

Chapter 16



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VCS UFSAR Formatting Legend

| Color | Description |
|---|--|
|  | Original Westinghouse AP1000 DCD Tier 2 & Tier 2*, Revision 19 content |
|  | Departures from AP1000 DCD Tier 2 & Tier 2*, Revision 19 content |
|  | Standard FSAR content |
|  | Site-specific FSAR content |
|  | Linked cross-references (chapters, appendices, sections, subsections, tables, figures, and references) |

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Updated Final Safety Analysis Report**

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16.1 Technical Specifications

16.1.1 Introduction to Technical Specifications

LCO Selection Criteria

The screening criteria of 10CFR50.36, c(2)(ii) stated below has been used to identify the structures, systems, and parameters for which Limiting Conditions for Operation (LCOs) have been included in the AP1000 Technical Specifications.

1. Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.
2. A process variable, design feature, or operating restriction that is an initial condition of a Design Basis Accident or Transient Analyses that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
3. A structure, system or component that is part of the primary success path and which functions or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
4. Structures, systems, and components which operating experience or probabilistic safety assessment has shown to be important to public health and safety.

Technical Specification Content

The content of the AP1000 Technical Specifications meets the 10CFR50.36 requirements and is consistent with the Technical Specification Improvement Program, NUREG 1431, Rev. 2, to the maximum extent possible. The content differs from NUREG 1431 only as necessary to reflect technical differences between the “typical” Westinghouse design and the AP1000 design.

Completion Times and Surveillance Frequencies

The Completion Times and Surveillance Frequencies specified in NUREG 1431 have been applied to similar Actions and Surveillances Requirements in AP1000. Refer to Westinghouse letter DCP/NRC0891 for a discussion regarding selection of Completion Times and Surveillance Frequencies for those AP1000 Tech Specs for which no comparable NUREG 1431 system/function exists and for those AP1000 system design differences which lead to deviations from NUREG 1431 Completion Times and Surveillance Frequencies.

Shutdown Completion Times/Mode Definitions

The AP1000 plant design is different from current Westinghouse designs in that the systems normally used for MODE reduction are non-safety systems; and therefore, are not covered by LCO requirements in Technical Specifications. The passive safety systems, which shut down the plant require a longer period of time to accomplish mode changes and can not reduce the RCS temperature to below 200°F.

Combined License Information

The set of [generic](#) technical specifications [were](#) used as a guide in the development of the plant-specific technical specifications. The preliminary information originally provided in brackets [] has been revised with the updated information, [including information provided in APP-GW-GLR-064 \(Reference 1\)](#) and [APP-GW-GLN-075 \(Reference 2\)](#). [In accordance with 10 CFR Part 52, Appendix D, Section VII.C.6, following the issuance of the license, the generic technical specifications have no further effect on the plant-specific technical specifications.](#)

16.1.2 References

1. APP-GW-GLR-064, "AP1000 Generic Technical Specifications Completion," Westinghouse Electric Company LLC.
2. APP-GW-GLN-075, "AP1000 Generic Technical Specifications for Design Changes," Westinghouse Electric Company LLC.
3. APP-RXS-Z0R-001, Revision 2, "AP1000 Generic Pressure Temperature Limits Report," F. C. Gift, September 2008.

16.2 Design Reliability Assurance Program

See [Section 17.4](#) for information on the AP1000 Design Reliability Assurance Program (D-RAP).

16.3 Investment Protection

16.3.1 Investment Protection Short-Term Availability Controls

The importance of nonsafety-related systems, structures and components in the AP1000 has been evaluated. The evaluation uses PRA insights to identify systems, structures and components that are important in protecting the utilities investment and for preventing and mitigating severe accidents. To provide reasonable assurance that these systems, structures and components are functional during anticipated events short-term availability controls are provided. These investment protection systems, structures and components are also included in the D-RAP/OPRAAs (refer to Section 17.4), which provides confidence that availability and reliability are designed into the plant and that availability and reliability are maintained throughout plant life through the use of reliability assurance activities as listed in Subsection 17.4.4. Technical Specifications are not required for these systems, structures and components because they do not meet the selection criteria applied to the AP1000 (refer to Subsection 16.1.1).

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Table 16.3-1 lists nonsafety-related systems, structures and components that have investment protection short-term availability controls which are contained in the Technical Requirements Manual (TRM). The portions of the TRM containing these short-term availability controls are incorporated by reference into this subsection as FSAR Tier 2 information. These short-term availability controls define:

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- Equipment that shall be FUNCTIONAL
- Operational MODES when the equipment shall be FUNCTIONAL
- Testing and inspections that are used to demonstrate the equipment's FUNCTIONALITY
- Operational MODES that are used for planned maintenance operations
- Remedial actions that are taken if the equipment is not FUNCTIONAL

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Station procedures govern and control the FUNCTIONALITY of investment protection systems, structures, and components, in accordance with the Tier 2 information within the TRM, and provide the operating staff with instruction for implementing required actions when FUNCTIONALITY requirements are not met. Procedure development is addressed in Section 13.5. TRM Use and Application Sections 1.2, 1.3 and 1.4 as well as TRM Applicability Sections TR 3.0.1, TR 3.0.2, TRS 3.0.1, TRS 3.0.2, and TRS 3.0.3 constitute a portion of these procedural controls, but are not considered Tier 2 information.

TRM Section 1.1, Definitions, contains defined terms that appear in capitalized type. TRM Section 1.1, Definitions, is also incorporated by reference into this subsection as FSAR Tier 2 information.

16.3.2 Combined License Information

The procedure to control the functionality of investment protection systems, structures and components is addressed in Subsection 16.3.1.

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Table 16.3-1 List of Investment Protection Short-term Availability Controls

| | | |
|-----------|---|-----------|
| TRM 3.3.1 | Diverse Actuation System (DAS) Automatic Actuation | RN-14-153 |
| TRM 3.6.1 | Passive Containment Cooling Water Storage Tank (PCCWST) and Spent Fuel Pool Makeup - Long Term Shutdown | |
| TRM 3.6.2 | Hydrogen Igniters | RN-14-042 |
| TRM 3.7.1 | Normal Residual Heat Removal System (RNS) - Reactor Coolant System (RCS) Makeup | RN-14-153 |
| TRM 3.7.2 | Normal Residual Heat Removal System (RNS) - Reactor Coolant System (RCS) Open | |
| TRM 3.7.3 | Component Cooling Water System (CCS) – Reactor Coolant System (RCS) Open | |
| TRM 3.7.4 | Service Water System (SWS) – Reactor Coolant System (RCS) Open | |
| TRM 3.7.5 | Main Control Room (MCR) Cooling - Long Term Shutdown | |
| TRM 3.7.6 | I&C Room Cooling - Long Term Shutdown | |
| TRM 3.8.1 | AC Power Supplies - Operating | |
| TRM 3.8.2 | AC Power Supplies – Reactor Coolant System (RCS) Open | |
| TRM 3.8.3 | AC Power Supplies - Long Term Shutdown | |
| TRM 3.8.4 | Non Class 1E DC and UPS System (EDS) | |