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

Title: Changes Related to LCO 3.3.18, Remote Shutdown Workstation (RSW)

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:

TSTF-359-A, Rev 9, Increase Flexibility in MODE Restraints

STS NUREGs Affected:

TSTF-359-A, Rev 9: NUREGs 1430, 1431, 1432, 1433, and 1434

NRC Approval Date:

TSTF-359-A, Rev 9: 12-May-03

TSTF Classification:

TSTF-359-A, Rev 9: 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:

There are no Vogtle Electric Generating Plant Units 3 and 4 (Vogtle or VEGP) departures applicable to GTS 3.3.4.

RCOL COL Item Number and Title:

There are no Vogtle COL items applicable to GTS 3.3.4.

RCOL PTS Change Number and Title:

The VEGP License Amendment Request (LAR) proposed the following changes to the initial version of the PTS (referred to as the current TS by the VEGP LAR). These changes include Administrative Changes (A), Detail Removed Changes (D), Less Restrictive Changes (L), and More Restrictive Changes (M). These changes are discussed in Sections VI and VII of this GTST.

VEGP LAR DOC A024:	Reformat of GTS 3.3.1 into Seven Parts; 3.3.1 through 3.3.7
VEGP LAR DOC A028:	Reformat of GTS 3.3.2 into Nine Parts; 3.3.8 through 3.3.16
VEGP LAR DOC A038:	Numerous TS surveillances are revised by deletion of word “that” from the surveillance

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(1) applicable to operating reactor designs, but not to the AP1000 design; (2) already incorporated in the GTS; or (3) superseded by another change.

The justification for TSTF-359 is based on vendor-specific evaluations. For Westinghouse plants, that evaluation is in MUHP-3015, "Qualitative Risk Assessment Supporting Increased Flexibility in Mode Restraints," January 2002. This report evaluated "the key plant changes that occur during the Mode changes so it is possible to identify the initiating events that can occur and systems available for event detection, actuation, and mitigation." It also considered initiating events and equipment available to mitigate those events. Based on that evaluation, Notes were proposed for several systems to prohibit the use of LCO 3.0.4.b. These Notes were applied to LTOP, ECCS-Shutdown, AFW, and AC Sources - Operating. TSTF-359-A also removed existing Notes from the ISTS and revised SR 3.0.4. There is no technical basis for concluding that the analysis performed in support of TSTF-359-A and the high-risk configurations addressed by the Notes are applicable to AP1000 plants. TSTF-359-A is not implemented by this GTST and is deferred for future consideration.

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)

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)

V. Applicability

Affected Generic Technical Specifications and Bases:

Section 3.3.18, Remote Shutdown Workstation (RSW)

Changes to the Generic Technical Specifications and Bases:

GTS 3.3.1, “Reactor Trip System (RTS) Instrumentation,” is reformatted by DOC A024 into seven Specifications; interim A024-modified TS (MTS) 3.3.1 through MTS 3.3.7. The AP1000 GTS 3.3.2, “Engineered Safety Feature Actuation System (ESFAS) Instrumentation,” is reformatted by DOC A028 into nine Specifications; MTS 3.3.8 through MTS 3.3.16. As a result of the reformatting, GTS 3.3.4, “Remote Shutdown Workstation (RSW),” is renumbered as MTS 3.3.18. The MTS format is depicted in Section XI of this GTST as the reference case in the markup of the GTST instrumentation requirements for RSW instrumentation.

References 2, 3, and 6 provide details showing the correspondence of GTS 3.3.4 and STS 3.3.18.

MTS SR 3.3.18.2 is revised to remove “that” from SR description. This is consistent with the guidance provided in the TS Writer's Guide (Reference 4). (DOC A038)

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:

The Vogtle Electric Generating Plant Units 3 and 4 (VEGP) technical specifications upgrade (TSU) License Amendment Request (VEGP TSU LAR) (Reference 2) proposed changes to the initial version of the VEGP PTS (referred to as the current TS by the VEGP TSU LAR). As detailed in VEGP TSU LAR Enclosure 1, administrative change number 24 (DOC A024) reformats PTS 3.3.1 into multiple Specifications as follows:

- 3.3.1, “Reactor Trip System (RTS) Instrumentation”;
- 3.3.2, “Reactor Trip System (RTS) Source Range Instrumentation”;
- 3.3.3, “Reactor Trip System (RTS) Intermediate Range Instrumentation”;
- 3.3.4, “Reactor Trip System (RTS) Engineered Safety Feature Actuation
- 3.3.5, “Reactor Trip System (RTS) Manual Actuation”;
- 3.3.6, “Reactor Trip System (RTS) Automatic Trip Logic”; and
- 3.3.7, “Reactor Trip System (RTS) Trip Actuation Devices.

As detailed in VEGP TSU LAR Enclosure 1, DOC A028 reformats PTS 3.3.2 into multiple Specifications as follows:

- 3.3.8, “Engineered Safety Feature Actuation System (ESFAS) Instrumentation,”
- 3.3.9, “Engineered Safety Feature Actuation System (ESFAS) Manual Initiation,”
- 3.3.10, “Engineered Safety Feature Actuation System (ESFAS) Reactor Coolant System (RCS) Hot Leg Level Instrumentation,”
- 3.3.11, “Engineered Safety Feature Actuation System (ESFAS) Startup Feedwater Flow Instrumentation,”
- 3.3.12, “Engineered Safety Feature Actuation System (ESFAS) Reactor Trip Initiation,”
- 3.3.13, “Engineered Safety Feature Actuation System (ESFAS) Control Room Air Supply Radiation Instrumentation,”
- 3.3.14, “Engineered Safety Feature Actuation System (ESFAS) Spent Fuel Pool Level Instrumentation,”
- 3.3.15, “Engineered Safety Feature Actuation System (ESFAS) Actuation Logic - Operating,” and
- 3.3.16, “Engineered Safety Feature Actuation System (ESFAS) Actuation Logic - Shutdown.”

As a result, GTS 3.3.4 is renumbered as MTS 3.3.18.

DOC A038 revises MTS SR 3.3.18.2 by deleting “that” from the surveillance.

A more detailed description of the changes by each of the above DOCs can be found in Reference 2, VEGP TSU LAR in Enclosure 1; 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 (Reference 5) by Southern Nuclear Operating Company's RAI Response in Reference 6.

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

The reformatting per DOC A024 and DOC A028, except where addressed in other Discussion of Changes, addresses inconsistencies in formatting and approach between PTS 3.3.1 and PTS 3.3.2, respectively. Simplification and clarification are proposed for each Specification. In breaking down each PTS Specification into specific subsets of the Protection and Safety Monitoring System (PMS) function, improved human factored operator usability results.

The editorial change per DOC A038 is consistent with the guidance provided in the TS Writer's Guide (Reference 4).

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

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:

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:

The 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 3.3.18 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

Randy Belles
Oak Ridge National Laboratory
865-574-0388
bellesrj@ornl.gov

Review Information:

Availability for public review and comment on Revision 0 of this traveler approved by NRC staff on 5/29/2014.

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 # 11) The GTST incorporates TSTF-359-A, Rev. 9. The justification for TSTF-359 was based on vendor-specific evaluations. For Westinghouse plants, that evaluation was in MUHP-3015, “Qualitative Risk Assessment Supporting Increased Flexibility in Mode Restraints,” January 2002. This report evaluated “the key plant changes that occur during the Mode changes so it is possible to identify the initiating events that can occur and systems available for event detection, actuation, and mitigation.” It also considered initiating events and equipment available to mitigate those events. Based on that evaluation, Notes were proposed for several systems to prohibit the use of LCO 3.0.4.b. These Notes were applied to LTOP, ECCS-Shutdown, AFW, and AC Sources - Operating. TSTF-359-A also removed existing Notes from the ISTS and revised SR 3.0.4. There is no technical basis for concluding that the analysis performed in support of TSTF-359-A and the high-risk configurations addressed by the Notes are applicable to AP1000 plants. Remove TSTF-359-A from the GTST. Include TSTF-359-A in the reference disposition tables, as “TSTF deferred for future consideration”

Note: also reinstate LCO 3.0.4 “not applicable” Notes deleted in various Specifications as a result of incorporating TSTF-359. This is resolved by reversing all changes implemented by the initial application of TSTF-359-A to this GTST.

NRC Final Approval Date: 12/14/2015

NRC Contact:

C. Craig Harbuck
United States Nuclear Regulatory Commission
301-415-3140
Craig.Harbuck@nrc.gov

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.

3.3 INSTRUMENTATION

3.3.18 Remote Shutdown Workstation (RSW)

LCO 3.3.18 The RSW shall be OPERABLE:

APPLICABILITY: MODES 1, 2, and 3.
MODE 4 with Reactor Coolant System (RCS) average temperature (T_{avg}) ≥ 350°F.

ACTIONS

----------NOTE----------
LCO 3.0.4 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RSW inoperable.	A.1 Restore to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4 with T_{avg} < 350°F.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.18.1	Verify each required transfer switch is capable of performing the required function.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.18.2	Verify ~~that~~ the RSW communicates indication and controls with Division A, B, C and D of the Protection and Safety Monitoring System (PMS).	24 months
SR 3.3.18.3	Verify the OPERABILITY of the RSW hardware and software.	24 months
SR 3.3.18.4	Perform TADOT of the reactor trip breaker open/closed indication.	24 months

B 3.3 INSTRUMENTATION

B 3.3.18 Remote Shutdown Workstation (RSW)

BASES

BACKGROUND

The RSW provides the control room operator with sufficient displays and controls to place and maintain the unit in a safe shutdown condition from a location other than the control room **(Ref. 1)**. This capability is necessary to protect against the possibility that the control room becomes inaccessible. Passive residual heat removal (PRHR), the core makeup tanks (CMTs), and the in-containment refueling water storage tank (IRWST) can be used to remove core decay heat. The use of passive safety systems allows extended operation in MODE 4.

If the control room becomes inaccessible, the operators can establish control at the RSW and place and maintain the unit in MODE 4 with T_{avg} < 350°F. The unit can be maintained safely in MODE 4 with T_{avg} < 350°F for an extended period of time.

The OPERABILITY of the remote shutdown control and display functions ensures there is sufficient information available on selected unit parameters to place and maintain the unit in MODE 4 with T_{avg} < 350°F should the control room become inaccessible.

APPLICABLE SAFETY ANALYSES

The RSW is required to provide equipment at appropriate locations outside the control room with a capability to promptly shut down and maintain the unit in a safe condition in MODE 4 with T_{avg} < 350°F.

The criteria governing the design and the specific system requirements of the RSW are located in 10 CFR 50, Appendix A, GDC 19 (Ref. **2**~~1~~).

Since the passive safety systems alone can establish and maintain safe shutdown conditions for the unit, nonsafety systems are not required for safe shutdown of the unit. Therefore, no credit is taken in the safety analysis for nonsafety systems.

The RSW satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).

LCO

The RSW LCO provides the OPERABILITY requirements of the displays and controls necessary to place and maintain the unit in MODE 4 from a location other than the control room.

BASES

LCO (continued)

The RSW covered by this LCO does not need to be energized to be considered OPERABLE. This LCO is intended to ensure the RSW will be OPERABLE if unit conditions require that the RSW be placed in operation.

APPLICABILITY

The RSW LCO is applicable in MODES 1, 2, and 3 and in MODE 4 with $T_{avg} \geq 350°F$. This is required so that the facility can be placed and maintained in MODE 4 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODE 4 with $T_{avg} < 350°F$ or in MODE 5 or 6. In these MODES, the unit is already subcritical and in a condition of reduced Reactor Coolant System (RCS) energy. Under these conditions, considerable time is available to restore necessary instrument control functions if control room instruments or controls become unavailable.

ACTIONS

The Note excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into an applicable MODE while relying on the ACTIONS even though the ACTIONS may eventually require a unit shutdown. This exception is acceptable due to the low probability of an event requiring the RSW and because the equipment can generally be repaired during operation without significant risk of a spurious trip.

A.1

Condition A addresses the situation where the RSW is inoperable. The Required Action is to restore the RSW to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.

B.1 and B.2

If the Required Action and associated Completion Time of Condition A is not met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 4 with $T_{avg} < 350°F$ within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full

ACTIONS (continued)

power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.18.1

SR 3.3.18.1 verifies that each required RSW transfer switch performs the required functions. This ensures that if the control room becomes inaccessible, the unit can be placed and maintained in MODE 4 with T_{avg} < 350°F from the RSW. The 24 month Frequency was developed considering it is prudent that these types of surveillances be performed during a unit outage. However, this surveillance is not required to be performed only during a unit outage. This is due to the unit conditions needed to perform the surveillance and the potential for unplanned transients if the surveillance is performed with the reactor at power. Operating experience demonstrates that RSW transfer switches usually pass the surveillance test when performed on the 24 month Frequency.

SR 3.3.18.2

This Surveillance verifies that the RSW communicates controls and indications with Divisions A, B, C, and D of the PMS. Communication is accomplished by use of separate multiplexers for each division. The operator can select the controls and indications available through each PMS division.

The Frequency of 24 months is based on the use of the data display capability in the control room as part of the normal unit operation and the availability of multiple video display units at the RSW. The Frequency of 24 months is based upon operating experience and consistency with control room hardware and software.

SR 3.3.18.3

SR 3.3.18.3 verifies the OPERABILITY of the RSW hardware and software by performing diagnostics to show that operator displays are capable of being called up and displayed to an operator at the RSW. The RSW has several video display units which can be used by the operator. The video display units are identical to that provided in the control room and the operator can display information on the video display units in a manner which is identical to the way the information is displayed in the control room. The operator normally selects an

BASES

SURVEILLANCE REQUIREMENTS (continued)

appropriate set of displays based on the particular operational goals being controlled by the operator at the time. Each display consists of static graphical and legend information which is contained within the display processor associated with each video display unit and dynamic data which is updated by the data display system.

The Frequency is based on the known reliability of the Functions and the redundancy available, and has been shown to be acceptable through operating experience.

SR 3.3.18.4

SR 3.3.18.4 is the performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT) every 24 months. This test should verify the OPERABILITY of the reactor trip breakers (RTBs) open and closed indication on the RSW by actuating the RTBs. The Frequency of 24 months was chosen because the RTBs may not be exercised while the facility is at power and is based on operating experience and consistency with the refueling outage.

REFERENCES

1. **FSAR Section 7.4.1, "Safe Shutdown."** ~~10 CFR 50, Appendix A, GDC 19.~~
2. **10 CFR 50, Appendix A, GDC 19.** ~~Section 7.4.1, "Safe Shutdown."~~

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.

RSW
3.3.18

3.3 INSTRUMENTATION

3.3.18 Remote Shutdown Workstation (RSW)

LCO 3.3.18 The RSW shall be OPERABLE:

APPLICABILITY: MODES 1, 2, and 3.
MODE 4 with Reactor Coolant System (RCS) average temperature (T_{avg}) ≥ 350°F.

ACTIONS

----------NOTE----------
LCO 3.0.4 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RSW inoperable.	A.1 Restore to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4 with T_{avg} < 350°F.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.18.1	Verify each required transfer switch is capable of performing the required function.	24 months

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.18.2	Verify the RSW communicates indication and controls with Division A, B, C and D of the Protection and Safety Monitoring System (PMS).	24 months
SR 3.3.18.3	Verify the OPERABILITY of the RSW hardware and software.	24 months
SR 3.3.18.4	Perform TADOT of the reactor trip breaker open/closed indication.	24 months

B 3.3 INSTRUMENTATION

B 3.3.18 Remote Shutdown Workstation (RSW)

BASES

BACKGROUND

The RSW provides the control room operator with sufficient displays and controls to place and maintain the unit in a safe shutdown condition from a location other than the control room (Ref. 1). This capability is necessary to protect against the possibility that the control room becomes inaccessible. Passive residual heat removal (PRHR), the core makeup tanks (CMTs), and the in-containment refueling water storage tank (IRWST) can be used to remove core decay heat. The use of passive safety systems allows extended operation in MODE 4.

If the control room becomes inaccessible, the operators can establish control at the RSW and place and maintain the unit in MODE 4 with T_{avg} < 350°F. The unit can be maintained safely in MODE 4 with T_{avg} < 350°F for an extended period of time.

The OPERABILITY of the remote shutdown control and display functions ensures there is sufficient information available on selected unit parameters to place and maintain the unit in MODE 4 with T_{avg} < 350°F should the control room become inaccessible.

APPLICABLE SAFETY ANALYSES

The RSW is required to provide equipment at appropriate locations outside the control room with a capability to promptly shut down and maintain the unit in a safe condition in MODE 4 with T_{avg} < 350°F.

The criteria governing the design and the specific system requirements of the RSW are located in 10 CFR 50, Appendix A, GDC 19 (Ref. 2).

Since the passive safety systems alone can establish and maintain safe shutdown conditions for the unit, nonsafety systems are not required for safe shutdown of the unit. Therefore, no credit is taken in the safety analysis for nonsafety systems.

The RSW satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).

LCO

The RSW LCO provides the OPERABILITY requirements of the displays and controls necessary to place and maintain the unit in MODE 4 from a location other than the control room.

BASES

LCO (continued)

The RSW covered by this LCO does not need to be energized to be considered OPERABLE. This LCO is intended to ensure the RSW will be OPERABLE if unit conditions require that the RSW be placed in operation.

APPLICABILITY

The RSW LCO is applicable in MODES 1, 2, and 3 and in MODE 4 with $T_{avg} \geq 350°F$. This is required so that the facility can be placed and maintained in MODE 4 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODE 4 with $T_{avg} < 350°F$ or in MODE 5 or 6. In these MODES, the unit is already subcritical and in a condition of reduced Reactor Coolant System (RCS) energy. Under these conditions, considerable time is available to restore necessary instrument control functions if control room instruments or controls become unavailable.

ACTIONS

The Note excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into an applicable MODE while relying on the ACTIONS even though the ACTIONS may eventually require a unit shutdown. This exception is acceptable due to the low probability of an event requiring the RSW and because the equipment can generally be repaired during operation without significant risk of a spurious trip.

A.1

Condition A addresses the situation where the RSW is inoperable. The Required Action is to restore the RSW to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.

B.1 and B.2

If the Required Action and associated Completion Time of Condition A is not met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 4 with Tavg < 350°F within12 hours. The allowed Completion Times are reasonable, based

BASES

ACTIONS (continued)

on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.18.1

SR 3.3.18.1 verifies that each required RSW transfer switch performs the required functions. This ensures that if the control room becomes inaccessible, the unit can be placed and maintained in MODE 4 with T_{avg} < 350°F from the RSW. The 24 month Frequency was developed considering it is prudent that these types of surveillances be performed during a unit outage. However, this surveillance is not required to be performed only during a unit outage. This is due to the unit conditions needed to perform the surveillance and the potential for unplanned transients if the surveillance is performed with the reactor at power. Operating experience demonstrates that RSW transfer switches usually pass the surveillance test when performed on the 24 month Frequency.

SR 3.3.18.2

This Surveillance verifies that the RSW communicates controls and indications with Divisions A, B, C, and D of the PMS. Communication is accomplished by use of separate multiplexers for each division. The operator can select the controls and indications available through each PMS division.

The Frequency of 24 months is based on the use of the data display capability in the control room as part of the normal unit operation and the availability of multiple video display units at the RSW. The Frequency of 24 months is based upon operating experience and consistency with control room hardware and software.

SR 3.3.18.3

SR 3.3.18.3 verifies the OPERABILITY of the RSW hardware and software by performing diagnostics to show that operator displays are capable of being called up and displayed to an operator at the RSW. The RSW has several video display units which can be used by the operator. The video display units are identical to that provided in the

BASES

SURVEILLANCE REQUIREMENTS (continued)

control room and the operator can display information on the video display units in a manner which is identical to the way the information is displayed in the control room. The operator normally selects an appropriate set of displays based on the particular operational goals being controlled by the operator at the time. Each display consists of static graphical and legend information which is contained within the display processor associated with each video display unit and dynamic data which is updated by the data display system.

The Frequency is based on the known reliability of the Functions and the redundancy available, and has been shown to be acceptable through operating experience.

SR 3.3.18.4

SR 3.3.18.4 is the performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT) every 24 months. This test should verify the OPERABILITY of the reactor trip breakers (RTBs) open and closed indication on the RSW by actuating the RTBs. The Frequency of 24 months was chosen because the RTBs may not be exercised while the facility is at power and is based on operating experience and consistency with the refueling outage.

REFERENCES

1. FSAR Section 7.4.1, “Safe Shutdown.”

2. 10 CFR 50, Appendix A, GDC 19.