiological environmental monitoring program; and

b. The ODCM shall also contain the radioactive effluent controls and radiological environmental monitoring activities, and descriptions of the information that should be included in the Annual Radiological Environmental Operating, and Radioactive Effluent Release Reports required by Specification 5.6.1~~2~~ and Specification 5.6.2~~3~~.

c. Licensee initiated changes to the ODCM:

1~~a~~. Shall be documented and records of reviews performed shall be retained. This documentation shall contain:

i~~1~~. Sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s), and

ii~~2~~. A determination that the change(s) maintain the levels of radioactive effluent control required by 10 CFR 20. 1302, 40 CFR 190, 10 CFR 50.36a, and 10 CFR 50, Appendix I, and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations;

2~~b~~. Shall become effective after the approval of the plant manager; and

3~~c~~. Shall be submitted to the NRC in the form of a complete, legible copy of the changed portion of the ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

5.5 Programs and Manuals

5.5.2 Radioactive Effluent Control Program

a. This program conforms to 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable. The program shall be contained in the ODCM, shall be implemented by procedures, and shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

1~~a~~. Limitations on the functional capability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoints determination in accordance with the methodology in the ODCM;

2~~b~~. Limitations on the concentrations of radioactive material released in liquid effluents to unrestricted areas, conforming to ten times the concentration values in Appendix B, Table 2, Column 2 to 10 CFR 20;

3~~c~~. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 and with the methodology and parameters in the ODCM;

4~~d~~. Limitations on the annual and quarterly doses or dose commitment to a member of the public for radioactive materials in liquid effluents released from each unit to unrestricted areas, conforming to 10 CFR 50, Appendix I;

5~~e~~. Determination of cumulative dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days. Determination of projected dose contributions from radioactive effluents in accordance with the methodology in the ODCM at least every 31 days;

6~~f~~. Limitations on the functional capability and use of the liquid and gaseous effluent treatment systems to ensure that appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a period of 31 days would exceed 2% of the guidelines for the annual dose or dose commitment, conforming to 10 CFR 50, Appendix I;

5.5 Programs and Manuals

5.5.2 Radioactive Effluent Control Program (continued)

7~~g~~. Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the site boundary shall be in accordance with the following:

i~~1~~. For noble gases: a dose rate ≤ 500 mrem/yr to the whole body and a dose rate ≤ 3000 mrem/yr to the skin and

ii~~2~~. For iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days: a dose rate ≤ 1500 mrem/yr to any organ;

8~~h~~. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

9~~i~~. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

10~~j~~. Limitations on the annual dose or dose commitment to any member of the public, beyond the site boundary, due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

b. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.3 Inservice Testing Program

This program provides control for inservice testing of ASME Code Class 1, 2, and 3 components ~~including applicable supports~~. The program shall include the following:

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5.5.3 Inservice Testing Program (continued)

a. Testing frequencies **applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code)** ~~specified in the ASME OM Code~~ and applicable Addenda as follows:

ASME OM Code and applicable Addenda Terminology for inservice testing activities	Required Frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required Frequencies **and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program** for performing inservice testing activities;

c. The provisions of SR 3.0.3 are applicable to inservice testing activities;

d. Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.

5.5.4 Steam Generator (SG) Program

A Steam Generator Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the Steam Generator Program shall include the following ~~provisions~~:

a. Provisions for condition monitoring assessments. Condition monitoring assessment means an evaluation of the “as found” condition of the tubing with respect to the performance criteria for structural integrity and accident induced leakage. The “as found” condition refers to the condition of the tubing during an SG inspection outage, as determined from the inservice inspection results or by other means, prior to the plugging of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected or plugged, to confirm that the performance criteria are being met.

5.5 Programs and Manuals

5.5.4 Steam Generator (SG) Program (continued)

b. Performance criteria for SG tube integrity. SG tube integrity shall be maintained by meeting the performance criteria for tube structural integrity, accident induced leakage, and operational LEAKAGE.

1. Structural integrity performance criterion: All in-service steam generator tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down**),** ~~and~~ all anticipated transients included in the design specification,~~)~~ and design basis accidents. This includes retaining a safety factor of 3.0 against burst under normal steady state full power operation primary-to-secondary pressure differential and a safety factor of 1.4 against burst applied to the design basis accident primary-to-secondary pressure differentials. Apart from the above requirements, additional loading conditions associated with the design basis accidents, or combination of accidents in accordance with the design and licensing basis, shall also be evaluated to determine if the associated loads contribute significantly to burst or collapse. In the assessment of tube integrity, those loads that do significantly affect burst or collapse shall be determined and assessed in combination with the loads due to pressure with a safety factor of 1.2 on the combined primary loads and 1.0 on axial secondary loads.

2. Accident induced leakage performance criterion: The primary to secondary accident induced leakage rate for any design basis accident, other than a SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to exceed 150 gpd per SG.

3. The operational LEAKAGE performance criterion is specified in LCO 3.4.7, “RCS Operational LEAKAGE.”

c. Provisions for SG tube repair criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding 40% of the nominal tube wall thickness shall be plugged.

d. Provisions for SG tube inspections. Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from the tube-to-tubesheet weld at the

5.5 Programs and Manuals

5.5.4 Steam Generator (SG) Program (continued)

tube inlet to the tube-to-tubesheet weld at the tube outlet, and that may satisfy the applicable tube repair criteria. The tube-to-tubesheet weld is not part of the tube. In addition to meeting the requirements of d.1, d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. A~~n~~ **degradation** assessment ~~of degradation~~ shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

1. Inspect 100% of the tubes in each SG during the first refueling outage following **SG** installation.

2. ~~Inspect 100% of the tubes at sequential periods of 144, 108, 72, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outage nearest the end of the period. No SG shall operate for more than 72 effective full power months or three refueling outages (whichever is less) without being inspected..~~ **After the first refueling outage following SG installation, inspect each SG at least every 72 effective full power months or at least every third refueling outage (whichever results in more frequent inspections). In addition, the minimum number of tubes inspected at each scheduled inspection shall be the number of tubes in all SGs divided by the number of SG inspection outages scheduled in each inspection period as defined in a, b, c and d below. If a degradation assessment indicates the potential for a type of degradation to occur at a location not previously inspected with a technique capable of detecting this type of degradation at this location and that may satisfy the applicable tube repair criteria, the minimum number of locations inspected with such a capable inspection technique during the remainder of the inspection period may be prorated. The fraction of locations to be inspected for this potential type of degradation at this location at the end of the inspection period shall be no less than the ratio of the number of times the SG is scheduled to be inspected in the inspection period after the determination that a new form of degradation could potentially be occurring at this location divided by the total number of times the SG is scheduled to be inspected in the**

5.5.4 Steam Generator (SG) Program (continued)

inspection period. Each inspection period defined below may be extended up to 3 effective full power months to include a SG inspection outage in an inspection period and the subsequent inspection period begins at the conclusion of the included SG inspection outage.

a) After the first refueling outage following SG installation, inspect 100% of the tubes during the next 144 effective full power months. This constitutes the first inspection period;

b) During the next 120 effective full power months, inspect 100% of the tubes. This constitutes the second inspection period;

c) During the next 96 effective full power months, inspect 100% of the tubes. This constitutes the third inspection period; and

d) During the remaining life of the SGs, inspect 100% of the tubes every 72 effective full power months. This constitutes the fourth and subsequent inspection periods.

3. If crack indications are found in any SG tube, then the next inspection for each **affected and potentially affected** SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever **results in more frequent inspections**~~is less~~). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

e. Provisions for monitoring operational primary to secondary LEAKAGE.

5.5.5 Secondary Water Chemistry Program

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation and low pressure turbine disc stress corrosion cracking. The program shall include:

a. Identification of a sampling schedule for the critical variables and control points for these variables;

5.5 Programs and Manuals

5.5.5 Secondary Water Chemistry Program (continued)

b. Identification of the procedures used to measure the values of the critical variables;

c. Identification of process sampling points, which shall include monitoring the discharge of the condensate pumps for evidence of condenser in leakage;

d. Procedures for the recording and management of data;

e. Procedures defining corrective actions for all off control point chemistry conditions; and

f. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events, which is required to initiate corrective action.

5.5.6 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:

1. A change in the TS incorporated in the license; or

2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

d. Proposed changes that meet the criteria of (b) above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5 Programs and Manuals

5.5.7 Safety Function Determination Program (SFDP)

a. This program ensures loss of safety function is detected and appropriate action taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate actions may be taken as a result of the support~~ed~~ system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirement of LCO 3.0.6. The SFDP shall contain the following:

1~~a~~. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

2~~b~~. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

3~~c~~. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system~~s~~ inoperabilities; and

4~~d~~. Other appropriate limitations and remedial or compensatory actions.

b. A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

1~~a~~. A required system redundant to the system(s) supported by the inoperable support system is also inoperable; or

2~~b~~. A required system redundant to the system(s) in turn supported by the inoperable supported system is also inoperable; or

3~~c~~. A required system redundant to the support system(s) for the supported systems **b.1**~~(a)~~ and **b.2**~~(b)~~ above is also inoperable.

c. The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

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5.5.8 Containment Leakage Rate Testing Program

a. A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995," as modified by approved exceptions.

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is 58.3 psig. The containment design pressure is 59 psig.

c. The maximum allowable primarycontainment leakage rate, L_a, at P_a, shall be 0.10% of primary containment air weight per day.

d. Leakage Rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are <≤ 0.60 L_a for the Type B and Type C tests and ≤ 0.75 L_a for Type A tests;

2. Air lock testing acceptance criteria are:

i.a) Overall air lock leakage rate is ≤ 0.05 L_a when tested at ≥ P_a,

ii.b) For each door, leakage rate is ≤ 0.01 L_a when pressurized to ≥ 10 psig.

e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5.9 System Level OPERABILITY Testing Program

The System Level OPERABILITY Testing Program provides requirements for performance tests of passive systems. The System Level Inservice Tests specified in **FSAR** Section 3.9.6 and **FSAR** Table 3.9-17 apply when specified by individual Surveillance Requirements.

5.5 Programs and Manuals

5.5.9 System Level OPERABILITY Testing Program (continued)

a. The provisions of SR 3.0.2 are applicable to the test frequencies specified in **FSAR** Table 3.9-17 for performing system level OPERABILITY testing activities; and

b. The provisions of SR 3.0.3 are applicable to system level OPERABILITY testing activities.

5.5.10 Component Cyclic or Transient Limit

This program provides controls to track the **FSAR** Table 3.9-1~~A~~ cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.11 Battery Monitoring and Maintenance Program

This Program provides **controls** for battery restoration and maintenance~~., based on the recommendations of~~ **The program shall be in accordance with** IEEE Standard **(Std)** 450**-2002,** ~~1995~~ "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," **as endorsed by Regulatory Guide 1.129, Revision 2 (RG), with RG exceptions and program provisions as identified below:**

a. The program allows the following RG 1.129, Revision 2 exceptions:

1. Battery temperature correction may be performed before or after conducting discharge tests.

2. RG 1.129, Regulatory Position 1, Subsection 2, "References," is not applicable to this program.

3. In lieu of RG 1.129, Regulatory Position 2, Subsection 5.2, "Inspections," the following shall be used: "Where reference is made to the pilot cell, pilot cell selection shall be based on the lowest voltage cell in the battery."

4. In Regulatory Guide 1.129, Regulatory Position 3, Subsection 5.4.1, "State of Charge Indicator," the following statements in paragraph (d) may be omitted: "When it has been recorded that the charging current has stabilized at the charging voltage for three consecutive hourly measurements, the battery is near full charge. These measurements shall be made after the initially high

5.5 Programs and Manuals

5.5.11 Battery Monitoring and Maintenance Program (continued)

charging current decreases sharply and the battery voltage rises to approach the charger output voltage."

5. In lieu of RG 1.129, Regulatory Position 7, Subsection 7.6, "Restoration," the following may be used: "Following the test, record the float voltage of each cell of the string."

b. The program shall include the following provisions: ~~or of the battery manufacturer including the following:~~

1~~a~~. Actions to restore battery cells with float voltage < 2.13 V**;** ~~and~~

2. Actions to determine whether the float voltage of the remaining battery cells is ≥ 2.13 V when the float voltage of a battery cell has been found to be < 2.13 V;

3~~b~~. Actions to equalize and test battery cells that had been discovered with electrolyte level below the ~~minimum established design limit.~~ **top of the plates;**

4. Limits on average electrolyte temperature, battery connection resistance, and battery terminal voltage; and

5. A requirement to obtain specific gravity readings of all cells at each discharge test, consistent with manufacturer recommendations.

5.5.12 Main Control Room Envelope Habitability Program

A Main Control Room Envelope (MCRE) Habitability Program shall be established and implemented to ensure that MCRE habitability is maintained such that, with an OPERABLE Main Control Room Emergency Habitability System (VES), MCRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the MCRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of 5 rem total effective dose equivalent (TEDE) for the duration of the accident. The program shall include the following elements:

5.5 Programs and Manuals

5.5.12 Main Control Room Envelope Habitability Program (continued)

a. The definition of the MCRE and the MCRE boundary.

b. Requirements for maintaining the MCRE boundary in its design condition, including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the MCRE boundary into the MCRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing MCRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

d. Measurement, at designated locations, of the MCRE pressure relative to all external areas adjacent to the MCRE boundary during the pressurization mode of operation of one VES air delivery flow path, operating at the required flow rate of 65 ± 5 scfm, at a Frequency of 24 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 24 month assessment of the MCRE boundary.

e. The quantitative limits on unfiltered air inleakage into the MCRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of MCRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing MCRE habitability, determining MCRE unfiltered inleakage, and measuring MCRE pressure and assessing the MCRE boundary as required by paragraphs c and d, respectively.

5.5.13 Ventilation Filter Testing Program (VFTP)

a. A program shall be established to implement the following required testing of the **Main Control Room Emergency Habitability System (VES).**

5.5 Programs and Manuals

5.5.13 Ventilation Filter Testing Program (VFTP) (continued)

Tests described in Specification 5.5.13.a.**1** and 5.5.13.**a.2**~~b~~ shall be performed: i) initially, ii) once each 24 months, iii) after partial or complete replacement of a **high efficiency particulate air (HEPA)**~~HEPA~~ filter or charcoal adsorber, iv) **following**~~after any~~ detection of, or evidence of, penetration or intrusion of water or other material into any portion of the VES that may have an adverse effect on the functional capability of the filters, and v) following painting, fire, or chemical release in any ventilation zone communicating with the VES that may have an adverse effect on the functional capability of the system.

Tests described in Specification 5.5.13.**a.3**~~c~~ shall be performed: i) after each 720 hours of system operation or at least once each 24 months, whichever comes first, ii) following painting, fire, or chemical release in any ventilation zone communicating with the VES that may have an adverse effect on the functional capability of the carbon media, and iii) following detection of, or evidence of, penetration or intrusion of water or other material into any portion of the VES that may have an adverse effect on the functional capability of the carbon media.

Tests described in 5.5.13.**a.4**~~d~~ shall be performed once per 24 months.

1~~a~~. Demonstrate for the VES that an inplace test of the ~~high efficiency particulate air (~~HEPA~~)~~ filter shows a penetration and system bypass ≤ 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 3, and ASME N510-1989 at a flow rate at least 600 cfm greater than the **VES makeup flow rate.**~~flow measured by VES-FT-003A/B. The flow rate being measured is a combination of the VES breathable air supply flow and the recirculation flow drawn through the eductor.~~

~~ESF~~ Ventilation System	Flow Rate
VES	≥ 600 + VES **makeup flow rate** ~~supply flow~~(cfm)

2~~b~~. Demonstrate for the VES that an inplace test of the charcoal adsorber shows a penetration and system bypass ≤ 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 3, and ASME N510-1989 at a flow rate at least 600 cfm greater than the **VES makeup flow rate.**~~flow measured by VES-FT-003A/B. The flow rate being measured~~

5.5 Programs and Manuals

5.5.13 Ventilation Filter Testing Program (VFTP) (continued)

~~is a combination of the VES breathable air supply flow and the recirculation flow drawn through the eductor.~~

~~ESF~~ Ventilation System	Flow Rate
VES	≥ 600 + VES **makeup flow rate** ~~supply flow~~(cfm)

3~~c~~. Demonstrate for the VES that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 3, shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and the relative humidity **(RH)** specified below.

~~ESF~~ Ventilation System	Penetration	RH
VES	5%	95%

4~~d~~. Demonstrate for the VES that the pressure drop across the combined HEPA filter, the charcoal adsorber, and the post filter is less than the value specified below when tested at the system flow rate specified below +/- 10%.

~~ESF~~ Ventilation System	Delta P	Flow Rate
VES	5 in. water gauge	660 cfm

b. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

5.5.14 Setpoint Program (SP)

a. The Setpoint Program (SP) implements the regulatory requirement of 10 CFR 50.36(c)(1)(ii)(A) that technical specifications will include items in the category of limiting safety system settings (LSSS), which are settings for automatic protective devices related to those variables having significant safety functions.

5.5 Programs and Manuals

5.5.14 Setpoint Program (SP) (continued)

b. The Nominal Trip Setpoint (NTS), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) for each Technical Specification required automatic protection instrumentation function shall be calculated in conformance with WCAP-16361-P, "Westinghouse Setpoint Methodology for Protection Systems - AP1000," February 2011.

c. For each Technical Specification required automatic protection instrumentation function, performance of a CHANNEL CALIBRATION **or** CHANNEL OPERATIONAL TEST (COT)~~, or REACTOR TRIP CHANNEL OPERATIONAL TEST (RTCOT)~~ surveillance "in accordance with the Setpoint Program" shall include the following:

1. The as-found value of the instrument channel trip setting shall be compared with the previously recorded as-left value.

   i. If the as-found value of the instrument channel trip setting differs from the previously recorded as-left value by more than the pre-defined test acceptance criteria band (i.e., the specified AFT), then the instrument channel shall be evaluated to verify that it is functioning in accordance with its design basis before declaring the surveillance requirement met and returning the instrument channel to service. An Instrument Channel is determined to be functioning in accordance with its design basis if it can be set to within the ALT. This as-found condition shall be entered into the plant's corrective action program.

   ii. If the as-found value of the instrument channel trip setting is less conservative than the specified AFT, the surveillance requirement is not met and the instrument channel shall be immediately declared inoperable.

2. The instrument channel trip setting shall be set to a value within the specified ALT around the specified NTS at the completion of the surveillance; otherwise, the surveillance requirement is not met and the instrument channel shall be immediately declared inoperable.

d. The difference between the instrument channel trip setting as-found value and the previously recorded as-left value for each Technical Specification required automatic protection instrumentation function shall be trended and evaluated to verify that the instrument channel is functioning in accordance with its design basis.

5.5 Programs and Manuals

5.5.14 Setpoint Program (SP) (continued)

e. The SP shall establish a document containing the current value of the specified NTS, AFT, and ALT for each Technical Specification required automatic protection instrumentation function and references to the calculation documentation. Changes to this document shall be governed by the regulatory requirement of 10 CFR 50.59. In addition, changes to the specified NTS, AFT, and ALT values shall be governed by the approved setpoint methodology. This document, including any revisions or supplements, shall be provided upon issuance to the NRC.

XII. Applicable STS Subsection After Incorporation of this GTST's Modifications

The entire subsection of the Specifications and the Bases associated with this GTST, following incorporation of the modifications, is presented next.

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

The following programs shall be established, implemented, and maintained.

5.5.1 Offsite Dose Calculation Manual (ODCM)

a. The ODCM shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm and trip setpoints, and in the conduct of the radiological environmental monitoring program; and

b. The ODCM shall also contain the radioactive effluent controls and radiological environmental monitoring activities, and descriptions of the information that should be included in the Annual Radiological Environmental Operating, and Radioactive Effluent Release Reports required by Specification 5.6.1 and Specification 5.6.2.

c. Licensee initiated changes to the ODCM:

1. Shall be documented and records of reviews performed shall be retained. This documentation shall contain:

i. Sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s), and

ii. A determination that the change(s) maintain the levels of radioactive effluent control required by 10 CFR 20. 1302, 40 CFR 190, 10 CFR 50.36a, and 10 CFR 50, Appendix I, and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations;

2. Shall become effective after the approval of the plant manager; and

3. Shall be submitted to the NRC in the form of a complete, legible copy of the changed portion of the ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

5.5 Programs and Manuals

5.5.2 Radioactive Effluent Control Program

a. This program conforms to 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably achievable. The program shall be contained in the ODCM, shall be implemented by procedures, and shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

1. Limitations on the functional capability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoints determination in accordance with the methodology in the ODCM;

2. Limitations on the concentrations of radioactive material released in liquid effluents to unrestricted areas, conforming to ten times the concentration values in Appendix B, Table 2, Column 2 to 10 CFR 20;

3. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 and with the methodology and parameters in the ODCM;

4. Limitations on the annual and quarterly doses or dose commitment to a member of the public for radioactive materials in liquid effluents released from each unit to unrestricted areas, conforming to 10 CFR 50, Appendix I;

5. Determination of cumulative dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days. Determination of projected dose contributions from radioactive effluents in accordance with the methodology in the ODCM at least every 31 days;

6. Limitations on the functional capability and use of the liquid and gaseous effluent treatment systems to ensure that appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a period of 31 days would exceed 2% of the guidelines for the annual dose or dose commitment, conforming to 10 CFR 50, Appendix I;

5.5 Programs and Manuals

5.5.2 Radioactive Effluent Control Program (continued)

7. Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the site boundary shall be in accordance with the following:

   i. For noble gases: a dose rate ≤ 500 mrem/yr to the whole body and a dose rate ≤ 3000 mrem/yr to the skin and

   ii. For iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days: a dose rate ≤ 1500 mrem/yr to any organ;

8. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

9. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

10. Limitations on the annual dose or dose commitment to any member of the public, beyond the site boundary, due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

b. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5 Programs and Manuals

5.5.3 Inservice Testing Program

This program provides control for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:

a. Testing frequencies applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code) and applicable Addenda as follows:

ASME OM Code and applicable Addenda Terminology for inservice testing activities	Required Frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities;

c. The provisions of SR 3.0.3 are applicable to inservice testing activities;

d. Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.

5.5.4 Steam Generator (SG) Program

A Steam Generator Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the Steam Generator Program shall include the following:

a. Provisions for condition monitoring assessments. Condition monitoring assessment means an evaluation of the “as found” condition of the tubing with respect to the performance criteria for structural integrity and accident induced leakage. The “as found” condition refers to the condition of the tubing during an SG inspection outage, as determined from the inservice inspection results or by other means, prior to the plugging of tubes.

5.5 Programs and Manuals

5.5.4 Steam Generator (SG) Program (continued)

Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected or plugged, to confirm that the performance criteria are being met.

b. Performance criteria for SG tube integrity. SG tube integrity shall be maintained by meeting the performance criteria for tube structural integrity, accident induced leakage, and operational LEAKAGE.

1. Structural integrity performance criterion: All in-service steam generator tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down), all anticipated transients included in the design specification, and design basis accidents. This includes retaining a safety factor of 3.0 against burst under normal steady state full power operation primary-to-secondary pressure differential and a safety factor of 1.4 against burst applied to the design basis accident primary-to-secondary pressure differentials. Apart from the above requirements, additional loading conditions associated with the design basis accidents, or combination of accidents in accordance with the design and licensing basis, shall also be evaluated to determine if the associated loads contribute significantly to burst or collapse. In the assessment of tube integrity, those loads that do significantly affect burst or collapse shall be determined and assessed in combination with the loads due to pressure with a safety factor of 1.2 on the combined primary loads and 1.0 on axial secondary loads.

2. Accident induced leakage performance criterion: The primary to secondary accident induced leakage rate for any design basis accident, other than a SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to exceed 150 gpd per SG.

3. The operational LEAKAGE performance criterion is specified in LCO 3.4.7, “RCS Operational LEAKAGE.”

c. Provisions for SG tube repair criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding 40% of the nominal tube wall thickness shall be plugged.

5.5 Programs and Manuals

5.5.4 Steam Generator (SG) Program (continued)

d. Provisions for SG tube inspections. Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet, and that may satisfy the applicable tube repair criteria. The tube-to-tubesheet weld is not part of the tube. In addition to meeting the requirements of d.1, d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. A degradation assessment shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.

1. Inspect 100% of the tubes in each SG during the first refueling outage following SG installation.

2. After the first refueling outage following SG installation, inspect each SG at least every 72 effective full power months or at least every third refueling outage (whichever results in more frequent inspections). In addition, the minimum number of tubes inspected at each scheduled inspection shall be the number of tubes in all SGs divided by the number of SG inspection outages scheduled in each inspection period as defined in a, b, c and d below. If a degradation assessment indicates the potential for a type of degradation to occur at a location not previously inspected with a technique capable of detecting this type of degradation at this location and that may satisfy the applicable tube repair criteria, the minimum number of locations inspected with such a capable inspection technique during the remainder of the inspection period may be prorated. The fraction of locations to be inspected for this potential type of degradation at this location at the end of the inspection period shall be no less than the ratio of the number of times the SG is scheduled to be inspected in the inspection period after the determination that a new form of degradation could potentially be occurring at this location divided by the total number of times the SG is scheduled to be inspected in the inspection period. Each inspection period defined below may be extended up to 3 effective full power months to include a SG inspection outage in an inspection period and the subsequent inspection period begins at the conclusion of the included SG inspection outage.

5.5 Programs and Manuals

5.5.4 Steam Generator (SG) Program (continued)

a) After the first refueling outage following SG installation, inspect 100% of the tubes during the next 144 effective full power months. This constitutes the first inspection period;

b) During the next 120 effective full power months, inspect 100% of the tubes. This constitutes the second inspection period;

c) During the next 96 effective full power months, inspect 100% of the tubes. This constitutes the third inspection period; and

d) During the remaining life of the SGs, inspect 100% of the tubes every 72 effective full power months. This constitutes the fourth and subsequent inspection periods.

3. If crack indications are found in any SG tube, then the next inspection for each affected and potentially affected SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever results in more frequent inspections). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.

e. Provisions for monitoring operational primary to secondary LEAKAGE.

5.5.5 Secondary Water Chemistry Program

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation and low pressure turbine disc stress corrosion cracking. The program shall include:

a. Identification of a sampling schedule for the critical variables and control points for these variables;

b. Identification of the procedures used to measure the values of the critical variables;

c. Identification of process sampling points, which shall include monitoring the discharge of the condensate pumps for evidence of condenser in leakage;

5.5 Programs and Manuals

5.5.5 Secondary Water Chemistry Program (continued)

d. Procedures for the recording and management of data;

e. Procedures defining corrective actions for all off control point chemistry conditions; and

f. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events, which is required to initiate corrective action.

5.5.6 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:

1. A change in the TS incorporated in the license; or

2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

d. Proposed changes that meet the criteria of (b) above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5 Programs and Manuals

5.5.7 Safety Function Determination Program (SFDP)

a. This program ensures loss of safety function is detected and appropriate action taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate actions may be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirement of LCO 3.0.6. The SFDP shall contain the following:

   1. Provisions for cross train checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

   2. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

   3. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and

   4. Other appropriate limitations and remedial or compensatory actions.

b. A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

   1. A required system redundant to the system(s) supported by the inoperable support system is also inoperable; or

   2. A required system redundant to the system(s) in turn supported by the inoperable supported system is also inoperable; or

   3. A required system redundant to the support system(s) for the supported systems b.1 and b.2 above is also inoperable.

c. The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered. When a loss of safety function is caused by the inoperability of a single Technical Specification support system, the appropriate Conditions and Required Actions to enter are those of the support system.

5.5 Programs and Manuals

5.5.8 Containment Leakage Rate Testing Program

a. A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995, as modified by approved exceptions.

b. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a, is 58.3 psig. The containment design pressure is 59 psig.

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be 0.10% of containment air weight per day.

d. Leakage Rate acceptance criteria are:

   1. Containment leakage rate acceptance criterion is 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $<0.60\ L_a$ for the Type B and Type C tests and $\leq 0.75\ L_a$ for Type A tests;

   2. Air lock testing acceptance criteria are:

      i. Overall air lock leakage rate is $\leq 0.05\ L_a$ when tested at $\geq P_a$,

      ii For each door, leakage rate is $\leq 0.01\ L_a$ when pressurized to $\geq$ 10 psig.

e. The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

f. Nothing in these Technical Specifications shall be construed to modify the testing Frequencies required by 10 CFR 50, Appendix J.

5.5.9 System Level OPERABILITY Testing Program

The System Level OPERABILITY Testing Program provides requirements for performance tests of passive systems. The System Level Inservice Tests specified in FSAR Section 3.9.6 and FSAR Table 3.9-17 apply when specified by individual Surveillance Requirements.

5.5 Programs and Manuals

5.5.9 System Level OPERABILITY Testing Program (continued)

a. The provisions of SR 3.0.2 are applicable to the test frequencies specified in FSAR Table 3.9-17 for performing system level OPERABILITY testing activities; and

b. The provisions of SR 3.0.3 are applicable to system level OPERABILITY testing activities.

5.5.10 Component Cyclic or Transient Limit

This program provides controls to track the FSAR Table 3.9-1 cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.11 Battery Monitoring and Maintenance Program

This Program provides controls for battery restoration and maintenance. The program shall be in accordance with IEEE Standard (Std) 450-2002, “IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications,” as endorsed by Regulatory Guide 1.129, Revision 2 (RG), with RG exceptions and program provisions as identified below:

a. The program allows the following RG 1.129, Revision 2 exceptions:

1. Battery temperature correction may be performed before or after conducting discharge tests.

2. RG 1.129, Regulatory Position 1, Subsection 2, “References,” is not applicable to this program.

3. In lieu of RG 1.129, Regulatory Position 2, Subsection 5.2, “Inspections,” the following shall be used: “Where reference is made to the pilot cell, pilot cell selection shall be based on the lowest voltage cell in the battery.”

4. In Regulatory Guide 1.129, Regulatory Position 3, Subsection 5.4.1, “State of Charge Indicator,” the following statements in paragraph (d) may be omitted: “When it has been recorded that the charging current has stabilized at the charging voltage for three consecutive hourly measurements, the battery is near full charge. These measurements shall be made after the initially high charging current decreases sharply and the battery voltage rises to approach the charger output voltage.”

5.5 Programs and Manuals

5.5.11 Battery Monitoring and Maintenance Program (continued)

5. In lieu of RG 1.129, Regulatory Position 7, Subsection 7.6, "Restoration," the following may be used: "Following the test, record the float voltage of each cell of the string."

b. The program shall include the following provisions:

1. Actions to restore battery cells with float voltage < 2.13 V;

2. Actions to determine whether the float voltage of the remaining battery cells is ≥ 2.13 V when the float voltage of a battery cell has been found to be < 2.13 V;

3. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates;

4. Limits on average electrolyte temperature, battery connection resistance, and battery terminal voltage; and

5. A requirement to obtain specific gravity readings of all cells at each discharge test, consistent with manufacturer recommendations.

5.5.12 Main Control Room Envelope Habitability Program

A Main Control Room Envelope (MCRE) Habitability Program shall be established and implemented to ensure that MCRE habitability is maintained such that, with an OPERABLE Main Control Room Emergency Habitability System (VES), MCRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the MCRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of 5 rem total effective dose equivalent (TEDE) for the duration of the accident. The program shall include the following elements:

a. The definition of the MCRE and the MCRE boundary.

b. Requirements for maintaining the MCRE boundary in its design condition, including configuration control and preventive maintenance.

5.5 Programs and Manuals

5.5.12 Main Control Room Envelope Habitability Program (continued)

c. Requirements for (i) determining the unfiltered air inleakage past the MCRE boundary into the MCRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing MCRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0.

d. Measurement, at designated locations, of the MCRE pressure relative to all external areas adjacent to the MCRE boundary during the pressurization mode of operation of one VES air delivery flow path, operating at the required flow rate of 65 ± 5 scfm, at a Frequency of 24 months on a STAGGERED TEST BASIS. The results shall be trended and used as part of the 24 month assessment of the MCRE boundary.

e. The quantitative limits on unfiltered air inleakage into the MCRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of MCRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing MCRE habitability, determining MCRE unfiltered inleakage, and measuring MCRE pressure and assessing the MCRE boundary as required by paragraphs c and d, respectively.

5.5.13 Ventilation Filter Testing Program (VFTP)

a. A program shall be established to implement the following required testing of the Main Control Room Emergency Habitability System (VES).

Tests described in Specification 5.5.13.a.1 and 5.5.13.a.2 shall be performed: i) initially, ii) once each 24 months, iii) after partial or complete replacement of a high efficiency particulate air (HEPA) filter or charcoal adsorber, iv) following detection of, or evidence of, penetration or intrusion of water or other material into any portion of the VES that may have an adverse effect on the functional capability of the filters, and v) following painting, fire, or chemical release in any ventilation zone communicating

5.5 Programs and Manuals

5.5.13 Ventilation Filter Testing Program (VFTP) (continued)

with the VES that may have an adverse effect on the functional capability of the system.

Tests described in Specification 5.5.13.a.3 shall be performed: i) after each 720 hours of system operation or at least once each 24 months, whichever comes first, ii) following painting, fire, or chemical release in any ventilation zone communicating with the VES that may have an adverse effect on the functional capability of the carbon media, and iii) following detection of, or evidence of, penetration or intrusion of water or other material into any portion of the VES that may have an adverse effect on the functional capability of the carbon media.

Tests described in 5.5.13.a.4 shall be performed once per 24 months.

1. Demonstrate for the VES that an inplace test of the HEPA filter shows a penetration and system bypass ≤ 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 3, and ASME N510-1989 at a flow rate at least 600 cfm greater than the VES makeup flow rate.

Ventilation System	Flow Rate
VES	≥ 600 + VES makeup flow rate (cfm)

2. Demonstrate for the VES that an inplace test of the charcoal adsorber shows a penetration and system bypass ≤ 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 3, and ASME N510-1989 at a flow rate at least 600 cfm greater than the VES makeup flow rate.

Ventilation System	Flow Rate
VES	≥ 600 + VES makeup flow rate (cfm)

3. Demonstrate for the VES that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 3, shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and the relative humidity (RH) specified below.

5.5.13 Ventilation Filter Testing Program (VFTP) (continued)

Ventilation System	Penetration	RH
VES	5%	95%

4. Demonstrate for the VES that the pressure drop across the combined HEPA filter, the charcoal adsorber, and the post filter is less than the value specified below when tested at the system flow rate specified below +/- 10%.

Ventilation System	Delta P	Flow Rate
VES	5 in. water gauge	660 cfm

b. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

5.5.14 Setpoint Program (SP)

a. The Setpoint Program (SP) implements the regulatory requirement of 10 CFR 50.36(c)(1)(ii)(A) that technical specifications will include items in the category of limiting safety system settings (LSSS), which are settings for automatic protective devices related to those variables having significant safety functions.

b. The Nominal Trip Setpoint (NTS), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) for each Technical Specification required automatic protection instrumentation function shall be calculated in conformance with WCAP-16361-P, “Westinghouse Setpoint Methodology for Protection Systems - AP1000,” February 2011.

c. For each Technical Specification required automatic protection instrumentation function, performance of a CHANNEL CALIBRATION or CHANNEL OPERATIONAL TEST (COT) surveillance “in accordance with the Setpoint Program” shall include the following:

1. The as-found value of the instrument channel trip setting shall be compared with the previously recorded as-left value.

i. If the as-found value of the instrument channel trip setting differs from the previously recorded as-left value by more than the pre-defined test acceptance criteria band (i.e., the specified AFT), then

5.5 Programs and Manuals

5.5.14 Setpoint Program (SP) (continued)

the instrument channel shall be evaluated to verify that it is functioning in accordance with its design basis before declaring the surveillance requirement met and returning the instrument channel to service. An Instrument Channel is determined to be functioning in accordance with its design basis if it can be set to within the ALT. This as-found condition shall be entered into the plant's corrective action program.

ii. If the as-found value of the instrument channel trip setting is less conservative than the specified AFT, the surveillance requirement is not met and the instrument channel shall be immediately declared inoperable.

2. The instrument channel trip setting shall be set to a value within the specified ALT around the specified NTS at the completion of the surveillance; otherwise, the surveillance requirement is not met and the instrument channel shall be immediately declared inoperable.

d. The difference between the instrument channel trip setting as-found value and the previously recorded as-left value for each Technical Specification required automatic protection instrumentation function shall be trended and evaluated to verify that the instrument channel is functioning in accordance with its design basis.

e. The SP shall establish a document containing the current value of the specified NTS, AFT, and ALT for each Technical Specification required automatic protection instrumentation function and references to the calculation documentation. Changes to this document shall be governed by the regulatory requirement of 10 CFR 50.59. In addition, changes to the specified NTS, AFT, and ALT values shall be governed by the approved setpoint methodology. This document, including any revisions or supplements, shall be provided upon issuance to the NRC.