AP1000 Standard Technical Specifications Development
Discussion of Comments by AP1000 Utilities (APOG) on
Revision 0 of Generic Technical Specification Travelers (GTSTs)
Prepared by the Plant Systems Branch (SPSB) of the Office of New Reactors
Three White Flint North, Room 6A28
February 25, 2015

— AGENDA —

0830-0845 **I. Introductions and discussion about Agenda** (SPSB and APOG)
15 min

Name	Affiliation	Email
Wes Sparkman	Southern Nuclear Operating Company	wasparkm@southernco.com
Dan Williamson	Southern Nuclear Operating Company	x2dwwill@southernco.com
Kelli Roberts	Southern Nuclear Operating Company	kroberts@southernco.com
John Bowles	Southern Nuclear Operating Company	jebowles@southernco.com
Wayne Dunning	Southern Nuclear Operating Company	lwdunnin@southernco.com
Michael French	South Carolina Electric & Gas	michael.french@scana.com
Arnie Cribb	South Carolina Electric & Gas	arnie.cribbjr@scana.com
Tom Childress	Florida Power and Light	elwood.childress@fpl.com
Brian Mann	Excel Services, Inc.	brian.mann@excelservices.com
Zach Harper	Westinghouse Electric Company, LLC	harperzs@westinghouse.com
Craig Harbuck	NRC/NRO/DSRA/SPSB	craig.harbuck@nrc.gov
Bob Tjader	NRC/NRO/DSRA/SPSB	theodore.tjader@nrc.gov
Hien Le	NRC/NRO/DSRA/SPSB	hien.le@nrc.gov
Rick Scully	NRC/NRO/DSRA/SPSB	derek.scully@nrc.gov
Antonio Dias	NRC/NRO/DSRA/SPSB	antonio.dias@nrc.gov

Background Documents

1. Federal Register Notice – Request for Public Comment on AP1000 GTSTs — ML14139A085 (79 FR 35577), Docket No.: ID NRC-2014-0147, Document No.: 2014-14608, https://federalregister.gov/a/2014-14608
2. AP1000 Utilities' Comments on AP1000 Generic TS Travelers — ML14265A493
3. AP1000_GTSTs_Rev_0_APOG_comments_resolutions_Rev_0.pdf
4. Topics for Discussion with AP1000 Utilities Feb 25 2015.pdf
5. AP1000 DCD Rev 19, Chapter 16, Generic TS — ML11171A500
6. Vogtle Electric Generating Plant (VEGP) Units 3 and 4, TS Upgrade License Amendment Request 12-02 — ML12065A057
7. Amendment No. 13 to COLs for VEGP Units 3 and 4 — ML13238A337
8. TSTFs listed in ap1000sts_gtst_by_tstf_disposition_v0.pdf and AP1000 GTSTs : — ML14129A393
9. TSTF-GG-05-01, "Writer's Guide for Plant-Specific Improved Technical Specifications," June 2005

0830-0845 **I. Introductions and discussion about Agenda** (continued)

Meeting Outcome Categories – by agenda item, discussion topic, or comment

A APOG agrees with staff proposed change

B APOG does not agree with staff proposed change
   1. Staff will implement proposed change in STS Rev 0
   2. Staff will not implement proposed change in STS

C Agenda item or topic issue resolved
   1. Staff action
   2. APOG action

D Agenda item or topic issue open – but resolution needed for STS Rev 0
   1. Staff action
   2. APOG action

E Agenda item or topic issue open – but deferred for subsequent STS revisions
   1. Staff action
   2. APOG action

Note: Unless APOG disagrees with a staff proposed change, the change will be incorporated in the AP1000 STS Rev 0

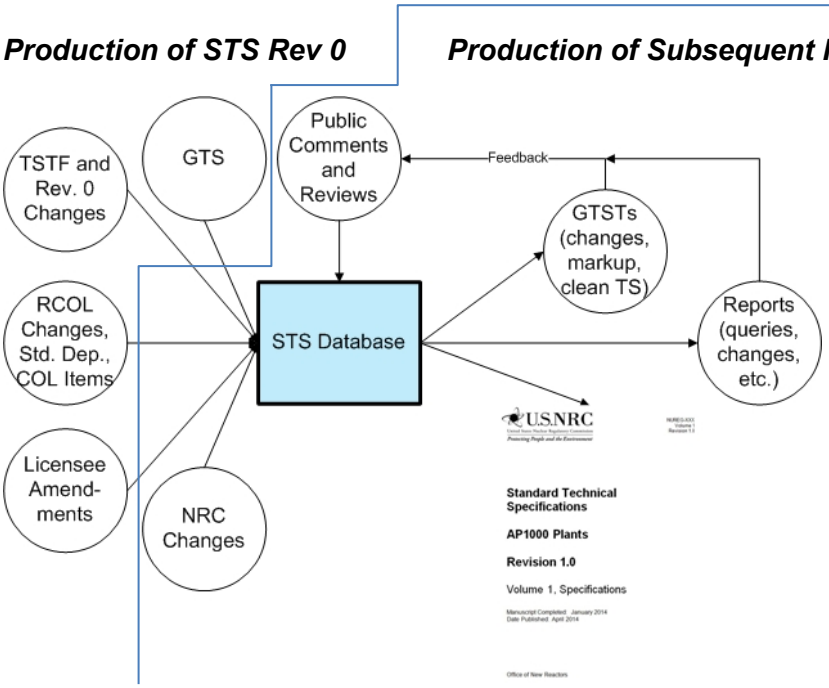
Role and Purpose of AP1000 STS NUREG

STS NUREGs promote improvement and standardization of TS requirements consistent with Commission Final Policy Statement on TS Improvements, and provide

- Reference documents for NRC and industry to propose generic changes to improve STS for one or more reactor designs
- Basis for license amendment requests to improve plant-specific TS (with or without using CLIIP)
- Basis for changes to improve plant-specific TS Bases

0845-0900 **II. Process for new reactor STS NUREG development** (SPSB)

15 min



GTST contents

- Integration of information supporting preparation of STS
  - Changes from source documents
  - Changes proposed by staff
  - Changes to address industry and public comments
- Categories, rationale, and applicability of the changes
- List of the considered changes being implemented
- Technical safety analysis of the proposed changes
- Review history of previous version(s) of the GTST
- Markup of GTS section or subsection showing proposed changes
- STS section or subsection with proposed changes incorporated

III. General Issues (SPSB and APOG)

A. Role of an AP1000 STS NUREG going forward

0900-0910 1. TSTF disposition relative to STS Rev. 0 (Topics 1 and 2)

10 min

Comment **1** — TSTF-522 Does APOG agree with proposed disposition of "not applicable to GTS" because of relocation of GTS LCO 3.9.6 from VEGP 3&4 PTS? [instead of "TSTF already Included in GTS Rev. 19 with variation"]

Comment **2** — TSTF-523 Does APOG agree with proposed disposition of "not applicable to GTS" because concerns of traveler already addressed by GTS Rev 19. [instead of "TSTF deferred for future consideration"]

---------- NOTE ----------
Future improvement to Subsection 3.5.3: add a new Condition similar to Condition D of Subsection 3.5.4.

Comment **5** — TSTF-51 Does APOG agree with proposed Action – That STS 3.9.5 Decay Time obviates the purpose of using "recently" as a modifier to "irradiated fuel movement"?

Comment **11** — TSTF-359 Staff agrees to withdraw changes associated with traveler.

APOG requested to verify disposition (addition or removal) of Notes regarding exceptions to LCO 3.0.4 when traveler adopted in a future revision of STS; meanwhile,

Meaning of the phrase "**TSTF deferred for future consideration**"

- Does it mean creating a new AP1000-specific topical report (to justify AP1000-specific changes) in place of the topical report referenced in the traveler?
- Does it mean an AP1000-specific TSTF needs to be submitted?

Comment **12** — TSTF-372 Staff thinks the analysis supporting this traveler is general enough to be applicable to AP1000, and LCO 3.0.8 should be included.

Comment **13** — TSTF-425 Staff prefers disposition of "TSTF deferred for future consideration" and would require including **bracketed** Frequencies to provide a choice between the GTS Frequency (or the existing RCOL PTS Frequency, if different) and the SFCP, consistent with NUREG-1431, Rev 4.

Does APOG agree with proposed disposition?

Comment **14** — TSTF-427 Staff thinks the analysis supporting this traveler is general enough to be applicable to AP1000, and LCO 3.0.9 should be included.

Comment **24** — TSTF-490 Staff agrees to remove from STS Subsection 1.1 changes to Dose Equivalent XE-133 definition.

What should be disposition of TSTF-490; not applicable or deferred?

III. General Issues (continued)

A. Role of an AP1000 STS NUREG going forward (continued)

0900-0910 1. TSTF disposition relative to STS Rev. 0 (Topics 1 and 2) (continued)

Comment **16** — TSTF-500 *See Agenda Items IV.F.1 and IV.G.1*

Comment **478** — TSTF-500 *See Agenda Items IV.F.1 and IV.G.1*

Comment **515** — TSTF-449 Staff agrees to remove from STS Subsection 5.5.4 eight changes related to “optional (i.e., bracketed) material applicable to SG repair criteria that does not currently exist for AP1000 plants.”

What should be the disposition of TSTF-449; not applicable, or deferred?

Comment **516** — TSTF-510 Staff agrees to remove from STS Subsection 5.5.4 the "or repair" options based on TSTF-510, Items "(4)" and "(5)"

---------- NOTE ----------
Omission of bracketed optional provisions introduced by TSTF-510 from STS Subsection 5.5.4 may need agreement by NRR branch responsible for SG tube inspection requirements.

Comment **517** — TSTF-510 Staff agrees to remove from STS Subsection 5.5.4 the reviewer’s note associated with changes based on TSTF-510, change "(6)”

Why is change, based on TSTF-510, to GTS 5.5.4.d.2 an “acceptable” change,” but the changes identified by comment **516** are not?

III. General Issues (continued)

A. Role of an AP1000 STS NUREG going forward (continued)

0910-0915 2. Risk initiative TSTFs (Topic 3)

5 min

Topic No.	Comment No(s).	Topic Summary	Topic Types
3	11, 12, 13, 14,	Disagreement about inclusion of risk-initiative TSTFs in STS Rev 0 (TSTF-359-A, TSTF-372-A, TSTF-425-A, TSTF-427)	P6

Comment **11** — TSTF-359 APOG requested to verify disposition (addition or removal) of Notes regarding exceptions to LCO 3.0.4 when traveler adopted in a future revision of STS

Comment **12** — TSTF-372 Staff thinks the analysis supporting this traveler is general enough to be applicable to AP1000, and LCO 3.0.8 should be included.

Comment **13** — TSTF-425 Staff prefers disposition of "TSTF deferred for future consideration" and would require including **bracketed** Frequencies to provide a choice between the GTS Frequency (or the existing RCOL PTS Frequency, if different) and the SFCP, consistent with NUREG-1431, Rev 4.

Does APOG agree with proposed disposition?

Comment **14** — TSTF-427 Staff thinks the analysis supporting this traveler is general enough to be applicable to AP1000, and LCO 3.0.9 should be included.

How does APOG plan to incorporate other risk-informed TS initiatives, based on associated TSTFs, in future revisions of the STS? This question may be tabled for future discussion, as it is not needed to support STS Rev 0 creation.

III. General Issues (continued)

A. Role of an AP1000 STS NUREG going forward (continued)

0915-0925 3. Bracketed information and Reviewer's Notes (Topic 28)

10 min

- From APOG-2014-008 Enclosure Page 2, General Observation D:

  > As a generic philosophy, the AP1000 utilities are generating GTST comments not to include "optional" TS provisions. Plant-specific differences are not applicable to the AP1000 community at this time. There are several TSTFs that have bracketed options for plants to consider for adoption. The utilities providing comments on the GTST are maintaining a position that the AP1000 community desires TS/Bases consistency and chooses to avoid preferential differences. These are specifically detailed in the included comments.

  - Staff chose to use RCOL's value or text for GTS bracketed COL information in the AP1000 STS (applies to STS Chapter 5 only)
    - The brackets ought to be retained to indicate site-specific information as currently done in the operating reactor STS NUREGs
      - **unless all AP1000 licensees (present and future) plan to use the RCOL's value or text**
      - otherwise, also include any reviewer's note related to the bracketed information
        - Add brackets to the reviewer's note to indicate it may be omitted from plant-specific TS
  - Whether to include a TSTF's optional bracketed provision depends on the applicability of the provision to the AP1000 design
    - If the provision is included in the AP1000 STS, the STS should retain the brackets **unless all AP1000 licensees (present and future) plan to use the RCOL's value or text**.
      - If the provision includes a reviewer's note AND the brackets are retained
        - Add brackets to the reviewer's note to indicate it may be omitted from plant-specific TS – *regardless of whether the TSTF included brackets around the reviewer's note*

---

1. Does APOG suggest any changes to staff's proposed Action for comment **506?**
2. Does APOG know of other places where a GTST unnecessarily includes the brackets with TSTF-bracketed information?
3. Does APOG know of places where a GTST appropriately includes the brackets with TSTF-bracketed information?

III. General Issues (continued)

A. Role of an AP1000 STS NUREG going forward (continued)

0925-0930 4. Process for making future changes (Topic 2)

5 min

This topic may be tabled for future discussion, as it is not needed to support STS Rev 0 creation.

Choices include

(1) make change by way of Subsection-based GTSTs

(2) participate in PWR & BWR Owners Groups TSTF process

III. General Issues (continued)

0930-0940 B. Editorial improvements (Topic 6)

10 min

- From APOG-2014-008 Enclosure Page 2, General Observation C: Use of hyphen in phrases that refer to a required action completion time or surveillance frequency:
  - Apply proper grammar by using the hyphen in all GTSTs for consistency
  - Include as an editorial improvement in next revision of NUREG-1430 thru 1434

- Comments with SPSB proposed edits that APOG thinks may need revising; SPSB proposes edits in response to the following comments for the stated purpose.
  - 48 LCO 3.0.2 Bases for clarity .....
  - 56 LCO 3.0.6 Bases for clarity .....
  - 119, 129, 136, 144, 178 (see Agenda item IV.B.1), 202

    Bases of Specifications 3.3.1, 3.3.2, 3.3.3, 3.3.8, and 3.9.3 for clarity

    - Consistent use of “Power Range Neutron Flux,” “Intermediate Range Neutron Flux,” and “Source Range Neutron Flux” monitors, detectors, channels, functions .....
    - Appropriate use of “Protection and Safety Monitoring System” and “PMS” ...
    - Consistent use of RTS Function titles .....
    - Consistent use of “Trip Setpoint” and “trip setting” .....
    - Consistent use of “reactor trip”; “reactor trip system (RTS)”; and “reactor trip Function” .....
    - Consistent use of P-6 setpoint, P-10 setpoint (not interlock) – prefer to not use ‘interlock” as synonym for, or in combination with “setpoint” .....
    - Consistent use of “Function” and “function” .....
    - Consistent (and correct) use of [PMS] “division” .....
    - Use of “allowed **as-left** tolerance” in COT and Channel Calibration Bases discussions .....
    - Consistent use of “control room operator” .....
    - Use of “unit” versus “plant” versus “facility” versus “reactor” .....
    - Consistent description of 24-month Surveillance Frequency .....
    - Consistent capitalization of Surveillance, Frequency, Condition, Required Action, and Completion Time [SPSB made no attempt to globally fix any capitalization inconsistencies) .....
    - Use of “integrated protection cabinet” or “IPC”; use of “PMS cabinet” .....

III. General Issues (continued)

0930-0940 B. Editorial improvements (Topic 6) (continued)

- (continued) Comments with SPSB proposed edits that APOG thinks may need revising; SPSB proposes edits in response to the following comments for the stated purpose.
  - 137 Use of "are" instead of "may be" in sentences like: "SR 3.3.1.11 is modified by a Note indicating that neutron detectors **are** excluded from RTS RESPONSE TIME testing." .....
  - 258 Bases for Specification 3.4.9 – RCS "steady state operation" (IV.C.2) .....
  - 260 Bases for Specification 3.4.9 – add "initial" for first performance of a Required Action with a periodic Completion Time (IV.C.2).....
  - 293 Bases for Specification 3.5.1 – description of LCO for clarity .....
  - 297 Bases for Specification 3.5.2 – description of LCO for clarity .....
  - 300 Bases for Specification 3.5.2 – description of Required Action A.1 for clarity ...
  - 334 Specification 3.5.8 – statement of SR 3.5.8.3 use "combined volume increase" for clarity and consistency.....
  - 336 "Background" section of Bases for Specification 3.6.1 writer's guide list ordered list capitalization conventions .....
  - 353 Bases for Specification 3.6.4 Required Actions B.1, B.2, and C.1 for clarity ....
  - 370 Bases for Specification 3.6.6 Required Actions E.1, E.2, F.1, and F.2 – avoid use of "and/or" per WG 3.1.1.h .....
  - 377 Bases for STS Specification 3.6.7 Required Actions B.1.1, B.1.2, and B.2 for clarity .....
  - 432 STS Specification 3.6.7 Applicability statement and Bases for clarity .....
  - 477 "Background" section of Bases for STS Specification 3.8.6 and Bases for Action A – clarifications .....
  - 478 Grammatical change to Bases for STS Specification 3.8.7 Action B resolved with alternate sentence structure (see pages 277-281) for clarity .....
  - 491 Use of scientific notation in Subsection 3.9.3 .....
  - 521 STS Specification 5.5.8.c removal of "primary" as an unnecessary modifier to "containment" not normally used for PWR facilities .....
- *See Agenda Item IV.B.1 on page 15*

III. General Issues (continued)

0940-0945 C. Writer's Guide conformance changes (Topics 5, 8, 9, 10)

5 min

Topic No.	Comment No(s).	Topic Summary	Topic Types
5	29	How to use Word to implement the 2.1.5.c guidance regarding logical connector indentation? "Primary-level logical connectors are flush left. Subsequent levels are indented to align all levels, except the primary-level, with the numerical digit associated with that nesting level."	A2
8	124, 127	Writer's guide convention for use of "plus or minus" instead of "±" is not clear.	A2 A4
9	128	Writers Guide 2.1.3.b.1, on primary level ordered list enumeration not followed in "ASA, LCO, and Applicability" section of the Bases for STS Subsection 3.3.1; use of digits in parenthesis is contrary to WG. However, the WG does not directly discuss ordered list enumeration convention for the "ASA, LCO, and Applicability" section of the Bases for Section 3.3.	A2 A4 P4
10	129	WG convention on use of symbols < > = ≥ ≤ in Bases, in place of text	A4 A5
6	491	Based on Writer's Guide paragraphs 3.3.3.d and 3.3.4.c, in "Background" section of Bases for Subsection 3.9.3, second paragraph, revise third sentence, as indicated: The instrument range covers six decades of neutron flux (**1 cps to 1E6** ~~1x10^+6~~ cps) with a 5% instrument accuracy.	A4 A5

III. General Issues (continued)

0945-0950 D. WOG STS consistency changes (Topics 14, 15, 19, 29)

5 min

Topic No.	Comment No(s).	Topic Summary	Topic Types
14	239, 253	Deleting paragraph from "LCO" section of Bases for Specification 3.4.4 versus moving paragraph to "Applicability" section of Bases for Specification 3.4.4. This paragraph, with GTS markup shown, is: With the ~~RTBs in the open position, the PLS is not capable of rod withdrawal; therefore~~ **PLS not capable of rod withdrawal and all rods fully inserted** only a minimum RCS flow of 3,000 gpm is necessary to ensure removal of decay heat from the core in accordance with LCO 3.4.8, Minimum RCS Flow. Even though this statement does not directly relate to meeting LCO 3.4.4, it is appropriate to point out the RCS flow requirements when LCO 3.4.4 does not apply. To be consistent with Bases for Subsection 3.4.5, "RCS Loops – MODE 3" of NUREG-1431, Rev. 4, the appropriate location of this paragraph is in the "Applicability" section of the Bases for AP1000 STS 3.4.4.	A5
15	242	Adding paragraph to "Background" section of Bases for AP1000 STS Specification 3.4.7, "RCS Operational LEAKAGE ," for consistency with Bases for NUREG-1431 Specification 3.4.14, "RCS Pressure Isolation Valve (PIV) Leakage," - versus - Adding the paragraph to "Applicability" section of Bases for AP1000 STS Specification 3.4.7 because NUREG-1431 Specification 3.4.13, "RCS Operational LEAKAGE," includes this paragraph in the "Applicability" section of Bases, not in the "Background" section.	A5
19	343, 344, 345	Use of "isolation valve" and "isolation device" in Specification 3.6.3 and Bases.	A3 A5
29	534	Suggest modifying CHANNEL CHECK Bases for SR 3.3.1.1, SR 3.3.2.1, and SR 3.3.3.1 to incorporate BWOG Inserts 1, 2, and 3, as appropriate, of TSTF-264-A, that CHANNEL CHECK agreement criteria includes an expectation of one decade of indication overlap when transitioning between neutron flux instrumentation (power range neutron flux, intermediate range neutron flux, and source range neutron flux).	A5 T4 T6

III. General Issues (continued)

0950-1015 E. Required Action Bases phrasing, "Be in *at least* MODE 3." (Topic 25 third bullet)

25 min

Topic No.	Comment No(s).	Topic Summary	Topic Types
25	**457**, 464, 465, 466, 467, **471**, **474**	In Specifications 3.8.3 and 3.8.4, • Consistent use of ○ "bus" ○ "electric power distribution subsystem" ○ "electric power distribution system" ○ "Class 1E AC instrument and control bus" ○ "Class 1E AC instrument and control distribution panel" ○ "electric power distribution system division" ○ "electric power distribution subsystem division" ○ "Class 1E DC bus" ○ "Class 1E DC electric power distribution system bus" ○ "Class 1E DC electric power distribution subsystem bus" • Proposed edit of Bases for Required Actions B.1 and B.2 of Specification 3.8.3 • Standard language in Bases for Required Actions to "Be in MODE 3 [within] 6 hours AND Be in MODE 5 [within] 36 hours": SPSB proposes to globally remove "at least" from "at least MODE 3." • Use of "reactor pressure boundary" versus "reactor coolant system pressure boundary" in "ASA" section of Bases for Specification 3.8.4 • Should LCO 3.8.3 Note 1 use "bus" or "distribution panel" after "associated Class 1E AC instrument and control"; should LCO 3.8.3 Note 2 use "buses" or "distribution panels" after "associated Class 1E AC instrument and control"?	A3 A4

GTS material addressed in Comments **288, 353, 438, 457, 471** include the subject phrase; Bases of all Specifications with shutdown actions would need to be searched to fully remove the phrase from the STS Bases.

Does APOG agree with this global action?

1015-1025 Break

10 min

IV. STS Section-specific Issues (SPSB and APOG)

1025-1035 A. Section 3.0, LCO 3.0.3 Bases change (Topic 7)

10 min

Topic No.	Comment No(s).	Topic Summary	Topic Types
7	50	APOG proposed technical improvement to Bases for LCO 3.0.3 is generic; how to include it in operating reactor STS NUREGs	T4

Comment **50** In the GTS Bases for LCO 3.0.3, to the end of the paragraph after the paragraph labeled "c." insert:

Compliance with the time limits of Specification 3.0.3 relies on the use of nonsafety-related systems, which are not governed by Technical Specification LCOs.

Suggestion – use "may rely"

Should this be included in a TSTF for all NUREGs?

IV. STS Section-specific Issues (continued)

B. Section 3.3 Instrumentation

1035-1045 1. I&C terminology consistency (Topic 11)

10 min

Topic No.	Comment No(s).	Topic Summary	Topic Types
11	119 (including Insert 1), 130, 134, 135, 144, 172, 178, 269, 310, 319, 476	I&C terminology. Make STS Section 3.3 instrument and instrument names of functions, components, and equipment more consistent within AP1000 STS, and with RCOL FSAR Chapter 7, PTS, and PTS Bases, design documents, and plant procedures; Also see Topic No. 13, item 4. • Source Range Neutron Flux, source range neutron flux (Function, channel, monitor, detector, High) • Intermediate Range Neutron Flux, intermediate range neutron flux (Function, channel, detector, High) • Power Range Neutron Flux, power range neutron flux (Function, High Setpoint, Low Setpoint, channel, detector) • excore nuclear instrument channel • nuclear instrumentation system (NIS) • instrument channel • Low, Low 1, Low 2, Low 3, Low 6 • High, High 1, High 2, High 3 • trip Setpoint, Trip Setpoint, setpoint, Setpoint • PMS; protection and safety monitoring system, and Protection and Safety Monitoring System • Protection Logic Cabinets - How are PMS cabinets, integrated protection cabinets (IPCs), and Protection Logic Cabinets related? Is “PMS Logic Cabinet” more accurate than “Protection Logic Cabinet”? • PMS division • Division, division • Use of “interlock” as synonym for “setpoint” • Providing reference to RTS or ESFAS table and Function number, or RTS or ESFAS LCO number in parenthesis following first mention of Function by its title in a Specification’s Bases. • Integrated Protection Cabinets, integrated protection cabinets, IPCs	A3 A4

See Agenda Item III.B on pages 9 and 10

IV. STS Section-specific Issues (continued)

B. Section 3.3 Instrumentation (continued)

1045-1100 2. Bases discussions of ESFAS Interlocks (Topics 13, 13.1, 13.3, 13.5, 13.6.b)

15 min

Topic No.	Comment No.	Topic Summary	Topic Types
13	172	Disagreement about appropriate content of discussion of ESFAS interlocks in STS Specification 3.3.8 Bases. In GTST for STS 3.3.8, in the "ASA, LCO, and Applicability" section of Bases for Subsection 3.3.8, the Applicability discussions for the ESFAS interlocks provide information that clarifies the role of these functions in supporting their dependent ESFAS Functions: ○ P-4 (GTST Section XI page 60 and Section XII page 133) ○ P-6 (GTST Section XI page 61 and Section XII page 134) ○ P-11 (GTST Section XI page 62 and Section XII page 135) ○ P-12 (GTST Section XI page 62 and Section XII page 135) ○ P-19 (GTST Section XI page 63 and Section XII page 136) • Providing nominal value for an interlock setpoint in parenthesis following the interlock's initial mention in a Specification's Bases. • Providing reference to RTS or ESFAS table and Function number, or RTS or ESFAS LCO number in parenthesis following first mention of function by its title.	T4
13.1	172	• Other issues: 1. Regarding P-19 state. AP1000 Functional Diagram APP-PMS-J1-106 shows that the output of the RCS Hot Leg Pressure channel is logically reversed, so that if RCS wide range pressure is above the P-19 setpoint, the detector output is TRUE; but this is made FALSE by a NOT gate. What is the correct way to describe the state of P-19 above its setpoint ? Enabled or disabled? As depicted on APP PMS J1-111, this same question applies to P-11.	T4

IV. STS Section-specific Issues (continued)

B. Section 3.3 Instrumentation (continued)

1045-1100 2. Bases discussions of ESFAS Interlocks (Topics 13, 13.1, 13.3, 13.5, 13.6.b) (continued)

Topic No.	Comment No.	Topic Summary	Topic Types
13.3	*172* *405* *425* *438*	3. Suggest that the Reactor Trip, P-4 interlock discussion in the "ASA, LCO, and Applicability" section of Bases for Subsection 3.3.8 include a statement to make clear *which of the four ESFAS Actuation Divisions* are used in the actuation logic for the turbine trip on a reactor trip (P-4) actuation signal. **Alternatively**, such information can be provided in the Turbine Trip discussion for each of the three turbine trip actuation signals: • Reactor Trip (P-4) (LCO 3.3.12) • Feedwater Isolation – Manual Initiation (Table 3.3.9-1, Function 5) • SG Narrow Range Water Level – High 2 (Table 3.3.8-1, Function 23) Adding such information in the discussion of each ESF Actuation Function would be beneficial for understanding which ESF components would be disabled by an inoperable or bypassed ESFAS Actuation Division.	*T4*

IV. STS Section-specific Issues (continued)

B. Section 3.3 Instrumentation (continued)

1045-1100 2. Bases discussions of ESFAS Interlocks (Topics 13, 13.1, 13.3, 13.5, 13.6.b) (continued)

Topic No.	Comment No.	Topic Summary	Topic Types
13.5	*172* *178* *193* *202* *207*	5. Regarding the Channel Operational Test (COT) Bases discussion of the role of interlocks, suggest adding the following sentence (shown as a markup of the second sentence) after the **fourth** sentence: This portion of the COT **also** ensures the associated Function is not **enabled**~~bypassed~~ when required to be **blocked**~~enabled~~ **by verifying the capability to manually bypass the Function as permitted by the interlock**. The proposed sentence is complementary to the second sentence and clarifies that the COT verifies both the enabling and blocking roles of the interlocks.	*T4*
13.6	*178* *193* *202* *207*	6. See comments **178, 193, 202, and 207**: b. Last sentence of last paragraph of STS Bases for SR 3.3.15.1 and SR 3.3.16.1 ends with phrase “which will report a failure within these cabinets to the operator”; what are “these cabinets” referring to?	*T4*

IV. STS Section-specific Issues (continued)

B. Section 3.3 Instrumentation (continued)

1100-1110 3. ESFAS Function names – consistency between plant-specific TS, STS, FSAR, plant design documents, plant procedures, and labeling of control room flat screen controls (Topic 13.4)

10 min

Staff proposes to maintain the VEGP 3&4 plant-specific TS Amendment 13 nomenclature; APOG to provide description of when it will be able to update licensing basis to resolve the issue.

13.4 The VEGP 3&4 TS Section 3.3 titles for various instrumentation functions do not match the titles provided by plant design drawings and functional diagrams. For examples, see list below. Does SNC plan to make titles of TS-required instrument functions consistent with FSAR, plant procedures, and design documents?

Tech Spec title	Design title
CMT Level – Low 1	CMT Level – Low 3
CMT Level – Low 2	CMT Level – Low 6
Hot Leg Level – Low 1	Hot Leg Level – Low 2
Hot Leg Level – Low 2	Hot Leg Level – Low 4
SG NR Water Level – High 2	SG NR Water Level – High 3
SG NR Water Level – Low	SG NR Water Level – Low 2
SG WR Water Level – Low	SG WR Water Level – Low 2
Startup Feedwater Flow – Low	Startup Feedwater Flow – Low 2
Cold Leg Temperature – Low	Cold Leg Temperature – Low 2
Steam Line Pressure – Low	Steam Line Pressure – Low 2
Pressurizer Pressure – High	Pressurizer Pressure – High 2
Pressurizer Pressure – Low	Pressurizer Pressure – Low 2
Reactor Coolant Flow – Low	Reactor Coolant Flow – Low 2
RCP Bearing Water Temp – High	RCP Bearing Water Temp – High 2
RCP Speed – Low	RCP Speed – Low 2

IV. STS Section-specific Issues (continued)

B. Section 3.3 Instrumentation (continued)

1110-1115 4. Omission of P-9 (RCS Average Temperature) interlock from RTS and ESFAS Bases discussions (Topic 13.2)

5 min

Topic No.	Comment No.	Topic Summary	Topic Types
13.2	172	• Other issues: 2. Why is interlock P-9 (RCS Average Temperature) not described in Bases, despite its support function, when in the disabled state above its ~200°F setpoint, to automatically unblock (on a divisional basis) many ESFAS Functions and also automatically unblock the Reactor Trip on Steam Generator Narow Range Level – Low 2?	T4

When should this interlock have been included?

□ AP600 GTS
□ AP1000 GTS Rev 15
□ AP1000 GTS Rev 19
□ VEGP 3&4 PTS Rev 0
□ VEGP 3&4 PTS Amendment 13

IV. STS Section-specific Issues (continued)

B. Section 3.3 Instrumentation (continued)

1115-1120 5. Bases for Channel Check for excore nuclear instrument neutron flux indication overlap (Topic 29)

5 min

Topic No.	Comment No.	Topic Summary	Topic Types
29	534	Suggest modifying CHANNEL CHECK Bases for SR 3.3.1.1, SR 3.3.2.1, and SR 3.3.3.1 to incorporate BWOG Inserts 1, 2, and 3, as appropriate, of TSTF-264-A, that CHANNEL CHECK agreement criteria includes an expectation of one decade of indication overlap when transitioning between neutron flux instrumentation (power range neutron flux, intermediate range neutron flux, and source range neutron flux).	A5 T4 T6

See Agenda Item III.D on page 12

IV. STS Section-specific Issues (continued)

B. Section 3.3 Instrumentation (continued)

1120-1125 6. Bases for SR 3.3.1.9, Channel Calibration, do not describe how PRHR HX outlet isolation valve position indication is calibrated (Topic 12)

5 min

Topic No.	Comment No.	Topic Summary	Topic Types
12	136	Since STS SR 3.3.1.9, Channel Calibration, is specified for STS Table 3.3.1-1 Function 12, PRHR Actuation reactor trip function (one or both PRHR HX discharge valves not fully closed), the Bases for this SR ought to explicitly discuss what a "calibration" of the PRHR HX discharge valve position indicators (four per valve) entails. Request APOG to provide such a description or explain how the definition of Channel Calibration captures it. In addition, why is SR 3.3.1.5 only specified for Overtemperature ΔT reactor trip Function?	T1

IV. STS Section-specific Issues (continued)

B. Section 3.3 Instrumentation (continued)

1125-1130 7. Excore power range neutron flux detector calibration using incore neutron flux detectors (SR 3.3.1.5) only specified for Overtemperature ΔT RTS Function in Table 3.3.1-1. (Topic 12)

5 min

Topic No.	Comment No.	Topic Summary	Topic Types
12	136	Since STS SR 3.3.1.9, Channel Calibration, is specified for STS Table 3.3.1-1 Function 12, PRHR Actuation reactor trip function (one or both PRHR HX discharge valves not fully closed), the Bases for this SR ought to explicitly discuss what a "calibration" of the PRHR HX discharge valve position indicators (four per valve) entails. Request APOG to provide such a description or explain how the definition of Channel Calibration captures it. In addition, why is SR 3.3.1.5 only specified for Overtemperature ΔT reactor trip Function?	T1

IV. STS Section-specific Issues (continued)

B. Section 3.3 Instrumentation (continued)

1130-1200 8. Discuss how Channel Operational Test (COT) is addressed for P-4 permissive logic; and Bases for SR 3.3.12.1, Trip Actuating Device Operational Test (TADOT) (Topic 13.6.a)

30 min

Topic No.	Comment No.	Topic Summary	Topic Types
13.6	*178* *193* *202* *207*	6. See comments **178, 193, 202, and 207**: a. The Bases for STS SR 3.3.12.1, TADOT of P-4, is unclear. In particular, why are the [integrated protection cabinets] IPCs mentioned? Since P-4 supports several ESFAS functions by enabling them, as well as initiating other ESFAS functions – for those enabled functions, should not a COT include verification of the proper functioning of P-4?	*T4*

1200-1315 Lunch

75 min

IV. STS Section-specific Issues (continued)

C. Section 3.4 Reactor Coolant System (RCS)

1315-1325 1. Bases for Subsections 3.4.4 and 3.4.8 ─ discussion of RCS flow requirements (Topics 14, 17)

10 min

Topic No.	Comment No.	Topic Summary	Topic Types
14	239, 253	Deleting paragraph from "LCO" section of Bases for Specification 3.4.4 versus moving paragraph to "Applicability" section of Bases for Specification 3.4.4. This paragraph, with GTS markup shown, is: With the ~~RTBs in the open position, the PLS is not capable of rod withdrawal; therefore~~ **PLS not capable of rod withdrawal and all rods fully inserted** only a minimum RCS flow of 3,000 gpm is necessary to ensure removal of decay heat from the core in accordance with LCO 3.4.8, Minimum RCS Flow. Even though this statement does not directly relate to meeting LCO 3.4.4, it is appropriate to point out the RCS flow requirements when LCO 3.4.4 does not apply. To be consistent with Bases for Subsection 3.4.5, "RCS Loops – MODE 3" of NUREG-1431, Rev. 4, the appopriate location of this paragraph is in the "Applicability" section of the Bases for AP1000 STS 3.4.4.	A5
17	252	Add paragraph to state why LCO 3.4.8 requires one RCP to be in operation, in third paragraph of the "Background" section of the Bases for Specification 3.4.8, Minimum RCS Flow. **The purpose of this LCO is to ensure at least one RCP is in operation with a total flow through the core of at least 3,000 gpm, which is the minimum flow necessary to ensure adequate mixing of primary system coolant with makeup coolant inadvertently injected at boron concentrations less than required to maintain the specified SDM.**	T4

IV. STS Section-specific Issues (continued)

C. Section 3.4 Reactor Coolant System (RCS) (continued)

1325-1335 2. Bases for Subsection 3.4.7 discussion of RCS steady-state conditions (Topic 16)

10 min

Topic No.	Comment No.	Topic Summary	Topic Types
16	245, 258, 260	Description of "steady state" operation in Bases for SR 3.4.7.1: Suggest additional changes relating to description of "steady state operation" for both • RCS operational LEAKAGE determination by inventory balance, and • RCS primary to secondary LEAKAGE determination . . . steady-state is defined as stable ~~reactor coolant system~~ **RCS** pressure, **average** temperature, **and makeup and letdown flows, reactor** power level, pressurizer level, and reactor coolant drain tank and in-containment refueling water storage tank levels. *Since AP1000 controls pressurizer level in a band, letdown and makeup flow is infrequent compared to a 4-loop Westinghouse PWR; so those flows may not be needed in the description:* . . . steady-state is defined as stable ~~reactor coolant system~~ **RCS** pressure **and average** temperature, **reactor** power level, pressurizer level, and reactor coolant drain tank and in-containment refueling water storage tank levels; **steady-state also means no makeup flow and no letdown flow**.	T1 T4

IV. STS Section-specific Issues (continued)

C. Section 3.4 Reactor Coolant System (RCS) (continued)

1335-1345 3. "References" section of Bases for Subsection 3.4.12 (Topic 18)

10 min

Topic No.	Comment No.	Topic Summary	Topic Types
18	271	In GTST for Subsection 3.4.12, Section XI on page 18 and Section XII on page 25, in the "References" section of the Bases, should Reference 1, "AP1000 Probabilistic Risk Assessment, Appendix A" be modified to reflect plant-specific version?	A3

IV. STS Section-specific Issues (continued)

D. Section 3.6 Containment

1345-1355

1. Use of terms “isolation valves” and “isolation devices” in Subsection 3.6.3 and other Specifications for containment isolation valves in closed systems. (Topic 19)

10 min

Topic No.	Comment No.	Topic Summary	Topic Types
19	343, 344, 345	Use of “isolation valve” and “isolation device” in Specification 3.6.3 and Bases.	A3 A5

IV. STS Section-specific Issues (continued)

D. Section 3.6 Containment (continued)

1355-1400 2. Bases for Subsections 3.6.6 and 3.6.7 – terminology (Topic 20)

5 min

Topic No.	Comment No.	Topic Summary	Topic Types
20	• 370 • 370, 377 • 328, 333, 370, 377 • 370, 377 • 377	In Specification 3.6.6, and 3.6.7 Bases: • Use of “alternate” versus “alternative” cooling capabilities • Use of RCS “level” versus RCS “inventory” • Use of “reactivity control assemblies” versus “control rods” (Note that this occurs in other LCOs.) • Use of “condition” versus “case” • Splitting of paragraph in Bases for STS Subsection 3.6.7 under heading “B.1.1, B.1.2, and B.2” revise second paragraph: 1. Starting new paragraph with MODE 6 discussion, also, remove reference to PRHR HX from MODE 6 discussion; 2. Adding third sentence to end of MODE 5 discussion paragraph; and 3. Starting new paragraph with SDM discussion, since it applies to both MODES	A2 A3

IV. STS Section-specific Issues (continued)

D. Section 3.6 Containment (continued)

1400-1405 3. Bases for SR 3.6.9.2 (Topic 21)

5 min

Topic No.	Comment No.	Topic Summary	Topic Types
21	378	In GTST for GTS Subsection 3.6.9 (STS Subsection 3.6.8), Section XI on page 17 and Section XII on page 23, in the "SRs" section of Bases, under heading "SR 3.6.9.2", **do not delete last sentence**; "This" does not refer to agitation but to "rapid mixing" in the [containment] sump during post LOCA conditions. SRP 6.5.2, page 6.5.2-5, Section II. ACCEPTANCE CRITERIA, SRP Acceptance Criteria, paragraph 1.G. Design Requirements for Fission Product Removal "Long-term iodine retention may be assumed only when the equilibrium sump solution pH, after mixing and dilution with the primary coolant and ECCS injection, is above 7. This pH value should be achieved by the onset of the spray recirculation mode." Proposed edit of sentence: **Good mixing with the sump water is expected due to both basket construction and because the baskets are placed in locations conducive to recirculation flows post-accident.** This **rapid mixing** would ensure ~~compliance with~~**satisfying** the Standard Review Plan ~~requirement~~**acceptance criterion** of **achieving** a pH ≥ 7.0 **in the containment sump water inventory** by the onset of recirculation after a LOCA. Consider adding NUREG-0800 Section 6.5.2 as a reference.	T4

IV. STS Section-specific Issues (continued)

E. Section 3.7 Plant Systems

1405-1410 1. Figures B 3.7.6-1 and B 3.7.6-2 (Topic 22)

5 min

Topic No.	Comment No.	Topic Summary	Topic Types
22	422, 423	Request that APOG supply updated Bases figures in Word format. (Figures B 3.7.6-1, B 3.7.6-2)	A2

IV. STS Section-specific Issues (continued)

E. Section 3.7 Plant Systems (continued)

1410-1415 2. Use of acronyms for loss of feedwater (LOF), feedwater line break (FLB), and steam line break (SLB) (Topic 23)

5 min

Topic No.	Comment No.	Topic Summary	Topic Types
23	425, 438	Use of LOF for loss of feedwater, FLB for feedwater line break (Feedwater Line Break), and SLB for steam line break (Steam Line Break); do not use “Feedline Break”	A4 A5 T4

IV. STS Section-specific Issues (continued)

E. Section 3.7 Plant Systems (continued)

1415-1430 3. Bases for Subsection 3.7.10 regarding actuation instrumentation Functions for steam generator PORV, PORV block valve, and blowdown isolation valves (Topic 24)

15 min

See proposed editorial changes to Bases for Subsection 3.7.10 as indicated in Comment **438** by the markup of “Background,” “Applicable Safety Analyses,” “LCO,” and “Actions” sections of the Bases.

The Bases indicate that the PORV block valves and the inboard isolation valve on each SG blowdown line are also designated containment isolation valves. However, the PORV block valves do not close on a containment isolation signal. The Bases ought to explain why.

IV. STS Section-specific Issues (continued)

F. Section 3.8 Electrical Power Systems

1430-1445 1. TSTF-500 (Topic 4)

15 min

Remove brackets from voltage and current values in STS Subsection 3.8.7 but keep all other TSTF-500, Rev.2, applicable changes.

See proposed editorial changes to Bases for Subsection 3.8.7 as indicated in

- Comment **478** on pages 280 and 281;
- Comment **480** on pages 282 and 283;
- Comment **481** on page 284;

IV. STS Section-specific Issues (continued)

F. Section 3.8 Electrical Power Systems (continued)

1445-1455 2. Electrical power distribution component terminology (Topics 25 first and fifth bullets, 26, 27)

10 min

Topic No.	Comment No.	Topic Summary	Topic Types
25	• 438, 457, 464, 465, 466, 467, 471, 474	In Specifications 3.8.3 and 3.8.4, • **Consistent use of** ○ "bus" ○ "electric power distribution subsystem" ○ "electric power distribution system" ○ "Class 1E AC instrument and control bus" ○ "Class 1E AC instrument and control distribution panel" ○ "electric power distribution system division" ○ "electric power distribution subsystem division" ○ "Class 1E DC bus" ○ "Class 1E DC electric power distribution system bus" ○ "Class 1E DC electric power distribution subsystem bus"	A3 A4
	• 464	• Should LCO 3.8.3 Note 1 use "bus" or "distribution panel" after "associated Class 1E AC instrument and control"; should LCO 3.8.3 Note 2 use "buses" or "distribution panels" after "associated Class 1E AC instrument and control"	

IV. STS Section-specific Issues (continued)

F. Section 3.8 Electrical Power Systems (continued)

2. Electrical power distribution component terminology in Bases (Topics 25 first bullet, 26, 27 first bullet) (continued)

Topic No.	Comment No.	Topic Summary	Topic Types
26	467	Discuss whether the following suggested clarification is accurate (In GTST for Subsection 3.8.5, Section XI on page 21 and Section XII on page 36, in "LCO" section of Bases, third paragraph, (split third paragraph) as indicated: OPERABLE Class 1E DC electric power distribution subsystems require the associated buses, **distribution panels,** motor control centers, and electrical circuits to be energized to their proper voltage from either the associated battery bank or **battery** charger. **Either the** ~~The~~ spare battery bank**,** ~~and/or~~ **the spare battery** charger**,** ~~s~~ **or both** may be used by one **DC power distribution** subsystem for OPERABILITY. OPERABLE Class 1E AC **instrument and control** electrical power distribution subsystems require the associated buses to be energized to their proper voltages and frequencies from the associated inverter or regulating transformer.	A2 T4
27	465 467 **474**	• Use of "distribution panels" instead of "buses" in Bases for Specification 3.8.5 and Table B 3.8.5-1	A2 A3 A4 A5

IV. STS Section-specific Issues (continued)

F. Section 3.8 Electrical Power Systems (continued)

1455-1458 3. Specification 3.8.3 Action B Bases (Topic 25 second bullet)

3 min

Proposed edit of Bases for Required Actions B.1 and B.2 of Specification 3.8.3, as shown in Comment **457** on page 255:

> If the inoperable **Class 1E** DC electrical power subsystem**, or other inoperable devices or components required for inverter OPERABILITY** cannot be restored to OPERABLE status within the required Completion Time, the unit must be brought to MODE 5 where the probability and consequences ~~on~~ **of** an event are minimized. To achieve this status, the plant must be brought to~~ at least~~ MODE 3 within 6 hours and to MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

IV. STS Section-specific Issues (continued)

F. Section 3.8 Electrical Power Systems (continued)

1458-1505 4. Specification 3.8.4 Bases use of “reactor pressure boundary” (Topic 25 fourth bullet)

7 min

Use of “reactor pressure boundary” versus “reactor coolant system pressure boundary” in “ASA” section of Bases for Specification 3.8.4 as shown in Comment **457** on page 256:

(GTST pages 17-18) in “ASA” section of Bases, revise fourth paragraph, third sentence, as indicated:

> . . . The rationale for this is based on the fact that many ~~Design Basis Accidents (~~DBAs~~)~~ that are analyzed in MODES 1, 2, 3, and 4 have no specific analyses in MODES 5 and 6 because the energy contained within the reactor **coolant system** pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated, and in minimal consequences. . . .

(GTST page 18) in “ASA” section of Bases, revise next to last paragraph, second sentence, as indicated:

> . . . Worst case ~~Design Basis Accidents~~ **DBAs,** which are analyzed for operating MODES**,** are generally viewed **as** not ~~to be~~ **being** a significant concern during shutdown MODES due to the lower energies involved. . . .

(GTST page 18) in “ASA” section of Bases, revise last paragraph, as indicated:

> The Class 1E **uninterruptible power supply (**UPS**)** inverters are part of the **Class 1E AC instrument and control electric power** distribution **sub**system**s** and, as such, satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

IV. STS Section-specific Issues (continued))

F. Section 3.8 Electrical Power Systems (continued)

1505-1515 5. Proposed clarification of Bases for Specification 3.8.5 (Topic 27 second bullet)

10 min

Comment 465 (page 262) Does APOG agree with edits to "Background" section of Bases for Subsection 3.8.5?

Comment 467 (page 265) Does APOG agree with following edits to Subsection 3.8.5, "LCO" section of Bases, third paragraph:

OPERABLE Class 1E DC electric power distribution subsystems require the associated buses, **distribution panels,** motor control centers, and electrical circuits to be energized to their proper voltage from either the associated battery bank or **battery** charger. **Either the** ~~The~~ spare battery bank**,** ~~and/or~~ **the spare battery** charger**,** ~~s~~ **or both** may be used by one **DC power distribution** subsystem for OPERABILITY.

Comment 474 (page 270): — Change to Table B 3.8.5-1 row label for AC Instrumentation and Control appears inconsistent with Bases "Background" (bus vs. panel vs. distribution panel);

— The Bases "Background" should more clearly state what constitutes a

Division of a DC electrical power distribution subsystem:

Divisions A,B,C,D: One DC bus [switchboard], and two DC distribution panels?

Division of an AC Instrument~~ation~~ and Control electrical power distribution subsystem:

Divisions A, D: One AC Instrument~~ation~~ and Control distribution panel

Divisions B, C: Two AC Instrument~~ation~~ and Control distribution panels

1515-1530 Break

15 min

IV. STS Section-specific Issues (continued)

G. Section 5.5 Programs and Manuals

1530-1540 1. TSTF-500 (Topic 4)

10 min

Topic No.	Comment No.	Topic Summary	Topic Types
4	16, **478**	Disagreement about inclusion of TSTF-500	A3 T2 T5 P3 P5

Remove brackets from voltage and current values in STS Subsection 5.5.11 but keep all other TSTF-500, Rev. 2, applicable changes.

See proposed editorial changes to Subsection 5.5.11 as indicated in Comment **478** on pages 278 and 279

IV. STS Section-specific Issues (continued)

G. Section 5.5 Programs and Manuals (continued)

1540-1550 2. TSTF-510 (Topic 1)

10 min

Comment 292 — Remove optional material from TSTF-510 regarding “SG tube repair criteria” from STS 3.4.17

Comment 516 — Remove the "or repair" options based on TSTF-510, Items "(4)" and "(5)" from AP1000 STS Specification 5.5.4

1550-1615 **V. Discussion of list of issues for further discussion and closing remarks** (SPSB and APOG)

25 min

1615-1630 **VI. Opportunity for public comments**

15 min

1630 **VII. Adjourn**