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

Title: Changes Related to LCO 3.4.13, Automatic Depressurization System (ADS) – Shutdown, RCS Open

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:

None

STS NUREGs Affected:

Not Applicable

NRC Approval Date:

Not Applicable

TSTF Classification:

Not Applicable

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:

There are no Vogtle departures applicable to GTS 3.4.13.

RCOL COL Item Number and Title:

There are no Vogtle COL items applicable to GTS 3.4.13.

RCOL PTS Change Number and Title:

VEGP LAR DOC A003:	References to various Chapters and Sections of the Final Safety Analysis Report (FSAR) are revised to include FSAR.
VEGP LAR DOC A038:	Numerous TS surveillances are revised by deletion of word “that” from the surveillance
VEGP LAR DOC A056:	TS 3.4.13 is revised
VEGP LAR DOC A057:	TS 3.4.13, Condition B is revised
VEGP LAR DOC A058:	SR 3.4.13.1 is revised
VEGP LAR DOC A059:	TS 3.4.13, Condition C and Condition D are revised
VEGP LAR DOC L01:	TS Definition for Actuation Device Test is deleted

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(1) applicable to operating reactor designs, but not to the AP1000 design; (2) already incorporated in the GTS; or (3) superseded by another change.

None

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)

Clarification is added in several places in the Bases and grammatical errors corrected in the Bases.

The phrase “The time to RCS boiling is maximized by increasing RCS inventory” is removed from the Action D.1 and D.2 Bases discussion because RCS inventory is not increased by Actions D.1 and D.2.

The discussion of SR 3.4.13.2 in the “Surveillance Requirements” section of the Bases is clarified by replacing the phrase “…are applicable to the stage 4 ADS valves required to be OPERABLE.” with “…are applicable to the valves in the two stage 4 ADS flow paths required to be OPERABLE.”

APOG Recommended Changes to Improve the Bases

Throughout the Bases, references to Sections and Chapters of the FSAR do not include the “FSAR” clarifier. Since these Section and Chapter references are to an external document, it is appropriate to include the “FSAR” modifier. (DOC A003)

Revise various TS Bases stating “withdrawal of reactivity control assemblies” to “withdrawal of control rods” for editorial improvement and consistency with other TS Bases discussions. Specifically, in the “Actions” section of the Bases, revise the second sentence in the second paragraph in the discussions of Required Actions C.1 and C.2 and Required Actions D.1 and D.2, as indicated:

> Additionally, action to suspend positive reactivity additions is required to ensure that the SDM is maintained. Sources of positive reactivity addition include boron dilution, withdrawal of ~~reactivity~~ control **rods** ~~assemblies~~, and excessive cooling of the RCS.

V. Applicability

Affected Generic Technical Specifications and Bases:

Section 3.4.13, Automatic Depressurization System (ADS) – Shutdown, RCS Open

Changes to the Generic Technical Specifications and Bases:

Statement of LCO Specification and Applicability is revised. This is an editorial change for clarity. (DOC A056)

The word “required” is deleted from Condition A. This is an editorial change for clarity. (DOC A056)

Condition B and Required Action B.2 are revised. This is an editorial change for clarity. (DOC A057)

Condition C and Condition D are revised to delete “Requirements of.” This is an editorial change for clarity. (DOC A056)

Condition C and Condition D are revised to add “of Condition A or B.” This is an editorial change for clarity. The associated Bases discussion is also revised. (DOC A059)

The phrase “The time to RCS boiling is maximized by increasing RCS inventory” is removed from the Action D.1 and D.2 Bases. (NRC Staff Comment)

The word “that” is removed from SR 3.4.13.1. This is an editorial change for clarity. (DOC A038)

The word “fully” is removed from SR 3.4.13.1. This is an editorial change for clarity. (DOC A058)

The second sentence in the second paragraph in the discussions of Required Actions C.1 and C.2 and Required Actions D.1 and D.2 are revised. (APOG Comment)

The SR 3.4.13.2 Bases discussion is revised. (NRC Staff Comment)

SR 3.4.11.5 is added to list of SRs under SR 3.4.13.2. This provides administrative support of SRs added by DOC L01. (DOC L01)

The acronym “FSAR” is added to modify “Section” and “Chapter” in references to the FSAR throughout the Bases. (DOC A003) (APOG Comment)

VI. Traveler Information

Description of TSTF changes:

Not Applicable

Rationale for TSTF changes:

Not Applicable

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

DOC A038 deletes the word “that” from various surveillance descriptions.

DOC A056 revises the first LCO statement by deleting the comma following “Stage 3.” The second LCO statement is revised from “ADS stage 4 with 2 flow paths shall be OPERABLE,” to “Two ADS stage 4 flow paths shall be OPERABLE.” The Mode 5 Applicability is editorially revised into two Applicabilities. The first Applicability is “MODE 5 with pressurizer level < 20%.” The second Applicability is “MODE 5 with RCS pressure boundary open.” Condition A is revised by deleting “required.” Required Action B.2 is revised by replacing “two” with “required.” The second entry condition of Condition C is revised by deleting “Requirements of” from the condition statement and revising “Conditions” to “Condition.” The second entry condition of Condition D is revised by deleting “Requirements of” from the condition statement and revising “Conditions” to “Condition.” SR 3.4.13.1 is revised by deleting “that,” from the Surveillance. SR 3.4.13.2 is revised by deleting “of LCO 3.4.11, “Automatic Depressurization System (ADS) - Operating,” from the Surveillance.

DOC A057 revises Condition B by deleting “closed and.”

DOC A058 revises SR 3.4.13.1 by deleting “fully,” from the Surveillance.

DOC A059 revises the first entry condition of Condition C by adding “of Condition A or B” to the condition statement. The first entry condition of Condition D is also revised by adding “of Condition A or B” to the condition statement. The associated Bases discussion is updated.

DOC L01 revises SR 3.4.13.2 to include listing proposed SR 3.4.11.5 in the surveillance description.

A more detailed description of each DOC can be found in Reference 2, VEGP TSU LAR Enclosure 1, and the NRC staff safety evaluation can be found in Reference 3, VEGP LAR SER. The VEGP TSU LAR was modified in response to NRC staff RAIs in Reference 5 and the Southern Nuclear Operating Company RAI Response in Reference 6.

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

Editorial changes per DOC A038, DOC A056, DOC A057, DOC A058, and DOC A059 are consistent with the guidance provided in the Writer's Guide.

GTS 3.3.2, SR 3.3.2.7 (“Perform ACTUATION DEVICE TEST”) and SR 3.3.2.8 (“Perform ACTUATION DEVICE TEST for squib valves”) are deleted from GTS 3.3.2 and Table 3.3.2-1, Function 26.a, ESF Actuation Subsystem per DOC L01. The equivalent requirement (using phrasing generally consistent with NUREG-1431) must be included in individual Specifications for the actuated devices with the same 24 month Frequency as the deleted SRs. This requires the SR references in SR 3.4.13.2 to be updated.

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

Clarification is added in several places in the bases and grammatical errors corrected in the bases.

The phrase “The time to RCS boiling is maximized by increasing RCS inventory” is removed from the Action D.1 and D.2 bases discussion.

The discussion of SR 3.4.13.2 in the “Surveillance Requirements” section of the Bases is revised by replacing the phrase “…are applicable to the stage 4 ADS valves required to be OPERABLE.” with “…are applicable to the valves in the two stage 4 ADS flow paths required to be OPERABLE.” (NRC Staff Comment)

Revise the second sentence in the second paragraph in the discussions of Required Actions C.1 and C.2 and Required Actions D.1 and D.2 as indicated (APOG Comment):

> Additionally, action to suspend positive reactivity additions is required to ensure that the SDM is maintained. Sources of positive reactivity addition include boron dilution, withdrawal of ~~reactivity~~ control **rods** ~~assemblies~~, and excessive cooling of the RCS.

The acronym “FSAR” is added to modify “Section” and “Chapter” in references to the FSAR throughout the Bases. (DOC A003) (APOG Comment)

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

Clarifying remarks are necessary to make the bases discussion complete.

RCS inventory is not increased by Actions D.1 and D.2.

The Bases discussion for SR 3.4.13.2 is revised for improved clarity and to be more consistent with the language in the surveillance.

Various TS Bases referencing “reactivity control assemblies” are revised to “control rods” for editorial improvement and consistency with other TS Bases discussions.

Since Bases references to FSAR Sections and Chapters are to an external document, it is appropriate to include the “FSAR” modifier.

VII. GTST Safety Evaluation

Technical Analysis:

DOC L01 adds STS SR 3.4.11.5 to the list in GTS SR 3.4.13.2. SR 3.4.13.2 references several GTS 3.4.11 SRs that are applicable to the ADS system when the reactor is shutdown and the RCS is open as defined by GTS 3.4.13. STS SR 3.4.11.5 is applicable in this situation.

The remaining changes are editorial, clarifying, grammatical, or otherwise considered administrative. These changes do not affect the technical content, but improve the readability, implementation, and understanding of the requirements, and are therefore acceptable.

Having found that this GTST's proposed changes to the GTS and Bases are acceptable, the NRC staff concludes that AP1000 STS Subsection 3.4.13 is an acceptable model Specification for the AP1000 standard reactor design.

References to Previous NRC Safety Evaluation Reports (SERs):

None

VIII. Review Information

Evaluator Comments:

None

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Review Information:

Availability for public review and comment on Revision 0 of this traveler approved by NRC staff on 5/16/2014.

APOG Comments (Ref. 7) and Resolutions:

1. (Internal #3) Throughout the Bases, references to Sections and Chapters of the FSAR do not include the “FSAR” clarifier. Since these Section and Chapter references are to an external document, it is appropriate (DOC A003) to include the “FSAR” modifier. This is resolved by adding the FSAR modifier as appropriate.

2. (Internal # 6) The GTST sections often repeat VEGP LAR DOCs, which reference “existing” and “current” requirements. The inclusion in the GTST of references to “existing” and “current,” are not always valid in the context of the GTS. Each occurrence of “existing” and “current” should be revised to be clear and specific to GTS, MTS, or VEGP COL TS (or other), as appropriate. Noted ambiguities are corrected in the GTST body.

3. (Internal #7) Section VII, GTST Safety Evaluation, inconsistently completes the subsection “References to Previous NRC Safety Evaluation Reports (SERs)” by citing the associated SE for VEGP 3&4 COL Amendment 13. It is not clear whether there is a substantive intended difference when omitting the SE citation. This is resolved by removing the SE citation in Section VII of the GTST and ensuring that appropriate references to the consistent citation of this reference in Section X of the GTST are made.

4. (Internal # 273) The GTST Section IV discussion of DOC A056 incorrectly describes a change to the Bases. The DOC does not address Bases changes. Furthermore, there are no differences in the AP1000 NUREG STS draft from the VEGP Amended TS or associated Bases changes. This Section IV discussion appears to be a mistake. Remove the GTST Section IV discussion related to DOC A056. This is resolved by removing reference to DOC A056 from the affected paragraph. However, the NRC staff proposed change to the Bases for SR 3.4.13.2 replacing the phrase “…are applicable to the stage 4 ADS valves required to be OPERABLE.” with “…are applicable to the valves in the two stage 4 ADS flow paths required to be OPERABLE” is incorporated.

5. (Internal # 274) Text added to first entry condition of Condition C incorrectly states plural “Conditions.” The discussion of DOC A059 states that the first entry condition of Condition C is revised by adding “of Condition A or B” (i.e., singular) to the condition statement. Revise the added text by making “Conditions” singular. This is resolved by

making the recommended change for the Condition C statement and the Condition D statement.

6. (Internal # 275) To be consistent with the Writer's Guide; when making an “or” statement, “Condition” is singular. In the “Actions” section of the Bases, revise discussions of Required Actions C.1 and C.2 and Required Actions D.1 and D.2 to say “. . . Condition A or B . . .” instead of “. . . Conditions A or B . . .” which is incorrect. This is resolved by making the recommended change.

7. (Internal # 276) Revise various TS Bases stating “withdrawal of reactivity control assemblies” to “withdrawal of control rods” for editorial improvement and consistency with other TS Bases discussions. Specifically, in the “Actions” section of the Bases, revise the second sentence in the second paragraph in the discussions of Required Actions C.1 and C.2 and Required Actions D.1 and D.2, as indicated:

> Additionally, action to suspend positive reactivity additions is required to ensure that the SDM is maintained. Sources of positive reactivity addition include boron dilution, withdrawal of ~~reactivity~~ control **rods** ~~assemblies~~, and excessive cooling of the RCS.

This is resolved by making the recommended change.

NRC Final Approval Date: 12/7/2015

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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.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 Automatic Depressurization System (ADS) – Shutdown, RCS Open

LCO 3.4.13 ADS stage 1, 2, and 3~~,~~ flow paths shall be open.
Two ADS stage 4 ~~with 2~~ flow paths shall be OPERABLE.

----------NOTE----------
In MODE 5, the ADS valves may be closed to facilitate RCS vacuum fill operations to establish a pressurizer level ≥ 20%, provided ADS valve OPERABILITY meets LCO 3.4.12, ADS - Shutdown, RCS Intact.

APPLICABILITY: MODE 5 with ~~RCS pressure boundary open or~~ pressurizer level < 20%,
MODE 5 with RCS pressure boundary open,
MODE 6 with upper internals in place.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One ~~required~~ ADS stage 1, 2, or 3 flow path not open.	A.1	Open the affected flow path.	72 hours
	OR		
	A.2	Open an alternative flow path with an equivalent area.	72 hours
B. One required ADS stage 4 flow path ~~closed and~~ inoperable.	B.1	Open an alternative flow path with an equivalent area.	36 hours
	OR		
	B.2	Restore **required** ~~two~~ ADS stage 4 flow paths to OPERABLE status.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time **of Condition A or B** not met while in MODE 5. OR ~~Requirements of~~ LCO not met for reasons other than Condition~~s~~ A or B while in MODE 5.	C.1 Initiate action to fill the RCS to establish ≥ 20% pressurizer level. AND C.2 Suspend positive reactivity additions.	Immediately Immediately
D. Required Action and associated Completion Time **of Condition A or B** not met while in MODE 6. OR ~~Requirements of~~ LCO not met for reasons other than Condition~~s~~ A or B while in MODE 6.	D.1 Initiate action to remove the upper internals. AND D.2 Suspend positive reactivity additions.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.13.1	Verify ~~that~~ each ADS stage 1, 2, and 3 valve is in the ~~fully~~ open position.	12 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.13.2	For each ADS stage 4 flow path required to be OPERABLE, the following SRs ~~of LCO 3.4.11, "Automatic Depressurization System (ADS) - Operating"~~ are applicable: SR 3.4.11.1 SR 3.4.11.3 **SR 3.4.11.5**	In accordance with applicable SRs

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.13 Automatic Depressurization System (ADS) – Shutdown, RCS Open

BASES

BACKGROUND	A description of the ADS is provided in the Bases for LCO 3.4.11, "Automatic Depressurization System (ADS) – Operating."
APPLICABLE SAFETY ANALYSES	When the plant is shutdown with the RCS depressurized, the core makeup tanks (CMTs) are isolated to prevent CMT injection. Since the ADS is actuated by low CMT level, automatic actuation of the ADS is not available. The ~~required~~ ADS stage 1, 2, and 3 vent paths are opened and two ADS stage 4 flow paths are OPERABLE to ensure that in-containment refueling water storage tank (IRWST) injection and containment recirculation can occur, if needed to mitigate events requiring RCS makeup, boration or core cooling (Ref. 1). The ADS vent path must be maintained until the upper internals are removed, providing an adequate vent path for IRWST injection. The ADS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).
LCO	The requirement that ADS stage 1, 2, and 3 flow paths be open, from the pressurizer through the spargers into the IRWST, and that two ADS stage 4 flow paths be OPERABLE **ensures** ~~assures~~ that sufficient vent area is available to support IRWST injection. The Note allows closure of the RCS pressure boundary when the pressurizer level is < 20% to facilitate vacuum refill following mid-loop operations to establish a pressurizer water level ≥ 20%. Prior to closure of the ADS valves, compliance with LCO 3.4.12, **"Automatic Depressurization System (**ADS**)** – Shutdown, RCS Intact,**" must** ~~should~~ be verified.
APPLICABILITY	In MODE 5 with ~~the reactor coolant system pressure boundary (RCPB) open or~~ pressurizer level < 20%**, in MODE 5 with the reactor coolant system pressure boundary (RCPB) open,** and in MODE 6 with the upper internals in place, the stage 1, 2, and 3 ADS **flow** ~~vent~~ paths must be open and two ADS stage 4 flow paths be OPERABLE.

BASES

APPLICABILITY (continued)

The requirements for the ADS in MODES 1 through 4 are specified in LCO 3.4.11, "Automatic Depressurization System (ADS) – Operating" and in MODE 5 with the RCPB intact in LCO 3.4.12, "Automatic Depressurization System (ADS) – Shutdown, RCS Intact."

ACTIONS

A.1 and A.2

If one ~~required~~ ADS stage 1, 2, or 3 flow path is closed, action must be taken to open the affected path or establish an alternative flow path within 72 hours. In this Condition the remaining open ADS stage 1, 2, and 3 flow paths and the OPERABLE ADS stage 4 flow paths are adequate to perform the required safety function without an additional single failure. The stage 4 valves would have to be opened by the operator in case of an event **while in the applicable MODES and other specified conditions of this Specification** ~~in this MODE~~. The required vent area may be restored by opening the affected ADS flow path or an alternate vent path with an equivalent area. Considering that the required function is available in this Condition a Completion Time of 72 hours is acceptable.

B.1 and B.2

If one required ADS stage 4 flow path is ~~closed and~~ inoperable, action must be taken to establish an alternative flow path, or restore **both of the** ~~at least~~ two **required ADS** stage 4 flow paths to OPERABLE status within 36 hours. In this Condition the remaining open ADS stage 1, 2, and 3 flow paths and the one **remaining** OPERABLE ADS stage 4 flow path are adequate to perform the required safety function without an additional single failure. The required vent area may be restored by opening an alternate vent path with an equivalent area. Acceptable alternate vent paths exclude the use of the pressurizer manway as pressurizer surge line flooding phenomena can negate the IRWST elevation head necessary for successful gravity injection. Alternatively, two stage 4 flow paths may be restored to OPERABLE status. Therefore a Completion Time of 36 hours is considered acceptable.

BASES

ACTIONS (continued)

C.1 and C.2

If the Required Actions and associated Completion Times **of Condition A or B** are not met or ~~the requirements of~~ LCO 3.4.13 **is** ~~are~~ not met for reasons other than Condition~~s~~ A or B while in MODE 5, the plant must be placed in a condition which minimizes the potential for requiring ADS venting and IRWST injection. The time to RCS boiling is maximized by increasing RCS inventory to ≥ 20% pressurizer level ~~and maintaining RCS temperature as low as practical~~.

Additionally, action to suspend positive reactivity additions is required to ensure that the SDM is maintained. Sources of positive reactivity addition include boron dilution, withdrawal of ~~reactivity~~ control **rods** ~~assemblies~~, and excessive cooling of the RCS.

D.1 and D.2

If the Required Actions and associated Completion Times **of Condition A or B** are not met or ~~the requirements of~~ LCO 3.4.13 **is** ~~are~~ not met for reasons other than Condition~~s~~ A or B while in MODE 6, the plant must be placed in a condition which precludes the need for the ADS vent paths. Action must be initiated~~,~~ immediately~~,~~ to remove the upper internals, **which provides** ~~providing~~ the required vent path. ~~The time to RCS boiling is maximized by increasing RCS inventory and maintaining RCS temperature as low as practical.~~

Additionally, action to suspend positive reactivity additions is required to ensure that the SDM is maintained. Sources of positive reactivity addition include boron dilution, withdrawal of ~~reactivity~~ control **rods** ~~assemblies~~, and excessive cooling of the RCS.

SURVEILLANCE REQUIREMENTS

SR 3.4.13.1

Each required ADS flow path is verified to be open by verifying that the **ADS** stage 1, 2, and 3 valves are in their ~~fully~~ open position every 12 hours, as indicated in the control room. This Surveillance Frequency is acceptable based on administrative controls which preclude repositioning the valves.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.13.2

~~The LCO 3.4.11 Surveillance Requirements (~~SR 3.4.11.1**,** ~~and~~ SR 3.4.11.3**, and SR 3.4.11.5**~~)~~ are applicable to the **valves in the two** stage 4 ADS **flow paths** ~~valves~~ required to be OPERABLE. The Frequencies associated with each specified SR are applicable. Refer to the corresponding Bases for LCO 3.4.11 for a discussion of each SR.

REFERENCES

1. **FSAR** Section 19E.4, “Safety Analyses and Evaluations.”

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.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 Automatic Depressurization System (ADS) – Shutdown, RCS Open

LCO 3.4.13 ADS stage 1, 2, and 3 flow paths shall be open.
Two ADS stage 4 flow paths shall be OPERABLE.

----------NOTE----------
In MODE 5, the ADS valves may be closed to facilitate RCS vacuum fill operations to establish a pressurizer level ≥ 20%, provided ADS valve OPERABILITY meets LCO 3.4.12, ADS - Shutdown, RCS Intact.

APPLICABILITY: MODE 5 with pressurizer level < 20%,
MODE 5 with RCS pressure boundary open,
MODE 6 with upper internals in place.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One ADS stage 1, 2, or 3 flow path not open.	A.1	Open the affected flow path.	72 hours
	OR		
	A.2	Open an alternative flow path with an equivalent area.	72 hours
B. One required ADS stage 4 flow path inoperable.	B.1	Open an alternative flow path with an equivalent area.	36 hours
	OR		
	B.2	Restore required ADS stage 4 flow paths to OPERABLE status.	36 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met while in MODE 5. OR LCO not met for reasons other than Condition A or B while in MODE 5.	C.1 Initiate action to fill the RCS to establish ≥ 20% pressurizer level. AND C.2 Suspend positive reactivity additions.	Immediately Immediately
D. Required Action and associated Completion Time of Condition A or B not met while in MODE 6. OR LCO not met for reasons other than Condition A or B while in MODE 6.	D.1 Initiate action to remove the upper internals. AND D.2 Suspend positive reactivity additions.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.13.1	Verify each ADS stage 1, 2, and 3 valve is in the open position.	12 hours

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.13.2	For each ADS stage 4 flow path required to be OPERABLE, the following SRs are applicable: SR 3.4.11.1 SR 3.4.11.3 SR 3.4.11.5	In accordance with applicable SRs

B 3.4 REACTOR COOLANT SYSTEM (RCS)

B 3.4.13 Automatic Depressurization System (ADS) – Shutdown, RCS Open

BASES

BACKGROUND	A description of the ADS is provided in the Bases for LCO 3.4.11, "Automatic Depressurization System (ADS) – Operating."
APPLICABLE SAFETY ANALYSES	When the plant is shutdown with the RCS depressurized, the core makeup tanks (CMTs) are isolated to prevent CMT injection. Since the ADS is actuated by low CMT level, automatic actuation of the ADS is not available. The ADS stage 1, 2, and 3 vent paths are opened and two ADS stage 4 flow paths are OPERABLE to ensure that in-containment refueling water storage tank (IRWST) injection and containment recirculation can occur, if needed to mitigate events requiring RCS makeup, boration or core cooling (Ref. 1). The ADS vent path must be maintained until the upper internals are removed, providing an adequate vent path for IRWST injection. The ADS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).
LCO	The requirement that ADS stage 1, 2, and 3 flow paths be open, from the pressurizer through the spargers into the IRWST, and that two ADS stage 4 flow paths be OPERABLE ensures that sufficient vent area is available to support IRWST injection. The Note allows closure of the RCS pressure boundary when the pressurizer level is < 20% to facilitate vacuum refill following mid-loop operations to establish a pressurizer water level ≥ 20%. Prior to closure of the ADS valves, compliance with LCO 3.4.12, "Automatic Depressurization System (ADS) – Shutdown, RCS Intact," must be verified.
APPLICABILITY	In MODE 5 with pressurizer level < 20%, in MODE 5 with the reactor coolant system pressure boundary (RCPB) open, and in MODE 6 with the upper internals in place, the stage 1, 2, and 3 ADS flow paths must be open and two ADS stage 4 flow paths be OPERABLE.

BASES

APPLICABILITY (continued)

The requirements for the ADS in MODES 1 through 4 are specified in LCO 3.4.11, “Automatic Depressurization System (ADS) – Operating” and in MODE 5 with the RCPB intact in LCO 3.4.12, “Automatic Depressurization System (ADS) – Shutdown, RCS Intact.”

ACTIONS

A.1 and A.2

If one ADS stage 1, 2, or 3 flow path is closed, action must be taken to open the affected path or establish an alternative flow path within 72 hours. In this Condition the remaining open ADS stage 1, 2, and 3 flow paths and the OPERABLE ADS stage 4 flow paths are adequate to perform the required safety function without an additional single failure. The stage 4 valves would have to be opened by the operator in case of an event while in the applicable MODES and other specified conditions of this Specification. The required vent area may be restored by opening the affected ADS flow path or an alternate vent path with an equivalent area. Considering that the required function is available in this Condition a Completion Time of 72 hours is acceptable.

B.1 and B.2

If one required ADS stage 4 flow path is inoperable, action must be taken to establish an alternative flow path, or restore both of the two required ADS stage 4 flow paths to OPERABLE status within 36 hours. In this Condition the remaining open ADS stage 1, 2, and 3 flow paths and the one remaining OPERABLE ADS stage 4 flow path are adequate to perform the required safety function without an additional single failure. The required vent area may be restored by opening an alternate vent path with an equivalent area. Acceptable alternate vent paths exclude the use of the pressurizer manway as pressurizer surge line flooding phenomena can negate the IRWST elevation head necessary for successful gravity injection. Alternatively, two stage 4 flow paths may be restored to OPERABLE status. Therefore a Completion Time of 36 hours is considered acceptable.

BASES

ACTIONS (continued)

C.1 and C.2

If the Required Actions and associated Completion Times of Condition A or B are not met or LCO 3.4.13 is not met for reasons other than Condition A or B while in MODE 5, the plant must be placed in a condition which minimizes the potential for requiring ADS venting and IRWST injection. The time to RCS boiling is maximized by increasing RCS inventory to ≥ 20% pressurizer level.

Additionally, action to suspend positive reactivity additions is required to ensure that the SDM is maintained. Sources of positive reactivity addition include boron dilution, withdrawal of control rods, and excessive cooling of the RCS.

D.1 and D.2

If the Required Actions and associated Completion Times of Condition A or B are not met or LCO 3.4.13 is not met for reasons other than Condition A or B while in MODE 6, the plant must be placed in a condition which precludes the need for the ADS vent paths. Action must be initiated immediately to remove the upper internals, which provides the required vent path.

Additionally, action to suspend positive reactivity additions is required to ensure that the SDM is maintained. Sources of positive reactivity addition include boron dilution, withdrawal of control rods, and excessive cooling of the RCS.

SURVEILLANCE REQUIREMENTS

SR 3.4.13.1

Each required ADS flow path is verified to be open by verifying that the ADS stage 1, 2, and 3 valves are in their open position every 12 hours, as indicated in the control room. This Surveillance Frequency is acceptable based on administrative controls which preclude repositioning the valves.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.4.13.2

SR 3.4.11.1, SR 3.4.11.3, and SR 3.4.11.5 are applicable to the valves in the two stage 4 ADS flow paths required to be OPERABLE. The Frequencies associated with each specified SR are applicable. Refer to the corresponding Bases for LCO 3.4.11 for a discussion of each SR.

REFERENCES

1. FSAR Section 19E.4, “Safety Analyses and Evaluations.”