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SUBJECT: Transmittal of Westinghouse Document, WCAP-15799 Revision 1, "AP1000 Conformance with SRP Acceptance Criteria," dated August 2003

Attached please find Revision 1 of WCAP-15799 "AP1000 Conformance with SRP Acceptance Criteria." This report has been revised consistent with the Westinghouse Response to Open Item 14.2.7-3 from the AP1000 Draft Safety Evaluation Report that was transmitted to the NRC in Westinghouse letter DCP/NRC1598 dated June 23, 2003. This report contains no Westinghouse proprietary information.

Please contact me at 412-374-5355 if you have any questions concerning this submittal.

Very truly yours,

M. M. Corletti
Passive Plant Projects & Development
AP600 & AP1000 Projects

/Attachment
WCAP-15799 Revision 1, "AP1000 Conformance with SRP Acceptance Criteria," dated August 2003

D063

WCAP-15799 Revision 1

"AP1000 Conformance with SRP Acceptance Criteria"

August 2003

Westinghouse Non-Proprietary Class 3

WCAP-15799
Revision 1

August 2003

AP1000 Conformance with SRP Acceptance Criteria

AP1000 DOCUMENT COVER SHEET

TDC: _____ Permanent File: _____ S _____

RFS#: _____ RFS ITEM #: _____

AP1000 DOCUMENT NO.	REVISION NO.		ASSIGNED TO
APP-GW-GL-001	1	Page 1 of 210	W-J. W. Winters

ALTERNATE DOCUMENT NUMBER: WCAP-15799, Revision 1 WORK BREAKDOWN #:

ORIGINATING ORGANIZATION: Westinghouse Electric Company LLC

TITLE: **AP1000 Conformance with SRP Acceptance Criteria**

ATTACHMENTS:	DCP #/REV. INCORPORATED IN THIS DOCUMENT REVISION:
	Class 3 change to incorporate Draft Safety Evaluation Report Open Item Response 14.2.7-3.
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AP1000 RESPONSIBLE MANAGER J. W. Winters	SIGNATURE*	J. W. Winters	APPROVAL DATE 27 Aug 03

*Approval of the responsible manager signifies that document is complete, all required reviews are complete, electronic file is attached and document is released for use.

WCAP-15799
Revision 1

AP1000 Conformance with SRP Acceptance Criteria

D. A. Lindgren

August 2003

AP1000 Document: APP-GW-GL-001

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1 INTRODUCTION AND GENERAL DESCRIPTION OF PLANT

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 1.8 - Interfaces for Standard Design (Rev. 1, 7/81)			
		N/A	No criteria included in SRP Section 1.8.

2 SITE CHARACTERISTICS

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 2.1.1 - Site Location and Description (Rev. 2, 7/81)			
		N/A	Not applicable to the AP1000 Design Certification. The site location including the exclusion area and the location of the plant within the area, the highways, railways, and waterways that traverse the exclusion area are all characteristics that can only be determined for a specific site. These are the Combined License applicant's responsibility. The AP1000 Design Certification does not refer to a specific site, but to a standard site envelope.
SRP 2.1.2 - Exclusion Area Authority and Control (Rev. 2, 7/81)			
		N/A	The applicant's legal authority to determine all activities within the designated exclusion area is a site specific consideration not related to the AP1000 Design Certification.
SRP 2.1.3 - Population Distribution (Rev. 2, 7/81)			
1.		Acceptable	The population distribution in the site environs is not postulated. This is a site specific characteristic. However, for radiological evaluations, the exclusion zone is assumed to be 1/2 mile radius of the plant.
2.		N/A	The AP1000 Design Certification does not refer to a specific site, but to a standard site envelope. The population distribution is a site specific characteristic.
3.		N/A	The AP1000 Design Certification does not refer to a specific site, but to a standard site envelope. The population distribution is a site specific characteristic.
4.		N/A	The AP1000 Design Certification does not refer to a specific site, but to a standard site envelope. The population distribution is a site specific characteristic.
5.		N/A	The AP1000 Design Certification does not refer to a specific site, but to a standard site envelope. The population distribution is a site specific characteristic.
6.	R.G. 4.7, C.3	N/A	The AP1000 Design Certification does not refer to a specific site, but to a standard site envelope. The population distribution is a site specific characteristic and therefore, is not applicable to the AP1000 design certification.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 2.2.1 - 2.2.2 - Identification of Potential Hazards in the Site Vicinity (Rev. 2, 7/81)			
1.		N/A	Data on the locations and distances of industrial, military, and transportation facility are site specific characteristics.
2.		N/A	The nature and extent of activities conducted on near by facilities are site specific characteristics.
3.		N/A	Data on hazardous materials external to the plant site are site specific.
SRP 2.2.3 - Evaluation of Potential Accidents (Rev. 2, 7/81)			
	R.G. 1.70, SRP 2.2.3	N/A	Probability evaluations to determine the potential for offsite hazards causing onsite accidents leading to the release of significant quantities of radioactive fission products are site specific evaluations.
SRP 2.3.1 - Regional Climatology (Rev. 2, 7/81)			
General			Most of the information reviewed under this SRP is site specific and will be provided by the Combined License applicant. Westinghouse has identified a site interface for the magnitude of design wind and tornado.
1.		N/A	General climate of the region is site specific and will be provided by the Combined License applicant.
2.		N/A	Data on regional severe weather phenomena is site specific and will be provided by the Combined License applicant.
3.	R.G. 1.76	Exception	Regulatory Guide 1.76 establishes tornado design parameters. The Design Basis Tornado for the AP1000 is defined by the following parameters: Maximum wind speed - 300 mph Translational speed - Maximum 60 mph Minimum 5 mph Radius to maximum wind from center of tornado - 150 ft. Atmospheric pressure drop - 2.0 psi Rotational speed - Maximum 240 mph Rate of pressure drop - 1.2 psi/sec.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
4.		Exception	The SRP is based on the 1972 edition of ANSI A58.1, and utilizes the 100 year recurrence wind. In ASCE 7-98 (formerly ANSI A58.1), the basic wind speed is defined as 3 second gust speed of the 50 year recurrence wind and an importance factor is used for critical structures to reflect a lower probability wind. The design wind velocity for the AP1000 is specified as a basic wind speed of 145 mph with an Importance Factor of 1.15.
5.		N/A	Ultimate heat sink meteorological data is site specific and is the responsibility of the Combined License applicant.
6.		N/A	Freezing rain estimates are site specific and is are the responsibility of the Combined License applicant.
7.		N/A	The potential for high air pollution is site specific and is the responsibility of the Combined License applicant.
8.		Acceptable	
SRP 2.3.2 - Local Meteorology (Rev. 2, 7/81)			
1.	R.G. 1.23	N/A	The onsite meteorological measurements program is site-specific and will be defined by the Combined License applicant. The number and location of meteorological instrument towers are determined by actual site parameters. Local meteorological data is a site specific characteristic. However, conformance with Regulatory Guide 1.23, Proposed Revision 1 is maintained in the instrumentation design.
2.	R.G. 1.70, 2.3.2.2	N/A	The topographical description of the site and environs are site specific. However, the impact on the site and environs is postulated for radiological evaluations.
3.	TID-24190	Acceptable	A discussion and evaluation of the influence of the plant and its facilities on local meteorological and air quality conditions is performed for the AP1000. An Environmental Impact Statement will not be prepared as part of design certification. This will be included in the COL activities and is the Combined License applicant's responsibility.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 2.3.3 - Onsite Meteorological Measurement Programs (Rev. 2, 7/81)			
1.	R.G. 1.23	N/A	The onsite meteorological measurements program is site specific and is not included in the AP1000 Design Certification. This is the Combined License applicant's responsibility. The number and location of meteorological instrument towers are determined by actual site parameters. However, conformance with Regulatory Guide 1.23, Proposed Revision 1 is maintained in the instrumentation design.
SRP 2.3.3, Appendix A - Recommended Format for Hourly Meteorological Data to be Placed on Magnetic Tape (Rev. 2, 7/81)			
		N/A	Not Applicable to AP1000 Design Certification. This is the Combined License applicant's responsibility.
SRP 2.3.4 - Short-Term Dispersion Estimates For Accidental Atmospheric Releases (Rev. 1, 7/81)			
1.		N/A	Atmospheric dispersion factors (X/Q) for the AP1000 site envelope are selected based on a survey of existing plant sites.
2.		N/A	Atmospheric dispersion factors (X/Q) for the AP1000 site envelope are selected based on a survey of existing plant sites.
3.		N/A	Atmospheric dispersion factors (X/Q) for the AP1000 site envelope are selected based on a survey of existing plant sites.
4.	R.G. 1.70, SRP 2.3.4.2	N/A	Atmospheric dispersion factors (X/Q) for the AP1000 site envelope are selected based on a survey of existing plant sites.
5.		Acceptable	Atmospheric dispersion factors (X/Q) for the AP1000 site envelope are selected based on a survey of existing plant sites.
SRP 2.3.5 - Long Term Diffusion Estimates (Rev. 2, 7/81)			
1.		N/A	Relates to site specific information.
2.		N/A	Relates to site specific information.
3.		N/A	Relates to site specific information.
4.	R.G. 1.70, SRP2.3.5.2	Acceptable	Although X/Q and D/Q values are site specific, an annual average site boundary X/Q value is postulated to permit limited radiological evaluation of the AP1000.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 2.4.1 - Hydrologic Description (Rev. 2, 7/81)			
1.		Acceptable	The AP1000 site envelope postulates flooding. Although site specific topography is not used, flooding is addressed in terms of the assumptions made in the site envelope.
2.		N/A	Not applicable to the AP1000 Design Certification. Relates to site specific hydrologic engineering site visits.
SRP 2.4.1, Appendix A - Hydrologic Engineering Site Visits (Rev. 2, 7/81)			
		N/A	Not applicable to the AP1000 Design Certification. Relates to site visits.
SRP 2.4.2 - Floods (Rev. 3, 4/89)			
General			Most of the information reviewed in this SRP is site specific and is the responsibility of the Combined License applicant. Westinghouse has identified a site interface.
	R.G. 1.59	N/A	The maximum water level due to the Probable Maximum Flood is established as a site interface and is used in the design of the AP1000. Site specific analysis is the Combined License applicant's responsibility.
	R.G. 1.29 C.1.a, C.1.b, C.1.c, C.1.f, C.1.h, C.1.j, C.1.k, C.1.l, C.1.m, C.1.o, C.1.p, C.1.q, C.2, C.3, C.4	Acceptable	
	R.G. 1.29 C.1.d	Exception	The AP1000 normal residual heat removal system is nonsafety-related. The safety function of this system is provided by the safety-related PRHR heat exchanger of the passive core cooling system which is seismic Category I. The spent fuel pit cooling system does not have any active safety-related components that perform the heat removal function. The spent fuel pit and its makeup sources are sized for at least 72 hours without active cooling following a loss of ac power sources. The 72-hour sizing calculation accounts for the maximum loss of water due to the rupture of non-seismic piping. Seismic Category I components within the spent fuel pit cooling system include the containment penetration, the connections for makeup and the spent fuel pit (refueling system).

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.29 C.1.e	N/A	Applies to BWRs only.
	R.G. 1.29 C.1.g	Exception	The safety-related function of the auxiliary feedwater system is replaced by the PRHR heat exchanger. The safety-related functions of the essential service water system are provided by the PRHR heat exchanger and the passive containment cooling system. The component cooling system is a nonsafety-related system, since it performs no safety-related function.
	R.G. 1.29 C.1.i	N/A	The diesel-generators are nonsafety-related. Therefore, this section is not applicable to the AP1000.
	R.G. 1.29 C.1.n	Exception	Structures or equipment whose failure results in incapacitating injury to the occupants of the main control room are classified as seismic Category II and covered under Position 2 of this regulatory guide.
	R.G. 1.102	Acceptable	
SRP 2.4.3 - Probable Maximum Flood (PMF) On Streams and Rivers (Rev. 3, 4/89)			
	R.G. 1.59	N/A	The maximum water level due to the Probable Maximum Flood is established as a site interface and is used in the design of the AP1000. Site specific analysis is the Combined License applicant's responsibility.
	R.G. 1.29 C.1.a, C.1.b, C.1.c, C.1.f, C.1.h, C.1.j, C.1.k, C.1.l, C.1.m, C.1.o, C.1.p, C.1.q, C.2, C.3, C.4	Acceptable	
	R.G. 1.29 C.1.d	Exception	The AP1000 normal residual heat removal system is nonsafety-related. The safety function of this system is provided by the safety-related PRHR heat exchanger of the passive core cooling system which is seismic Category I. The spent fuel pit cooling system does not have any active safety-related components that perform the heat removal function. The spent fuel pit and its makeup sources are sized for at least 72 hours without active cooling following a loss of ac power sources. The 72-hour sizing calculation accounts for the maximum loss of water due to the rupture of non-seismic piping. Seismic Category I components within the spent fuel pit cooling

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			system include the containment penetration, the connections for makeup and the spent fuel pit (refueling system).
	R.G. 1.29 C.1.e	N/A	Applies to BWRs only.
	R.G. 1.29 C.1.g	Exception	The safety-related function of the auxiliary feedwater system is replaced by the PRHR heat exchanger. The safety-related functions of the essential service water system are provided by the PRHR heat exchanger and the passive containment cooling system. The component cooling system is a nonsafety-related system, since it performs no safety-related function.
	R.G. 1.29 C.1.i	N/A	The diesel-generators are nonsafety-related. Therefore, this section is not applicable to the AP1000.
	R.G. 1.29 C.1.n	Exception	Structures or equipment whose failure results in incapacitating injury to the occupants of the main control room are classified as seismic Category II and covered under Position 2 of this regulatory guide.
	R.G. 1.102	Acceptable	
SRP 2.4.4 - Potential Dam Failures (Rev. 2, 7/81)			
General			Most of the information reviewed in this SRP is site specific and is the responsibility of the Combined License applicant. However, the maximum water level due to the Probable Maximum Flood is established as a site interface and issued in the design of the AP1000.
	ANSI N170	N/A	The maximum water level due to the Probable Maximum Flood is established as a site interface and is used in the design of the AP1000. River flows and dam locations are site specific characteristics and are the Combined License applicant's responsibility.
	R.G. 1.59 ANSI N170	N/A	The maximum water level due to the Probable Maximum Flood is established as a site interface and is used in the design of the AP1000. Site specific analysis is the Combined License applicant's responsibility.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.29 C.1.a, C.1.b, C.1.c, C.1.f, C.1.h, C.1.j, C.1.k, C.1.l, C.1.m, C.1.o, C.1.p, C.1.q, C.2, C.3, C.4	Acceptable	
	R.G. 1.129 C.1.d	Exception	The AP1000 normal residual heat removal system is nonsafety-related. The safety related decay heat removal function is provided by the safety-related PRHR heat exchanger of the passive core cooling system which is seismic Category I. The spent fuel pit cooling system does not have any active safety-related components that perform the heat removal function. The spent fuel pit and its makeup sources are sized for at least 72 hours without active cooling following a loss of ac power sources. The 72-hour sizing calculation accounts for the maximum loss of water due to the rupture of non-seismic piping. Seismic Category I components within the spent fuel pit cooling system include the containment penetration, the connections for makeup and the spent fuel pit (refueling system).
	R.G. 1.29 C.1.e	N/A	Applies to BWRs only.
	R.G. 1.29 C.1.g	Exception	The safety-related function of the auxiliary feedwater system is replaced by the PRHR heat exchanger. The safety-related functions of the essential service water system are provided by the PRHR heat exchanger and the passive containment cooling system. The component cooling system is a nonsafety-related system, since it performs no safety-related function.
	R.G. 1.29 C.1.i	N/A	The diesel-generators are nonsafety-related. Therefore, this section is not applicable to the AP1000.
	R.G. 1.29 C.1.n	Exception	Structures or equipment whose failure results in incapacitating injury to the occupants of the main control room are classified as seismic Category II and covered under Position 2 of this regulatory guide.
	R.G. 1.102	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 2.4.5 - Probable Maximum Surge and Seiche Flooding (Rev. 2, 7/81)			
1.		N/A	The flood level is specified as part of the AP1000 site envelope. Site specific analyses are the responsibility of the Combined License applicant to confirm that the site envelope is met.
2.		N/A	Site specific analyses are the responsibility of the Combined License applicant to confirm that the site envelope is met.
3.		N/A	Site specific analyses are the responsibility of the Combined License applicant to confirm that the site envelope is met.
4.		N/A	Site specific analyses are the responsibility of the Combined License applicant to confirm that the site envelope is met.
5.		N/A	Site specific analyses are the responsibility of the Combined License applicant to confirm that the site envelope is met.
6.		N/A	Site specific analyses are the responsibility of the Combined License applicant to confirm that the site envelope is met.
7.		N/A	Site specific analyses are the responsibility of the Combined License applicant to confirm that the site envelope is met.
SRP 2.4.6 - Probable Maximum Tsunami Flooding (Rev. 2, 7/81)			
		N/A	The AP1000 design does not postulate the effects of tsunami in the standard site envelope. Flooding is accounted for in site specific evaluations and evaluated against the site envelope for flood level.
SRP 2.4.7 - Ice Effects (Rev. 2, 7/81)			
A.1		N/A	Data on regional ice and ice jam history are site specific.
A.2		N/A	Data on regional ice and ice jam history are site specific.
A.3		Acceptable	The AP1000 passive design incorporates the use of safety-related equipment that do not rely on the availability of water supplies that could be iced. The effects of ice loading are evaluated for the postulated site envelope.
A.4		N/A	Data on regional ice and ice jam history are site specific.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
A.5		N/A	Data on regional ice and ice jam history are site specific.
B.	R.G. 1.27	N/A	Potential ice flooding and low flows are site specific.
SRP 2.4.8 - Cooling Water Canals and Reservoirs (Rev. 2, 7/81)			
		N/A	The ultimate heat sink for the AP1000 does not rely on cooling water canals and reservoirs.
SRP 2.4.9 - Channel Diversions (Rev. 2, 7/81)			
		N/A	Analysis of historical channel diversions and regional topographic evidence are site specific activities that are not included in the AP1000 Design Certification.
SRP 2.4.10 - Flooding Protection Requirements (Rev. 2, 7/81)			
1.	R.G. 1.59	N/A	The maximum water level due to the Probable Maximum Flood is established as a site interface and is used in the design of the AP1000. Site specific analysis is the Combined License applicant's responsibility.
2.		N/A	Development of flood-related Technical Specifications is a site specific activity.
3.		N/A	Site specific Technical Specifications and emergency procedures are the responsibility of the Combined License applicant.
4.		N/A	This is a site specific characteristic and is the Combined License applicant's responsibility.
SRP 2.4.11 - Cooling Water Supply (Rev. 2, 7/81)			
General			For emergency operations, the AP1000 ultimate heat sink does not rely on external natural sources of water. Cooling is provided by air-flow over the wetted containment shell. Emergency shutdown utilizes the cool water from the in-containment refueling water storage tank to provide cooling to the Reactor System via the passive Residual Heat Removal System. Availability of water supplies for normal operation and normal shutdown are determined on a site specific basis.
	R.G. 1.27 C.1	Acceptable	The passive containment cooling system water storage tank is sized to provide heat removal to meet the requirements of General Design Criterion 38 to reduce and maintain the containment temperature and pressure following a postulated loss of coolant accident

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			for 72 hours following passive containment cooling system actuation. This cooling is done in conjunction with the flow of air over the containment shell. The tank can be replenished with water from an onsite source using equipment available onsite to provide additional long term heat removal. After onsite water sources are exhausted, the passive containment cooling system continues to satisfactorily function and maintain internal containment pressure less than the containment design pressure with natural convective air heat removal. Since the passive containment cooling system can function on natural convection air cooling after the onsite water is exhausted, the system meets the guidelines of providing cooling for more than 30 days.
	R.G. 1.27 C.2	Acceptable	The AP1000 design conforms to this regulatory position, provided that the definition of a single failure of man-made structure does not include the safety-related, seismically-designed containment structure assembly.
	R.G. 1.27 C.3	Acceptable	The seismically designed passive containment cooling system water storage, integral to the containment structure meets this regulatory position.
SRP 2.4.12 - Groundwater (Rev. 2, 7/81)			
General			Most of the information reviewed under this SRP is site specific and is the responsibility of the Combined License applicant.
SRP 2.4.12, BTP HGEB-1 - Safety-Related Permanent Dewatering Systems (Rev. 2, 7/81)			
		N/A	Permanent dewatering systems are site specific.
SRP 2.4.13 - Accidental Releases of Liquid Effluents in Ground and Surface Waters (Rev. 2, 7/81)			
1.		N/A	Radionuclide transport characteristics of the groundwater environment are site specific characteristics.
2.		N/A	Transport characteristics of the surface water environment are site specific.
3.	R.G. 1.113	N/A	This is applicable to the evaluation of specific sites. Interface data is provided. This is the Combined License applicant's responsibility.
SRP 2.4.14 - Technical Specifications and Emergency Operation Requirements (Rev. 2, 7/81)			
1.		N/A	Controlling hydrological events is a site specific.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
2.		N/A	Not related to the AP1000 Design Certification. The protective action taken in the case of a controlling hydrologic event is site specific.
3.		N/A	Not related to the AP1000 Design Certification. The appropriate water levels at which action must be taken is site specific.
4.		N/A	Not related to the AP1000 Design Certification. The appropriate procedures and implementation times is site specific.
SRP 2.5.1 - Basic Geologic and Seismic Information (Rev. 2, 7/81)			
		N/A	This SRP identifies NRC review of site specific information which is the responsibility of the Combined License application. The AP1000 Design Certification specifies site interface parameters. The Combined License applicant must demonstrate that the site meets these interface requirements.
SRP 2.5.2 - Vibratory Ground Motion (Rev. 2, 8/89)			
General			This SRP identifies NRC review of the site specific information which is the responsibility of the Combined License application. The AP1000 Design Certification will specify site interface parameters. In a few areas, as described below, there are requirements in this SRP that affect the plant design.
1.	10CFR100 App. A	Exception	The Operating Basis Earthquake (OBE) has been eliminated as a design requirement. The AP1000 design is based on a single earthquake. For safety related items, the design earthquake is the Safe Shutdown Earthquake (SSE). In specifying design criteria for this earthquake, consideration is given to lower magnitude earthquakes having a greater probability of occurrence, as well as to larger magnitude earthquakes having a lower probability. Cyclic stresses due to earthquakes are included in the design of those items sensitive to fatigue. Analysis methods and allowable stresses assure that there is margin above the SSE. For non-safety related items, the design earthquake is that specified in the Uniform Building Code (UBC). This is intended to protect the utilities investment and to provide reasonable assurance for subsequent operation of the plant. The UBC provides seismic requirements for building structures and for anchorage of equipment. Experience data for structures and equipment has demonstrated that designs complying with the UBC will survive an earthquake of significant size with minimal need for repairs.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			The ALWR Utility Requirements establish thresholds for actions required of the plant operator after an earthquake has occurred. Recordings from the seismic monitoring system are evaluated against the SSE design basis for the safety related structures and equipment. Thresholds are based on the methodology described in ALWR Reports NP-5930 and 6695. The position includes consideration of earthquakes less than the SSE in the design of the following areas: • Design of certain piping systems where the allowable stresses for SSE may be significantly above yield. • Qualification testing of equipment so that any effects of a lesser earthquake are introduced prior to the SSE test.
2.	10CFR50 App. A	Acceptable	
3.	10CFR100	N/A	The suitability of the site is the Combined License applicant's responsibility.
4.	R.G. 1.132	N/A	Conducting subsurface site investigations is the Combined License applicant's responsibility.
5.	R.G. 4.7	N/A	The AP1000 Design Certification does not refer to a specific site, but to a standard site envelope. The guidelines in this regulatory guide are site-specific. Therefore, this regulatory guide is not applicable to AP1000 design certification.
6.	R.G. 1.60	Acceptable	The SRP provides guidelines for defining the design earthquakes at specific sites and will be followed by the site applicant. The emphasis in the SRP is on site specific response spectra. The SRP permits use of Regulatory Guide 1.60 response spectra for those sites where insufficient data is available to develop site specific response spectra. Design of a standard plant requires definition of site interface parameters. Westinghouse has elected to define the interface using the R.G. 1.60 response spectra which were developed for applicability to a wide range of sites.
SRP 2.5.3 - Surface Faulting (Rev. 2, 7/81)			
General			Most of the information reviewed under this SRP is site specific and is not applicable to the AP1000 Design Certification.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.132	N/A	This is the Combined License applicant's responsibility.
	R.G. 4.7	N/A	The AP1000 Design Certification does not refer to a specific site, but to a standard site envelope. The guidelines in this regulatory guide are site-specific.
SRP 2.5.4 - Stability of Subsurface Materials and Foundations (Rev. 2, 7/81)			
General		N/A	The properties and stability of soils and rocks are site specific. The Combined License applicant demonstrates that the specific site meets the interface requirements.
SRP 2.5.5 - Stability of Slopes (Rev. 2, 7/81)			
General		N/A	The dynamic and static stability of slopes are site specific and are the Combined License applicant's responsibility.

3 SITE CHARACTERISTICS

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 3.2.1 - Seismic Classification (Rev. 1, 7/81)			
	R.G. 1.29 C.1.a, C.1.b, C.1.c, C.1.f, C.1.h, C.1.j, C.1.k, C.1.l, C.1.m, C.1.o, C.1.p, C.1.q, C.2, C.3, C.4	Acceptable	
	R.G. 1.29	Exception	The AP1000 normal residual heat removal system is C.1.d nonsafety-related. The safety related decay heat removal function is provided by the safety-related PRHR heat exchanger of the passive core cooling system which is seismic Category I. The spent fuel pit cooling system does not have any active safety-related components that perform the heat removal function. The spent fuel pit and its makeup sources are sized for at least 72 hours without active cooling following a loss of ac power sources. The 72-hour sizing calculation accounts for the maximum loss of water due to the rupture of non-seismic piping. Seismic Category I components within the spent fuel pit cooling system include the containment penetration, the connections for makeup and the spent fuel pit (refueling system).
	R.G. 1.29 C.1.e	N/A	Applies to BWRs only.
	R.G. 1.29 C.1.g	Exception	The safety-related function of the auxiliary feedwater system is replaced by the PRHR heat exchanger. The safety-related functions of the essential service water system are provided by the PRHR heat exchanger and the passive containment cooling system. The component cooling system is a nonsafety-related system, since it performs no safety-related function.
	R.G. 1.29 C.1.i	N/A	The diesel-generators are nonsafety-related. Therefore, this section is not applicable to the AP1000.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.29 C.1.n	Exception	Structures or equipment whose failure results in incapacitating injury to the occupants of the main control room are classified as seismic Category II and covered under Position 2 of this regulatory guide.
SRP 3.2.2 - System Quality Group Classification (Rev. 1, 7/81)			
	R.G. 1.26* C.1.a	Exception	For the AP1000, Quality Group B is reserved for the containment boundary including any extensions such as containment isolation valves and associated piping. Quality Group C is essentially equivalent quality except that is has less stringent ISI. For equipment such as passive safety system accumulators, minor leakage is not a problem for the following reasons: a. It is located inside containment so activity releases are contained. b Minor leakage does not affect its functional performance, especially considering the limited duration of post-accident operation. c. There is continuous water level and gas pressure monitoring of the passive safety system accumulators that detects leaks. This approach results in the change of quality group (from Quality Group B to Quality Group C) of various components such as the IRWST.
	R.G. 1.26 C.1.b	Exception	The AP1000 Residual Heat Removal System is a nonsafety-related system. It is classified as Quality Group C. The passive core cooling system provides the safety-related function that the residual heat removal system provides in current plants with active safety-related systems.
	R.G. 1.26 C.1.c	N/A	Applies only to BWR.
	R.G. 1.26 C.1.d	Acceptable	Portions of the feedwater and steam systems are Quality Group B, up to the isolation valves.

* Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Component of Nuclear Power Plants," draft Revision 3, February 1976.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.26 C.1.e	Acceptable	
	R.G. 1.26 C.2.a	Acceptable	The Component Cooling Water System and the Service Water System are Quality Group D since they perform no safety-related functions.
	R.G. 1.26 C.2.b	Acceptable	Cooling water and seal water are not required for any component to provide a safety related function.
	R.G. 1.26 C.2.c	Acceptable	
	R.G. 1.2 C.2.d, C.2.e	N/A	Regulatory Guide 1.143 supersedes this guideline.
	R.G. 1.26 C.3	Exception	Systems that are normally radioactive are classified as Quality Group D. AP1000 also classifies as Quality Group D, important nonsafety-related systems and components which function as a first line of defense in reducing the challenge to the passive safety-related systems. Systems and components that have the potential to be contaminated with radioactive fluids but normally do not contain radioactive fluids are not classified as Quality Group D.
SRP 3.2.2, Appendix A - Classification of Main Steam Components Other Than the Reactor Coolant Pressure Boundary for BWR Plants (Rev. 1, 7/81)			
		N/A	Applies only to BWR.
SRP 3.2.2, Appendix B - Classification of BWR/6 Main Steam and Feedwater Components Other Than the Main Reactor Coolant Pressure Boundary (Rev. 1, 7/81)			
		N/A	Applies only to BWR.
SRP 3.2.2, Appendix C - PWR Plants, Classification of Systems and Components (Rev. 1, 7/81)			
		N/A	This SRP Appendix is "in the course of preparation" by the NRC.
SRP 3.2.2, Appendix D - BWR Plants, Classification of Systems and Components (Rev. 1, 7/81)			
		N/A	Applies only to BWR.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 3.3.1 - Wind Loadings (Rev. 2, 7/81)			
1.		Acceptable	
2.		Acceptable	See position on SRP 2.3.1 for the specification of the Design Wind velocity and its recurrence interval.
3.		Acceptable	See position on SRP 2.3.1 for the application of latest edition of A58.1.
SRP 3.3.2 - Tornado Loadings (Rev. 2, 7/81)			
1.		Acceptable	
2.		Acceptable	See position on SRP 2.3.1 for the specification of the tornado. See position on SRP 3.5.1.4 for the specification of the tornado missiles.
3.		Acceptable	
4.		Acceptable	
SRP 3.4.1 - Flood Protection (Rev. 2, 7/81)			
	GDC 2	Acceptable	
	10CFR 11, App. A Sec. IV.C	Acceptable	
	R.G. 1.59	N/A	The maximum water level due to the Probable Maximum Flood is established as a site interface and is used in the design of the AP1000. This is the Combined License Applicant's responsibility.
	R.G. 1.102	Acceptable	
SRP 3.4.2 - Analysis Procedures (Rev. 2, 7/81)			
1.		Acceptable	
2.		Acceptable	
3.		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 3.5.1.1 - Internally Generated Missiles (Outside Containment) (Rev. 2, 7/81)			
1.		Acceptable	
SRP 3.5.1.2 - Internally Generated Missiles (Inside Containment) (Rev. 2, 7/81)			
1.		Acceptable	
SRP 3.5.1.3 - Turbine Missiles (Rev. 2, 7/81)			
1.	R.G. 1.115	Acceptable	The SRP, issued in 1981, and Regulatory Guide 1.115, issued in 1977, provide criteria for protection against the effects of potential turbine missiles. The AP1000 turbine is arranged in a radial orientation. The three low pressure turbines incorporate fully integral rotors. The turbine meets the criteria given in reference (a).
2.		N/A	The AP1000 turbine has a favorable turbine generator placement and orientation and is thus covered by acceptance position 1.
3.		N/A	Exclusively applicable to plants with construction permits submitted prior to 11/15/76.
References:			
a. WCAP-15783, "Analysis of the Probability of the Generation of Missiles from Fully Integral Nuclear Low Pressure Turbines."			
SRP 3.5.1.4 - Missiles Generated by Natural Phenomena (Rev. 2, 7/81)			
	R.G. 1.76	Exception	Regulatory Guide 1.76 establishes tornado design parameters. The Design Basis Tornado for the AP1000 is defined by the following parameters: Maximum wind speed - 300 mph Translational speed - Maximum 60 mph Translational speed - Minimum 5 mph Radius to maximum wind from center of tornado - 150 ft. Atmospheric pressure drop - 2.0 psi Rotational speed - Maximum 240 mph Rate of pressure drop - 1.2 psi/sec.
	R.G. 1.117	Acceptable	
4.		Acceptable	The tornado missiles are defined in accordance with SRP 3.5.1.4 with the velocities adjusted to the maximum wind velocity defined above. The following missiles are postulated:

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			a. a massive high kinetic energy missile which deforms on impact, assumed to be a 4000 lb automobile impacting the structure at normal incidence with a horizontal velocity of 105 mph or a vertical velocity of 74 mph. This missile is considered at all plant elevations up to 30 feet above grade. b. a rigid missile of a size sufficient to test penetration resistance, assumed to be a 275 pound 8" armor piercing artillery shell impacting the structure at normal incidence with a horizontal velocity of 105 mph or a vertical velocity of 74 mph. c. a small rigid missile of a size sufficient to just pass through any openings in protective barriers, assumed to be a 1" diameter solid steel sphere assumed to impinge upon barrier openings in the most damaging direction at a velocity of 105 mph. Openings through the exterior walls of the Nuclear Island, and the location of equipment in the vicinity of such openings, are arranged to limit the probability that a missile would prevent safe shutdown of the plant.
SRP 3.5.1.4, BTP ASB 3-2 - Tornado Design Classification (Rev. 2, 7/81)			
		N/A	This Branch Technical Position has been superseded by R.G. 1.117.
SRP 3.5.1.5 - Site Proximity Missiles (except aircraft) (Rev. 1, 7/81)			
General		Acceptable	The site interface is established to provide site specific analysis at sites where proximity missiles would have to be considered.
SRP 3.5.1.6 - Aircraft Hazards (Rev. 2, 7/81)			
General		Acceptable	The site interface is established to provide site specific analysis at sites where aircraft hazards would have to be considered.
SRP 3.5.2 - Structures, Systems, and Components to be Protected from Externally Generated Missiles (Rev. 2, 7/81)			
	R.G. 1.13 C.1, C.2, C.3, C.5 C.6, C.7, C.8	Acceptable	
	R.G. 1.13 C.4	Exception	The ventilation system is not required to mitigate the consequences of a fuel handling accident.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.27 C.1	Acceptable	The passive containment cooling system water storage tank is sized to provide heat removal to meet the requirements of General Design Criterion 38 to reduce and maintain the containment temperature and pressure following a postulated loss of coolant accident for 72 hours following passive containment cooling system actuation. The tank can be replenished with water from a number of onsite sources using equipment available onsite to provide additional long term heat removal. This cooling is done in conjunction with the flow of air over the containment shell. After the onsite sources of water are exhausted, the passive containment cooling system continues to function and maintain internal containment pressure less than the containment design pressure with natural convective air heat removal. Since the passive containment cooling system can function on natural convection air cooling after the onsite sources of water are exhausted, the system meets the guideline of providing cooling for more than 30 days.
	R.G. 1.27 C.2	Acceptable	The AP1000 design conforms to this regulatory position, provided that the definition of a single failure of a man-made structure does not include the safety-related, seismically-designed containment structure assembly.
	R.G. 1.27	Acceptable	The seismically designed passive containment cooling system water storage, integral to the containment structure meets this regulatory position.
	R.G. 1.115	Acceptable	See position on SRP 3.5.1.3.
	R.G. 1.117	Acceptable	
SRP 3.5.3 - Barrier Design Procedures (Rev. 1, 7/81)			
1.a.		Acceptable	The design basis tornado missile parameters are defined in the AP1000 position on SRP 3.5.1.4. Exterior concrete walls and concrete slabs will have a minimum thickness equal to those shown in Table 1 for the Region II velocities.
1.b.		Acceptable	
1.c.		Acceptable	
2.	SRP 3.5.3, App. A	Exception	The maximum allowable ductility ratio for steel structures will be in accordance with AISC-N690-94 which is the code proposed for design of all Category I structures (see position on SRP 3.8.3 and 3.8.4).

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 3.6.1 - Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside Containment (Rev. 2, 10/90)			
II.	BTP SPLB 3-1	N/A	This SRP section contains no specific criteria for evaluation of postulated piping failures. The acceptance criteria of Branch Technical Position SPLB 3-1 are used by reference.
III.	Tables 3.6.1-1, 3.6.1-2	Exception	These tables contain lists of systems typically required for safe shutdown and typical high and moderate energy systems outside containment. The AP1000 does not have some of these systems (see Table 3.6-1 of the reference (a) DCD).

References:

a. AP1000 Design Control Document.

SRP 3.6.1 - BTP SPLB 3-1 - Protection Against Postulated Piping Failures in Fluid Systems Outside Containment (Rev. 2, 10/90)			
B.1.a.		Acceptable	
B.1.a.(1)		Acceptable	This criterion includes no specific requirements for compartment pressurization. The pressurization loads in the main steam and main feedwater break exclusion zones are based on postulated longitudinal pipe ruptures. The break flow area is assumed to be 1.0 square foot. Jet impingement loads from arbitrary breaks are not evaluated. This approach is consistent with the revision of the SRP requirements published in the Federal Register, Volume 53, No. 15, page 1468.
B.1.a.(2)		Acceptable	
B.1.b.		Acceptable	
B.1.c.		Acceptable	
B.1.c.(1) (a)		Acceptable	
B.1.c.(1) (b)		Acceptable	
B.1.c.(1) (c)		Acceptable	
B.1.c.(2)		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
B.2.a.	R.G. 1.29 C.1.a, C.1.b, C.1.c, C.1.f, C.1.h, C.1.j, C.1.k, C.1.l, C.1.m, C.1.o, C.1.p, C.1.q, C.2, C.3, C.4	Acceptable	
	R.G. 1.29	Exception	The AP1000 normal residual heat removal system is C.1.d nonsafety-related. The safety related decay heat removal function is provided by the safety-related PRHR heat exchanger of the passive core cooling system which are seismic Category I. The spent fuel pit cooling system does not rely on any active safety-related components that perform the heat removal function, since this is done passively through a large heat sink of water in the pit. The spent fuel pit and its makeup sources are sized for at least 72 hours without active cooling following a loss of ac power sources. The 72-hour sizing calculation accounts for the maximum loss of water due to the rupture of non-seismic piping. Seismic Category I components within the spent fuel pit cooling system include the containment penetration, the connections for makeup and the spent fuel pit (refueling system).
	R.G. 1.29 C.1.e	N/A	Applies to BWRs only.
	R.G. 1.29 C.1.g	Exception	The safety-related function of the auxiliary feedwater system is replaced by the PRHR heat exchanger. The safety-related functions of the essential service water system are provided by the PRHR heat exchanger and the passive containment cooling system. The component cooling system is a nonsafety-related system, since it performs no safety-related function.
	R.G. 1.29 C.1.i	N/A	The diesel-generators are nonsafety-related. Therefore, this section is not applicable to the AP1000.
	R.G. 1.29 C.1.n	Exception	Structures or equipment whose failure results in incapacitating injury to the occupants of the main control room are classified as seismic Category II and covered under Position 2 of this regulatory guide.
B.2.b.(1)		Exception	OBE has been eliminated as a design condition. See SRP 2.5.2 responses.
B.2.b.(2)	SRP 3.6.2	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
B.2.c.	BTP EMEB 3-1	Acceptable	
B.2.d.	R.G. 1.26	Exception	See SRP 3.2.2 responses.
B.3.a.	BTP EMEB 3-1	Exception	The acceptability of this criterion is based on resolution of comments noted on and exceptions taken to draft revision of BTP MEB 3-1. Additionally, as noted in the exception to SRP Section 3.6.2, the fluid conditions used for piping pressurized during normal operation are those at 100% power operation based on ANSI/ANS 58.2, "Design Basis for Protection of Light Water Nuclear Power Plants Against the Effects of Postulated Pipe Rupture," October, 1988. This position has been accepted for the analysis of existing plants, e.g., Vogtle FSAR Section 3.6.1.1, Design Basis (see SRP Section 3.6.3).
B.3.b.(1)		Acceptable	
B.3.b.(2)		Acceptable	
B.3.b.(3)		Acceptable	
B.3.b.(4)		Acceptable	
B.3.c.		Acceptable	
B.3.d.		Acceptable	
B.3.e.		Acceptable	
B.4.a.		Acceptable	
B.4.b.		N/A	Applicable only to plants with construction permit applications tendered after July 1, 1973 and before July 1, 1975.
B.4.c.		N/A	Applicable only to plants with construction permit applications tendered before July 1, 1973.

References:

a. AP1000 Design Control Document.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 3.6.2 - Determination of Rupture Locations and Dynamic Effects Associated with the Postulated Rupture of Piping (Rev. 2 Draft, 1/87)			
1.	BTP MEB 3-1	Exception	As noted in the following subsection, Westinghouse has exceptions to the requirements of Draft Revision 2 of BTP MEB 3-1, dated 1/87.
2.	BTP MEB 3-1	Exception	As noted in the following subsection, Westinghouse has exceptions to the requirements of Draft Revision 2 of BTP MEB 3-1, dated 1/87.
3.	BTP MEB 3-1 SRP 3.6.2 Sec. III	Exception	As noted in the following subsection, Westinghouse has exceptions to the requirements of Draft Revision 2 of SRP Section 3.6.2 III Review requirements and BTP MEB 3-1, dated 1/87.
This SRP has criteria in the Review Procedures Section III as follows:			
III.2.		Acceptable	
III.2.a		Exception	The fluid conditions used for piping pressurized during normal operation are those at 100% power operation consistent with ANSI/ANS 58.2, "Design Basis for Protection of Light Water Nuclear Power Plants Against the Effects of Postulated Pipe Rupture," October, 1988. This position has been accepted for the analysis of existing plants, e.g., Vogtle FSAR Section 3.6.1.1, Design Basis.
III.2.b.(1)		Acceptable	
III.2.b.(2)		Acceptable	
III.2.b.(3)		Acceptable	
III.2.b.(4)		Acceptable	
III.2.c.(1)		Acceptable	
III.2.c.(2)		Acceptable	
III.2.c.(3)		Acceptable	
III.2.c.(4)		Acceptable	
III.3.		Exception	The load and spatial distribution of the jet is determined based on Section 7 of ANSI/ANS 58.2, "Design Basis for Protection of Light Water Nuclear Power Plants Against the Effects of Postulated Pipe Rupture," October 1988. This document provides acceptable alternates to the SRP 3.6.2 Section III.3. requirements based on more up-to-date test data.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
III.4.		Acceptable	
SRP 3.6.2 - BTP MEB 3-1 - Postulated Rupture Location in Fluid System Piping Inside and Outside Containment (Rev. 2 Draft 1/87, 7/81)			
B.1.a.	BTP ASB 3-1	Acceptable	
B.1.b.(1)(a)	ASME Code NB-3653	N/A	The AP1000 has no Class 1 piping in containment penetration areas.
B.1.b.(1)(b)	ASME Code NB-3653	N/A	The AP1000 has no Class 1 piping in containment penetration areas.
B.1.b.(1)(c)	ASME Code NB-3652	N/A	The AP1000 has no Class 1 piping in containment penetration areas.
B.1.b.(1)(d)	ASME Code NB-3652	Exception	OBE has been eliminated as a design condition. See SRP 2.5.2 responses.
B.1.b.(1)(e)	ASME Code NB-3653 ANSI B31.1	Acceptable	
B.1.b.(2)		Acceptable	
B.1.b.(3)		Acceptable	
B.1.b.(4)		Acceptable	
B.1.b.(5)		Acceptable	
B.1.b.(6)(a)		Acceptable	
B.1.b.(6)(b)	ASME Code NE-3220	Acceptable	
B.1.b.(6)(c)		Acceptable	
B.1.b.(6)(d)		Acceptable	
B.1.b.(7)	ASME Code IWA-2400	Acceptable	
B.1.c.(1)(a)		Acceptable	
B.1.c.(1)(b)		Acceptable	
B.1.c.(1)(c)		Acceptable	
B.1.c.(2)(a)		Acceptable	
B.1.c.(2)(b)	ASME Code, NC-3653	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
B.1.c.(3)		Exception	The locations of postulated breaks in non-ASME pipe are based on ANSI/ANS-58.2-1988, "Design Basis for Protection of Light Water Nuclear Power Plants Against the Effects of Postulated Pipe Rupture," October, 1988. Stress value is calculated using equations in Section 104.8 of ANSI/ASME B31.1, Power Piping Code considering normal and upset plant conditions and compared to 0.8 (X+Y) where X and Y are the allowable stress values for Equations 12 and 13 of B31.1. OBE is not used to determine pipe break locations in the AP1000.
B.1.c.(4)		Acceptable	
B.1.c.(5)		Acceptable	
B.1.d.		Acceptable	
B.1.e.(1)	ASME Code NB-3653	Acceptable	
B.1.e.(2)	ASME Code NC-3653	Exception	For ASME Code Class 2 and 3 piping, where the maximum stress value as calculated by the sum of equations (9) and (10) of NC-3653 exceeds 0.4 times the sum of the stress limits for equations (9) and (10). For seismically analyzed non-ASME pipe, where the stress value as calculated by the sum of equations (12) and (13) in Section 104.8 of the ANSI/ASME-B31.1 Power Piping Code exceeds 0.4 times the sum of the stress limits for equations (12) and (13).
B.1.e.(3)		Exception	For non-ASME piping not seismically analyzed, at terminal ends and fittings. These locations are the most likely locations of high energy cracks. This position is consistent with ANS 58.2-1988. The SRP criteria are not close ended.
B.2.a		Acceptable	
B.2.b	ASME Code NC-3653	Exception	Leakage cracks are postulated at the locations using the same criteria outlined for high energy piping in B.1.e.(2) above.
B.2.c.(1)	ASME Code NC-3653	Exception	Leakage cracks are postulated at the locations using the same criteria outlined for high energy piping in B.1.e.(1) and (2) above.
B.2.c.(2)		Acceptable	
B.2.c.(3)		Exception	Leakage cracks in nonseismically analyzed piping are postulated at the locations using the same criteria outlined for high energy piping in B.1.e.(3) above.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
B.2.d.		Acceptable	
B.2.e		Exception	In addition to the criteria in the SRP a system is considered a moderate energy system if it operates in a high energy mode less than one percent of the plant operating time.
B.3.a.(1)		Acceptable	
B.3.a.(2)		Acceptable	
B.3.a.(3)		Acceptable	
B.3.a.(4)		Acceptable	
B.3.a.(5)		Acceptable	
B.3.b.(1)		Exception	The longitudinal break configurations for high energy piping shall be determined as defined in 4.4.1 of ANSI/ANS-58.2-1988.
B.3.b.(2)		Acceptable	
B.3.b.(3)		Acceptable	
B.3.b.(4)		Acceptable	
B.3.b.(5)		Acceptable	
B.3.c.(1)		Acceptable	
B.3.c.(2)		Exception	Leakage cracks are postulated at axial locations using the same criteria outlined for high energy piping in B.1.e.(2) and (3) above.
B.3.c.(3)		Acceptable	
B.3.c.(4)		Acceptable	

SRP 3.6.3 - Leak-Before-Break Evaluation Procedures (Draft, 10/87)

General Note: This section has been written for the evaluation of leak before break in existing plants. Evaluations and analyses used to support the design, including the elimination of the dynamic effects of pipe breaks from the design basis prior to construction, will be based on generic material properties and design loadings.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
III.	ASME Code Class 1 and 2	Acceptable	For application to ASME Class 3 and non-ASME piping, the piping, supports, and structures must be designed for SSE and the preservice and inservice inspection requirements for ASME Class 2 piping must be met.
III.		Acceptable	
In addition to the Acceptance Criteria this SRP has criteria in the Review Procedures Section III and the V implementation section as follows:			
III.1.		Acceptable	
III.2.		Acceptable	
III.3.	R.G. 1.45	Exception	The AP1000 reactor coolant pressure boundary leakage detection systems are selected and designed in accordance with the guidelines of this regulatory guide. No credit is taken for radiation measurement in quantifying the leak rate.
III.4.		Acceptable	
III.5.		Acceptable	
III.6.	ASME Code IWB-3514.3	Acceptable	
III.7.		Exception	Adjacent structures and components where failure could lead to an indirect piping failure are designed for the SSE event. For the inadvertent dropping of auxiliary equipment over safety grade components or systems, an evaluation will be performed to determine if indirect pipe rupture is likely.
III.8.		Acceptable	
III.9.		Acceptable	
III.10.a.		Acceptable	
III.10.b.		Acceptable	
III.10.c.		Acceptable	
III.10.d.		Acceptable	
III.10.e.		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
III.10.f.		Acceptable	
III.10.g.		Acceptable	
III.10.h.	NUREG-1061, Volume 3 NUREG/CR-4575	Acceptable	
III.10.i.		Acceptable	
III.10.j.		Exception	During the design phase design loads and generic material properties will be used to support the design.
III.10.k.		Exception	See comment for 10.j.
III.10.l.		Acceptable	
V.1.	BTP MEB 3-1	Acceptable	
V.2.	BTP MEB 3-1	Exception	Subcompartment pressurization loads are based on the leakage crack determined from mechanistic pipe break (and double ended breaks in high energy lines not qualified to leak-before-break).
V.3.	BTP MEB 3-1	Acceptable	
	10CFR 50.54	Acceptable	
	R.G. 1.89	Exception	Conformance of AP1000 Class 1E equipment with 10 CFR 50.49, and Regulatory Guide 1.89 is demonstrated by an appropriate combination of the following: type testing, operating experience, qualification by analysis and ongoing qualification. The EPRI defined source term is used. The source term model for the iodines assumes a delayed, time-dependent release. The chemical species split for iodines is 2.85 percent elemental, 97 percent particulate and 0.15 percent organic. The source term model for the nobel gases assumes a delayed, time-dependent release. One hundred percent of the gases are assumed to be released from the core over a 24 hour period. The gap fraction of 3 percent for short lived isotopes and 10 percent of long lived isotopes is used in AP1000. These gap fractions are not affected by extended burnup.
SRP 3.7.1 - Seismic Design Parameters (Rev. 2, 8/89)			
General		Exception	OBE has been eliminated as a design condition. See SRP 2.5.2 responses.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
1.a.	Reg. Guide 1.60	Acceptable	See response to criteria #6 of SRP 2.5.2.
1.b.		Acceptable	
2.	R.G. 1.61	Acceptable	Damping values used in the AP1000 SSE analyses are shown in Table 3.7.1.1 of the AP1000 DCD. These values are based on R.G. 1.61, on the recommendations of ASCE 4-98 (reference (a)), and on values used and accepted on past projects (reference (b)). These values are conservative relative to realistic damping values reported in the literature (e.g., reference (c)). A site interface is established to verify that the site is within the range considered in the design.

References:

a. ASCE 4-98, Seismic Analysis of Safety Related Nuclear Structures.

b. RESAR/SP90 Paragraph 3.7.1.3, Damping Values, January 1989.

c. Design and Evaluation Guidelines for Department of Energy Facilities Subjected to Natural Phenomena Hazards, Lawrence Livermore National Laboratory, UCRL-15910, R. P. Kennedy et al., May, 1989.

SRP 3.7.2 - Seismic System Analysis (Rev. 2, 8/89)

	GDC 2	Acceptable	
	10CFR100 App. A	Exception	See position identified for 10CFR100 Appendix A in SRP 2.5.2.
1.		Acceptable	Seismic analysis of structures will follow the requirements of ASCE 4-98.
2.		Acceptable	
3.		Acceptable	Analytical modelling will follow the requirements of ASCE 4-98.
4.		Acceptable	
5.	R.G. 1.122	Acceptable	
6.		Acceptable	
7.		Acceptable	
8.		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
9.		Acceptable	
10.		Acceptable	
11.		Acceptable	
12.		Acceptable	
13.		Acceptable	
14.		Acceptable	
SRP 3.7.3 - Seismic Subsystem Analysis (Rev. 2, 8/89)			
1.	SRP 3.7.2, II.1	Exception	The left-out-force method or missing mass correction may be used as an alternative to the position in the SRP.
2.		Exception	OBE has been eliminated as a design condition. See SRP 2.5.2 responses.
3.	SRP 3.7.2, II.3	Acceptable	
4.		Acceptable	
5.	SRP 3.7.2, II.13	Acceptable	
6.	SRP 3.7.2, II.6	Acceptable	The three components of earthquake motion are statistically independent when applied simultaneously to the base of a building-soil model. The calculated motions from the above model are applied simultaneously as input to equipment or piping models.
7.	SRP 3.7.2, II.7	Acceptable	
8.		Exception	Adjacent non-Category I systems are evaluated to assure that the required functions of Category I systems are maintained. This includes integrity or operability or both for the Category I systems. Non-Category I Systems attached to Category I systems satisfy the SRP 3.7.3.II.8 guidelines.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
9.		Exception	The SRP guidelines do not address the combination of anchor response with inertial response or use of multiple input response spectra. The criteria for AP1000 for seismic anchor motions is based on Section 3.2.6.3.3 of ASCE 4-86. The AP1000 also uses alternates to the envelope uniform input response spectra based on the guidelines of "Independent Support Motions (ISM) Method of Modal Spectra Seismic Analysis," by Task Group on Independent Support Motions as a part of the PVRC Technical Committee on Piping Systems Under the Guidance of the Steering Committee and include algebraic, square root of the sum of the squares, or absolute sum of the contribution from each support point.
10.	SRP 3.7.2	Exception	For auxiliary equipment the equivalent static acceleration for stress analysis is taken to be the response spectra acceleration value at the fundamental frequency. The fundamental frequency of each auxiliary equipment is determined by modal analysis. For auxiliary piping systems the load is the piping mass accelerated at 1.7 times the appropriate peak spectral acceleration in three orthogonal directions. For piping runs with axial supports the acceleration value on the mass of piping in the axial direction is limited to 1.0 times its calculated spectral acceleration value. This is the accepted industry practice.
11.		Acceptable	
12.		N/A	The AP1000 has no buried Category I piping, conduit or tunnels.
13.		N/A	The analysis of dams is not part of the AP1000 Design Certification.
14.		Acceptable	
SRP 3.7.4 - Seismic Instrumentation (Rev. 1, 7/81)			
1.	R.G. 1.12 General	Acceptable	The AP1000 seismic instrumentation satisfies the functional guidelines of this Standard Review Plan section.
	R.G. 1.12 C.1	N/A	This section applies only to plants with a SSE maximum foundation acceleration of less than 0.3g. Therefore, it is not applicable to the AP1000.
	R.G. 1.12 C.2	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.12 C.3	Exception	An EPRI cumulative absolute velocity and spectrum analyzer is part of the seismic instrumentation in lieu of discrete response spectrum recorders. Instrumentation is not located on equipment, piping, or supports since experience has shown that data obtained at these locations are obscured by vibratory motion associated with normal plant operation.
	R.G. 1.12 C.4	Acceptable	Instrumentation is provided to monitor seismic motion over the frequency range of 1 to 33 Hz.
	R.G. 1.12 C.5	Acceptable	Input from triaxial acceleration sensors is monitored by software setpoints that are adjustable over a range determined by the sensor locations.
2.		Acceptable	
3.		Acceptable	
4.		Acceptable	Threshold level for seismic switch will be established based on percentage of SSE design basis, since OBE has been eliminated.
5.		Acceptable	
SRP 3.8.1 - Concrete Containment (Rev. 1, 7/81)			
		N/A	Not applicable to AP1000 design.
SRP 3.8.1, Appendix - BWR MARK III Containment Pool Dynamics (Rev. 0, 7/81)			
		N/A	Applies only to BWR.
SRP 3.8.2 - Steel Containment (Rev. 1, 7/81)			
1.		Acceptable	
2.	ASME	Acceptable	The AP1000 containment vessel is being designed to the 1998 edition plus the 200 Addenda of the Code.
	R.G. 1.57	Exception	Regulatory Guide 1.57 was issued in June, 1973. It refers to the code through the Summer 1973 Addenda. The acceptance criteria have been defined in greater detail in the SRP (e.g., Table 3.8.2-1). The AP1000 complies with the SRP acceptance criteria with the exception that the operating basis earthquake is excluded.
3.		Exception	Design for the OBE has been eliminated. Refer to SRP 2.5.2 responses.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
4.		Acceptable	
5.		Acceptable	
6.		Acceptable	
7.		Acceptable	
SRP 3.8.3 - Concrete and Steel Internal Structures of Steel or Concrete Containments (Rev. 1, 7/81)			
General			NRC criteria given in this SRP are based on the codes and standards in existence when the SRP was written. The AP1000 will be designed to the applicable industry codes and standards as described below and listed in the references. a. Category I concrete structures will be designed to ACI-349-01. ACI-349-01 includes Appendix B which will be used for anchorage to concrete. This Code addresses the concerns raised by IEB 79-02. b. Category I steel structures will be designed to AISC-N690-94. Where appropriate the design of steel structures will incorporate provisions from the more recent AISC codes (references (e) and (f)). These codes are generally similar to those in the SRP Rev. 1 but have not been endorsed by NRC.
1.		Acceptable	
2.	ACI 349	Acceptable	ACI-349-90
	ASME	N/A	This code is only applicable to special structures such as the divider barrier of an ice condenser. The AP1000 position on this code for the steel containment is given in the position on SRP 3.8.2.
	AISC	Exception	Category I steel structures are designed to AISC-N690.
	ANSI N45.2.5	Exception	This standard has been replaced by NQA 2.5. Quality Assurance for structural concrete and structural steel for the AP1000 will comply with NQA 2.5.
	R.G. 1.10	N/A	This Regulatory Guide has been withdrawn.
	R.G. 1.15	N/A	This Regulatory Guide has been withdrawn.
	R.G. 1.55	N/A	This Regulatory Guide has been withdrawn.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.57	Exception	Regulatory Guide 1.57 was issued in June, 1973. It refers to the code through the Summer 1973 Addenda. The acceptance criteria have been defined in greater detail in the SRP (e.g., Table 3.8.2-1). The AP1000 complies with the SRP acceptance criteria with the exception that the operating basis earthquake is excluded.
	R.G. 1.94	N/A	Not applicable to AP1000 design certification. This is the responsibility of the Combined License applicant. AP1000 will comply with NQA 2.5.
	R.G. 1.142 General	Exception	Regulatory Guide 1.142, Revision 2 endorses ACI 349-97 which has been superseded by ACI 349-01. The AP1000 uses the latest version of industry standards (as of 4/2001). This version is not endorsed by a regulatory guide but its use should not result in deviations from the design philosophy otherwise stated in Regulatory Guide 1.142.
	R.G. 1.142 C.1	N/A	The compartments within the containment are not designed to be leaktight since they must communicate with one another to preclude subcompartment pressurization. Therefore, this guideline is not applicable to the AP1000.
	R.G. 1.142 C.2	Acceptable	
	R.G. 1.142 C.3	Exception	Regulatory Guide 1.142 endorses ACI-318-77 which has been superseded by ACI 318-8999. The AP1000 uses the latest version of industry standards (as of 4/2001). This version is not endorsed by a regulatory guide but its use should not result in deviations from the design philosophy otherwise stated in Regulatory Guide 1.142. Appendix A to ACI 318-77 has been superseded by Chapter 21 of ACI 318-99 and ACI 349-01. Concrete moment resistant frames are designed to Chapter 21 of ACI 318-99.
	R.G. 1.142 C.4	Acceptable	
	R.G. 1.142 C.5	Acceptable	
	R.G. 1.142 C.6	Exception	OBE has been eliminated from the AP1000 design basis.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.142 C.7	Exception	See general Criterion.
	R.G. 1.142 C.8	Acceptable	
	R.G. 1.142 C.9	N/A	AP1000 does not include a pressure suppression containment. Therefore, this guideline is not applicable to the AP1000.
	R.G. 1.142 C.10	Exception	See general Criterion.
	R.G. 1.142 C.11	Acceptable	
	R.G. 1.142 C.12	Exception	See general Criterion.
3.a		Acceptable	
3.b		Exception	OBE has been eliminated as a design condition. Refer to SRP 2.5.2 responses.
3.c		Exception	OBE has been eliminated as a design condition. Refer to SRP 2.5.2 responses.
3.d		N/A	
3.e		N/A	
3.f		N/A	
4.a		Acceptable	
4.b		N/A	
4.c		N/A	
4.d		Acceptable	
4.e		Acceptable	
5.		Exception	Category I steel structures are designed to AISC-N690.
6.		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
7.		N/A	

References:

a. ACI-349-01, Code Requirements for Nuclear Safety Related Structures

b. ACI-318-99, Building Code Requirements for Reinforced Concrete

c. ASCE 4-98, Seismic Analysis of Safety Related Nuclear Structures

d. ANSI/AISC N690-1994, Design, Fabrication and Erection of Steel Safety Related Structures for Nuclear Facilities

e. ANSI/AISC-1989, Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design

f. AISC-LRFD-1999, Specification for Structural Steel Buildings, Load and Resistance Factor Design

g. Uniform Building Code, 1997

SRP 3.8.4 - Other Seismic Category I Structures (Rev. 1, 7/81)

General

NRC criteria given in this SRP are based on the codes and standards in existence when the SRP was written. The AP1000 will be designed to the applicable industry codes and standards as described below and listed in the references.

a. Category I concrete structures will be designed to ACI-349-01. ACI-349-01 includes Appendix B which will be used for anchorage to concrete. This Code addresses the concerns raised by IEB 79-02.

b. Category I steel structures will be designed to AISC-N690-94. Where appropriate the design of steel structures will incorporate provisions from the more recent AISC codes (references (e) and (f)). These codes are generally similar to those in the SRP Rev.1 but have not been endorsed by NRC.

c. Radioactive Waste Management structures will be designed to ACI-318-99 for concrete structures and either AISC-S326-1989 or AISC-LRFD-1999 for steel structures.

1.		Acceptable	
2.	ACI 349	Acceptable	ACI-349-01
	AISC	Exception	Category I steel structures are designed to AISC-N690.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.10	N/A	This Regulatory Guide has been withdrawn.
	R.G. 1.15	N/A	This Regulatory Guide has been withdrawn.
	R.G. 1.55	N/A	This Regulatory Guide has been withdrawn.
	R.G. 1.69	Exception	This Regulatory Guide endorses ANSI N101.6-1972, which has been superseded by ANSI 6.4 1977 and ACI 349-2001. The AP1000 uses the latest version of the industry standards (as of 4/2001). This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.69.
	R.G. 1.91	N/A	Onsite explosive materials conform to these guidelines. Offsite explosive materials are site specific and are the Combined License applicant's responsibility.
	R.G. 1.94	N/A	This is the responsibility of the Combined License applicant.
	R.G. 1.115	Acceptable	See position on SRP 3.5.1.3.
	R.G.1.142 General	Exception	Regulatory Guide 1.142 Revision 2 endorses ACI 349-97, which has been superseded by ACI 349-01. The AP1000 uses the latest version of industry standards (as of 4/2001). This version is not endorsed by a regulatory guide but its use should not result in deviations from the design philosophy otherwise stated in Regulatory Guide 1.142.
	R.G. 1.142 C.1	N/A	The compartments within the containment are not designed to be leaktight since they must communicate with one another to preclude subcompartment pressurization. Therefore, this guideline is not applicable to the AP1000.
	R.G. 1.142 C.2	Acceptable	
	R.G. 1.142 C.3	Acceptable	
	R.G. 1.142 C.4	Acceptable	
	R.G. 1.142 C.5	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.142 C.6	Acceptable	
	R.G. 1.142 C.7	Acceptable	
	R.G. 1.142 C.8	Acceptable	
	R.G. 1.142 C.9	N/A	AP1000 does not include a pressure suppression containment. Therefore, this guideline is not applicable to the AP1000.
	R.G. 1.142 C.10	Acceptable	
	R.G. 1.142 C.11	Acceptable	
	R.G. 1.142 C.12	Acceptable	
	R.G. 1.143 C.1.1.1, C.1.1.2, C.1.1.3, C.1.1.4 C.1.2, C.2.1.1, C.2.1.2, C.2.1.3	Acceptable	
	R.G. 1.143 C.3.1	Acceptable	This Criterion applies to the AP1000 solid waste processing system except the components and subsystems used to solidify or concentrate liquid waste. The AP1000 solid waste processing system does not have these components/subsystems. These functions are provided by contractors who process chemical wastes using mobile systems.
	R.G. 1.143 C.3.1.1, C.3.1.1.2 C.3.1.3, C.3.1.4, C.4.1, C.4.2, C.4.3 C.4.4, C.4.5	Acceptable	
	R.G. 1.143 C.5.1.1	Exception	OBE has been eliminated as a design condition. See SRP 2.5.2 responses.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.143 C.5.1.2	Exception	This regulatory guide endorses AISC-1969 and ACI 318-77, which has been superseded by AISC-1989 and ACI 318-99. The AP1000 uses the latest version of the industry standards (as of 4/2001).
	R.G. 1.143 C.5.1.3	Acceptable	
	R.G. 1.143 C.5.2.1	Exception	OBE has been eliminated as a design condition. The solid radwaste building is designed to the Uniform Building Code.
	R.G. 1.143 C.5.2.2, C.5.2.3	Acceptable	
	R.G. 1.143 C.5.2.4	Exception	This regulatory guide endorses ACI 318-77 which has been superseded by ACI 318-99. The AP1000 uses the latest version of the industry standards (as of 4/2001).
	R.G. 1.143 C.5.2.5, C.5.3 C.6	Acceptable	
	R.G. 1.143 C.5.2.6	Exception	See Criterion Section C.5.2.1.
3.a		Acceptable	
3.b		Exception	OBE has been eliminated as a design condition. See SRP 2.5.2 responses.
3.c		Exception	OBE has been eliminated as a design condition. See SRP 2.5.2 responses.
4.a		Acceptable	
4.b		Exception	See position 2.
4.c		Acceptable	
4.d,e		Acceptable	
4.f		Acceptable	
5.		Exception	Category I steel structures are designed to AISC-N690.
6.		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
7.		Acceptable	
8.		Acceptable	See position on Appendix A.
Appendix A, Rev. 0 (7/81)		Exception	OBE has been eliminated as a design condition. See SRP 2.5.2 responses.
Appendix B, Rev. 0 (7/81)		Acceptable	
Appendix C, Rev. 0 (7/81)		Acceptable	
Appendix D, Rev. 0 (7/81)		Acceptable	

References:

a. ACI-349-01, Code Requirements for Nuclear Safety Related Structures.

b. ACI-318-99, Building Code Requirements for Reinforced Concrete.

c. ASCE 4-98, Seismic Analysis of Safety Related Nuclear Structures.

d. ANSI/AISC N690-1994, Design, Fabrication and Erection of Steel Safety Related Structures for Nuclear Facilities.

e. ANSI/AISC-1989, Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design.

f. AISC-LRFD-1999, Specification for Structural Steel Buildings, Load and Resistance Factor Design.

g. Uniform Building Code, 1997.

SRP 3.8.5 - Foundations (Rev. 1, 7/81)

1.		Acceptable	
2.	SRP 3.8.3 SRP 3.8.1	Acceptable N/A	See position on SRP 3.8.3.
3.	SRP 3.8.4 SRP 3.8.1	Acceptable N/A	See position on SRP 3.8.4.
4.	ACI-349 R.G. 1.142	Acceptable Exception	See position on SRP 3.8.4.
5.		Acceptable	
6.	SRP 3.8.4	Acceptable	See position on SRP 3.8.4.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
7.		Acceptable	
SRP 3.9.1 - Special Topics for Mechanical Components (Rev. 2, 7/81)			
1.	10CFR100, App. A	Exception	OBE has been eliminated as a design condition. See SRP 2.5.2 responses.
2.		Acceptable	
3.	ASME Code, App. II	Acceptable	
4.	ASME Code, App. F	Exception	Where an inelastic analysis is required when performing a dynamic analysis, the appropriate guidelines of Standard Review Plan Sections 3.9.3 and 3.7.2 will be used. The guidelines of the Regulatory Guides 1.124 and 1.130 referenced in SRP Section 3.9.3 related to inelastic analysis have been superseded by incorporation of similar requirements into the ASME Code. For the AP1000, guidelines have been developed as alternatives to Appendix F for analysis of piping lines attached to lines with postulated ruptures. These guidelines put the emphasis on the pressure boundary integrity of the piping and would permit yielding of some supports. The guidelines have been developed considering the results and findings of pipe whip testing and water hammer testing. The criteria for active valves and associated supports is not changed.
SRP 3.9.2 - Dynamic Testing and Analysis of Systems, Components and Equipment (Rev. 2, 7/81)			
1.	GDC 14, 15	Acceptable	Section 14.2 of the reference (a) DCD outlines the requirements of the preoperational test program.
1.a.		Acceptable	The systems to be monitored with testing of the first plant are the RCS, Safety Systems, and other high energy systems.
1.b.		Acceptable	The specific flow modes to be tested are to be included in the preoperational test program.
1.c.		Acceptable	The specific locations for inspections and measurements will be included in the preoperational test program.
1.d.		Acceptable	The specific locations for inspections and measurements will be included in the preoperational test program.
1.e.		Acceptable	The details of the thermal monitoring program will be included in the preoperational test program by the Combined License applicant.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
1.f		Acceptable	
2.a.(1)(a)		Acceptable	
2.a.(1)(b)		Acceptable	
2.a.(1)(c)		Acceptable	
2.a.(1)(d)		Acceptable	
2.a.(1)(e)		Acceptable	
2.a.(2)(a)		Acceptable	
2.a.(2)(b)	SRP 3.7.3	Acceptable	
2.a.(2)(c)		Exception	For auxiliary equipment the equivalent static acceleration for stress analysis is taken to be the response spectra acceleration value at the fundamental frequency. The fundamental frequency of each auxiliary equipment is determined by modal analysis. For auxiliary piping systems the load is the piping mass accelerated at 1.7 times the appropriate peak spectral acceleration in three orthogonal directions. For piping runs with axial supports the acceleration value on the mass of piping in the axial direction is limited to 1.0 times its calculated spectral acceleration value. This is the accepted industry practice.
2.b		Exception	OBE has been eliminated. See SRP 2.5.2 responses.
2.c		Acceptable	
2.d.(1)		Acceptable	
2.d.(2)		Acceptable	
2.e	R.G. 1.92	Acceptable	
2.f		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
2.g		Exception	The effect of relative seismic anchor displacements is obtained either by using the worst combination of the peak displacements or by proper representation of the relative phasing characteristics associated with different support inputs. For components supported by a single concrete building (coupled shield and auxiliary buildings, or containment internal structures), the seismic motions at all elevations above the basemat are taken to be in phase. When the component supports are in the same structure, the relative seismic anchor motions are small and the effects are neglected. This is applicable to building structures and to those supplemental steel frames that are rigid in comparison to the components. Supplemental steel frames that are flexible can have significant seismic anchor motions which are considered. When the components supports are in different structures, the relative seismic anchor motion between the structures is taken to be out-of-phase and the effects are considered. The results of the modal spectra analysis (multiple input or envelope) are combined with the results from seismic anchor motion by the absolute sum method.
2.h		Acceptable	
2.i		Acceptable	
2.j		N/A	There are no buried Category 1 piping systems in the AP1000 plant.
2.k		Exception	Adjacent non-Category I piping systems are evaluated to assure that the required functions of Category I systems are maintained. This includes integrity or operability or both for the Category I systems. Non-Category I piping attached to Category I systems satisfy the SRP 3.9.2.II.2.K guidelines.
2.l	R.G. 1.61	Acceptable	The damping values used in the AP1000 SSE analyses are Table 3.7.1-1 of the Reference (a). These values are based on Regulatory Guide 1.61, on the recommendations of ASCE 4-98 and on values used and accepted on past projects. The values are conservative relative to realistic damping values reported in the Reference (b) literature. A site interface is established to verify that the site is within the range considered in the design.
3.a	R.G. 1.20 General	Acceptable	An internals vibration measurement program is conducted during hot functional testing. The results are evaluated based on pre-established allowable levels.
3.a.(1)		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
3.a.(2)		Acceptable	
3.a.(3)		Acceptable	
3.a.(4)		Acceptable	
3.b		Acceptable	
3.c		Acceptable	
3.d		Acceptable	
4.		Acceptable	
4.a.		Acceptable	
4.b.		Acceptable	
4.c.		Acceptable	
4.d.		Exception	The preoperational vibration measurement program will include measurement of responses over the range of hot functional test reactor coolant temperatures and measurement of responses for one, two, three and four reactor coolant pumps in steady state operation and during pump startup and shutdown transients.
4.e.		Acceptable	
4.f.		Acceptable	
4.g.		Acceptable	
5.		Exception	The double end pipe rupture of the reactor coolant loop piping will not be considered in the AP1000 design based on the application of leak-before-break technology. The ruptures considered are those auxiliary Class 1 piping systems which are not qualified for exclusion by leak-before-break. The SSE loads and the loads from the above auxiliary Class 1 piping are combined by the SRSS method for the evaluation of the reactor internals, primary loop piping, Class 1 components, and Class 1 component supports.
6.a		Acceptable	
6.b		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
6.c		Acceptable	
6.d		Acceptable	
6.e		Acceptable	

References:

a. AP1000 Design Control Document.

b. Design & Evaluation Guideline for Department of Energy Facilities Subjected to Natural Phenomena Hazards, Lawrence Livermore National Laboratory, UCRL-15910, R. P. Kennedy et al., May 1989.

SRP 3.9.3 - ASME Code Class 1, 2, and 3 Components, Component Supports, and Core Support Structures (Rev. 1, 7/81)

1.	ASME Code SRP 3.9.3 Appendix A	Acceptable	Note exceptions to Appendix A.
2.	ASME Code Sec. III Appendix O	Acceptable	
3.a.	R.G. 1.124	Exception	Inelastic analysis done to assess a component support for a Level D service condition will be performed in accordance with ASME Code, Section III Subsection NF, Appendix F. Alternative criteria described in SRP Section 3.9.1.5, Item II.4 may also be used for pipe break evaluation.
	R.G. 1.124 General	Acceptable	Many of the items addressed in this regulatory guide have since been incorporated into later ASME Code, Section III Editions and Addenda. The design conforms to this regulatory guide with the following interpretations to maintain consistency with the ASME Code: 1. References to ASME Code, Section III, Subsection NF and Appendix XVII paragraphs are interpreted to be references to the corresponding paragraph in Subsection NF of the ASME Code. 2. References to ASME Code Case 1644 are interpreted to be references to the accepted versions of ASME Code Cases N-249 and N-71.
	R.G. 1.124 C.1	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.124 C.2	Exception	Values of Su at these elevated temperatures are determined by test rather than via the method 2 as given by this regulatory position.
	R.G. 1.124 C.3	Acceptable	
	R.G. 1.124 C.4	Exception	Paragraph B.1(b) of this regulatory guide states that "Allowable service limits for bolted connections are derived from tensile and shear stress limits and their non-linear interaction. They also change with the size of the bolt. For this reason, the increases permitted by ASME Code, Section III, Subsections NF-3231.1, XVII-2110(a), and F-1370(a) are not directly applicable to allowable shear stresses and allowable stresses for bolts and bolted connections." This regulatory position also states that "This increase of level A or B service limits does not apply to limits for bolted connections and shear stresses." As stated above, the increase in bolt allowable stress under emergency and faulted conditions is not permitted because the interaction between the allowable tension and shear stress in bolts is nonlinear, and the allowable tension and shear stress vary with the bolt size. The ASME Code, NF-3225, allows small increases in allowable stresses for Level B, Level C (previously termed "emergency"), Level D (previously termed "faulted"), and test conditions. The ASME Code rules are adequate since they satisfy the two objectives raised in the above quoted paragraph and use the present rules without further restrictions or justifications. This position is based on the following: 1. The interaction curve between the shear and tension stress in bolts is more closely represented by an ellipse and not a line. 2. The ASME Code specifies stress limits for bolts and represents this tension/shear relationship as a non-linear interaction equation (ellipse). This interaction equation has a built-in safety factor that ranges between two and three (depending on whether the bolt load is predominately tension or shear) based on the actual strength of the bolt as determined by test.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			3. This regulatory position states that "Any increases of limits for shear stresses above 1.5 times the ASME Code, Level A service limits should be justified." Concerning allowable shear stresses, the AP1000 uses the ASME Code, Subsection NF requirements. The ASME Code shear stress limits (NF-330 and Tables NF-3523.2 and NF-3623.2-1) generally meet the guidance provided by this regulatory position that shear stresses be maintained within 1.5 times Level A service limits. This limit may be exceeded slightly in some limited cases such as Level D limits for SA-36 material, in which case the NF shear stress limit of .42 Su is 13 percent greater than this regulatory guide limit of 1.5 x .4 Fy. Su and Fy are the material tensile and yield strengths, respectively.
	R.G. 1.124 C.5.a	Exception	The AP1000 does specify extra margin in support design by including operating basis Appendix XVII-2000 earthquake inertial loads within Level A stress limits. The AP1000 evaluates supports to current Level B stress limits for the upset load combination. Effects of constraint of free-end displacements are included in the upset loading condition while no further increase in allowable stresses over and above the Level B limits are permitted. The operating basis earthquake has been eliminated from the AP1000 design basis.
	R.G. 1.124 C.5.b-c	Acceptable	The operating basis earthquake has been eliminated from the AP1000 design basis.
	R.G. 1.124 C.6	Acceptable	
	R.G. 1.124 C.7.a	Acceptable	
	R.G. 1.124 C.7.b	Exception	The AP1000 uses the provisions of the ASME Code, Section III, Appendix F to determine faulted condition allowable loads for supports designed by the load rating method. The method described in this regulatory position is conservative and inconsistent with the remainder of the faulted stress limits.
	R.G. 1.124 C.7.c, C.7.d	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.124 C.8	Exception	The reduction of allowable stresses to no greater than Level B limits (which in reality are only design limits since design, Level A and Level B limits are the same for linear supports) for support structures in those systems with normal safety-related functions occurring during emergency or faulted plant conditions is overly conservative for components which are not required to mechanically function (inactive components). For Service Level C and D loading conditions, Level C limits are used for the supports of active components.
	R.G. 1.130 General	Exception	Many of the items addressed in this regulatory guide have since been incorporated into later ASME Code, Section III, Editions and Addenda. The plant design conforms to this regulatory guide with the following interpretations to maintain consistency with the ASME Code: 1. Regulatory guide references to ASME Code, Section III, Subsection NF and Appendix XVII paragraphs are interpreted to be references to the corresponding paragraph in the ASME Code, Subsection NF. 2. Regulatory guide references to ASME Code Case 1644 are interpreted to be references to the latest acceptable versions of the ASME Code Case N-249 and N-71. Paragraph B.1 of this regulatory guide states that "Allowable stress limits for bolted connections are derived on a different basis that varies with the size of the bolt. For this reason, the increases permitted by NF-3222.3 and F-1323.1(a) of ASME Code, Section III are not directly applicable to bolts and bolted connections." The ASME Code rules are adequate for bolt design and uses the rules without further restriction and justification. The maximum stress increase factor allowed is 25 percent for the Service Level D condition, and the stress allowables do not vary with bolt size.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			The AP1000 takes exception to the guideline stated in Paragraph B.5 of this regulatory guide, that systems whose safety-related function occurs during emergency or faulted plant conditions should meet Level A limits. The reduction of allowable stresses to no greater than Level A limits for support structures in those systems with normal safety-related functions occurring during emergency or faulted plant conditions is overly conservative for components which are not required to mechanically function (inactive components). For service, Level C and D loading conditions Level C limits are used for the supports for active components. However, when these criteria are invoked for active components, any significant deformation that might occur is considered in the evaluation of equipment operability.
	R.G. 1.130 C.1, C.2	Acceptable	
	R.G. 1.130 C.3	Exception	Design margins of 2 for flat plates and 3 for shells are unnecessarily restrictive for normal, upset, and emergency conditions, as well as inconsistent with ASME Code requirements. For these loading conditions, the AP1000 limits the allowable buckling strength to 2/3 of the critical buckling strength.
	R.G. 1.130 C.4	Exception	This regulatory position recommends that design stress limits be used in conjunction with a loading combination that includes operating basis earthquake. The ASME Code rules (in which Level B stress limits are typically used for the upset load combination) provide a conservative design basis. The AP1000 uses the latest rules (as of 4/2001) without further restriction or justification. The operating basis earthquake has been eliminated from the AP1000 design basis. Refer also to the discussion on Criteria Section C.3.
	R.G. 1.130 C.5.a	Exception	Refer to the discussion on Criteria Section C.3.
	R.G. 1.130 C.5.b, C.5.c, C.6.a	Acceptable	
	R.G. 1.130 C.6.b	Exception	The limit based on the test load given in this regulatory position is overly conservative and is inconsistent with ASME Code requirements. The AP1000 uses the provisions of the ASME Code, Section III, Appendix F to determine faulted condition allowable loads for supports designed by the load rating method.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.130 C.6.c, C.6.d, C.7	Acceptable	
3.b.(1)		Acceptable	
3.b.(2)		Acceptable	
3.b.(3)		Acceptable	
3.b.(4)	SRP 3.9.2	Acceptable	
3.b.(5)	SRP 3.9.2	Acceptable	
3.b.(6)		Acceptable	
3.b.(7)		Acceptable	
SRP 3.9.3, Appendix A - Stress Limits for ASME Code Class 1, 2, and 3 Components and Component Supports of Safety-Related Systems and Class CS Core Support Structures Under Specific Service Loading Combinations (Rev. 1, 4/84)			
C.1.1		Acceptable	
C.1.2	NUREG-0484	Exception	Although an SSE event cannot result in a LOCA in a system designed for seismic loads, the combination of SSE plus LOCA loads by SRSS is considered for certain items: Class 1 and Class CS components, Class 1 component supports, and primary loop piping. When the SSE event is determined mechanistically to result in transient loads due to relief valve or safety valve discharge in ASME Class 1, 2, or 3 systems the SSE loads are Combined with the transient loads using SRSS method. SSE and other dynamic events are combined using SRSS.
C.1.3.1		Exception	Service limit A is used for normal plant operation. Abnormal system operation may use service level A, B, C, or D depending on plant operation.
C.1.3.2		Exception	There is no OBE event.
C.1.3.3(a)		Exception	All pipe breaks are classified as service level D.
C.1.3.3(b)		Exception	All pipe breaks are classified as service level D.
C.1.3.4(a)		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
C.1.3.4(b)	NUREG-0609	Exception	Dynamic effects of pipe rupture do not have to be included in loading combinations when the leak-before-break criteria are met. Leak-before-break exclusion of the reactor coolant loop piping may result in no significant asymmetric loads outside of the reactor vessel. The analysis of the AP1000 will use information for internal system depressurization developed since NUREG-0609 was prepared. For example, the depressurization loading has little energy in a system without closing check valves.
C.2.1	SRP 3.10	Acceptable	Note exceptions provided separately for SRP 3.10.
C.2.2		Acceptable	
C.2.3		Acceptable	
C.3.1	Table I	Exception	The footnotes in Table I should note that dynamic effects of pipe rupture do not have to be considered for systems for which dynamic effects of pipe breaks have been excluded by leak-before-break technology.
C.3.2	Table II	Exception	The definitions for DBPB, LOCA, and MS/FWPB in Table II should be changed to reflect the potential for the exclusion of dynamic effects of pipe rupture based on leak-before-break technology. OBE is eliminated for AP1000. See SRP 2.5.2 responses.
C.4.1(a)	ASME Code	Acceptable	
C.4.1(b)		Exception	The AP1000 will not have a PSAR. The Design Control Document for approval of the design will have the information required by this section.
C.4.1(c)		Exception	The AP1000 will not have an FSAR. The final design reports and other information required by this section can only be completed when the final as-built information is available. An example of intermediate information is the summary of the methods and results for the reactor coolant loop piping found in Appendix 3C of the DCD.
C.4.1(d)		Acceptable	
C.4.2	R.G. 1.124 R.G. 1.130	Exception	The recommendations of Regulatory Guides 1.124 and 1.130 have been incorporated into the ASME Code. The analysis will meet the requirements of the ASME Code. See responses to SRP 3.9.3 for exceptions to Regulatory Guides 1.124 and 1.130.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 3.9.4 - Control Rod Drive Systems (Rev. 2, 4/84)			
1.	R.G. 1.70 Rev. 3	Acceptable	
2.a.	ASME B&PV Code, Section III	Acceptable	
2.b.	ASME B&PV Code, Section VIII Division 1	N/A	No pressurized portions of the control rod drive system fall under Quality Group D.
2.c.	Non-ASME Code	Acceptable	
3.	ASME B&PV Code, Section III, NB-3113	Acceptable	
4.	Operability Assurance Program	Acceptable	
SRP 3.9.5 - Reactor Pressure Vessel Internals (Rev. 2, 7/81)			
a.	ASME B&PV Code, Section III Subsection NG	Acceptable	
b.	ASME B&PV Code, Section III Subsection NG	Acceptable	
c.	ASME B&PV Code, Section III Subsections NG-1122 & NG-3000	Acceptable	
d.	Deformation Limits	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 3.9.6 - Inservice Testing of Pumps and Valves (Rev. 2, 7/81)			
1.	ASME XI Section IWP	Exception	The IWP Section of the ASME Code Section XI has been replaced by ANSI/ASME-OM Part 6. The AP1000 has no safety-related pumps.
2.	ASME XI Section IWV	Exception	The IWV Section of the ASME Section XI has been replaced by ANSI/ASME-OM Part 10. The AP1000 valve test program will meet the requirements of OM-10 and incorporate appropriate requirements from NRC Generic Letter 89-10. Generic Letter 89-04 will also be reviewed for applicable guidance. See DCD Table 3.9-16 for a description of AP1000 Inservice Test Requirements.
3.	ASME XI	Acceptable	
SRP 3.10 - Seismic and Dynamic Qualification of Mechanical and Electrical Equipment (Rev. 2, 7/81)			
1.	IEEE 344-1975 R.G. 1.100, Revision 1	Exception	SRP 3.10 references Regulatory Guide 1.100 Rev. 1 which endorses IEEE 344-1975. The AP1000 references qualification standards IEEE 323-1974 and IEEE 344-1987. Regulatory Guide 1.100 Rev. 2 dated June 1988 accepts use of IEEE 344-1987. As noted in IEEE 344-1987, safety related equipment may be qualified based on new testing and/or analysis or based on properly documented past test and experience data (Section 9.0 of IEEE 344-1987). The concept of using properly documented experience data is cost effective as evidenced by its proposed use in the resolution of the A-46 problem (NUREG-1030). The choice of qualification method is based upon many factors including practicality, complexity of the equipment, economics, and availability of previous qualification and experience data. If experience data is used, the COL applicant will identify the specific equipment and include details of the methodology and the corresponding experience data for each piece of equipment. Structural integrity and pressure retaining capability will be demonstrated by analysis using appropriate design codes such as the codes issued by the American Institute of Steel Construction (AISC) and American Society of Mechanical Engineers Boiler and Pressure Vessel Code (Section III).

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			For equipment that must perform a safety related function, the recommendations concerning methods to be employed for seismic qualification of electrical and mechanical equipment are contained in Regulatory Guide 1.100, Rev. 2, "Seismic Qualification of Electrical and Mechanical Equipment for Nuclear Power Plants," which endorses IEEE 344-1987, "IEEE Recommended Practice for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations," for the qualification of both electrical and mechanical equipment. The AP1000 will meet these requirements by either type testing, analysis, or a combination of both.
1.a.(1)		Acceptable	
1.a.(2)		Acceptable	
1.a.(3)		Acceptable	
1.a.(4)		Acceptable	
1.a.(5)		Acceptable	
1.a.(6)		Acceptable	
1.a.(7)		Acceptable	
1.a.(8)		Acceptable	
1.a.(9)		Acceptable	
1.a.(10)		Exception	Event loadings are not applied during the valve static test. The valve body is designed such that the loads transmitted to the valve nozzles are limited to a level that does not adversely affect valve structural integrity or function.
1.a.(11)		N/A	Not used by Westinghouse for qualification.
1.a.(12)		Acceptable	
1.a.(13)		Acceptable	Westinghouse will reference IEEE-344.
1.a.(14)(a)		Acceptable	
1.a.(14).(b) i		Acceptable	
ii		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
iii		Acceptable	Valve discs are evaluated for maximum design line pressure and maximum differential pressure resulting from plant operating, transient, and accident conditions. Valve operating conditions are included as part of the valve design specification and are used to evaluate the valve disc. Design verification is performed on vendor-supplied valves to ensure that the valves are designed properly and meet the stress acceptance criteria in the equipment specification and in the American Society of Mechanical Engineers Code standards. Loadings simulating Δp conditions are calculated and included in the static operability test, if significant.
iv		Acceptable	
v		Acceptable	
vi		Acceptable	
vii		Acceptable	
viii		Exception	If dynamic analysis is performed, closely spaced modes will be combined by Westinghouse as described in position on SRP 3.7.2, Criteria Section 3.7.
1.b		Acceptable	
1.c		Acceptable	
2.		N/A	Only applies to plants with a construction permit application docketed prior to October 27, 1972.
3.		N/A	Not part of the design process.
4.	GDC 14, 30	Acceptable	The qualification program for valves that are part of the reactor coolant pressure boundary shall include testing or analysis that demonstrate that these valves will not experience leakage beyond the design criteria when subjected to design loading.
5.a		Acceptable	
5.b		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
5.c		Acceptable	Seismic qualification of equipment is documented in test reports, analysis reports, calculation notes, etc. contained in Westinghouse files. The Combined License applicant is responsible for the maintenance of the equipment qualification file during the equipment selection and procurement phase.

References:

a. AP1000 Design Control Document,.

SRP 3.11 - Environmental Qualification of Mechanical and Electrical Equipment (Rev. 2, 7/81)

	GDC 4	Acceptable	The AP1000 references IEEE 323-1974 and the latest regulation 10CFR Section 50.49. The AP1000 also addresses the latest version of IEEE standards for which regulatory guides have been prepared.

4 REACTOR

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 4.2 - Fuel System Design (Rev. 2, 7/81)			
A.1.a		Acceptable	
A.1.b		Acceptable	
A.1.c		Acceptable	
A.1.d		Acceptable	
A.1.e		Acceptable	
A.1.f		Acceptable	
A.1.g		Acceptable	
A.1.h		Acceptable	
A.2.a		Acceptable	
A.2.b		Acceptable	
A.2.c		Acceptable	
A.2.d		Acceptable	
A.2.e		Acceptable	
A.2.f		Acceptable	
A.2.g		Acceptable	
A.2.h		Acceptable	
A.2.i		Acceptable	
A.3.a		Acceptable	
A.3.b		Acceptable	
A.3.c		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
A.3.d		Acceptable	
A.3.e		Acceptable	
B.		Acceptable	
C.1		Acceptable	
C.2		N/A	Operating experience with fuel systems as required in C.1 will be used to demonstrate experience with fuel design.
C.3.a		Acceptable	
C.3.b		Acceptable	
C.3.c		Acceptable	
C.3.d		Acceptable	
C.3.e		Acceptable	
C.3.f		Acceptable	
C.3.g		Acceptable	
C.3.h		Acceptable	
D.1		Acceptable	
D.2		Acceptable	
D.3		N/A	Not applicable to the design phase.
SRP 4.2, Appendix A - Evaluation of Fuel Assembly Structural Response To Externally Applied Forces (Rev. 0)			
B.1		Acceptable	
B.2		Acceptable	
B.3		Acceptable	
B.4		Acceptable	
B.5		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
C.1		Acceptable	
C.2		Acceptable	
D.1		Acceptable	
D.2		Acceptable	
SRP 4.3 - Nuclear Design (Rev. 2, 7/81)			
A.	GDC 10	Acceptable	
B.	GDC 11	Acceptable	
C.	GDC 12	Acceptable	
D.	GDC 13	Acceptable	
E.	GDC 20	Acceptable	
F.	GDC 25	Acceptable	
G.	GDC 26	Acceptable	
H.	GDC 27	Acceptable	
1.	GDC 28	Acceptable	
1.a		Acceptable	
1.b		Exception	A variation of the traditional CAOC operating strategy will most likely be employed in the AP1000.
2.		Acceptable	
3.a		Acceptable	
3.b		Acceptable	
4.		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 4.3, BTP CPB 4.3-1 - Westinghouse Constant Axial Offset Control (CAOC) (Rev. 2, 7/81)			
General		Exception	A variation of the traditional CAOC methodology will most likely be utilized in the AP1000. This control methodology will, however, meet the intent of SRP 4.3, Section II.1.b since it will be demonstrated that this methodology will not result in core conditions which violate the envelope of permissible core operating limits.
B.1		N/A	
B.2		N/A	
B.3		N/A	
SRP 4.4 - Thermal and Hydraulic Design (Rev. 1, 7/81)			
1.		Acceptable	The Revised Thermal Design Procedure (RTDP) and the WRB-2M CHF correlation will be employed in the AP1000 DNB analysis. WRB-2M correlation and RTDP have both been reviewed and approved by the NRC in References (a) and (b) respectively.
2.		Acceptable	
3.		Acceptable	
4.		Acceptable	
5.		Acceptable	
6.	R.G. 1.68, C.1 App. A.1.a	Acceptable	Applies to AP1000 RCS components (Jet pumps are applicable to BWRs only.)
	R.G. 1.68, C.1 App. A.1.b	Acceptable	Applies to the AP1000 reactivity control system, except the systems for BWRs such as rod worth minimizers.
	R.G. 1.68, C.1 App. A.1.c	Acceptable	
	R.G. 1.68, C.1 App. A.1.d	Acceptable	These systems have been eliminated due to the design of the AP1000 passive safety systems. The functions of these systems are replaced by the PRHR heat exchangers of the passive core cooling system.
	R.G. 1.68, C.1 App. A.1.e	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.68, C.1 App. A.1.f	Acceptable	
	R.G. 1.68, C.1 App. A.1.g(1)	Acceptable	
	R.G. 1.68, C.1 App. A.1.g(2)	Acceptable	
	R.G. 1.68, C.1 App. A.1.g(3)	Exception	The AP1000 nonsafety-related diesel-generators are not required for safe shutdown.
	R.G. 1.68, C.1 App. A.1.g(4)	Acceptable	
	R.G. 1.68, C.1 App. A.1.h	Acceptable	The characteristics of the AP1000 passive safety systems allow the support systems such as the cooling water systems, the HVAC and the ac power sources to be nonsafety-related and simplified. The capability of these systems is established by testing.
	R.G. 1.68, C.1 App. A.1.i	Acceptable	The AP1000 has no secondary containment. Therefore, this guideline applies only to primary containment.
	R.G. 1.68, C.1 App. A.1.j-0	Acceptable	
	R.G. 1.68, C.1 App. A.2	Acceptable	As applicable for PWR.
	R.G. 1.68, C.1 App. A.3	Acceptable	As applicable for PWR.
	R.G. 1.68, C.1 App. A.4	Acceptable	As applicable for PWR.
	R.G. 1.68, C.1 App. A.5	Exception	Since the remote shutdown work station is similar to the main control room work stations, it is unnecessary to perform a pre-operational test to place the plant in a safe shutdown condition and maintain it there from the remote shutdown work station. Remote shutdown capability testing is performed by testing of the controls and indications of the remote shutdown work station and separately demonstrating the ability of the PRHR system to maintain safe shutdown.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.68, C.2-9	N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.
	R.G. 1.68 Appendix B	N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.
	R.G. 1.68 Appendix C	N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.
7.	R.G. 1.133 General	Acceptable	A digital metal impact monitoring system (DMIMS) monitors the reactor coolant system for the presence of loose metallic parts. An advanced microprocessor based system design, employing digital technology, automatically actuates audible and visual alarms if a signal exceeds the preset alarm level. The DMIMS is not a Class 1E system. It serves as a diagnostic aid to detect loose parts in the reactor coolant system before damage occurs. Database calibration is made prior to plant startup and the capability for periodic online channel checks and channel functional tests are incorporated in the DMIMS design.
	R.G. 1.133 C.1.a-i	Acceptable	
	R.G. 1.133 C.2	Acceptable	
	R.G. 1.133 C.3.a	N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.
	R.G. 1.133 C.3.b	Acceptable	
	R.G. 1.133 C.4-5	Acceptable	
	R.G. 1.133 C.6	N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.
8.		Acceptable	
9.	NUREG-0718 Item II.F.2 NUREG-0737	Exception	RVLIS is not required for the AP1000 design. Hot leg level provides reactor vessel level measurement. Qualification of instrumentation provided for indication of inadequate core cooling will be in compliance with R.G. 1.97, Revision 3.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions

References:

a. L. D. Smith et al, "Modified WRB-2 Correlation, WRB-2M for predicting Critical Heat Flux in 17x17 Rod Bundles with Modified LPD Mixing Vane Grids," WCAP-15025-P-A, April1999.

b. A. J. Friedland and S. Ray, "Revised Thermal Design Procedures," WCAP-11397-P-A, April 1989 (SER: A. C. Thadani to W. J. Johnson, January 17, 1989)

SRP 4.5.1 - Control Rod Drive Structural Materials (Rev. 2, 7/81)

1.	ASME B&PV Code, Section III, Appendix I	Exception	Applies to Class 1, 2, 3 Pressure Boundary and Bolting Materials Control Rod Drive Structural Materials are only Class 1.
	R.G. 1.85	Acceptable	
2.	R.G. 1.31 General	Acceptable	The welding of austenitic stainless steel is controlled to mitigate the occurrence of microfissuring or hot cracking in the weld. Specifically, the undiluted weld deposits of the "starting" welding materials are required to contain a minimum of five percent delta ferrite as determined by chemical analysis and calculation using the appropriate weld metal constitution diagrams in ASME Code, Section III. To maintain reliability, Westinghouse has completed a delta ferrite verification program, described in WCAP-8324-A that is approved as a valid approach to verify the AP1000 position and is considered an acceptable alternative for conformance with the NRC Interim Position on this regulatory guide. The NRC acceptance letter and topical report evaluation were dated December 30, 1974. The program results, which support the position presented in WCAP-8324-A are summarized in WCAP-8693.
	R.G. 1.31 C.1-5	Acceptable	
	R.G. 1.44 C.1-2	Acceptable	
	R.G. 1.44 C.3	Exception	Product forms with simple shapes are not corrosion tested provided they are water quenched following solution anneal. Cast metal and weld metal containing more than five percent delta ferrite also are not corrosion tested as they are not susceptible to sensitization.
	R.G. 1.44 C.4	Exception	Welding operations necessarily result in the weld heat affected zone (HAZ) being between the temperature of 800° to 1500°F.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.44 C.5	Acceptable	
	R.G. 1.44 C.6	Exception	Extensive testing has been completed and documentation made available such that this is no longer necessary for AP1000 welding procedures.
3.	ASME B&PV Code, Section III, NB-2160	Acceptable	
	ASME B&PV Code, Section III, NB-3120	Acceptable	
4.	R.G. 1.37 and ANSI N45.2.1-1973	Exception	The ANSI N45.2 series of standards that are referenced by the current revisions of the Quality Assurance regulatory guides have been replaced by ASME NQA-1 and NQA-2. Both R.G. 1.37 and ANSI N45.2.1-1973 pertain to procedures for on-site construction methods and the required cleanliness for the various systems. As such, these requirements do not pertain directly to the manufacture of the subject components.
SRP 4.5.2 - Reactor Internal and Core Support Materials (Rev. 2, 7/81)			
1.	ASME B&PV Code, Section III, Subsection NG-2000	Acceptable	
	R.G. 1.85	Acceptable	
2.	ASME B&PV Code, Section III, Subsection NG-4000	Acceptable	
	ASME B&PV Code, Section III, Subsection NG-5000	Acceptable	
3.	ASME B&PV Code, Section III, Subsection NG-2500	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	ASME B&PV Code, Section III, Subsection NG-5300	Acceptable	
4.	R.G. 1.31	Acceptable	See response to SRP 4.5.1.
	R.G. 1.44	Acceptable	See response to SRP 4.5.1.
5.	ASME B&PV Code, Section III, Subsection NG-2160	Acceptable	
	ASME B&PV Code, Section III, Subsection NG-3120	Acceptable	
SRP 4.6 - Functional Design of Control Rod Drive System (Rev. 1, 7/81)			
1.	GDC-23	Acceptable	
2.	GDC-25	Acceptable	
3.	GDC-26	Acceptable	
4.	GDC-27	Acceptable	
5.	GDC-28	Acceptable	
6.	GDC-29	Acceptable	

There are no specific acceptance criteria associated with SRP 4.6, "Functional Design of Control Rod Drive System."

5 REACTOR COOLANT SYSTEM AND CONNECTED SYSTEMS

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 5.2.1.1 - Compliance With the Codes and Standards Rule, 10 CFR 50.55a (Rev. 2, 7/81)			
1.	GDC 1	Acceptable	
2.	10 CFR 50.55a	Acceptable	
	R.G. 1.26 C.1.a	Exception	For the AP1000 plant design, Quality Group B is reserved for the containment boundary including any extensions such as containment isolation valves and associated piping. Quality Group C is essentially equivalent quality except that it has less stringent ISI. For equipment such as passive safety system accumulators, minor leakage is not a problem for the following reasons: a. It is located inside containment so activity releases are contained. b. Minor leakage does not affect its functional performance, especially considering the limited duration of post-accident operation. c. There is continuous water level and gas pressure monitoring of the passive safety system accumulators that detects leaks. This approach results in the change of quality group (from Quality Group B to Quality Group C) for various components such as the IRWST.
	R.G. 1.26 C.1.b	Exception	The AP1000 normal residual heat removal system is a nonsafety-related system, but it is classified as Quality Group C. The passive core cooling system provides the safety-related function that the residual heat removal system provides in current plants with active safety-related systems.
	R.G. 1.26 C.1.c	N/A	Applies to BWRs only.
	R.G. 1.26 C.1.d	Acceptable	Portions of the feedwater and steam systems are Quality Group B, up to the isolation valves.
	R.G. 1.26 C.1.e	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.26 C.2.a	Acceptable	The component cooling water and the service water systems are Quality Group D since they perform no safety-related functions.
	R.G. 1.26 C.2.b	Acceptable	
	R.G. 1.26 C.2.c	Acceptable	
	R.G. 1.26 C.2.d	N/A	Regulatory Guide 1.143 supersedes this guideline.
	R.G. 1.26 C.2.e	N/A	Regulatory Guide 1.143 supersedes this guideline.
	R.G. 1.26 C.3	Exception	Systems that are normally radioactive are classified as Quality Group D. AP1000 also classifies as Quality Group D, important nonsafety-related systems and components which function as a first line of defense in reducing the challenge to the passive safety-related systems. Some structures, systems and components that have the potential to be contaminated with radioactive fluids but normally do not contain radioactive fluids are not classified as Quality Group D.
SRP 5.2.1.2 - Applicable Code Cases (Rev. 2, 7/81)			
1.	GDC 1	Acceptable	
2.	10CFR 50.55a	Acceptable	
2.a	R.G. 1.84 General	Acceptable	ASME Code cases may be used for design and fabrication after they have been reviewed so that their use would not compromise the component design or reliability. Application of ASME Code Cases is controlled to: a. Identify and request permission for use of any ASME Code Cases not listed in Regulatory Position C.1 of Regulatory Guides 1.84 and 1.85 where use of such ASME Code Cases is needed by the supplier. b. Permit continued use of an ASME Code Case considered acceptable at the time of equipment order, where such ASME Code Case was subsequently annulled or amended.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			c. Limit the use of ASME Code Cases to those listed in Regulatory Position C.1 of Regulatory Guides 1.84 and 1.85, except as allowed below. Regulatory permission is requested for the use of Class 1 ASME Code Cases not yet endorsed in Regulatory Position C.1 of Regulatory Guides 1.84 and 1.85, to permit supplier use only is permission is obtained or is otherwise assured (such as a later version of the NRC regulatory guide that includes endorsement).
	R.G. 1.84 C.1	Acceptable	As applicable for PWR.
	R.G. 1.84 C.2-5	Acceptable	
2.b	R.G. 1.85	Acceptable	
2.c	R.G. 1.147	Acceptable	
SRP 5.2.2 - Overpressure Protection (Rev. 2, 11/88)			
1.	GDC 15	Acceptable	
2.	GDC 31	Acceptable	
2.A.		Exception	The AP1000 design does not include Power-Operated Relief Valves (PORVs). However, the relief capacity of the pressurizer (significantly larger than for PWR plants of similar power rating) and the rapid power reduction system, assure that actuation of the safety valves would be precluded during normal operation transients.
3.		Acceptable	
B.	BTP RSB 5-2 B.1 thru B.5	Acceptable	
	B.6	Acceptable	
	B.7	Exception	Although the system is designed for seismic loads, operational basis earthquake is not included in the design basis.
	B.8 thru B.10	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
References:			
a. AP1000 Design Control Document.			
SRP 5.2.3 - Reactor Coolant Pressure Boundary Materials (Rev. 2, 7/81)			
1.	GDC 1, 30 10CFR50.55a R.G. 1.85, ASME Code Sect. II & III	Acceptable	
2.	GDC 4, R.G. 1.44 R0 & R1 ASME Sect. III, NB-3120	Acceptable	
3.a	GDC 14, 31 10CFR50.55a 10CFR50 Appendix G ASME Sect. III, NB-2300	Acceptable	
3.a(1),(2) (3),(4)	GDC 14, 31 ASME Code Sect. III, NB-2333, NB-2360, NB-2332 10CFR50.55a, SRP 5.3.1	Acceptable	
3.b(1)(a), (b)	GDC 1, 30 10CFR50.55a ASME Sect. III Appendix D	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G 1.50 General	N/A	The guidelines of this regulatory guide are followed during the initial fabrication of low-alloy steel components of the AP1000. This regulatory guide is considered as applicable to ASME Code, Section III, Class 1 components. The AP1000 practice for Class 1 components is in agreement with the guidance of this regulatory guide except for Regulatory Positions C.1(b) and 2. For AP1000 Class 2 and 3 components, the guidelines provided by this regulatory guide are not applied.
	R.G. 1.50 C.1(b)	Acceptable	The welding procedures are qualified within the preheat temperature ranges required by ASME Code, Section IX. Experience has shown excellent quality of welds using the ASME qualification procedures.
	R.G. 1.50 C.2	Exception	The AP1000 position is that the guidance specified in this regulatory guide is not necessary. Code acceptable low-alloy steel welds have been and are being made under present procedures. It is not necessary to maintain the preheat temperature until a post-weld heat treatment has been performed in accordance with the guidance provided by this regulatory guide, in the case of large components. In some cases of reactor vessel main structural welds, the practice of maintaining preheat until the intermediate or final post-weld heat treatment has been followed. In other cases, an extended preheat practice has been utilized in accordance with the reactor vessel design specification. In this practice, the weld temperature is maintained at 400° to 750°F for four hours after welding. The weld temperature may then be lowered to ambient without performing an intermediate or final PWHT at 1100°F. The welds have shown high integrity. Westinghouse practices are documented in WCAP-8577 which has been accepted by the NRC.
3.b(2)	GDC 1, 30 10CFR50.55a R.G 1.34	Acceptable	
3.b(3)	GDC 1, 30 10CFR50.55a	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G 1.71 General	Exception	Current practice does not require qualification or requalification of welders for areas of limited accessibility as described by this regulatory guide. The performance of required nondestructive evaluations helps to confirm weld quality. Limited accessibility qualification or requalification in excess of ASME Code, Section III or IX requirements is considered an unduly restrictive requirement for component fabrication, where the welders' physical position relative to the welds is controlled and does not present significant problems. In addition, shop welds of limited accessibility are repetitive due to multiple production of similar components, and such welding is closely supervised. For field application, the type of qualification is considered on a case-by-case basis due to the great variety of circumstances encountered.
3.b(4)	GDC 1, 30 10CFR50.55a R.G. 1.43 R0	Acceptable	
3.c	GDC 1, 30 10CFR50.55a ASME Sect. III, NB-2550	Acceptable	
4.a, b	GDC 4	Acceptable	
	R.G. 1.44 C.1-2	Acceptable	
	R.G. 1.44 C.3/ASTM a 262-70	Exception	Product forms with simple shapes are not corrosion tested provided they are water quenched following solution anneal. Cast metal and weld metal containing more than five percent delta ferrite also are not corrosion tested as they are not susceptible to sensitization.
	R.G. 1.44 C.4	Exception	Welding operations necessarily result in the weld heat affected zone (HAZ) being between the temperature of 800° to 1500°F.
	R.G. 1.44 C.5	Acceptable	
	R.G. 1.44 C.6	Exception	Extensive testing has been completed and documentation made available such that this is no longer necessary for AP1000 welding procedures.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.37 General	Exception	The ANSI N45.2 series of standards that are referenced by the current revisions of the Quality Assurance regulatory guides have been replaced by ASME NQA-1 and NQA-2.
4.c	R.G. 1.36 GDC 14, 31	Acceptable	
4.d	R.G. 1.31 10CFR50.55a GDC 1, 30 R.G. 1.34	Acceptable	
	R.G. 1.71 General	Exception	Current practice does not require qualification or requalification of welders for areas of limited accessibility as described by this regulatory guide. The performance of required nondestructive evaluations helps to confirm weld quality. Limited accessibility qualification or requalification in excess of ASME Code, Section III or IX requirements is considered an unduly restrictive requirement for component fabrication, where the welders' physical position relative to the welds is controlled and does not present significant problems. In addition, shop welds of limited accessibility are repetitive due to multiple production of similar components, and such welding is closely supervised. For field application, the type of qualification is considered on a case-by-case basis due to the great variety of circumstances encountered.
4.e	ASME Sect. III NB-2550 GDC 1, 30 10CFR50.55a	Acceptable	
SRP 5.2.3, BTP MTEB 5-7 - Material Selection and Processing Guidelines for BWR Coolant Pressure Boundary Piping (Rev. 2, 7/81)			
		N/A	Applies only to BWR.
SRP 5.2.4 - Reactor Coolant Pressure Boundary Inservice Inspection and Testing (Rev. 1, 7/81)			
1.	10CFR50.55a ASME Code Sect. XI	Acceptable	
2.	ASME Code Sect. XI, IWA-1500	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
3.	ASME Code Sect. XI, IWA-2000 IWB-2000, IWB-3000	Acceptable	
4.	ASME Code Sect. XI, IWA-2000	Acceptable	
5.	ASME Code Sect. XI, IWB-3000, IWB-4000	Acceptable	
6.	ASME Code Sect. XI, IWB-5000	Acceptable	
7.	ASME Code Sect. XI, IWB-1220	Acceptable	
8.		Acceptable	
SRP 5.2.5 - Reactor Coolant Pressure Boundary Leakage Detection (Rev. 1, 7/81)			
1.	R.G. 1.29, C.1.k	Acceptable	
	R.G. 1.29, C.2	Acceptable	
2.	R.G. 1.45, C-1	Acceptable	
	R.G. 1.45, C-2	Acceptable	
	R.G. 1.45, C-3	Acceptable	
	R.G. 1.45, C-4	Acceptable	
	R.G. 1.45, C-5	Acceptable	
	R.G. 1.45, C-6	Acceptable	
	R.G. 1.45, C-7	Acceptable	
	R.G. 1.45, C-8	Exception	All instrumentation will be capable of being tested and calibrated, however ALARA considerations may prevent calibration of specific sensors during power operation.
	R.G. 1.45, C-9	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 5.3.1 - Reactor Vessel Materials (Rev. 1, 7/81)			
1.	ASME Code Section III	Acceptable	
1.a.	ASME Code Section III Appendix I	Acceptable	
	ASME Code Section II Parts A,B,C	Acceptable	
	10 CFR Part 50 Appendix G	Acceptable	
1.b.	ASME Code Section III Appendix IV-1400	Acceptable	
	10 CFR Part 50 Appendix G	Acceptable	
2.	ASME Code Section III Paragraphs: NB-4100 NB-8000 NB-2000 NB-4000	Acceptable	
3.	ASME Code Section III NB-5000 App. IX-6000	Acceptable	
4.a.	ASME Code Section III NB-4300	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	ASME Code Section IX	Acceptable	
4.b.	ASME Code Sections III & IX	Acceptable	
	R.G. 1.50		See response to SRP 5.2.3.
	R.G. 1.34	Acceptable	
4.c.	R.G. 1.43	Acceptable	
4.d.	ASME Code Sections III & IX	Acceptable	
	R.G. 1.31	Acceptable	
	R.G. 1.34	Acceptable	
4.e.	R.G. 1.44	Exception	See response to SRP 5.2.3.
	R.G. 1.37 General	Exception	The ANSI N45.2 series of standards that are referenced by the current revisions of the Quality Assurance regulatory guides have been replaced by ASME NQA-1 and NQA-2.
5.	10 CFR Part 50 Appendix G	Acceptable	
5.a.	ASME Code NB-2300	Acceptable	
5.a.(1)		Acceptable	
5.a.(2)	ASME NB-2330	Acceptable	
5.a.(3)		Acceptable	
5.a.(4)		Acceptable	
5.a.(5)		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
5.b.	10 CFR Part 50 Appendix G Paragraphs IV.A.2 IV.A.3 IV.B	Acceptable	
5.b.(1)	10 CFR Part 50 Appendix G Paragraphs: IV.A.2 & 3	Acceptable	
5.b.(2)	10 CFR Part 50 Appendix G Paragraph IV.B	Acceptable	
	ASME Code Paragraph NB-2322a	Exception	Paragraph NB-2322a does not exist. Should be Paragraph NB-2320.
6.	10 CFR Part 50 Appendix H Section II	Acceptable	
6.a.	10 CFR Part 50 Appendix H Section II	Acceptable	
6.b.	ASTM E-185	Acceptable	
	10 CFR Part 50 Appendix H	Acceptable	
6.c.			
6.c.(1)	10 CFR Part 50 Appendix G Section III Section III.A	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
6.c.(2)	ASME Code Sections III & XI	Acceptable	
	10 CFR Part 50 Appendix H Paragraph II.C.3	Acceptable	
6.c.(3)	10 CFR Part 50 Appendix H Paragraph II.C.3	Acceptable	
6.c.(4)		Acceptable	
7.	10 CFR Part 50 Appendix G Paragraph IV.A.3	Acceptable	
	R.G. 1.65	Acceptable	
7.a.	ASME Code Section II	Acceptable	
7.b.	10 CFR Part 50 Appendix G Paragraph IV.A.3	Acceptable	
	ASME Code Paragraph NB-2333	Acceptable	
7.c.		Acceptable	
7.d.	ASME Code Section III Subarticle NB-2580	Acceptable	
	R.G. 1.65 C.2	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 5.3.2 - Pressure-Temperature Limits (Rev. 1, 7/81)			
1.	10 CFR Part 50 Appendix G & H	Exception	The closure flange requirement in Appendix G is not considered per WCAP-15315
	ASME B&PV Code Section III Appendix G	Acceptable	
2.	MTEB 5-2	Acceptable	
2.a.		Acceptable	
2.b.	ASME B&PV Code Section III	Acceptable	
2.c.	R.G. 1.99	Acceptable	Revision 2 to Regulatory Guide 1.99.
	10 CFR Part 50 Appendix H	Acceptable	
2.d.	ASME B&PV Code Section III	Acceptable	By Reference to WRC-175.
3.a.		Acceptable	
3.b.		Acceptable	
3.c.		Acceptable	
3.d.		Acceptable	
SRP 5.3.2, BTP MTEB 5-2 - Fracture Toughness Requirements (Rev. 1, 7/81)			
1.	10 CFR Part 50 Appendix G	Exception	The closure flange requirement in Appendix G is not considered per WCAP-15315.
	ASME B&PV Code Section III	Acceptable	
1.1	ASTM E-208	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
1.2		Acceptable	
1.3	ASME B&PV Code Section III	Acceptable	
	10 CFR Part 50 Appendix G	Acceptable	
2.			
2.1	10 CFR Part 50 Appendix G	Exception	The closure flange requirement is not considered per WCAP-15315.
	ASME B&PV Code Section III Appendix G	Acceptable	
2.2.1 (1)		Acceptable	
2.2.1 (2)	ASME B&PV Code Section III Appendix G	Acceptable	
2.2.1 (3)		Acceptable	
2.2.2	ASME B&PV Code Section III Appendix G	Acceptable	
	WRC Bulletin 175	Acceptable	
2.2.3	10 CFR Part 50 Appendix G	Acceptable	
2.2.4		Acceptable	
2.2.5		Acceptable	
3.	10 CFR Part 50 Appendix H	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
3.1	10 CFR Part 50 Appendix H	Acceptable	
	ASTM E-185-73	Acceptable	
3.2		Acceptable	
3.3	10 CFR Part 50 Appendix H	Acceptable	
3.4		Acceptable	
3.5		Acceptable	
SRP 5.3.3 - Reactor Vessel Integrity (Rev. 1, 7/81)			
1.	ASME B&PV Code Section III	Acceptable	
	ASME B&PV Code Section XI	Acceptable	
	10 CFR Part 50 Appendix G	Acceptable	
2.	10 CFR Part 50 Appendix G	Acceptable	
	ASME B&PV Code Section III	Acceptable	The basic materials that are currently acceptable for most parts of reactor vessels are SA 533 Gr B C1 1, SA 508 C1 2, and SA 508 C1 3.
	ASME B&PV Code Section XI	Acceptable	
	Reg. Guide 1.99	Acceptable	Revision 2 to Regulatory Guide 1.99.
	10 CFR Part 50 Appendix H	Acceptable	
3.	ASME B&PV Code Sections III & XI	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
4.	ASME B&PV Code Sections III & V	Acceptable	
	ASME B&PV Code Section XI	Acceptable	
5.		Acceptable	
6.	10 CFR Part 50 Appendix G	Acceptable	
7.	10 CFR Part 50 Appendix H	Acceptable	
	ASME B&PV Code Section XI	Acceptable	

SRP 5.4 - Components and Subsystems (Rev. 1, 7/81)

This section has no criteria. It is a "road map" for other sections.

SRP 5.4.1.1 - Pump Flywheel Integrity (Rev. 1, 7/81)

General			The criteria in this section were developed to address steel flywheels in shaft seal pumps. The reactor coolant pumps in the AP1000 are canned motor pumps with an encased uranium flywheel assembly which provides the rotating inertia function of the fly wheel. The flywheel assembly is adjacent to the pump impeller and surrounded by the thick pressure boundary of the pump whereas the flywheels in shaft seal pumps are at the opposite end of the motor from the pump casing surrounded by only the motor enclosure. Many of the criteria in 5.4.1.1 are not directly applicable to a uranium alloy flywheel in a canned motor pump. The AP1000 will meet the intent of the criteria to provide a design with high integrity which will not be a source of missile generation.
1.		Acceptable	The uranium alloy casting will be produced by vacuum melting or degassing or with a process which produces equivalent quality.
1.a	ASTM E-208	Exception	ASTM-208 is applicable for steel only. Uranium alloys do not have a nil-ductility transition temperature characteristic comparable to steel.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
1.b	ASTM A370	Exception	ASTM-370 is applicable for steel only. Charpy V-notch upper shelf energy is recorded for information.
2.	R.G. 1.14 1.a/ASTM A-20	Exception	The flywheel is made of a depleted uranium alloy casting of high quality. Therefore, the specific guidelines in this section are not directly applicable to the AP1000.
	R.G. 1.14 1.b	Exception	The test methods used to verify the fracture toughness of the uranium casting are not the same as those required in material specifications for steel such as Charpy V-notch and upper shelf energy determinations.
	R.G. 1.14 1.c	N/A	This guideline is not applicable to uranium castings. Therefore, the guideline is not applicable to the AP1000 canned-motor pump.
	R.G. 1.14 1.d	Acceptable	The uranium casting requires no welding. The enclosure is welded using specifications meeting ASME Code requirements. The enclosure, including the welds, are considered in the analysis of potential missiles.
	R.G. 1.14 2.a-b	Acceptable	
	R.G. 1.14 2.c	Exception	The limits and methods of ASME Code, Section III, Paragraph F-1323.1(b), are not directly applicable to a uranium alloy casting.
	R.G. 1.14 2.d-g, 3	Acceptable	
	R.G. 1.14 4.a	Exception	The guidelines referenced in the regulatory guide were developed for steel and similar materials.
	R.G. 1.14 4.b	Exception	Inservice inspection of the flywheel assembly is not required to support safe operation of the canned motor reactor coolant pump. Planned, routine inspections of the flywheel assembly requires considerable occupational radiation exposure and are not recommended. Inservice inspection of the uranium casting requires extensive disassembly. Postulated missiles from the failure of the flywheel are contained within the stator shell and the pressure boundary is not breached. Vibration of the shaft due to a small flywheel fracture or leak in the enclosure does not result in stresses in the pressure boundary of sufficient magnitude to result in a break in the primary pressure boundary.
3.a	ASME NB-2500	Acceptable	Procedures and acceptance criteria meeting the intent of the Code requirements will be developed to be specifically applicable to uranium alloy material.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
3.b		N/A	The flywheel is not flame cut.
3.c		Acceptable	
4.a		Acceptable	The stress evaluated is the maximum primary stress.
4.b		Acceptable	
4.c		Acceptable	The stress evaluated is the maximum primary stress.
4.d		Acceptable	
5.		Acceptable	
6.		Exception	The flywheel assembly in the AP1000 pump is a uranium alloy casting or forging encased in a welded enclosure. Inservice inspection of the casting material would be difficult. Also the surface will be radioactively contaminated which can result in significant radiation exposure during an inspection. The preservice inspection and relatively low stress levels make crack growth in the flywheel resulting in failure of the assembly extremely unlikely. Even if such a failure is postulated the surrounding pressure boundary material would capture all the fragments without compromising the pressure boundary integrity. The design of the pump and the materials used assure a sufficient degree of protection from missile generation without periodic inspection of the uranium alloy casting.
SRP 5.4.2.1 - Steam Generator Materials (Rev. 2, 7/81)			
A.1.a.	ASME Code, Sec. III, App. I	Acceptable	
A.1.b.	NB-2300 App. G, G-2000	Acceptable	
A.1.c.	ASME Code III & IX	Acceptable	
A.1.d.	ASME Code, Sec. IX, Part QW	Acceptable	
A.1.e.	ASME Code III & IX	Acceptable	
A.1.f.		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
A.2.	BTP MTEP 5-3	Acceptable	
B.1.	SRP 5.2.3 BTP MTEP 5-3	Acceptable	
B.2.		Exception	The steam generator for the AP1000 as well as current models does not provide direct access to tube support plates. Methods such as chemical cleaning or flush can be used to remove deposits from the tube support plates. The design of the tube support plates minimizes the potential for build up of deposits adjacent to the tubes on the tube support plates.
B.3.	R.G. 1.37 ANSI N45.2.1-1973	Exception	The ANSI N45.2 series of standards that are referenced by the current revisions of the Quality Assurance regulatory guides have been replaced by ASME NQA-1 and NQA-2.
SRP 5.4.2.1, BTP MTEB 5-3 - Monitoring of Secondary Side Water Chemistry in PWR Steam Generators (Rev. 2, 7/81)			
1.		Acceptable	
2.	ANSI N45.2.1	Acceptable	
3.a.		Acceptable	
3.b.		Acceptable	
3.c.		Acceptable	
3.d.(1)		Acceptable	
3.d.(2)		Acceptable	
3.d.(3)		N/A	Applies to once through units only.
3.d.(4)		Acceptable	
3.e.		N/A	Applies to phosphate water chemistry only.
3.f.(1)		Exception	The impurity guidelines are inconsistent with current practice and more restrictive industry guidelines. Also other possible impurity sources such as condensate polishers should be considered. Note, the feedwater system of the AP1000 will contain no copper alloys in surfaces in contact with steam, condensate, and feedwater.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
3.f.(2)		Exception	The current technology to determine the value of critical parameter is to use online instrumentation not techniques which require procedures.
3.f.(3) - (7)		Acceptable	
SRP 5.4.2.2 - Steam Generator Tube Inservice Inspection (Rev. 1, 7/81)			
	R.G. 1.83	Acceptable	The guidelines of Regulatory Guide 1.83 are used to develop inspection requirements.
SRP 5.4.6 - Reactor Core Isolation Cooling System (Rev. 3, 4/84)			
		N/A	Applies only to BWR.
SRP 5.4.7 - Residual Heat Removal (RHR) System (Rev. 3, 4/84)			
A.	GDC 2 R.G. 1.29, C.2	Acceptable	The criteria is acceptable for the passive residual heat removal heat exchanger subsystem. The Normal Residual Heat Removal System (RNS) for the AP1000 Plant is seismically designed to withstand Safe Shutdown Earthquake (SSE). However, the RNS does not provide for safety-grade decay heat removal.
B.	GDC 4	Acceptable	The criteria is acceptable for both the RNS and the passive residual heat removal heat exchanger subsystem.
C.	GDC 5	Acceptable	The criteria is acceptable for both the RNS and the passive residual heat removal heat exchanger subsystem.
D.	GDC 19	Acceptable	The criteria is acceptable for both the RNS and the passive residual heat removal heat exchanger subsystem.
E.	GDC 34	Acceptable	The criteria is acceptable for the passive residual heat removal heat exchanger subsystem. The RNS is not a safety-grade means of removing decay heat. However, it is designed to perform its function assuming most single active failures.
1.	BTR RSB 5-1	Exception	The criteria is acceptable for the passive residual heat removal heat exchanger with the exception that a temperature of 200°F cannot be achieved. However, the passive residual heat removal heat exchanger subsystem is capable of cooling the RCS and maintaining the core within design limits through closed loop cooling.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			The criteria is only applicable to the RNS isolation requirements, since the RNS is not required to operate to mitigate design basis events.
2.		Acceptable	The criteria is acceptable for both the RNS and the passive residual heat removal heat exchanger subsystem.
3.	GDC 5	Acceptable	
4.		Acceptable	
5.	R.G. 1.1	Acceptable	Note that the criteria is acceptable for the passive residual heat removal heat exchanger subsystem, except the requirements for net positive section head are not applicable, since the passive residual heat removal heat exchanger does not utilize pumps. For the RNS, the criteria is not applicable, since the RNS is not required to operate to mitigate design basis events.
SRP 5.4.8 - Reactor Water Cleanup System (Rev. 2, 7/81)			
		N/A	Applies only to BWR.
SRP 5.4.11 - Pressurizer Relief Tank (Rev. 2, 7/81)			
Westinghouse: In-Containment Refueling Water Storage Tank			
			The AP1000 plant does not have a pressurizer relief tank. The pressurizer is sized to minimize the need for discharge of water or steam, therefore, power operated relief valves are not included in the AP1000 system design. The discharge from the safety valves is directed to the containment atmosphere. The pressurizer also has connections for the Automatic Depressurization System (ADS). The discharge of the ADS is directed to spargers located under water in the In-Containment Refueling Water Storage Tank (IRWST). The discussion in this section considered the functions of the IRWST that are similar to the pressurizer relief tank.
1.	R.G. 1.29, C.2 & 3	Acceptable	The IRWST and spargers will meet the intent of this criteria.
2.a.		Exception	The IRWST has covered vents to the containment. These vents provide overpressure protection. The IRWST does not have any rupture disks. The vents are provided for over pressure protection.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
2.b.		Acceptable	During normal operation or anticipated abnormal occurrences, discharges from the safety valves would not be expected to be required. The IRWST has overflow connections to the refueling canal. During accident conditions, the IRWST and refueling canal have sufficient capacity to hold all water or condensed steam released from the ADS until the fourth stage opens.
2.c.		Exception	The vents are designed so that a significant vacuum cannot be drawn.
2.d.		Acceptable	
2.e.		N/A	There are no rupture discs to create missiles.
SRP 5.4.12 - Reactor Coolant System High Point Vents (Rev. 0, 7/81)			
1.		Acceptable	
2.		Acceptable	
3.		Acceptable	
4.		Acceptable	
5.	10CFR50, App. A	Acceptable	
6.		Acceptable	
7.		Acceptable	
8.(a)		Acceptable	
8.(b)		Acceptable	
8.(c)		Acceptable	
8.(d)		Acceptable	
9.	Section XI ASME	Acceptable	
10.	IEEE 344-1975	Acceptable	
	R.G. 1.100	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.92	Acceptable	
	SEP 3.92, 3.43, 3.10	Acceptable	
	CLI-80-21	Acceptable	
11.		Acceptable	

6 ENGINEERED SAFETY FEATURES

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 6.1.1 - Engineered Safety Features Materials (Rev. 2, 7/81)			
A.1	ASME Code Sec. III, App. 1 Sec. II, Part A, B, & C R.G. 1.85 SRP 10.3.6	Acceptable	
A.1.a.1		Acceptable	
A.1.a.2	R.G. 1.44 C.1-2	Acceptable	
	R.G. 1.44 C.3	Exception	Product forms with simple shapes are not corrosion tested provided they are water quenched following solution anneal. Cast metal and weld metal containing more than five percent delta ferrite also are not corrosion tested as they are not susceptible to sensitization.
	R.G. 1.44 C.4	Exception	Welding operations necessarily result in the weld heat affected zone (HAZ) being between the temperature of 800° to 1500°F.
	R.G. 1.44 C.5	Acceptable	
	R.G. 1.44 C.6	Exception	Extensive testing has been completed and documentation is available such that this is no longer necessary for AP1000 welding procedures.
A.1.a.3	BTP MTEB 5-7 SRP 5.2.3	N/A	Material Guidelines for BWR Coolant Pressure Boundary Piping. Applies only to BWR.
A.1.a.4	R.G. 1.31	Acceptable	
A.1.b.1	ASME Code Section III D-1000	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.50 General	N/A	The guidelines of this regulatory guide are followed during the initial fabrication of low-alloy steel components of the AP1000. This regulatory guide is considered as applicable to ASME Code, Section III, Class 1 components. The AP1000 practice for Class 1 components is in agreement with the guidance of this regulatory guide except for Regulatory Positions C.1(b) and 2. For AP1000 Class 2 and 3 components, the guidelines provided by this regulatory guide are not applied.
	R.G. 1.50 C.1(b)	Acceptable	The welding procedures are qualified within the preheat temperature ranges required by ASME Code, Section IX. Experience has shown excellent quality of welds using the ASME qualification procedures.
	R.G. 1.50 C.2	Exception	The AP1000 position is that the guidance specified in this regulatory guide is not necessary. Code acceptable low-alloy steel welds have been and are being made under present procedures. It is not necessary to maintain the preheat temperature until a post-weld heat treatment has been performed in accordance with the guidance provided by this regulatory guide, in the case of large components. In some cases of reactor vessel main structural welds, the practice of maintaining preheat until the intermediate or final post-weld heat treatment has been followed. In other cases, an extended preheat practice has been utilized in accordance with the reactor vessel design specification. In this practice, the weld temperature is maintained at 400° to 750°F for four hours after welding. The weld temperature may then be lowered to ambient without performing an intermediate or final PWHT at 1100°F. The welds have shown high integrity. Westinghouse practices are documented in WCAP-8577.
A.1.b.2	ASME Code Section III NB, NC, ND-2000 & NB, NC, ND-4000 AWS D1.1	Acceptable	
A.1.b.3	SRP Sect. 10.3.6	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
B.1	R.G. 1.7 C.1	Acceptable	Mixing of the containment atmosphere is accomplished through natural passive processes (natural circulation), not with an active system.
	R.G. 1.7 C.2	Acceptable	
	R.G. 1.7 C.3	Exception	The hydrogen recombiners and igniters are not designed as safety-related components. The power supply to the igniters is not safety-related.
	R.G. 1.7 C.4	Exception	The filters in the containment purge are not seismic Category I. The purpose of the filters in the containment purge is to control normal operating releases. They are not provided for accident mitigation.
	R.G. 1.7 C.5	Acceptable	
	R.G. 1.7 C.6	Acceptable	
B.1.a	BTP MTEB 6-1	Acceptable	The AP1000 does not have a safety-related containment spray. Provisions are included to control post-accident, coolant pH. See response to SRP Section 6.1.1 for additional exceptions to BTP MTEB 6-1.
B.1.b		N/A	Applies only to BWRs.
B.2	R.G. 1.37 General	Exception	The ANSI N45.2 series of standards that are referenced by the current revisions of the Quality Assurance regulatory guides have been replaced by ASME NQA-1 and NQA-2.
B.3	R.G. 1.36	Acceptable	
B.4	10CFR50, App. B Sect. IX	Exception	See response to SRP Section 6.1.2 for a discussion of the compliance with coating criteria.
	R.G. 1.54 General	Exception	See response to SRP Section 6.1.2 for a discussion of the compliance with coating criteria.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 6.1.1, BTP MTEB 6-1 - pH for Emergency Coolant Water for PWRs (Rev. 2, 7/81)			
General Note: This BTP concerns the appropriate pH level for post-accident containment sprays and the emergency cooling system. The AP1000 has no safety-related containment spray. The nonsafety-related containment spray does not use recirculated water from the containment sump.			
B.1.		Acceptable	The required pH is provided as part of the passive core cooling system function.
B.2.	SRP 6.5.2	Acceptable	
B.3.		Acceptable	
SRP 6.1.2 - Protective Coating Systems (Paints) - Organic Materials (Rev. 2, 7/81)			
General		Exception	The AP1000 includes the use of nonsafety-related coatings inside containment. Coatings are classified as nonsafety-related when their failure does not prevent functioning of the engineered safety features. Nonsafety related coatings are not subject to the Quality Assurance requirements of Regulatory Guide 1.54 The quality assurance program for safety-related coatings conforms to the requirements of ASME-NQA-1. Safety related coatings meet the pertinent provisions of 10CFR Part 50 Appendix B to 10CFR Part 50. Coatings are not used in the vicinity of the containment recirculation screens to minimize the possibility of debris clogging the screens.
SRP 6.2.1 - Containment Functional Design (Rev. 2, 7/81)			
		N/A	No criteria in SRP acceptance criteria section.
SRP 6.2.1.1.A - PWR Dry Containments, Including Subatmospheric Containments (Rev. 2, 7/81)			
a.	GDC 16, 50	Acceptable	
b.	GDC 38	Acceptable	
c.	GDC 38	N/A	This criteria only applies to subatmospheric plants, not to the AP1000.
d.	GDC 38, 50	Acceptable	
e.	GDC 38, 50, NUREG-0588	Acceptable	
f.	GDC 38, 50	Acceptable	See comments for other sections related to containment structural integrity.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
g.	GDC 13, 64	Acceptable	See review of other sections related to instrumentation requirements and reliability.
	R.G. 1.97	Acceptable	The variables to be monitored are selected according to usage and need in the plant emergency response guidelines. They are assigned design and qualification categories 1, 2 or 3 and classified as Types A, B, C, D or E. The selection of some plant specific variables and their classifications and categories are different than those of this regulatory guide.
	NUREG-0718, II.F.1	Acceptable	
	NUREG-0737, II.F.1	Acceptable	
h.	SRP 6.2.1.5	Acceptable	See review of Section 6.2.1.5 for Containment ECCS minimum calculated backpressure requirements.
i.	SRP 6.2.1.2	Acceptable	See review of Section 6.2.1.2 for Containment Subcompartment Analysis.
SRP 6.2.1.1.B - Ice Condenser Containments (Rev. 2, 7/81)			
		N/A	No ice condenser in AP1000 design.
SRP 6.2.1.1.C - Pressure-Suppression Type BWR Containments (Rev. 6, 8/84)			
		N/A	Applies only to BWR.
SRP 6.2.1.1.C, Appendix A - Steam Bypass for Mark I, II, and III Containments (Rev. 2, 1/83)			
		N/A	Applies only to BWR.
SRP 6.2.1.1.C, Appendix B - Summary of Mark II LOCA-related Pool Dynamic Loads (Rev. 0, 1/83)			
		N/A	Applies only to BWR.
SRP 6.2.1.2 - Subcompartment Analysis (Rev. 2, 7/81)			
Westinghouse: AP1000 Subcompartment Design Verification			
A.	GDC 4	Acceptable	LBB is utilized in the DCD analyses.
B.1	GDC 50	Acceptable	Will be followed for subcompartment analysis, regardless of LBB.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
B.2	NUREG-0609	Acceptable	
B.3.a		Acceptable	However, "blowout panels" were not utilized in the DCD analyses.
B.3.b		Acceptable	However, "blowout panels" were not utilized in the DCD analyses.
B.3.c	GDC 4	Acceptable	However, "blowout panels" were not utilized in the DCD analyses.
B.4	Ref. 16	Acceptable	
B.5		Acceptable	
SRP 6.2.1.3 - Mass and Energy Release Analysis for Postulated LOCAs (Rev. 1, 7/81)			
A.	GDC 50	Acceptable	
B.1	10CFR50 App. K, GDC 50	Acceptable	
B.2	SRP 3.6.2	Acceptable	
B.3.a	Ref. 18	Exception	The modified Zaloudek correlation from the SATAN model is used to calculate the critical mass flowrate for short term mass and energy releases.
B.3.b	Ref. 2	Acceptable	
B.3.c	Ref. 20	Exception	Conservative assumptions have been made in considering the release of all energy sources to containment, while not using recognized codes for this purpose.
B.3.d		Acceptable	It is necessary to consider all energy sources and to compare results to available experimental data.
B.3.e	SRP 9.2.5	Acceptable	
SRP 6.2.1.4 - Mass and Energy Release Analysis for Postulated Secondary System Ruptures (Rev. 1, 7/81)			
1.	10CFR50 App. A GDC 50	Acceptable	
2.	10CFR50 App. A GDC 50	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 6.2.1.5 - Minimum Containment Pressure Analysis for Emergency Core Cooling System Performance Capability Studies (Rev. 2, 7/81)			
1.	10CFR50 Appendix K	Acceptable	
2.	BTP CSB 6-1	Acceptable	
SRP 6.2.2 - Containment Heat Removal Systems (Rev. 4, 10/85)			
Westinghouse: Passive Containment Cooling System			
1.		Acceptable	Heat removal from the AP1000 is accomplished by use of natural forces such as convection, condensation, evaporation and conduction. The heat is transferred to the surroundings by air flowing over the outside of the containment shell. The only active components required are the valves which release water from the Passive Containment Cooling Water Storage Tank onto the outer surface of the containment. These valves meet the redundancy and power source requirements. Active failures for other powered components need not be considered since none are required to function to accomplish the safety related function.
2.		N/A	Heat removal from the AP1000 containment does not rely on a spray system and requires no active pumps.
3.		N/A	Heat removal from the AP1000 containment does not require the use of an internal spray system. The water distribution system on the outside of the containment is designed based on considerations similar to applicable portions of these criteria.
4.		N/A	Heat removal from the AP1000 containment does not require fan coolers.
5.		N/A	Heat removal from the AP1000 containment does not require fan coolers, therefore, fouling of fan cooler surfaces is not an issue.
6.		N/A	Heat removal from the AP1000 containment does not require active pumps for recirculation of the water inside the containment. The volume of water stored in the Passive Containment Cooling Water Storage Tank is sufficient for 72 hours of use and can be replenished from outside containment using non-safety related plant systems.
7.		Acceptable	The system provisions in the Passive Containment Cooling System which are designed for operability inspection and testing are the water isolation valves and water distribution capability. The heat transfer out of the containment through the shell to the surrounding air relies on natural forces and does not require any additional testing.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
8.		Acceptable	The Passive Containment Cooling System can be monitored with water storage tank level, flow rate instrumentation in the discharge lines, and containment pressure and temperature instrumentation. Additionally, the Passive Containment Cooling Water Storage Tank has water temperature instrumentation for monitoring during operation.
SRP 6.2.3 - Secondary Containment Functional Design (Rev. 2, 7/81)			
		N/A	AP1000 does not include a safety-related secondary containment.
SRP 6.2.3, BTP CSB 6-3 - Determination of Bypass Leakage Paths in Dual Containment Plants (Rev. 2, 7/81)			
		N/A	AP1000 is not a dual containment design.
SRP 6.2.4 - Containment Isolation System (Rev. 2, 7/81)			
1.	GDC 1, 2 and 4	Acceptable	
2.	GDC 16	Acceptable	
3.	GDC 54	Acceptable	The AP1000 design incorporates a reduction in the number of containment penetrations. Also, a greater percentage of the existing penetrations are normally closed and the few that are normally open use fail closed valves for isolation.
4.	GDC 55 and 56	Acceptable	The AP1000 containment isolation design satisfies the current NRC requirements including post TMI requirements. In general, this means that two barriers are provided, one inside containment and the other outside containment. Usually these barriers are valves. However, in some cases, one barrier is a closed piping system not connected to the RCS or to the containment atmosphere.
5.	GDC 57	Acceptable	
6.	10 CFR Part 50 Appendix K	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
6.a.	R.G. 1.11 General	Exception	The design of instrument lines penetrating the AP1000 containment conforms with this regulatory guide, with the exception of the containment pressure monitoring lines. For these lines, isolation from the containment atmosphere is provided by a sealed bellows arrangement located immediately adjacent to the outside containment wall, and connected to the pressure transmitter outside containment by a sealed fluid tube. Isolation outside containment is provided by the diaphragm in the pressure transmitter. The justification for this special arrangement results from the importance of these connections to sense accident conditions and initiate safeguard actions.
	R.G. 1.11 C.1.a, C.1.b, C.1.c-e, C.2, E.1	Acceptable	
	R.G. 1.11 E.2	N/A	This section applies only to plants for which a notice of hearing on application for construction permit was published between January 5, 1967, and December 30, 1969. Therefore, it is not applicable to the AP1000.
	R.G. 1.11 E.3	N/A	This section applies only to plants for which a notice of hearing on application for construction permit was published on or before December 30, 1966. Therefore, it is not applicable to the AP1000.
6.b.		Acceptable	
6.c.		Acceptable	
6.d.		N/A	The criteria is not applicable because there are no such lines in the AP1000 design.
6.e.		N/A	The criteria is not applicable because there are no such lines in the AP1000 design.
6.f.		Acceptable	
6.g.		Acceptable	
6.h.	R.G. 1.141 General	Exception	Regulatory Guide 1.141 endorses ANSI N271-1976 which has been superseded by ANS 56.2-1984. The AP1000 uses the latest version of industry standards (as of 4/2002). This version is not endorsed by a regulatory guide but its use should not result in deviations from the design philosophy otherwise stated in Regulatory Guide 1.141. Containment isolation for AP1000 fluid systems conforms to Reference (a) with the following exceptions and/or clarifications.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			ANS 56.2-1984, Section 3.6.3 states that "remote manual closure of isolation valves on engineered safeguards features or engineered safeguards features-related systems is acceptable when provisions are made to detect possible failure of the fluid lines inside and outside containment." The AP1000 engineered safeguards features are designed to avoid transport of post-accident fluids outside of containment and thus avoid the concern associated with remote manual isolation of ESF lines. Non-ESF lines capable of providing ESF functions are provided with the ability for remote manual isolation. Leakage detection is provided outside containment.
6.i.	GDC 55, 56 and 57	Acceptable	
6.j.	GDC 55 and 56	Acceptable	
6.k.	GDC 54	Acceptable	The criteria will be considered in establishing the containment isolation pressure setpoint.
6.l.	GDC 54	Acceptable	Diversity is provided by the high radiation, high containment pressure and low pressurizer pressure signals.
6.m.	GDC 54	Exception	Containment purge lines are automatically isolated by radiation monitors located near the containment wall: Purge line radiation monitors provide an alarm signal for manual isolation.
6.n.	GDC 54 BTP CSB 6-4	Acceptable	Automatically closed isolation valves that actuate on receipt of engineered safety signals close in 60 seconds or less. This time frame is consistent with the physically based source term for the ALWRs.
6.o.		Acceptable	
6.p.	R.G. 1.26	Exception	See response to SRP 3.2.2 for exceptions to this regulatory guide.
6.q.		Acceptable	
6.r.	GDC 54	Acceptable	
6.s.	GDC 54	Acceptable	The design of the containment isolation valves is such that resetting of the system level containment isolation signal does not result in the opening of any valves. Each valve has to be opened on an individual basis by the operator.

References:

a. ANS 56.2-1984, Containment Isolation Provisions for Fluid Systems, 1976.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 6.2.5 - Combustible Gas Control in Containment (Rev. 2, 7/81)			
1.	R.G. 1.7	Exception	See response to SRP 6.1.1 of exceptions to Regulatory Guide 1.7.
2.	BTP ASB 9-2	Acceptable	
3.		Exception	Mixing of combustible gases in the containment is accomplished through convection.
4.	R.G. 1.7	Exception	See response to SRP 6.1.1 of exceptions to Regulatory Guide 1.7.
5.		Acceptable	
6.	NUREG-0737	Exception	Non-safety-related passive autocatalytic hydrogen recombiners are employed to control post-accident hydrogen levels.
	NUREG-0718		Power is not required for the recombiners to operate.
7.	R.G. 1.26	Exception	The hydrogen control system is not safety-related. See response to SRP 3.2.2 for exceptions to Regulatory Guide 1.26.
8.	R.G. 1.29	Exception	See response to SRP 3.2.1 for exceptions to Regulatory Guide 1.29.
9.		Acceptable	
10.		Acceptable	
11.	NUREG-0737	Acceptable	
	NUREG-0718		
	R.G. 1.97	Acceptable	The variables to be monitored are selected according to usage and need in the plant emergency response guidelines. They are assigned design and qualification categories 1, 2, or 3 and classified as Types A, B, C, D or E. The selection of some plant specific variables and their classifications and categories are different than those of this regulatory guide.
12.	R.G. 1.7	Acceptable	See response to SRP 6.1.1 of exceptions to Regulatory Guide 1.7.
13.	R.G. 1.7	N/A	The AP1000 design does not include the mitigation strategy of containment purging to control hydrogen accumulation in the containment post-LOCA. See response to SRP 6.1.1 of exceptions to Regulatory Guide 1.7.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
14.	R.G. 1.7	Acceptable	See response to SRP 6.1.1 of exceptions to Regulatory Guide 1.7.
SRP 6.2.5, Appendix A - Description of GOGAP (Rev. 2, 7/81)			
		N/A	Not applicable to the AP1000.
SRP 6.2.6 - Containment Leakage Testing (Rev. 2, 7/81)			
	10CFR50, App. J	Exception	Leak tests are to be conducted in accordance with ANSI-56.8. Test intervals will differ slightly from those of Appendix J. All exceptions are consistent with proposed NRC changes to Appendix J.
0.1% leak	10CFR100.11	Acceptable	
Secondary Containment	10CFR100.1	N/A	This criteria deals with a safety-related secondary containment.
Adjustments	App. J. III.A.1(a)	Acceptable	
Hydrogen Recombiner	App. J. III.A.1(d)	Acceptable	
Quantify rates		Acceptable	
Valve Tests	App. J. III.C.1	Acceptable	
Main Steam	App. J. III.C.1	N/A	Applies only to BWR.
Hydrostatic	App. J. III.C	Acceptable	
TVD		Acceptable	
Drywell		N/A	Applies only to BWR.
SRP 6.2.7 - Fracture Prevention of Containment Boundary (Rev. 0, 7/81)			
	ASME Code Sec. III 1977 Addenda	Exception	The material for the AP1000 Containment will meet the ASME Code requirements in effect and applicable at 4/2002 or as specified in the Combined License.
	NUREG-0577	N/A	This criterion deals with material procured and fabricated without fracture mechanics testing.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 6.3 - Emergency Core Cooling System (Rev. 2, 4/84)			
Westinghouse AP1000: Passive Core Cooling System			
A.	GDC 2	Acceptable	
	R.G. 1.29, C.2	Acceptable	
B.	GDC 4	Acceptable	The AP1000 passive core cooling system is designed to prevent damaging water hammer. The system incorporates specific design features that preclude water hammer such as sloping lines or maintaining pressure in standby components.
C.	GDC 5	Acceptable	
D.	GDC 17	Exception	The plant design meets the intent of GDC 17 by providing safety-related passive systems for core cooling and containment integrity, and nonsafety-related onsite and offsite electric power sources for other functions.
E.	GDC 27	Acceptable	
F.	GDC 35	Acceptable	
	GDC 36	Acceptable	The passive core cooling system design provides the capability to perform periodic in service inspection of important system components.
	GDC 37	Acceptable	The AP1000 provides improved testability of the passive core cooling system. For example, all remotely operated valves can be cycled at power and there are no ECCS pumps to test. In addition the injection flow paths (including the associated check valves) can be flow tested during shutdown operations. The system tests are performed under conditions as close to design as practical.
G.	10CFR50.46	Acceptable	
	10CFR50 App. K	Acceptable	
H.	R.G. 1.1	N/A	The AP1000 passive safety-related systems make maximum use of natural phenomena (gravity, natural circulation, and gas-driven injection) and fail-safe position valves, and thus require no active pumps, diesel-generators, or fans.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			The AP1000 normal residual heat removal system (RNS) is not a safety-related system, and does not control or mitigate the consequences of an accident in the licensing basis accident analyses.
(The following are Task Action Plan items from the indicated NUREGs.)			
NUREG-0718	II.B.8 (1)(i)*	Acceptable	A plant-specific PRA evaluation performed on the AP1000 design evaluates the plant in terms of core damage frequency and containment integrity.
NUREG-0694 NUREG-0718	III.D.1.1 (2)(xxvi)*	Acceptable	The safety-related passive systems do not recirculate radioactive fluids outside of containment following an accident.
NUREG-0737	II.E.2.1	N/A	This item is not included in NUREG-0737.
NUREG-0737	II.K.3(10)	N/A	The AP1000 design does not include power-operated relief valves and their associated valves in the reactor coolant system.
NUREG-0737	II.K.3(15)	N/A	This issue is applicable to BWRs only.
NUREG-0737	II.K.3(18) (1)(vii)*	Acceptable	The automatic depressurization system actuates on Low-1 core makeup tank level, coincident with a core makeup tank actuation signal. Therefore, manual actuation of the automatic depressurization system is not required to maintain core cooling. The AP1000 PRA evaluation confirms the reliability of the automatic actuation.
NUREG-0737	II.K.3(21) (1)(viii)*	N/A	This issue is applicable to BWRs only.
NUREG-0660	II.K.3(39)	N/A	This issue is applicable to B&W plants only.
SRP 6.3, BTP RSB 6-1: "Piping from the RWST (or BWST) and Containment Sump(s) to the Safety Injection Pumps" (Rev. 1, 7/81)			
Westinghouse AP1000: Passive Core Cooling System			
B.1.		Acceptable	RSB 6-1 states that the single active failure criterion in Section A, (a) and (b) (draft ANSI N658) will be applied in evaluating the design of the piping systems that provide safety injection from the RWST and the containment sumps. (Note that AP1000 does not have safety injection pumps.) These criterion are:

* 10CFR50.34(f) Issue Numbers

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			a. An active failure is a malfunction, excluding passive failures, of a component which relies on mechanical movement to complete its intended function upon demand. b. Spurious action of a powered component originating within its actuation system shall be regarded as an active failure unless specific design features or operating restrictions preclude such spurious action.
B.2.		Exception	This position is inconsistent with RSB 6-1, Section A, (a) (draft ANSI N658), since failure of an active component may be precluded by an operating restriction which removes the power from the valve during normal system operation. For AP1000, there are several design features and operating restrictions that prevent inadvertent closure of the motor-operated isolation valve in each gravity injection line from the common line from the in-containment RWST and the containment recirculation sump. First, these valves have confirmatory open signals for plant conditions when safety injection is required. Second, these valves are normally maintained in a fully open position during plant operation with actuation power removed, which prevents inadvertent closure. Third, these valves have position indication and they are alarmed in the main control room if the valves are not fully open. Finally, since there are two gravity injection lines for redundancy, inadvertent closure of a single isolation valve will not prevent gravity injection or recirculation except for one specific initiating event where a pipe rupture occurs in the opposite safety injection line.
B.3.		Acceptable	The valves and piping are arranged so that no single failure prevents the minimum flow to the core required to satisfy 10 CFR 50.46. Note that AP1000 does not have safety injection pumps.
B.4.		Acceptable	The valves and piping are arranged so that no single failure prevents the minimum flow to the core required to satisfy 10 CFR 50.46. Note that AP1000 does not have safety injection pumps.
B.5.		Acceptable	AP1000 does not have safety injection SI pumps. However, there is an automatic switchover from gravity injection from the in-containment RWST to gravity injection from the containment recirculation sump. This switchover is designed to tolerate a single failure. Since all of the passive core cooling system equipment and piping used for safety injection is located inside containment, a single active failure does not result in a release of radioactive material to the environment from the passive core cooling system.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 6.4 - Control Room Habitability System (Rev. 2, 7/81)			
1.a		Acceptable	
1.b		Acceptable	
1.c		Acceptable	
1.d		Acceptable	
2.a		Acceptable	
2.b		Acceptable	For the AP1000 this applies only to the dampers and the valves in the compressed air supply to the control room. The control room does not have a safety-related emergency filter train containing active components.
3.		Acceptable	
4.		N/A	There are no safety-related air cleanup systems for the control room.
5.a		Acceptable	
5.b	R.G. 1.78 C.1, C.2	N/A	This criterion is site-specific. Therefore, this is not applicable to AP1000 design certification.
	R.G. 1.78 C.3, C.4, C.5.a, C.5.b	Acceptable	
	R.G. 1.78 C.6	Exception	For AP1000 design certification the atmospheric dispersion factors are not calculated (since there is no specific site data) but are selected so as to bound the majority of existing sites. Section 2.3 provides additional information.
	R.G. 1.78 C.7, C.8	Acceptable	
	R.G. 1.78 C.9	Exception	Although the anticipated operating mode for the AP1000 in the event of a toxic gas release is for 100 percent recirculation, there is the potential for operation with a pressurized main control room using bottled air. The design pressurization is 1/8 in. water gauge.
	R.G. 1.78 C.10		N/A

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.78 C.11, C.12	Acceptable	
	R.G. 1.78 C.13	Acceptable	Onsite toxic substances conform to these guidelines. Offsite toxic chemicals are site-specific and are the Combined License applicant's responsibility.
	R.G. 1.78 C.14	Acceptable	
	R.G. 1.78 C.15	N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.
	R.G. 1.95	N/A	The AP1000 does not have onsite chlorine sources. Therefore, these guidelines are not applicable to the AP1000. Offsite chlorine sources are site-specific and are the Combined License applicant's responsibility.
6.	GDC 19	Acceptable	
7.	R.G. 1.78	Acceptable	See response to criterion 5 above for exceptions taken to Regulatory Guide 1.78.
SRP 6.4, Appendix A - Control Room Habitability System (Rev. 2, 7/81)			
		Acceptable	
SRP 6.5 - Pressure Suppression Pool as a Fission Product Cleanup System (Rev. 0, 12/88)			
		N/A	Applies only to BWR.
SRP 6.5.1 - ESF Atmosphere Cleanup System (Rev. 2, 7/81)			
General	R.G. 1.52 ANSI N509-1980	N/A	The calculated offsite doses for the AP1000 from the LOCA are within the 10 CFR 100 guidelines. There are no safety-related ESF atmosphere cleanup systems for the AP1000.
SRP 6.5.2 - Containment Spray as a Fission Product Cleanup System (Rev. 2, 12/88)			
1.a-1.f	ANSI/ANS 56.5 1979	N/A	The AP1000 does not include a safety-related containment spray system.
1.g		Exception	The reference to achieving sump solution pH of $\geq$ 7.0 "by the onset of the spray recirculation mode" is not applicable to the AP1000 design since there is no spray recirculation mode for the nonsafety-related containment spray.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
1.h		Exception	There are no additives for the nonsafety-related spray system but are additives for the control of the sump solution pH.
1.i-3.c		N/A	The AP1000 does not include a safety-related containment spray system.
SRP 6.5.3 - Fission Product Control Systems and Structures (Rev. 2, 7/81)			
1.	10CFR100	Acceptable	
2.	10CFR100	N/A	AP1000 does not have a safety-related secondary containment.
3.		N/A	This criteria deals with partial dual containments.
4.		Acceptable	
SRP 6.5.4 - Ice Condenser as a Fission Product Cleanup System (Rev. 3, 12/88)			
		N/A	The AP1000 does not include an ice condenser.
SRP 6.5.5 - Pressure Suppression Pool as a Fission Product Cleanup System (Rev. 0, 12/88)			
		N/A	The AP1000 does not include a pressure suppression pool.
SRP 6.6 - Inservice Inspection of Class 2 and 3 Components (Rev. 1, 7/81)			
1.	ASME Section III Article NCA-2000	Acceptable	
2.	ASME Section XI IWC-2000 and IWD-2000	Acceptable	
3.a	ASME Section XI IWA-2000	Acceptable	
3.b	ASME Section XI IWA-2000	Acceptable	
4.	ASME Section XI IWC-2000 IWD-2000	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
5.	ASME Section IWB-3000 or (IWC-3000 and IWD-3000)	Acceptable	
6.	ASME Section XI IWC-5000 IWD-5000	Acceptable	
7.a	ASME Section XI	Acceptable	
7.b		Acceptable	
7.c		Acceptable	
7.d	ASME Section XI C-F and C-G categories	Acceptable	
8.		Acceptable	
9.		Acceptable	
SRP 6.7 - Main Steam Isolation Valve Leakage Control System (Rev. 2, 7/81)			
		N/A	Applies only to BWR.

7 INSTRUMENTATION AND CONTROLS

Criteria Section	Referenced Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 7.0 – Instrumentation and Controls – Overview of Review Process (Rev. 4 6/97)			
	No acceptance criteria included		
SRP 7.1, Table 7-1 - Acceptance Criteria and Guidelines for Instrumentation and Control Systems Important to Safety (Rev. 4, 6/97)			
This section identifies the acceptance criteria, the guidelines, and their applicability to the design of the AP1000 Instrumentation and Control System. The acceptance criteria and guidelines contained herein are identified in NUREG-0800, Standard Review Plan, Section 7. Reference (a) is the Topical Report describing the nuclear safety related Common Q I&C platform designed by CE Nuclear Power.			
	10 CFR 50 App B	Acceptable	
	10 CFR 50.34(f)(2)	Acceptable	
	NUREG-0694	Acceptable	
	NUREG-0718	Acceptable	
	10 CFR 50.49	Acceptable	
	10 CFR 50.55a(a)(1)	Acceptable	
	10 CFR 50.55a(h) ANSI/IEEE Std. 279	Acceptable	Refer to reference (c), Section 4.
	10 CFR 50.62	Acceptable	

Criteria Section	Referenced Criteria	AP1000 Position	Comments/Summary of Exceptions
	10 CFR 52.47(a)(1)(iv)	Acceptable	
	10 CFR 52.47(a)(1)(vi)	Acceptable	
	10 CFR 52.47(a)(1)(vii)	Acceptable	
	10 CFR 52.47(a)(2)	Acceptable	
	10 CFR 52.47(b)(2)(i)	Acceptable	
	10 CFR 52.79(c)	N/A	Applies to COL Applicant
	General Design Criteria (10 CFR 50, Appendix A)		
	GDC1	Acceptable	
	GDC2	Acceptable	
	GDC3	Acceptable	
	GDC4	Acceptable	
	GDC10	Acceptable	
	GDC13	Acceptable	
	GDC15	Acceptable	
	GDC16	Acceptable	
	GDC19	Acceptable	Design features comply with the intent of the referenced criteria, but the design differs, e.g., an auxiliary feedwater system is not provided.
	GDC20	Acceptable	
	GDC21	Acceptable	
	GDC22	Acceptable	
	GDC23	Acceptable	

Criteria Section	Referenced Criteria	AP1000 Position	Comments/Summary of Exceptions
	GDC24	Acceptable	
	GDC25	Acceptable	
	GDC28	Acceptable	
	GDC29	Acceptable	
	GDC33	Acceptable	Design features comply with the intent of the referenced criteria, but the design differs, e.g., ac power is not required for these functions.
	GDC34	Exception	Refer to reference (a), Section 4, Reference Number 55. Design features comply with the intent of the referenced criteria, but the design differs, e.g., no ac power is required for safeguards functions.
	GDC35		Design features comply with the intent of the referenced criteria, but the design differs, e.g., ac power is not required for these functions.
	GDC38		Design features comply with the intent of the referenced criteria, but the design differs, e.g., ac power is not required for these functions.
	GDC41	Exception	Design features comply with the intent of the referenced criteria, but the design differs, e.g., ac power is not required for these functions.
	GDC44	Exception	Design features comply with the intent of the referenced criteria, but the design differs, e.g., ac power is not required for these functions.
	Staff Requirements Memoranda		
	Generic Letter 91-05	Acceptable	
	Regulatory Guides		
	RG.1.22	Acceptable	Safety actuation circuitry is provided with a capability for testing with the reactor at power. The protection system, including the engineered safety features test cabinet design, conforms to this regulatory guide. The protection functions are tested at power to the greatest extent practical. Only the device function and/or system level function is not tested. The logic associated with the devices can be tested at power, at the subsystem and/or component level. Refer to reference (a), Section 4, Reference Number 1.

Criteria Section	Referenced Criteria	AP1000 Position	Comments/Summary of Exceptions
	RG.1.28	Acceptable	
	RG.1.47	Acceptable	Refer to reference (a), Section 4, Reference Number 3.
	RG.1.53 ANSI/IEEE Std 379	Exception	Regulatory Guide 1.53 endorses IEEE Std. 379-1972 which has been superseded by IEEE Std. 379-1994. This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.53. The guidelines are applicable to safety-related dc power systems. There are no safety-related ac power sources in the AP1000.
	RG.1.62	Acceptable	
	RG.1.70	Acceptable	
	RG1.75 ANSI/IEEE Std 384	Exception	Regulatory Guide 1.75 endorses IEEE Std. 384-1974 which has been superseded by a later revision, IEEE Std. 384-1981. It is the later version that is used for the referenced purposes. This version has not yet been endorsed by a regulatory guide. The differences between the two revisions are not expected to contribute to conflicting design configurations because the jurisdiction of Regulatory Guide 1.75 with regard to the onsite ac power sources is limited. Since the AP1000 does not use safety-related ac power sources, the guidelines of Regulatory Guide 1.75 are applicable on a very limited basis to provide guidance on the Class 1E/non-1E electrical separation and isolation for the following ac components that employ safety-related and nonsafety-related circuits: a) Class 1E dc battery chargers b) Reactor coolant pump switchgear c) Class 1E dc and UPS system regulating transformers. Refer to reference (a), Section 4, Reference Number 6, 26.
	RG.1.97	Exception	The variables to be monitored are selected according to usage and need in the Plant Emergency Response guidelines. They are assigned design and qualification categories 1, 2 or 3 and classified as Types A, B, C, D or E. The selection of some plant specific variables and their

Criteria Section	Referenced Criteria	AP1000 Position	Comments/Summary of Exceptions
			classifications and categories are different than those of this Regulatory Guide. AP1000 has no Type A variables. Category 1 instrumentation information may not be continuously displayed but it is immediately accessible to the operator. In addition, a historical record of at least one instrumentation channel for each process variable is maintained. Since Category 3 instrumentation is not part of a safety-related system, it is not qualified to provide information when exposed to a post-accident adverse environment. Category 3 instrumentation is subject to servicing, testing, and calibration programs that are specified to maintain their capability.
	RG.1.105	Acceptable	Table 7-1 identifies Regulatory Guide 1.105 as being Draft, Proposed Revision 3. Revision 3 was published in December 1999.
	RG.1.118 IEEE Std 338	Exception	Regulatory Guide 1.118 endorses IEEE Std. 338-1977 which has been superseded by IEEE Std. 338-1987. This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.118. Nuclear sensors are exempt from response time testing since their worst case response time is not a significant fraction of the total overall system response. Guidelines apply to safety-related dc power systems. Since the AP1000 has no safety-related ac power sources, the guidelines do not apply to the AP1000 ac power sources.
	RG.1.151	Acceptable	
	RG.1.152 IEEE Std 7-4.3.2	Acceptable	
	RG.1.153 IEEE Std 603	Acceptable	
	RG.1.168 ANSE/IEEE Std 1012 IEEE Std 1028	Acceptable	
	RG.1.169		

Criteria Section	Referenced Criteria	AP1000 Position	Comments/Summary of Exceptions
	IEEE Std 828 IEEE Std 1042	Acceptable	
	RG.1.170 ANSI/IEEE Std 829	Acceptable	
	RG.1.171 ANSI/IEEE Std 1008	Acceptable	
	RG.1.172 ANSI/IEEE Std 830	Acceptable	
	RG.1.173 IEEE Std 1074	Acceptable	
	Branch Technical Positions		
	BTP HICB-1	Exception	Section B.2: Design features have excluded automatic valve closure functions. Section B.3: Same as Section B.2.
	BTP HICB-2	Acceptable	
	BTP HICB-3	Acceptable	
	BTP HICB-4	N/A	Design features have excluded requirements. The design of the AP1000 does not include an Auxiliary Feedwater System. Hence, the event addressed in the BTP is precluded from consideration for the AP1000.
	BTP HICB-5	Acceptable	
	BTP HICB-6	N/A	Design features have excluded this requirement.
	BTP HICB-8	Acceptable	Refer to reference (a), Section 4, Reference Number 1.
	BTP HICB-9	Acceptable	
	BTP HICB-10	Acceptable	

Criteria Section	Referenced Criteria	AP1000 Position	Comments/Summary of Exceptions
	BTP HICB-11	Acceptable	
	BTP HICB-12	Acceptable	
	BTP HICB-14	Acceptable	Refer to reference (a), Section 4, Reference Number 46.
	BTP HICB-16	Acceptable	
	BTP HICB-17	Acceptable	Refer to reference (a), Section 4, Reference Number 1, 11, 13, 29.
	BTP HICB-18	Acceptable	Refer to reference (a), Section 4, Reference Number 29, 47.
	BTP HICB-19	Acceptable	Refer to reference (b).
	BTP HICB-21	Acceptable	Refer to reference (a), Section 4, Reference Number 29, 49.
	Industry Codes and Standards		
	ANSI/IEEE Std 323	Acceptable	Refer to reference (a), Section 4, Reference Number 21.
	IEEE Std 603	Acceptable	Refer to reference (a), Section 4, Reference Number 29, and reference (d).
	ANSI/IEEE Std 665	Acceptable	
	IEEE Std 7-4.3.2	Acceptable	Refer to reference (a), Section 4, Reference Number 19.
	ASME Std NQA-1	Acceptable	
	EPRI Topical Report TR-102323	Acceptable	Refer to reference (a), Section 4, Reference Number 42.
	EPRI Topical Report TR-106439	Acceptable	Refer to reference (a), Section 4, Reference Number 43.
	NFPA Std 78	Acceptable	
	NUREG/CR-6421	Acceptable	Refer to reference (a), Section 4, Reference Number 54.

References:

(a) CENPD-396-P, Rev. 01, Common Qualified Platform Topical Report, May 2000.

(b) WCAP 15775, AP1000 Instrumentation and Control Defence-in-Depth and Diversity Report.

(c) WCAP-15776, Safety Criteria for the AP1000 Instrumentation and Control Systems.

Reference (a) Section 4 identifies compliance to the codes and standards applicable to the Common Q platform.

SRP 7.1, Appendix A - Acceptance Criteria and Guidelines for Instrumentation and Control Systems Important to Safety (Rev. 4, 6/97)

Covered by Table 7-1

Criteria Section	Referenced Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 7.1, Appendix B - Guidance for Evaluation of Conformance to IEEE STD 279 (Rev. 4, 6/97)			
	General		AP1000 Conforms to IEEE 603
SRP 7.1, Appendix C - Guidance for Evaluation of Conformance to IEEE STD 603 (Rev. 4, 6/97)			
	General		AP1000 conforms to IEEE 603-1991. See WCAP 15776, Safety Criteria for the AP1000 Instrumentation and Control Systems, for details.

SRP 7.2 - Reactor Trip System (Rev. 2, 7/81)

For the AP1000 positions on the acceptance criteria in SRP Section 7.2, see the positions for the criteria listed in Table 7.1

SRP 7.3 - Engineered Safety Features Systems (Rev. 2, 7/81)

For the AP1000 positions on the acceptance criteria in SRP Section 7.3, see the positions for the criteria listed in Table 7.1

SRP 7.4 - Safe Shutdown Systems (Rev. 2, 7/81)

For the AP1000 positions on the acceptance criteria in SRP Section 7.4, see the positions for the criteria listed in Table 7.1

SRP 7.5 - Information Systems Important to Safety (Rev. 3, 2/84)

For the AP1000 positions on the acceptance criteria in SRP Section 7.5, see the positions for the criteria listed in Table 7.1

SRP 7.6 - Interlock Systems Important to Safety (Rev. 2, 7/81)

For the AP1000 positions on the acceptance criteria in SRP Section 7.6, see the positions for the criteria listed in Table 7.1

Criteria Section	Referenced Criteria	AP1000 Position	Comments/Summary of Exceptions

SRP 7.7 - Control Systems (Rev. 3, 2/84)

For the AP1000 positions on the acceptance criteria in SRP Section 7.7, see the positions for the criteria listed in Table 7.1

SRP 7.8 - Diverse Instrumentation and Control Systems (Rev. 0)

For the AP1000 positions on the acceptance criteria in SRP Section 7.8, see the positions for the criteria listed in Table 7.1

SRP 7.9 – Data Communication Systems (Rev. 0)

For the AP1000 positions on the acceptance criteria in SRP Section 7.9, see the positions for the criteria listed in Table 7.1

8 ELECTRIC POWER

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 8.1 - Electric Power - Introduction (Rev. 2, 7/81)			
1.a	GDC 2	Exception	Requirements applicable to safety-related dc power systems; there are no safety-related ac power systems in the AP1000 design.
1.b	GDC 4	Exception	Requirements applicable to safety-related dc power systems; there are no safety-related ac power systems in the AP1000 design.
1.c	GDC 5	N/A	The requirements are applicable to multi-unit plants that share structures, systems, or components and are not applicable to the AP1000.
1.d	GDC 17	Exception	Requirements applicable to safety-related dc power systems; there are no safety-related ac power systems in the AP1000 design.
1.e	GDC 18	N/A	Requirements applicable to safety-related dc power systems; there are not safety-related ac power systems in the AP1000 design.
1.f	GDC 50	Acceptable	As applicable to electrical penetration design.
2.a	R.G. 1.6 General	Exception	The AP1000 main ac power system (ECS) is a nonsafety-related system. This regulatory guide is applicable only to the Class 1E dc and UPS system.
	R.G. 1.6 D.1	Acceptable	Guidance applies only to the Class 1E dc and UPS system, since the AP1000 ac power system is a nonsafety-related system.
	R.G. 1.6 D.2, D.4, D.5	N/A	The ECS is a nonsafety-related system. Therefore, this regulatory position is not applicable. However, the AP1000 design includes connections to a preferred (offsite) power source and two nonsafety-related onsite standby diesel generators.
	R.G. 1.6 D.3	Acceptable	
2.b	R.G. 1.9 IEEE 387	Exception	Guidelines apply to Class 1E diesel generators. They are not applicable to the AP1000.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
2.c	R.G. 1.32 IEEE 308	Exception	Regulatory Guide 1.32 endorses IEEE Std. 308-1974 that has been superseded by IEEE Std. 308-1991. This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.32. The guidelines are applicable to the Class 1E dc and UPS system only. There are no safety-related ac power systems in the AP1000.
2.d	R.G. 1.47	Exception	Requirements apply to safety-related dc systems and components only and is not considered applicable to the AP1000 on-site ac power system. IEEE Std. 279, endorsed by R.G. 1.47, has been withdrawn.
2.e	R.G. 1.63	Exception	Regulatory Guide 1.63 endorses IEEE Std. 741-1986 which has been superseded by IEEE Std. 741-1997. This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.63.
	IEEE 317	Acceptable	Electric penetration assemblies are in conformance with IEEE Std. 317-1983, IEEE Std. 741-1997, and Regulatory Guide 1.63 with the clarification discussed below. The majority of low voltage control circuits are self-limiting in that circuit resistance limits the fault current to a level which does not damage the penetration. Where, on a case by case basis, a circuit is found not to be self-limiting, primary and back-up breaker or fuse coordination or the addition of a sub-feed over current protection as in the case of motor control centers, provide for safe operation. The energy levels in the instrument systems are such that damage cannot occur to the containment penetration.
2.f	R.G. 1.75 IEEE 384	Exception	Regulatory Guide 1.75 endorses IEEE Std. 384-74 which has been superseded by a later revision, IEEE Std. 384-81. This version has not yet been endorsed by a regulatory guide. The differences between the two revisions are not expected to contribute to conflicting design configurations because the jurisdiction of Regulatory Guide 1.75 with regard to the onsite ac power sources is limited. Specifically, since the AP1000 does not use safety-related ac power sources, the guidelines of Regulatory Guide 1.75 are applicable on a very limited basis to provide guidance on the Class 1E/non-1E electrical separation and isolation for the following ac components that employ safety-related and nonsafety-related circuits: a. Class 1E dc battery chargers b. Reactor coolant pump switchgear c. Class 1E dc and UPS system regulating transformers.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
2.g	R.G. 1.81	N/A	Requirements applicable to multi-unit plants that share emergency and shutdown electric systems do not apply to the AP1000.
2.h	R.G. 1.106	Exception	Acceptable for Class 1E MOVS. Regulatory Guide 1.106 endorses IEEE Std. 279-1971 which has been superseded by IEEE Std.603-1991. The only safety-related electric motor-operated valves are dc.
2.i	R.G. 1.108	N/A	The function of the AP1000 nonsafety-related diesel generators is to provide ac power for equipment and lighting during loss of offsite power but is not required for safe shutdown. Therefore, these guidelines do not apply to the AP1000.
2.j	R.G. 1.118 IEEE 338	Exception	Regulatory Guide 1.118 endorses IEEE Std. 338-1977 which has been superseded by IEEE Std. 338-1987. This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.118. Nuclear sensors are exempt from response time testing since their worst case response time is not a significant fraction of the total overall system response. Guidelines apply to safety-related dc power systems. Since the AP1000 has no safety-related ac power sources, the guidelines do not apply to the AP1000 ac power sources.
2.k	R.G. 1.128 IEEE 484	Exception	Regulatory Guide 1.128 endorses IEEE Std. 484-75 that has been superseded by IEEE Std. 484-96. This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.128.
2.l	R.G. 1.129 IEEE 450	N/A	Not applicable to AP1000 design certification. This is the responsibility of the Combined License applicant.
3.a	BTP ICSB 4	Exception	Requirements applicable to Class 1E dc system MOVS IDS-027A and IDS-027B only.
3.b	BTP ICSB 8 (PSB)	N/A	Requirements applicable to safety-related ac power systems; do not apply to the AP1000.
3.c	BTP ICSB 11 (PSB)	N/A	Not applicable to AP1000 design certification. This is the responsibility of the Combined License applicant.
3.d	BTP ICSB 18 (PSB)	N/A	Requirements applicable to safety-related dc power systems only.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
3.e	BTP ICSB 21	N/A	Requirements apply to safety-related dc systems and components only and is not considered applicable to the AP1000 on-site ac power system.
3.f	BTP PSB-1	N/A	Requirements applicable to safety-related ac power systems; does not apply to the AP1000.
3.h	BTP PSB-2	N/A	BTP PSB-2 is deleted. It is superseded by IEEE-387. See comments on item 2b above.
4.	NUREG/CR 0660	N/A	Requirements applicable to safety-related emergency diesel generators; does not apply to AP1000.
SRP 8.2 - Offsite Power System (Rev. 3, 7/83)			
1.	R.G. 1.32 GDC 5	Exception	The AP1000 is a single-unit plant. Requirements applicable to multi-unit plants that share structures, systems, or components, are not applicable to the AP1000. The AP1000 has no safety-related ac power system. Therefore, the guidelines recommending the availability of offsite power "within a few seconds" is not applicable. R.G. 1.32 endorses IEEE Std. 308-1974, which has been superseded by IEEE Std. 308-1991. This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.32. Regulatory Guide 1.32 endorses IEEE Std. 450-1975 which has been superseded by IEEE Std. 450-1995. This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.32. The guidelines are applicable to the Class 1E dc and UPS system only. There are no safety-related ac power systems in the AP1000.
	IEEE 308-1974	Exception	See item 1 above.
2.(i)	GDC 17	N/A	Not applicable. There is no safety-related ac power in the AP1000.
2.(ii)	GDC 17	N/A	See item 2(i) above.
2.(iii)	GDC 17	N/A	See item 2(i) above.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
2.(iv)	R.G. 1.32	Exception	See item 1 above.
	GDC 17	N/A	See item 2(i) above.
	IEEE 308-1974	Exception	See item 1 above.
2.(v)	ANSI-C.37.xx	Acceptable	
3.	GDC 18	N/A	Applicable to ac power systems important to safety. There is no safety-related ac power in the AP1000.
4.	GDC 17	N/A	Not applicable. There is no safety-related ac power in the AP1000.
SRP 8.2, Appendix A - Guidelines for Generator Circuit Breakers/Load Break Switches (Rev. 0, 7/83)			
B.1		Acceptable	
B.2.a	ANSI C37	Acceptable	
B.2.b	ANSI C37.06 ANSI C37.09	Acceptable	
B.2.c	ANSI C37.04 ANSI C37.09	Acceptable	
B.2.d		Acceptable	
B.2.e		Acceptable	
B.2.f		Acceptable	
B.2.g		Acceptable	
B.2.h	ANSI C37.04 ANSI C37.09	Acceptable	
B.2.i		Acceptable	
B.3		Acceptable	
B.4		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 8.3.1 - A-C Power Systems (Onsite) (Rev. 2, 7/81)			
1.	GDC 2	N/A	AP1000 has no safety-related ac power.
2.	GDC 4	N/A	AP1000 has no safety-related ac power.
3.	GDC 5	N/A	Requirements applicable to multi-unit plants that share systems, structures, or components, do not apply to the AP1000.
3.a	R.G. 1.32, C.2.a IEEE 308	N/A	AP1000 is a single-unit plant. Therefore, this is not applicable to the AP1000.
3.b	R.G. 1.81	N/A	Requirements applicable to multi-unit plants that share systems, structures, or components, do not apply to the AP1000.
4.	GDC 17	N/A	AP1000 has no safety-related ac power.
4.a	R.G. 1.6	N/A	The AP1000 main ac power system (ECS) is a nonsafety-related system. This regulatory guide is applicable only to the Class 1E dc and UPS system. Therefore, this regulatory position is not applicable. The AP1000 design includes connections to a preferred (offsite) power source and two nonsafety-related onsite standby diesel generators.
4.b	R.G. 1.9	N/A	Guidelines apply to Class 1E diesel-generators. They are not applicable to the AP1000.
	IEEE 387	N/A	Requirements applicable to Class 1E diesel generators; do not apply to the AP1000.
4.c	R.G. 1.32	N/A	See response to SRP 8.1 criterion 2.c for exceptions to Regulatory Guide 1.32.
	IEEE 308	N/A	AP1000 has no safety-related ac power.
4.d	R.G. 1.75	Exception	See response to SRP 8.1 criterion 2.f for exceptions to Regulatory Guide 1.75.
	IEEE 384	N/A	
4.e	R.G. 1.108	N/A	The function of the AP1000 nonsafety-related diesel generators is to provide ac power for equipment and lighting during loss of offsite power but the diesel is not required for safe shutdown. Therefore, these guidelines do not apply to the AP1000.
4.f	NUREG/CR 0660	N/A	AP1000 has no safety-related emergency diesel-generators.
5.	GDC 18	N/A	AP1000 has no safety-related ac power.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.118	N/A	Guidelines apply to safety-related dc power systems. Since the AP1000 has no safety-related ac power sources, the guidelines do not apply to the AP1000 ac power sources.
	IEEE 338	N/A	AP1000 has no safety-related ac power.
6.	GDC 17	N/A	AP1000 has no safety-related ac power.
7.	GDC 50	Acceptable	As applicable to electrical penetration design.
	R.G. 1.63	Exception	See response to SRP 8.1 criterion 2.e for exceptions to Regulatory Guide 1.63.
	IEEE 317	Exception	Protection for the electrical penetration conform to IEEE Std. 741-1997.
SRP 8.3.2 - D-C Power Systems (Onsite) (Rev. 2, 7/81)			
1.	GDC 2	Acceptable	
2.	GDC 4	Acceptable	
3.	GDC 5	N/A	The AP1000 is not a multi-unit plant that share structures, systems, or components, do not apply to AP1000.
3.a	R.G. 1.32, 2.a	N/A	The AP1000 is not a multi-unit plant that share structures, systems, or components, do not apply to AP1000.
	IEEE 308	Exception	IEEE Std. 308-74 has been superseded by IEEE Std. 308-91.
3.b	R.G. 1.81	N/A	Requirements applicable to multi-unit plants that share structures, systems, or components, do not apply to AP1000.
4.	GDC 17	Acceptable	
4.a	R.G. 1.6, D.1	Acceptable	
	R.G. 1.6, D.3	Acceptable	
	R.G. 1.6, D.4	Acceptable	As related to safety-related dc power systems.
4.b	R.G. 1.32	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	IEEE 308	Exception	Regulatory Guide 1.32 endorses IEEE Std. 308-74 that has been superseded by IEEE Std. 308-91. This version has not yet been endorsed by a Regulatory Guide, but its use should not result in any deviation from the design philosophy otherwise governed by R.G. 1.32.
4.c	R.G. 1.75	Acceptable	
	IEEE 384	Exception	IEEE Std. 384-74 has been superseded by a later revision, IEEE Std. 384-81. AP1000 uses the latest version of the industry standards (as of 4/2001).
5.	GDC 18	Acceptable	
5.a	R.G. 1.32	Acceptable	
	IEEE 308	Exception	See comments on IEEE 308 in response to SRP 8.3.2 criterion 4.b.
5.b	R.G. 1.118	Exception	Nuclear Instrumentation sensors are exempt from response time testing since their worst case response time is not a significant fraction of the total overall system response.
	IEEE 338	Exception	R.G. 1.118 endorsed IEEE Std. 338-1977 which has been superseded by IEEE Std. 338-1987. AP1000 uses this version.
6.	GDC 17	Acceptable	
7.	GDC 50	Acceptable	As applicable to electrical penetration design.
	R.G. 1.63	Acceptable	
	IEEE 317	Exception	The protection for the electrical penetrations conform to IEEE Std. 741-1997.
III.2	R.G. 1.53	Exception	Regulatory Guide 1.53 endorses IEEE Std. 379-72 which has been superseded by IEEE Std. 379-94. The AP1000 uses the latest version of the industry standards (as of 4/2001). This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.53. Regulatory Guide 1.53 is not listed in the SRP Acceptance Criteria but is referenced in Section 8.3.2, Paragraph III, Item 2.
SRP Appendix 8-A, BTP PSB 1 - Adequacy of Station Electric Distribution System Voltages (Rev. 0, 7/81)			
1.a		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
1.b (1)		N/A	Requirements apply to Class 1E power; do not apply to AP1000.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
1.b (2)		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
1.c (1)		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
1.c (2)		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
1.c (3)		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
1.c (4)		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
1.c (5)		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
1.c (6)		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
1.d		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
2.		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
3.		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
4.a		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
4.b		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
4.c		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
4.d		N/A	Requirements apply to Class 1E power; do not apply to AP1000.
SRP Appendix 8-A, BTP ICSB 2 (PSB) - Diesel-Generator Reliability Qualification Testing (Rev. 0, 7/81)			
		N/A	Deleted
SRP Appendix 8-A, BTP ICSB 4 (PSB) - Requirements on Motor-Operated Valves in the ECCS Accumulator Lines (Rev. 2, 7/81)			
		Exception	As related to Class 1E dc system MOVS IDS-027A and IDS-027B only.
SRP Appendix 8-A, BTP ICSB 8 (PSB) - Use of Diesel-Generator Sets for Peaking (Rev. 2, 7/81)			
		N/A	There are no safety-related diesel generators in the AP1000.
SRP Appendix 8-A, BTP ICSB 11 (PSB) - Stability of Offsite Power Systems (Rev. 2, 7/81)			
B.1		N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
B.2		N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.
SRP Appendix 8-A, BTP ICSB 18 (PSB) - Application of the Single Failure Criterion to Manually-Controlled Electrically-Operated Valves (Rev. 2, 8/81)			
		Exception	Requirements are applicable to safety-related dc systems only.
SRP Appendix 8-A, BTP ICSB 21 (PSB) - Guidance for Application of Regulatory Guide 1.47 (Rev. 2, 7/81)			
		Exception	See item 2d of SRP Section 8.1.
SRP Appendix 8-B - General Agenda, Station Site Visits (Rev. 0, 7/81)			
		N/A	Not applicable to design phase.

9 AUXILIARY SYSTEMS

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 9.1.1 - New Fuel Storage (Rev. 2, 7/81)			
1.	GDC 2 R.G. 1.29	Acceptable	
2.	GDC 5	Acceptable	
3.	GDC 61	Acceptable	
4.	GDC 62 ANS 57.1 ANS 57.3	Acceptable	
SRP 9.1.2 - Spent Fuel Storage (Rev. 3, 7/81)			
1.	GDC 2	Acceptable	
	R.G. 1.13	Acceptable	
	R.G. 1.29 C.1.a, C.1.b, C.1.c	Acceptable	
	R.G. 1.29	Exception	The AP1000 normal residual heat removal system is nonsafety-related. The safety-related decay heat removal function of this system is provided by the safety-related PRHR heat exchangers of the passive core cooling system which are seismic Category I. The spent fuel pit cooling system does not have any active safety-related components that perform the heat removal function, since this is done passively through a large heat sink of water in the pit. The spent fuel pit and its makeup sources are sized for at least 72 hours without active cooling following a loss of ac power sources. The spent fuel cooling calculation accounts for the maximum loss of water due to the rupture of non-seismic piping. Seismic Category I components within the spent fuel pit cooling system include the containment penetration, the connections for makeup and the spent fuel pit (refueling system).

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.29 C.1.e	N/A	Applies to BWRs only.
	R.G. 1.29 C.1.f	Acceptable	
	R.G. 1.29 C.1.g	Exception	The safety-related function of the auxiliary feedwater system is replaced by the PRHR heat exchangers. The safety-related functions of the essential service water system are provided by the PRHR heat exchangers and the passive containment cooling system. The component cooling system is a nonsafety-related system, since it performs no safety-related functions.
	R.G. 1.29 C.1.h, C.1.j, C.1.k, C.1.l	Acceptable	
	R.G. 1.29 C.1.m, C.1.o, C.1.p, C.1.q, C.2, C.3, C.4	Acceptable	
	R.G. 1.29 C.1.i	N/A	The diesel-generators are nonsafety-related. Therefore, this section is not applicable to the AP1000.
	R.G. 1.29 C.1.n	Exception	Structures or equipment whose failure results in incapacitating injury to the occupants of the main control room are classified as seismic Category II and covered under Position 2 of this regulatory guide.
	R.G. 1.117	Acceptable	
	ANS 57.2 Para. 5.1.1, 5.1.3, 5.1.12, 5.3.2, 5.3.4	Acceptable	
2.	GDC 4 R.G. 1.13 R.G. 1.115, R.G. 1.117, ANS 57.2	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
3.	GDC 5	Acceptable	
4.	GDC 61 R.G. 1.13 ANS 57.2 SRP 9.1.2.III.1	Acceptable	
5.	GDC 62 R.G. 1.13, ANS 57.2	Acceptable	
6.	GDC 63 ANS 57.2, Para. 5.4	Acceptable	
SRP 9.1.3 - Spent Fuel Pool Cooling and Cleanup System (Rev. 1, 7/81)			
1.a.	GDC 2	Acceptable	
	R.G. 1.13 C.1, C.2, C.3	Acceptable	
	R.G. 1.13, C.4	Exception	The ventilation system is not required to mitigate the consequences of a fuel handling accident.
	R.G. 1.13 C.5, C.6, C.7, C.8	Acceptable	
	R.G. 1.29	Exception	See responses to SRP 9.1.2 criterion 1 for exceptions to R.G. 1.29.
	R.G. 1.52	Acceptable	The calculated offsite doses for the AP1000 from the LOCA are within the 10 CFR 100 guidelines. There are no safety-related ESF atmosphere cleanup systems for the AP1000.
	R.G. 1.26, Q.G. C	Exception	The Spent Fuel Pit Cooling System is non-safety. See SRP 3.2.2 responses.
	ASME Section XI	Acceptable	Applies only to the containment penetration valves safety-related components.
1.b.	R.G. 1.52 R.G. 1.13, C.2 (GDC 4)	Acceptable	The calculated offsite doses for the AP1000 from the LOCA are within the 10 CFR 100 guidelines. There are no safety-related ESF atmosphere cleanup systems for the AP1000.
1.c	GDC 5	N/A	The Spent Fuel Pit Cooling System is non-nuclear safety.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
1.d.(1)	GDC 44	Acceptable	
1.d.(2)	GDC 44	N/A	The pool is cooled without the use of electrical power. There are no safety-related active components performing cooling functions.
1.d.(3)	GDC 44	Acceptable	
1.d.(4)	GDC 44, BTP ASB 9-2	Exception	As applicable to calculating the heat loads and the assumptions from Section III item 1.h of this SRP, 140°F limit may be exceeded, boiling is allowed in the pool. The Spent Fuel Pit Cooling System is designed to remove heat from the spent fuel pool such that the spent fuel pit water temperature will be ≤ 120°F following a full core off load. Following a loss of ac power (off site power and both diesel generators), spent fuel cooling is provided by the pool and gravity fed makeup.
1.e	GDC 45	Acceptable	Applies only to the containment penetration valves.
1.f	GDC 46	Acceptable	Applies only to the containment penetration valves.
1.g.(1)	GDC 61	Acceptable	
1.g.(2)	GDC 61	Acceptable	
1.g.(3)	GDC 61	Acceptable	
1.g.(4)	GDC 61	Acceptable	
1.g.(5)	GDC 61	Acceptable	
1.h	GDC 63	Acceptable	
1.i	10CFR 20.1(c)	Acceptable	
	R.G. 8.8, C.2.f(2)	Acceptable	
	R.G. 8.8, C.2.f(3)	Acceptable	
SRP 9.1.4 - Light Load Handling System (Related to Refueling) (Rev. 2, 7/81)			
1.	R.G. 1.29 C.1 & C.2 (GDC 2)	Exception	See responses to SRP 9.1.2 criterion 1 for exceptions to R.G. 1.29.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.13 C.1 & C.6	Acceptance	
2.	GDC 5	N/A	No shared equipment
3.	R.G. 1.13 C.3 (GDC 61)	Acceptable	
	ANS 57.1/ANSI-N208	Acceptable	
4.	R.G. 1.13 C.3 (GDC 62)	Acceptable	
	ANS 57.1/ANSI-N208	Acceptable	
SRP 9.1.4, BTP ASB 9-1 - Overhead Handling Systems for Nuclear Power Plants (Rev. 2, 7/81)			
BTSP ASB 9-1 has been deleted for use in SRP Section 9.1.4 and has been superseded by NUREG-0554 for use in SRP Section 9.1.5.			
SRP 9.1.5 - Overhead Heavy Load Handling Systems (Rev. 0, 7/81)			
1.	R.G. 1.29 C.1 & C.2	Exception	See responses to SRP 9.1.2 criterion 1 for exceptions to R.G. 1.29.
	R.G. 1.13 C.1 & C.6	Acceptable	
2.	R.G. 1.13 C.3 & C.5	Acceptable	
3.		N/A	No shared equipment.
4.		Acceptable	
	NUREG-0554	Exception	The design of single-failure proof cranes is based on ASME NOG-1.
	NUREG-0612	Acceptable	The design of AP1000 overhead crane is based on ASME NOG-1.
	ANS 57.1/ANSI-N208	Acceptable	The design of AP1000 overhead crane is based on ASME NOG-1.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	ANS 57.2/ANSI-N210	Acceptable	The design of AP1000 overhead crane is based on ASME NOG-1.

SRP 9.2.1 - Station Service Water System (Rev. 4, 6/86)

The Service Water System (SWS) for the AP1000 differs from prior PWR designs in that the system is completely non-safety related. Prior Service Water Systems employed a design in which portions of the system were required to perform safety related functions. Although the AP1000 SWS removes heat from primary and secondary system sources for normal operation, normal cooldown, and refueling, the system is not required to prevent or mitigate the consequences of any accident. The majority of the SRP requirements are established to ensure that the safety related functions of the SWS can be accomplished under various postulated conditions.

The SRP is generally clear in differentiating between requirements intended to apply to non-safety related portions of the SWS and those applicable for safety related portions. The SWS for the AP1000 complies with portions of the SRP which are applicable to non-safety related systems. Compliance with applicable NRC and industry requirements will ensure that plant operation is supported with highly reliable system performance.

The following three positions are taken for implementing the SWS design:

1. The AP1000 safeguard systems employ a passive design that accomplishes decay heat removal and dissipation to the ultimate heat sink by relying on gravity and natural circulation. The SWS is not part of the emergency cooling flowpath.
2. Since the SWS is not required to prevent or mitigate the consequences of any accident, portions of the SRP intended for safety related systems do not apply. A failure modes and effects analysis is not included.
3. The SWS has no direct interfaces with radioactive systems. Potential radioactive leakage into the SWS from the Component Cooling Water System (CCS) is monitored by a radiation monitor in the CCS. A periodic sample will be taken to analyze for long-term chemical or radioactivity buildup in the SWS.

SRP 9.2.2 - Reactor Auxiliary Cooling Water Systems (Rev. 3, 6/86)

1.	GDC 2 and R.G. 1.29	Acceptable	The AP1000 Plant Design does not consider the Component Cooling System (CCS) to be a safety-related system. The only safety function performed by the CCS is containment isolation. The CCS satisfies the referenced criteria with regard to containment isolation. See responses to SRP 9.1.2 criterion 1 for exceptions to R.G. 1.29.
2.	GDC 4	Acceptable	Same comment 1 above.
3.	GDC 5	N/A	There are no shared systems or components important to safety in the AP1000.
4.	GDC 44 BTP ASB 3-1 IEEE 279	N/A Acceptable N/A	Note, however, GDC 44 as it relates to the capability to transfer heat loads from safety-related structures, systems and components to a heat sink under both normal operating and accident conditions is not applicable. The AP1000 Plant Design does not rely on the CCS to remove heat from any safety-related components.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
4.b		N/A	There are no safety-related active components performing cooling functions.
5.	GDC 45	N/A	
6.	GDC 46	N/A	
SRP 9.2.3 - Demineralized Water Makeup System (Rev. 2, 7/81)			
1.	R.G. 1.29 C.1 & C.2	Exception	See responses to SRP 9.1.2 criterion 1 for exceptions to R.G. 1.29.
2.	GDC 5	Acceptable	
SRP 9.2.4 - Potable and Sanitary Water Systems (Rev. 2, 7/81)			
1.	GDC 60	Acceptable	
2.	GDC 60	Acceptable	
SRP 9.2.5 - Ultimate Heat Sink (Rev. 2, 7/81)			
1.	GDC 2	Acceptable	
	R.G. 1.27 C.1	Acceptable	The passive containment cooling system water storage tank is sized to provide heat removal to meet the requirements of General Design Criterion 38 to reduce and maintain the containment temperature and pressure following a postulated loss of coolant accident for three days following passive containment cooling system actuation. This cooling is done in conjunction with the flow of air over the containment shell. Additional water and equipment are available on site to provide water for the passive containment cooling up to seven days. The tank is replenished with water from a number of onsite and offsite sources to provide additional long term heat removal. The system meets the guideline of providing cooling for more than 30 days.
	R.G. 1.27 C.2	Acceptable	The AP1000 design conforms to this regulatory position, provided that the definition of a single failure of a man-made structure does not include the safety-related, seismically-designed containment structure assembly.
	R.G. 1.27 C.3	Acceptable	The seismically designed passive containment cooling system water storage, integral to the containment structure meets this regulatory position.
	R.G. 1.29	Exception	See responses to SRP 9.1.2 criterion 1 for exceptions to R.G. 1.29.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
2.	GDC 5	Acceptable	
3.a.	GDC 44	Acceptable	System(s) are provided to transfer heat loads from safety-related structures, systems and components, to one ultimate heat sink for normal operation and to a separate heat sink under accident conditions.
3.b.	GDC 44	Acceptable	
3.c.	GDC 44	Acceptable	
3.d.	R.G. 1.27	Acceptable	Regarding Position C-1 of R.G. 1.27, the AP1000 PCS storage capacity and on-site makeup capability last at least seven days. Thus, the intent of the criteria is satisfied. See responses to item 1 above for comments on R.G. 1.27. Regarding Position C-2 of R.G. 1.27, the AP1000 design complies with the criteria, provided that the definition of a single failure of a man-made structure does not include the containment structure assembly. Regarding Position C-3 of R.G. 1.27, the seismically designed PCS water storage, integral to the containment structure, meets the criteria.
	R.G. 1.72	N/A	The AP1000 does not have safety-related spray pond piping components. Therefore, this regulatory guide is not applicable to the AP1000.
	BTP ASB 9-2	Exception	Regarding BTP ASB 9-2, the AP1000 will utilize either the current Westinghouse or the ANS standard for decay heat instead of the one proposed by the NRC.
4.	GDC 45	Acceptable	
5.	GDC 46	Acceptable	
SRP 9.2.6 - Condensate Storage Facilities (Rev. 2, 7/81)			
1.a	R.G. 1.29 C.1 & C.2	Exception	See responses to SRP 9.1.2 criterion 1 for exceptions to R.G. 1.29.
1.b	GDC 5	Acceptable	This system is not required or tested for accident conditions. The system is not designed to be single failure proof and no FEMA is performed.
1.c(1)	GDC 44	N/A	This system is not required or tested for accident conditions. The system is not designed to be single failure proof and no FEMA is performed.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
1.c(2)	GDC 44	N/A	This system is not required or tested for accident conditions. The system is not designed to be single failure proof and no FEMA is performed.
1.c(3)	GDC 44	N/A	This system is not required or tested for accident conditions. The system is not designed to be single failure proof and no FEMA is performed.
1.d	GDC 45	Acceptable	
1.e	GDC 46	Acceptable	
SRP 9.3.1 - Compressed Air System (Rev. 1, 7/81)			
1.	ANSI MC 11.1-1976 (ISA S7.3)	Acceptable	
	R.G. 1.68.3	Exception	The instrument air systems are tested in conformance with the guidelines of this regulatory guide, except as noted below. The instrument air system supplies instrument air to both safety-related and nonsafety-related components. Safety-related pneumatic valves are either furnished with accumulators or are designed to fail to the safe position without the use of air. These, and other safety-related components are tested to confirm that they satisfy their safety-related function when instrument air pressure is lost. The AP1000 is not intended to operate under normal conditions without an instrument air supply. A total loss of instrument air supply does not compromise any safety-related functions, a test simulating the total loss of instrument air to nonsafety-related systems simultaneously removes instrument air from the safety-related systems. This testing adversely affects continued plant operation since the safety-related air-operated components fail to their safeguards actuation position on a loss of air. The unnecessary actuation of the safety-related components can adversely affect plant operation and plant safety. Therefore, a test simulating a total loss of instrument air is inappropriate during normal plant operating conditions.
2.	R.G. 1.29 C.1	Acceptable	See responses to SRP 9.1.2 criterion 1 for exceptions to R.G. 1.29.
	R.G. 1.29 C.2	Acceptable	See responses to SRP 9.1.2 criterion 1 for exceptions to R.G. 1.29.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
3.	GDC 5	Acceptable	
SRP 9.3.2 - Process And Post-Accident Sampling Systems (Rev. 2, 7/81)			
1.	R.G. 1.21 C.2	Acceptable	
	R.G. 1.56 C.1	N/A	Applies only to BWR.
	R.G. 1.56 C.4.a	N/A	Applies only to BWR.
1.a		Acceptable	Applies to all normal systems and principal components of the AP1000 except Boron Injection Tank and Gaseous Radwaste Storage Tank because AP1000 does not have these tanks.
1.b		N/A	Applies only to BWR.
2.		Acceptable	
3.a.	R.G. 1.21 General	Acceptable	The design guidance of this regulatory guide for the selection of locations and type of effluent measurements to cover major or potentially significant pathways of release of radioactive materials during normal reactor operation, including anticipated operational occurrences, are incorporated in the plant design and in the requirements of the radiological effluent technical specifications. The calibration of effluent monitoring systems is performed according to written plant procedures. This is the Combined License applicant's responsibility.
	R.G. 1.21 C.1	N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.
	R.G. 1.21 C.2	Acceptable	
	R.G. 1.21 C.3-14	N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.
3.b.	R.G. 1.21 C.6	N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	ANSI N13.1-1969	Acceptable	
3.c.	R.G. 1.21 C.7	N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.
3.d.	R.G. 8.8, 2.d.(2), 2.f.(3), 2.f.(8)	Acceptable	
	10CFR20, 20.1(c)	Acceptable	
3.e.	GDC 60	Acceptable	
3.f.	R.G. 8.8, 2.i.(6)	Acceptable	
	GDC 60	Acceptable	
4.	R.G. 1.26 C.1, C.2, C.3	Acceptable	See SRP 3.2.2 responses for exceptions to R.G. 1.26.
	R.G. 1.29	Acceptable	See SRP 9.1.2 responses for exceptions to R.G. 1.29.
	R.G. 1.97	Acceptable	
	GDC 1 and 2	Acceptable	
5.	NUREG-0737, II.B.3	Acceptable	
	R.G. 1.97	Acceptable	
5.a.	GDC 13 and 14	Acceptable	
5.b.	GDC 60	Acceptable	
5.c.	GDC 60	Acceptable	
SRP 9.3.3 - Equipment and Floor Drainage System (Rev. 2, 7/81)			
1.	R.G. 1.29 C.1	Acceptable	See SRP 9.1.2 responses for exceptions to R.G. 1.29.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.29 C.2	Acceptable	See SRP 9.1.2 responses for exceptions to R.G. 1.29.
2.		Acceptable	
3.		Acceptable	
SRP 9.3.4 - Chemical and Volume Control System (Including Boron Recovery System) (Rev. 2, 7/81)			
A.	GDC 1 R.G. 1.26	Acceptable	Portions of the AP1000 CVS will be classified as per R.G. 1.26. Note, however, that paragraph C.1.b of Regulatory Guide 1.26 requires "systems important to safety that are required for ... reactor shutdown" be Quality Group B. For AP1000, this function is performed by the PXS, and therefore does not apply to the CVS. See SRP 3.2.2 responses for exceptions to R.G. 1.26.
B.	GDC 2 R.G. 1.29	Acceptable	Portions of the AP1000 CVS, and the buildings in which they are located, are seismic as per Regulatory Guide 1.29. Note, however, paragraph C.1.d of Regulatory Guide 1.29 requires "systems ... that are required for ... reactor shutdown" be seismically designed. For the AP1000, this function is performed by the PXS, and therefore does not apply to the CVS. See SRP 9.1.2 responses for exceptions to R.G. 1.29.
C.	GDC 5	Acceptable	No CVS components are shared for the AP1000.
D.	GDC 14	Acceptable	The AP1000 is not different from previous Westinghouse PWR plant designs in this respect.
E.	GDC 29	Acceptable	The criteria is acceptable, although some consideration may be required since the CVS is not classified as a safety system. The PXS satisfies GDC 29 in a safety sense.
F.	GDC 33 GDC 35	Acceptable N/A	GDC 33 is acceptable since the AP1000 CVS and electrical systems are being designed to meet the criteria specified in GDC 33. However, GDC 35 is not applicable to the AP1000 CVS.
G.	GDC 60 GDC 61	Acceptable	The AP1000 is not different from previous Westinghouse PWR plant designs in this respect.
G.1.		Acceptable	The AP1000 CVS will be designed with provisions for adequate monitoring of the differential pressure of the filters and demineralizers.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
G.2.		Acceptable	The AP1000 CVS will include provisions for isolating the flow through the demineralizers on high inlet temperature.
SRP 9.3.5 - Standby Liquid Control System (Rev. 2, 7/81)			
		N/A	Applies only to BWR.
SRP 9.4.1 - Control Room Area Ventilation System (Rev. 2, 7/81)			
1.	R.G. 1.29 C.1	Exception	The MCR Ventilation System is designed as nonsafety-related.
	R.G. 1.29 C.2	Acceptable	
2.		Exception	System is not required to function during an accident.
3.		N/A	No shared equipment.
4.	R.G. 1.78 C.3, C.7	Acceptable	
	R.G. 1.78, C.13	Acceptable	Onsite toxic substances conform to these guidelines. Offsite toxic chemicals are site-specific and are the Combined License applicant's responsibility.
	R.G. 1.95, C.4a C.4a, C.49	Acceptable	The AP1000 does not have onsite chlorine sources. Therefore, these guidelines are not applicable to the AP1000. Offsite chlorine sources are site-specific and are the Combined License applicant's responsibility.
5.	R.G. 1.52 C.2	N/A	There are no ESF atmosphere cleanup systems for the AP1000. The AP1000 does not require engineered safety feature atmosphere cleanup systems to meet limits on doses offsite or onsite.
	R.G. 1.140 C.2	Exception	See SRP 9.4.3 responses for exceptions to R.G. 1.140.
SRP 9.4.2 - Spent Fuel Pool Area Ventilation System (Rev. 2, 7/81)			
1.	R.G. 1.29 C.1	Exception	The spent fuel pool area ventilation system is designed as nonsafety-related. See SRP 9.1.2 responses for exceptions to R.G. 1.29.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.29 C.2	Acceptable	
2.		Acceptable	
3.	R.G. 1.52	N/A	There are no ESF atmosphere cleanup systems for the AP1000. The AP1000 does not require engineered safety feature atmosphere cleanup systems to meet limits on doses offsite or onsite.
	R.G. 1.140 C.1, C.2	Exception	See SRP 9.4.3 responses for exceptions to R.G. 1.140.
4.	R.G. 1.13 C.4	Acceptable	
SRP 9.4.3 - Auxiliary And Radwaste Area Ventilation System (Rev. 2, 7/81)			
1.	R.G. 1.29 C.1	Exception	The auxiliary and radwaste area ventilation system is designed as nonsafety- related.
	R.G. 1.29 C.2	Acceptable	
2.		Acceptable	
3.	R.G. 1.140 C.1, C.2	Exception	Regulatory Guide 1.140 endorses ANSI N509-1976/N510-1975 which has been superseded by ASME Standard N509-1989 and ASME Standard N510-1989. These versions are not endorsed by regulatory guides but their use should not result in deviation from the design philosophy otherwise stated in R.G. 1.140. Component design, performance and testing requirements are based on ASME Standard N509-1989 and ASME Standard N510-1989 criteria. Physical properties of activated charcoal are based on criteria referenced in ASME Standard N509-1989.
SRP 9.4.4 - Turbine Area Ventilation System (Rev. 2, 7/81)			
1.	R.G. 1.29 C.1, C.2	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
2.	GDC 5	Acceptable	
3.	R.G. 1.140 C.1, C.2	Exception	See SRP 9.4.3 responses for exceptions to R.G. 1.140.
SRP 9.4.5 - Engineered Safety Feature Ventilation System (Rev. 2, 7/81)			
		N/A	Not applicable to the AP1000.
SRP 9.5.1 - Fire Protection Program (Rev. 3, 7/81)			
1.		Acceptable	
2.		Acceptable	
	BTP CMEB-9.5-1	Acceptable	
	R.G. 1.78	Acceptable	
	R.G. 1.101	Acceptable	
SRP 9.5.1, BTP CMEB 9.5-1 - Guidelines for Fire Protection for Nuclear Power Plants (Rev. 2, 7/81)			
C.1.a		Acceptable	
C.1.b		Acceptable	
C.1.c		Acceptable	
C.1.d		Acceptable	
C.1.e		Acceptable	
C.2		Acceptable	
C.3		Acceptable	
C.4.a		Acceptable	
C.4.b		Acceptable	
C.4.c		Acceptable	
C.4.d		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
C.4.e		Acceptable	
C.4.f		Acceptable	
C.4.g		Acceptable	
C.4.h		Acceptable	
C.4.i		Acceptable	
C.4.j		Acceptable	
C.5.a		Acceptable	
C.5.b		Acceptable	AP1000 is designed to maintain safe shutdown conditions indefinitely. Repair of systems used to achieve safe shutdown need not be completed within 72 hours.
C.5.c		Acceptable	
C.5.d		Acceptable	AP1000 design permits bulk air storage of breathing air for the main control room habitability system.
C.5.e		Acceptable	
C.5.f		Acceptable	
C.5.g		Acceptable	
C.6.a		Acceptable	
C.6.b		Acceptable	
C.6.c		Acceptable	
C.6.d		N/A	Fixed halon suppression systems are not used on AP1000.
C.6.e		N/A	Fixed carbon dioxide suppression systems are not used on AP1000.
C.6.f		Acceptable	
C.7.a		Acceptable	AP1000 does not include automatic suppression inside containment. The reactor coolant pumps have no external lube/oil system.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
C.7.b		Acceptable	AP1000 design does not require automatic fire suppression in control complex under floor and ceiling spaces.
C.7.c		N/A	There is no cable spreading room on AP1000.
C.7.d		Acceptable	
C.7.e		Acceptable	
C.7.f		Acceptable	
C.7.g		Acceptable	
C.7.h		Acceptable	
C.7.i		Acceptable	
C.7.j		Acceptable	
C.7.k		N/A	There are no safety-related pumps on AP1000.
C.7.l		Acceptable	
C.7.m		Acceptable	
C.7.n		Acceptable	
C.7.o		Acceptable	
C.7.p		Acceptable	
C.7.q		N/A	Cooling tower configuration is site specific.
C.7.r		Acceptable	
C.8.a		Acceptable	
C.8.b		Acceptable	
C.8.c		Acceptable	
C.8.d		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions

SRP 9.5.1, Appendix A - Guidelines for Fire Protection for Nuclear Plants Docketed Prior to July 1, 1976 (8/76)

Incorporated into BTP CMEB 9.5-1.

SRP 9.5.2 - Communications System (Rev. 2, 7/81)

There are no General Design Criteria or regulatory guides directly applicable to the safety-related performance requirements for the design and use of the communication system during normal plant operations and transient conditions. Acceptability of the design is based in part on the similarity to design of previously reviewed plants with satisfactory operating experience. The following criterion will be used to assess the system design capability:

The communication system is acceptable if the integrated design of the system provides effective communication between plant personnel in all vital areas during normal plant operation and during the full spectrum of accident or incident conditions (including fire) under maximum potential noise levels.

The AP1000 meets this guidance.

SRP 9.5.3 - Lighting Systems (Rev. 2, 7/81)

(1).	N/A	Acceptable
(2).	N/A	Acceptable
(3).	N/A	Acceptable

SRP 9.5.4 - Emergency Diesel Fuel Oil Storage And Transfer System (Rev. 2, 7/81)

N/A	A safety-related dc power source provides power for the few active safety valves and instruments during transient and accident conditions. The on-site ac power source does not perform a safety function. Diesel generators are not safety-related.

SRP 9.5.5 - Emergency Diesel Engine Cooling Water System (Rev. 2, 7/81)

N/A	A safety-related dc power source supplied by batteries provides power for the few active safety valves and instruments during transient and accident conditions. The on-site ac power source does not perform a safety function. Diesel generators are not safety-related.

SRP 9.5.6 - Emergency Diesel Engine Starting System (Rev. 2, 7/81)

N/A	A safety-grade dc power source provides power for the few active safety valves and instruments during transient and accident conditions. The on-site ac power source does not perform a safety function. Diesel generators are not safety-related.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 9.5.7 - Emergency Diesel Engine Lubrication System (Rev. 2, 7/81)			
		N/A	A safety-grade dc power source provides power for the few active safety valves and instruments during transient and accident conditions. The on-site ac power source does not perform a safety function. Diesel generators are not safety-related.
SRP 9.5.8 - Emergency Diesel Engine Combustion Air Intake And Exhaust System (Rev. 2, 7/81)			
		N/A	A safety-grade dc power source provides power for the few active safety valves and instruments during transient and accident conditions. The on-site ac power source does not perform a safety function. Diesel generators are not safety-related.

10 STEAM AND POWER CONVERSION SYSTEM

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 10.2 - Turbine Generator (Rev. 2, 7/81)			
1.		Acceptable	
2.		Acceptable	
3.		Acceptable	
4.		Acceptable	
5.		Acceptable	URD Chapter 13, Section 2.2.3 specified minimum six years between inspections.
6.		Acceptable	
7.		Acceptable	No safety related equipment in the turbine room.
SRP 10.2.3 - Turbine Disk Integrity (Rev. 1, 7/81)			
General			The AP1000 turbine is arranged in a radial orientation. The three low pressure turbines incorporate fully integral rotors. The turbine meets the criteria given in reference (a).
1.		Acceptable	
2.		Acceptable	
3.		Acceptable	
4.		Acceptable	
5.		Acceptable	

References:

a. WCAP-15783, "Analysis of the Probability of the Generation of Missiles from Fully Integral Nuclear Low Pressure Turbines."

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 10.3 - Main Steam Supply System (Rev. 3, 4/84)			
1.a	R.G. 1.29 C.1.a	N/A	Applies to the Reactor Coolant Pressure Boundary, not to the Main Steam Supply System.
	R.G. 1.29 C.1.e	N/A	Applies to BWR only.
	R.G. 1.29 C.1.f	Acceptable	
	R.G. 1.29 C.2	Acceptable	
	R.G. 1.29 C.3	Acceptable	
1.b	R.G. 1.117 App. 2, App. 4	Acceptable	
2.	R.G. 1.115 C.1	Acceptable	
3.	GDC 5	N/A	The AP1000 has no systems that are shared with other units.
4.a	RSB 5-1	Acceptable	The Startup Feedwater System and storage requirements are not required for safety-related heat removal. They are not Seismic Category I and are not safety-related.
4.b	NUREG-0138, Issue 1	Acceptable	Consistent with Issue 1 of NUREG-0138, the AP1000 takes credit for the turbine stop valve and the turbine control valve to provide mitigation of secondary system failures. 1. Identical to Issue 1 of NUREG-0138, the nonsafety-grade turbine stop and turbine control valves mitigate the consequences of a steamline break by limiting the RCS cooldown transient to the blowdown of one steam generator. 2. Consistent with the philosophy of Issue 1 of NUREG-0138, the turbine stop and control valves will be utilized to mitigate the consequences of a main steamline break inside containment by limiting the energy released to the containment from the second steam generator in the event of the single failure of the associated main steam isolation valve.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 10.3.6 - Steam and Feedwater System Material (Rev 2, 7/81)			
1.	R.G. 1.26	Acceptable	
2.a(1)	ASME III, App. I	Acceptable	
	ASME II, Part A	Acceptable	
	ASME II, Part B	Acceptable	
	ASME II, Part C	Acceptable	
2.a(2)	R.G. 1.85	Acceptable	
2.b(1)(a)	R.G. 1.71	Acceptable	
2.b(1)(b)	R.G. 1.71	Acceptable	
2.b(1)(c)	R.G. 1.71	Acceptable	
3.	R.G. 1.37 ANSI N 45.2.1-1973	Exception	The ANSI N45.2 series of standards that are referenced by the current revisions of the Quality Assurance regulatory guides have been replaced by ASME NQA-1 and NQA-2.
4.	ASME III, NB/NC/ND 2550 - 2570 GDC 35	Acceptable	
SRP 10.4.1 - Main Condensers (Rev. 2, 7/81)			
	GDC 60	Acceptable	
SRP 10.4.2 - Main Condenser Evacuation System (Rev. 2, 7/81)			
1.	Standards for Steam Surface Condensers HEI, 1970	Exception	Eighth edition is used rather than sixth edition.
2.	R.G. 1.26	Acceptable	
	10 CFR 50.55a	Acceptable	
3.		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
4.	GDC 60, 64	Acceptable	
5.		Acceptable	
	R.G. 1.33	N/A	Not applicable to design.
	R.G. 1.123	N/A	R.G. 1.123 has been withdrawn.
SRP 10.4.3 - Turbine Gland Sealing System (Rev. 2, 7/81)			
	R.G. 1.26	Acceptable	
	R.G. 1.33	N/A	Not applicable to design.
	R.G. 1.123	N/A	R.G. 1.123 has been withdrawn.
	GDC 60	Acceptable	
	GDC 64	Acceptable	
SRP 10.4.4 - Turbine Bypass System (Rev. 2, 7/81)			
1.	GDC 4	Acceptable	
2.	GDC 34	Acceptable	
SRP 10.4.5 - Circulating Water System (Rev. 2, 7/81)			
1.	GDC 4	Acceptable	
2.	GDC 4	Acceptable	
SRP 10.4.6 - Condensate Cleanup System (Rev. 2, 7/81)			
1.	R.G. 1.56	N/A	Applies only to BWR.
2.	BTP MTEB 5-3	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 10.4.7 - Condensate and Feedwater System (Rev. 3, 4/84)			
1.	R.G. 1.29 C.1	Acceptable	
	R.G. 1.29 C.2	Acceptable	
2.	BTP ASB 10-2	Acceptable	
3.	GDC 5	Acceptable	
4.a	GDC 44	Exception	These systems are not required to mitigate design basis accidents.
4.b	GDC 44	Exception	These systems are not required to mitigate design basis accidents.
4.c	GDC 44	Acceptable	
5.	GDC 45	Acceptable	
6.	GDC 46	Exception	These systems are not required for accident conditions in the passive design.
SRP 10.4.7, BTP ASB 10-2 - Design Guidelines for Avoiding Water Hammers in Steam Generators (Rev. 3, 4/84)			
Top-Feed Steam Generator Designs:			
a.		Acceptable	
b.		Acceptable	See Subsection 14.9.2.2.
c.		Acceptable	
d.		Acceptable	
SRP 10.4.8 - Steam Generator Blowdown System (Rev. 2, 7/81)			
1.		Acceptable	
2.		Acceptable	
3.		Acceptable	
4.	R.G. 1.143 C.1.1	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 10.4.9 - Auxiliary Feedwater System (Rev. 2, 7/81)			
1.	GDC 2 and R.G. 1.29, C.1 R.G. 1.29, C.2	Acceptable	The Passive Residual Heat Removal Heat Exchanger (PRHR HX) performs the safety-related functions that the Auxiliary Feedwater System (AFWS) performs in current plants. The PRHR HX subsystem is Seismic Category I.
2.	GDC 4	Acceptable	The PRHR HX performs the safety-related functions that the AFWS performs in current plants. It is capable of withstanding the effects of external missiles and internally generated missiles, pipe whip, and jet impingement forces associated with pipe breaks. The acceptance criteria set forth in SRP Sections 3.5 and 3.6 are addressed by this system.
	SRP 3.5.1.1	Acceptable	
	SRP 3.5.1.2	Acceptable	
	SRP 3.5.1.3	N/A	The PRHR HX is located inside containment.
	SRP 3.5.1.4	N/A	The PRHR HX is located inside containment.
	SRP 3.5.1.5	N/A	The PRHR HX is located inside containment.
	SRP 3.5.1.6	N/A	The PRHR HX is located inside containment.
	SRP 3.5.2	N/A	
	SRP 3.5.3	Acceptable	
	SRP 3.6.1	N/A	The PRHR HX is located inside containment.
	SRP 3.6.2	Acceptable	
3.	GDC 5	N/A	The PRHR HX performs the safety-related functions that the AFWS performs in current plants. The PRHR HX is not shared with a second unit.
4.	GDC 19 and BTP RSB 5-1	Exception	The PRHR HX performs the safety-related functions that the AFWS performs in current plants. In addition, the PRHR HX performs the safety-related functions of the current RHRS. It does not reduce the RCS temperature to 200°F. The PRHR HX provides a long-term heat sink for the RCS. The PRHR HX is automatically actuated and there is no requirement to switchover to another system.
5.a	Acceptable		

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
5.b	BTP ASB 10-1	Acceptable	The PRHR HX performs the safety-related functions that the AFWS performs in current plants. Redundant PRHR heat exchangers are provided. Note that the PRHR system does not require power to operate. The isolation valves are fail-open, air-operated valves.
5.c		Acceptable	The PRHR HX performs the safety-related functions that the AFWS performs in current plants. The calculated reliability of the PRHR HX is greater than 10^{-4} failures per demand.
6.	GDC 45	Acceptable	
7.	GDC 46	Acceptable	The PRHR HX performs the safety-related functions that the AFWS performs in current plants. The two air-operated valves that normally isolate the PRHR HX can be cycled during power operation. The PRHR HX can be placed in service at reduced RCS conditions during the cooldown to refueling conditions to verify the flow and heat transfer rates.

11 STEAM AND POWER CONVERSION SYSTEM

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 11.1 - Source Terms (Rev. 2, 7/81)			
1.	NUREG-0017	Acceptable	
2.		Acceptable	
3.	NUREG-0017	Acceptable	
4.	NUREG-0017 R.G. 1.140	Acceptable	See SRP 9.4.3 responses for exceptions to R.G. 1.140.
5.	NUREG-0017	Acceptable	
6.	R.G. 1.110 10 CFR 50, App. I	Acceptable	The disposal of effluents for the AP1000 is within the limits of Appendix I of 10 CFR 50, and the radwaste treatment systems have sufficient capacity to control effluents.
7.	10CFR20.1	Acceptable	
8.	10CFR50 App. I	Acceptable	
9.	10CFR50.34 10CFR50.34a R.G. 1.112 NUREG-0017	Acceptable	
10.		Acceptable	
SRP 11.2 - Liquid Waste Management Systems (Rev. 2, 7/81)			
1.a		Acceptable	
1.b	R.G. 1.110	Acceptable	The disposal of effluents for the AP1000 is within the limits of Appendix I of 10 CFR 50, and the radwaste treatment systems have sufficient capacity to control effluents.
1.c	10CFR20, App. B	Acceptable	
2.		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
3.	R.G. 1.143	Acceptable	
4.	R.G. 1.143	Acceptable	
SRP 11.3 - Gaseous Waste Management Systems (Rev. 2, 7/81)			
1.a		Acceptable	
1.b		Acceptable	
1.c		Acceptable	
1.d	10CFR20, App. B	Acceptable	
2.		Acceptable	
3.	R.G. 1.143	Acceptable	
4.	R.G. 1.143	Acceptable	
5.	R.G. 1.140	Exception	The gaseous radwaste system charcoal delay bed function differs from the scope of R.G. 1.140. The function is to delay the release of noble gases, not to remove iodine.
6.		Acceptable	The judgement of "acceptable" is directed to the first paragraph of this criterion. The page and a half of text after the first paragraph is a very detailed discussion of what is meant in the first paragraph and what various options are or are not acceptable. This additional material is considered as guidance, not as criteria.
SRP 11.3, BTP ETSB 11-5 - Postulated Radioactive Releases Due to a Waste Gas System Leak or Failure (Rev. 0, 7/81)			
		N/A	Superseded by SRP 15.7.1.
SRP 11.4 - Solid Waste Management Systems (Rev. 2, 7/81)			
1.		Acceptable	
2.	BTP ETSB 11-3	N/A	A process control program to solidify liquid waste is a site specific program to be established by the licensee. It is anticipated that liquid waste solidification will be performed by mobile solidification facilities provided by a contractor, so this is not part of the AP1000 design certification.
3.	BTP ETSB 11-3	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
4.	10CFR71	Acceptable	
5.		Acceptable	
6.	BTP ETSB 11-3	Acceptable	
7.	R.G. 1.143 BTP ETSB 11-3	Acceptable	
8.	R.G. 1.143 BTP ETSB 11-3	Acceptable	
9.	Appendix A to SRP 11.4	N/A	Long term storage of wastes on the plant site is a site specific design and is not included in the standard AP1000.

SRP 11.4, BTP ETSB 11-3 - Design Guidance for Solid Radioactive Waste Management Systems Installed in Light-Water-Cooled Nuclear Power Reactor Plants (Rev. 2, 7/81)

This is a guidance document, not a review document. There are no identified criteria within this document. The document is, however, referenced in the criteria of SRP 11.4, and details the manner in which the criteria of SRP 11.4 may be met.

SRP 11.4, Appendix 11.4-A - Design Guidance for Temporary Onsite Storage of Low Level Radioactive Waste (Rev. 0, 7/81)

This guidance is not applicable to the AP1000. This pertains to onsite storage of low level waste which is the responsibility of the Combined License applicant.

SRP 11.5 - Process and Effluent Radiological Monitoring Instrumentation and Sampling Systems (Rev. 3, 7/81)

1.a		Acceptable	
1.b	R.G. 1.21	Acceptable	
2.a	ANSI N13.1	Acceptable	
2.b		Acceptable	
2.c		Acceptable	Redundant to a criterion in SRP 9.3.2.
3.a	R.G. 1.21 & 4.15	Acceptable	
3.b	R.G. 1.21	Acceptable	
3.c	R.G. 4.15	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
3.d		Acceptable	
4.	NUREG-0718 NUREG-0737 R.G. 1.97	Acceptable	
5.		Acceptable	

SRP 11.5, BTP ETSB 11-5 - Postulated Radioactive Releases Due to a Waste Gas System Leak or Failure (Rev. 0, 7/81)

This Branch Technical Position states that an accident analysis should be performed to determine the radiological consequences of a Waste Gas System leak or failure and should be provided in Section 15.7.1 of the SAR. This is inconsistent with the fact that SRP Section 15.7.1 has been deleted.

SRP 11.5, Appendix 11.5-A - Design Guidance for Radiological Effluent Monitors Providing Signals for Initiating Termination of Flow or Other Modification of Effluent Stream Properties (Rev. 1, 7/81)

Acceptable

12 RADIATION PROTECTION

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 12.1 - Assuring that Occupational Radiation Exposures are as Low as Reasonably Achievable (Rev. 2, 7/81)			
1.	10CFR19.12 10CFR20.1(c) R.G. 8.8, R.G. 8.10(c.1) NUREG-0761	N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility. Personnel training and structure of organization for continued implementation of ALARA in plant operation and maintenance is a plant specific activity.
2.	10CFR20.1(c) R.G. 8.8	Acceptable	
3.	R.G. 1.33 R.G. 8.8, R.G. 8.10	N/A	Plant procedures and operation are site specific activities. Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.
4.	NUREG-0737 NUREG-0761	N/A	Not applicable to AP1000 design certification. This is the Combined License applicant's responsibility.
SRP 12.2 - Radiation Sources (Rev. 2, 7/81)			
Paragraph 1		Acceptable	
Paragraph 2	10CFR20 App. B	Acceptable	
Paragraph 3	NUREG-0718 NUREG-0737	Acceptable	Note that in the case of the large break LOCA there is no recirculation of post accident sump solution outside the containment. The only shielding that takes this source term into account is the containment shield building.
Paragraph 4		Acceptable	
Paragraph 5	ANSI N237 R.G. 1.112	Exception	ANSI-N237 is superseded by ANSI/ANS-18.1-1984.
Paragraph 6	NUREG-0718	Acceptable	
Paragraph 7	NUREG-0737	N/A	The acceptance criterion specifically addresses applicants for OLs and is applicable only to plants whose construction was essentially completed at the time this SRP revision was prepared. This effort is not applicable for new applications.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 12.3 - 12.4 - Radiation Protection Design Features (Rev. 2, 7/81)			
1.1		N/A	Not a criterion.
1.2	10CFR20.203	Acceptable	
1.3	10CFR20	Acceptable	
1.4	NUREG-0718	Acceptable	
1.5	NUREG-0737	N/A	This criterion is written for plants with completed construction (NTOL plants) in existence at the time the SRP was revised. New plant designs are covered in previous criterion.
2.1		N/A	Not a criterion.
2.2		Acceptable	
2.3		N/A	This item is not a criterion. It is only informational to be used as guidance.
2.4	R.G. 1.69	Exception	Regulatory Guide 1.69 endorses ANSI N101.6-1972 which has been superseded by ANSI 6.4 1997. This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.69.
3.1	10CFR20.103 R.G. 8.8	Acceptable	
3.2	R.G. 1.52	N/A	This item is written as guidance not as an acceptance criterion. The calculated offsite doses for the AP1000 from the LOCA are within the 10 CFR 100 guidelines. There are no safety-related ESF atmosphere cleanup systems for the AP1000.
4.a.1		Acceptable	
4.a.2	R.G. 1.52 ANSI/ANS-HPSSC-6.8.1	Acceptable	The calculated offsite doses for the AP1000 from the LOCA are within the 10 CFR 100 guidelines. There are no safety-related ESF atmosphere cleanup systems for the AP1000.
4.a.3		Acceptable	
4.a.4		N/A	Pertains to plant operation/maintenance, not to design.
4.a.5		Acceptable	
4.a.6		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
4.a.7	NUREG-0718 NUREG-0737	Acceptable	
4.a.8		Acceptable	
4.b.1		Acceptable	
4.b.2		Acceptable	
4.b.3		Acceptable	
4.b.4		N/A	Pertains to plant operation/maintenance, not to design.
4.b.5		Acceptable	
4.b.6		Acceptable	
4.b.7		Acceptable	
4.c.1	NUREG-0718 NUREG-0737 R.G. 1.97	Acceptable	
4.c.2		N/A	Pertains to plant operation and health physics program, not to design.
4.c.3		Acceptable	
4.c.4		Acceptable	
4.c.5	NUREG-0718 NUREG-0737	Acceptable	
4.d	R.G. 1.21, App. A R.G. 8.2 R.G. 8.8 ANSI N13.1-1969	N/A	Not a criterion. This item is guidance only.
4.e	10CFR70.24 R.G. 8.12 ANSI N16.2	Acceptable	
5.	R.G. 8.19	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 12.5 - Operational Radiation Protection Program (Rev. 2, 7/81)			
		N/A	This section of the SRP is not applicable to the AP1000 design since it applies to the manner in which the plant is operated. This is the responsibility of the Combined License applicant.

13 CONDUCT OF OPERATIONS

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 13.1.1 - Management and Technical Support Organization (Rev. 4, 11/99)			
		N/A	Not applicable to the AP1000 Design Certification. This section is a Combined License applicant responsibility.
SRP 13.1.2-13.1.3 - Operating Organization (Rev. 4, 11/99)			
		N/A	Not applicable to the AP1000 Design Certification. These sections are Combined License applicant responsibility. Westinghouse provides the staffing assumptions made in the main control room design in the appropriate MMI sections. Qualification for the guidelines for the operations staff will also be included.
SRP 13.2.1 - Reactor Operator Training (Rev. 0, 7/81)			
		N/A	Not applicable to the AP1000 Design Certification. Reactor operator training programs are the responsibility of the Combined License applicant.
SRP 13.2.2 - Training for Non-Licensed Plant Staff (Rev. 0, 7/81)			
		N/A	Not applicable to the AP1000 Design Certification. Training programs for non-Licensed plant staff are the responsibility of the Combined License applicant.
SRP 13.3 - Emergency Planning (Rev. 2, 7/81)			
		N/A	Not applicable to AP1000 Design Certification.
SRP 13.4 - Operational Review (Rev. 2, 7/81)			
		N/A	Not applicable to the AP1000 Design Certification. This section is the responsibility of the Combined License applicant.
SRP 13.5.1 - Administrative Procedures (Rev. 0, 7/81)			
		N/A	Not applicable to AP1000 Design Certification. This section is the responsibility of the Combined License applicant.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 13.5.2 - Operating and Maintenance Procedures (Rev. 1, 7/85)			
		N/A	Not applicable to AP1000 Design Certification. This section is the responsibility of the Combined License applicant.
SRP 13.6 - Physical Security (Rev. 2, 7/81)			
a.	10CFR 73.55, (b)	N/A	The Physical Security Organization is the responsibility of the Combined License applicant.
b.	10CFR 73.55, (c)	Acceptable	
c.	10CFR 73.55, (d)	N/A	Not applicable to the AP1000 Design Certification. Design will not permit conformance.
d.	10CFR 73.55, (e)	Acceptable	
e.	10CFR 73.55, (f)	Acceptable	
f.	10CFR 73.55, (g)	Exception	Not applicable to the AP1000 Design Certification. Details for testing will vary with each Licensee, but the design will provide for testing and maintenance.
g.	10CFR 73.55, (h)	N/A	Not applicable to the AP1000 Design Certification.
h.	10CFR 73, App. B	N/A	Not applicable to the AP1000 Design Certification.
i.	10CFR 73, App. C	N/A	Not applicable to the AP1000 Design Certification.
	10 CFR Part 25	N/A	No input on facility design. Sensitive material will be controlled.
	10 CFR Part 95	Acceptable	
	R.G. 5.44	N/A	AP1000 will comply with the intent of all sections. However, not all sections are strictly applicable to design (i.e., testing).
	NUREG-0674	N/A	No impact on design certification.
	ANSI N18.17 (Paragraph 4.3 Employee Screening)	N/A	No impact on design certification.
	10 CFR Part 50	Acceptable	AP1000 will comply with the intent of all sections. Not all sections are strictly applicable (i.e., 50.70(b)(3) and 50.34.a and d).

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 5.12	Acceptable	
	R.G. 5.20	N/A	No impact on design.
	10 CFR Part 75	Acceptable	

14 INITIAL TEST PROGRAM

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 14.2 - Initial Plant Test Program (Rev. 2, 7/81)			
1.	R.G. 1.68 C.3	N/A	Not applicable to AP1000 Design Certification. This is the Combined License applicant's responsibility.
2.	R.G. 1.68 C.4	N/A	Not applicable to AP1000 Design Certification. This is the Combined License applicant's responsibility.
3.	R.G. 1.68 C.1, App. A.1.a	Acceptable	Applies to AP1000 RCS components. (Jet pumps are applicable to BWRs only.)
	R.G. 1.68 C.1, App. A.1.b	Acceptable	Applies to the AP1000 reactivity control system, except the systems for BWRs such as rod worth minimizers.
	R.G. 1.68 C.1, App. A.1.c	Acceptable	
	R.G. 1.68 C.1, App. A.1.d	Exception	These systems have been eliminated due to the design of the AP1000 passive safety systems. The functions of these systems are replaced by the PRHR heat exchangers of the passive core cooling system.
	R.G. 1.68 C.1, App. A.1.e	Acceptable	
	R.G. 1.68 C.1, App. A.1.f	Acceptable	
	R.G. 1.68 C.1, App. A.1.g(1)	Acceptable	
	R.G. 1.68 C.1, App. A.1.g(2)	Acceptable	
	R.G. 1.68 C.1, App. A.1.g(3)	Exception	The AP1000 nonsafety-related diesel-generators are not required for safe shutdown.
	R.G. 1.68 C.1, App. A.1.g(4)	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.68 C.1, App. A.1.h	Acceptable	The characteristics of the AP1000 passive safety systems allow the support systems such as the cooling water systems, the HVAC and the ac power sources to be nonsafety-related and simplified. The capability of these systems is established by testing.
	R.G. 1.68 C.1, App. A.1.i	Acceptable	The AP1000 has no secondary containment. Therefore, this guideline applies only to primary containment.
	R.G. 1.68 C.1, App. A.1.j-o	Acceptable	
	R.G. 1.68 C.1, App. A.2	Acceptable	As applicable for PWR.
	R.G. 1.68 C.1, App. A.3	Acceptable	As applicable for PWR.
	R.G. 1.68 C.1, App. A.4	Acceptable	As applicable for PWR.
	R.G. 1.68 C.1, App. A.5	Acceptable	As applicable for PWR.
4.		N/A	Not applicable to AP1000 Design Certification. This is the Combined License applicant's responsibility.
5.	R.G. 1.68 C.7	N/A	Not applicable to AP1000 Design Certification. This is the Combined License applicant's responsibility.
6.	R.G. 1.68 App. C, 2&3	N/A	Not applicable to AP1000 Design Certification. This is the Combined License applicant's responsibility.
7.	R.G. 1.68 C.5	N/A	Not applicable to AP1000 Design Certification. This is the Combined License applicant's responsibility.
8.	R.G. 1.68	Acceptable	See responses to item 3 above for comments on R.G. 1.68.

15 ACCIDENT ANALYSIS

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 15.0 - Introduction (Rev. 2, 7/81)			
		N/A	No acceptance criteria are included in the SRP section.
SRP 15.0.1 – Radiological Consequence Analysis Using Alternative Source Terms (Rev. 0, 7/00)			
General	10 CFR 50.59	Acceptable	
	10 CFR 50.67	Acceptable	
	GDC 19	Acceptable	
	10CFR Part 51	Acceptable	
	10 CFR Part50, App. E IV.E.8	Acceptable	
	NUREG-0737	Acceptable	
	Table 1	Acceptable	
	Reg. Guide 1.183	Acceptable	
SRP 15.1.1, 15.1.2, 15.1.3 & 15.1.4 - Decrease in Feedwater Temperature, Increase in Feedwater Flow, Increase in Steam Flow, and Inadvertent Opening of a Steam Generator Relief or Safety Valve (Rev. 1, 7/81)			
1.	ASME Section III 10CFR50 App. A GDC 15	Acceptable	
2.	10CFR50 App. A GDC 10 & 26	Acceptable	
3.		Acceptable	
4.		Acceptable	
5.	R.G. 1.105	Acceptable	The technical specifications include the margin from the nominal setpoint to the technical specification limit to account for drift when measured at the rack during periodic testing. The allowances between the technical specification limit and the safety limit include the

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			following items: a) the inaccuracy of the instrument; b) process measurement accuracy; c) uncertainties in the calibration; d) environmental effects on equipment accuracy caused by limiting postulated events (only for those systems required to mitigate consequences of an accident). The setpoints are chosen such that the accuracy of the instrument is adequate to meet the assumptions of the safety analysis. The instrumentation range is based on the span necessary for the associated function. Narrow range instruments are used where necessary. Instruments are selected based on expected environmental and accident conditions. The need for qualification testing is evaluated and justified on a channel-by-channel basis. Administrative procedures coupled with the present cabinet alarms and/or locks provide sufficient control over the setpoint adjustment mechanism such that no integral setpoint securing device is required. Integral setpoint locking devices are not supplied.
6.	10CFR 50 App. A R.G. 1.53	Exception	Regulatory Guide 1.53 endorses IEEE Std. 379-72 (Reference 10), which has been superseded by IEEE Std. 379-94 (Reference 11). This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.53. The guidelines are applicable to safety-related dc power systems. There are no safety-related ac power sources in the AP1000.
SRP 15.1.5 - Steam Systems Piping Failures Inside and Outside of Containment (PWR) (Rev. 2, 7/81)			
1.		Acceptable	
2.		Acceptable	
3.		Acceptable	
4.	NUREG-0737 Item II.K.2.16 Item II.K.3.25	N/A	AP1000 uses canned reactor coolant pumps that contain no seals.
5.		N/A	The function of the safety-related auxiliary feedwater system has been replaced by the safety-related Passive Residual Heat Removal System.
6.	NUREG-0737 Item II.K.3.5	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 15.1.5, Appendix A - Radiological Consequences of Main Steam Line Failures Outside Containment of a PWR (Rev. 2, 7/81)			
			The guidance in SRP 15.1.5 Appendix A has been superseded by SRP 15.0.1 See SRP 15.0.1 for AP1000 position
SRP 15.2.1-15.2.5 - Loss of External Load; Turbine Trip; Loss of Condenser Vacuum; Closure of Main Steam Isolation Valve (BWR); and Steam Pressure Regulator Failure (Closed) (Rev. 1, 7/81)			
2.a.	ASME Section III 10CFR50 App. A GDC 15	Acceptable	
2.b.	10CFR50 App. A GDC 10 & 26	Acceptable	
2.c.	ANS N18.2	Acceptable	
2.d.		Acceptable	
SRP 15.2.6 - Loss of Nonemergency AC Power to the Station Auxiliaries (Rev. 1, 7/81)			
1.	ASME Section III 10CFR50 App. A GDC 15	Acceptable	
2.	10CFR50 App. A GDC 10 & 26	Acceptable	
3.		Acceptable	
4.		Acceptable	
5.	R.G. 1.105	Acceptable	The technical specifications provide the margin from the nominal setpoint to the technical specification limit to account for drift when measured at the rack during periodic testing. The allowances between the technical specification limit and the safety limit include the following items: a) the inaccuracy of the instrument; b) process measurement accuracy; c) uncertainties in the calibration; d) environmental effects on equipment accuracy caused by limiting postulated events (only for those systems required to mitigate consequences of

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			an accident). The setpoints are chosen such that the accuracy of the instrument is adequate to meet the assumptions of the safety analysis. The instrumentation range is based on the span necessary for the associated function. Narrow range instruments are used where necessary. Instruments are selected based on expected environmental and accident conditions. The need for qualification testing is evaluated and justified on a channel-by-channel basis. Administrative procedures coupled with the present cabinet alarms and/or locks provide sufficient control over the setpoint adjustment mechanism such that no integral setpoint securing device is required. Integral setpoint locking devices are not supplied.
6.	10CFR50 App. A	Acceptable	
	R.G. 1.53	Exception	Regulatory Guide 1.53 endorses IEEE Std. 379-72 that has been superseded by IEEE Std. 379-94. This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.53. The guidelines are applicable to safety-related dc power systems. There are no safety-related ac power sources in the AP1000.
SRP 15.2.7 - Loss of Normal Feedwater Flow (Rev. 1, 7/81)			
2a.	ASME Section III	Acceptable	
	10CFR50 App. A GDC 15		
2b.	10CFR50 App. A GDC 10 & 26	Acceptable	
2.c.		Acceptable	
2.d.		Acceptable	
2.e.	R.G. 1.105	Acceptable	The technical specifications provide the margin from the nominal setpoint to the technical specification limit to account for drift when measured at the rack during periodic testing. The allowances between the technical specification limit and the safety limit include the following items: a) the inaccuracy of the instrument; b) process measurement accuracy; c) uncertainties in the calibration; d) environmental effects on equipment accuracy caused by limiting postulated events (only for those systems required to mitigate consequences of

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			an accident). The setpoints are chosen such that the accuracy of the instrument is adequate to meet the assumptions of the safety analysis. The instrumentation range is based on the span necessary for the associated function. Narrow range instruments are used where necessary. Instruments are selected based on expected environmental and accident conditions. The need for qualification testing is evaluated and justified on a channel-by-channel basis. Administrative procedures coupled with the present cabinet alarms and/or locks provide sufficient control over the setpoint adjustment mechanism such that no integral setpoint securing device is required. Integral setpoint locking devices are not supplied.
2.f.	10CFR50 App. A R.G. 1.53	Exception	Regulatory Guide 1.53 endorses IEEE Std. 379-72 which has been superseded by IEEE Std. 379-94. This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.53. The guidelines are applicable to safety-related dc power systems. There are no safety-related ac power sources in the AP1000.
SRP 15.2.8 - Feedwater System Pipe Breaks Inside and Outside Containment (PWR) (Rev. 1, 7/81)			
1.	ASME Section III 10CFR50 App. A GDC 28 & 31	Acceptable	
2.	10CFR50 App. A	Acceptable	
3.	10CFR100	Acceptable	
4.	NUREG-0737 II.K.2.16 II.K.3.25	N/A	AP1000 uses canned reactor coolant pump motors that contain no seals.
5.	NUREG-0737 II.E.1.2	N/A	The safety-related auxiliary feedwater function has been replaced by the safety-related Passive Residual Heat Removal System on the AP1000 plant.
6.	NUREG-0737 II.K.3.5	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 15.3.1-15.3.2 - Loss of Forced Reactor Coolant Flow Including Trip of Pump Motor and Flow Controller Malfunctions (Rev. 1, 7/81)			
a.	ASME Section III 10CFR50 App. A GDC 15	Acceptable	
b.	10CFR50 App. A GDC 10 & 26	Acceptable	
c.	ANSI N18.2	Acceptable	
d.		Acceptable	
SRP 15.3.3-15.3.4 - Reactor Coolant Pump Rotor Seizure and Reactor Coolant Pump Shaft Break (Rev. 2, 7/81)			
1.	10CFR50 App. A GDC 31	Acceptable	
2.	10CFR50 App. A GDC 27 & 28	Acceptable	
3.	10CFR100	Acceptable	
4.		N/A	AP1000 uses canned reactor coolant pump motors that contain no seals.
5.		N/A	The safety-related auxiliary feedwater function has been replaced by the safety-related Passive Residual Heat Removal System.
6.	NUREG-0718 NUREG-0737 Item II.K.3.5	Acceptable	
7.		Acceptable	
8.	NUREG-0158 WCAP-7973	Acceptable	
9.		Acceptable	
10.		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 15.4.1 - Uncontrolled Control Rod Assembly Withdrawal from a Subcritical or Low Power Startup Condition (Rev. 2, 7/81)			
2.a.	10CFR50 App. A GDC 10 GDC 20 GDC 25	Acceptable	
2.b.	10CFR50 App. A GDC 10 GDC 20 GDC 25	Acceptable	
2.c.		N/A	Applies only to BWR.
SRP 15.4.2 - Uncontrolled Control Rod Assembly Withdrawal At Power (Rev. 2, 7/81)			
2.a.	10CFR50 App. A GDC 10, 20 & 25	Acceptable	
2.b.	10CFR50 App. A GDC 10, 20 & 25	Acceptable	
2.c.		N/A	Applies only to BWR.
SRP 15.4.3 - Control Rod Misoperation (System Malfunction or Operator Error) (Rev. 2, 7/81)			
2.a.	10CFR50 App. A GDC 10, 20 & 25	Exception	For Westinghouse PWR's the following rod cluster control assembly misoperation events could be postulated: a. One or more dropped RCCAs within the same group; b. A dropped RCCA bank; c. Statically misaligned RCCA; d. Withdrawal of a single RCCA. Events a, b & c are incidents of moderate frequency and meet the SRP criteria. The withdrawal of a single RCCA is considered by Westinghouse to be an Infrequent Fault. There is no single electrical or mechanical failure in the rod control system that could cause the accidental withdrawal of a single RCCA from the inserted bank. The operator

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			could withdraw a single RCCA in the control bank since this feature is necessary in order to retrieve an assembly should one be accidentally dropped. Multiple failures or multiple significant operator errors and subsequent and repeated operator disregard of indications are required to cause a single RCCA withdrawal incident. Thus, consistent with the philosophy and format of ANSI N18.2, the event is classified as a Condition III event. By definition "Condition III occurrences include incidents, any one of which may occur during the lifetime of a plant," and "shall not cause more than a small fraction of fuel elements in the reactor to be damaged ...." This classification is in accordance with GDC 25 which states "The protection system shall be designed to assure that specified acceptable fuel design limits are not exceeded for any single malfunction of the reactivity control systems, such as accidental withdrawal (not ejection or dropout) of control rods." Exception to this criteria has been reviewed and approved by the NRC staff for other Westinghouse operating plants with respect to the single RCCA withdrawal event.
2.b.	10CFR50 App. A	Acceptable	
2.c.		Acceptable	
SRP 15.4.4-15.4.5 - Startup of an Inactive Loop or Recirculation Loop at an Incorrect Temperature and Flow Controller Malfunction Causing an Increase in BWR Core Flow Rate (Rev. 1, 7/81)			
a.	ASME Section III 10CFR50 App. A GDC 15 & 28	Acceptable	
b.	10CFR50 App. A GDC 10, 20 & 26	Acceptable	
c.		Acceptable	
d.		Acceptable	
e.	R.G. 1.105	Acceptable	The technical specifications provide the margin from the nominal setpoint to the technical specification limit to account for drift when measured at the rack during periodic testing. The allowances between the technical specification limit and the safety limit include the following items: a) the inaccuracy of the instrument; b) process measurement accuracy;

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			c) uncertainties in the calibration; d) environmental effects on equipment accuracy caused by limiting postulated events (only for those systems required to mitigate consequences of an accident). The setpoints are chosen such that the accuracy of the instrument is adequate to meet the assumptions of the safety analysis. The instrumentation range is based on the span necessary for the associated function. Narrow range instruments are used where necessary. Instruments are selected based on expected environmental and accident conditions. The need for qualification testing is evaluated and justified on a channel-by-channel basis. Administrative procedures coupled with the present cabinet alarms and/or locks provide sufficient control over the setpoint adjustment mechanism such that no integral setpoint securing device is required. Integral setpoint locking devices are not supplied.
f.	10CFR50 App. A R.G. 1.53	Exception	Regulatory Guide 1.53 endorses IEEE Std. 379-72 which has been superseded by IEEE Std. 379-94. This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.53. The guidelines are applicable to safety-related dc power systems. There are no safety-related ac power sources in the AP1000.
SRP 15.4.6 - Chemical and Volume Control System Malfunction That Results in a Decrease in Boron Concentration in the Reactor Coolant (PWR) (Rev. 1, 7/81)			
1.	ASME Section III 10CFR50 App. A GDC 15	Acceptable	
2.	10CFR50 App. A GDC 10 & 26	Acceptable	
3.		Acceptable	
4.		Acceptable	
5.a.		Acceptable	
5.b.		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 15.4.7 - Inadvertent Loading and Operation of a Fuel Assembly in an Improper Position (Rev. 1, 7/81)			
a.		Acceptable	
b.		Acceptable	
SRP 15.4.8 - Spectrum of Rod Ejection Accidents (PWR) (Rev. 2, 7/81)			
a.	R.G. 1.77 10CFR50 App. A GDC 28	Acceptable	
b.	10CFR50 App. A GDC 28 R.G. 1.77	Acceptable	
c.	R.G. 1.77 App. B	Acceptable	
SRP 15.4.8, Appendix A - Radiological Consequences of a Control Rod Ejection Accident (PWR) (Rev. 1, 7/81)			
Paragraph 1	10CFR100	Acceptable	
Paragraph 2		Acceptable	
Paragraph 3	R.G. 1.77, App. B	Exception	Evaluation of radiological consequences of a control rod ejection accident follows the guidance of EPA Federal guidance reports 11 and 12 (EPA-520/1-88-020 and EPA-402-R-93-081).
SRP 15.4.9 - Spectrum of Rod Drop Accidents (Rev. 2, 7/81)			
		N/A	Applies only to BWR.
SRP 15.4.9, Appendix A - Radiological Consequences of Control Rod Drop Accident (Rev. 2, 7/81)			
		N/A	Applies only to BWR.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 15.5.1-15.5.2 - Inadvertent Operation of ECCS and Chemical and Volume Control System Malfunction That Increases Reactor Coolant Inventory (Rev. 1, 7/81)			
a.	ASME Section III 10CFR50 App. A GDC 15	Acceptable	
b.	10CFR50 App. A GDC 10 & 26	Acceptable	
c.		Acceptable	
d.		Acceptable	
e.	R.G. 1.105	Acceptable	
f.	10CFR50 App. A R.G. 1.53	Acceptable	
SRP 15.6.1 - Inadvertent Opening of a PWR Pressurizer Pressure Relief Valve or a BWR Pressure Relief Valve (Rev. 1, 7/81)			
a.	ASME Section III 10CFR50 App. A GDC 15	Acceptable	
b.	10CFR50 App. A GDC 10	Acceptable	
c.		Acceptable	
d.		Acceptable	
e.	R.G. 1.105	Acceptable	The technical specifications provide the margin from the nominal setpoint to the technical specification limit to account for drift when measured at the rack during periodic testing. The allowances between the technical specification limit and the safety limit include the following items: a) the inaccuracy of the instrument; b) process measurement accuracy; c) uncertainties in the calibration; d) environmental effects on equipment accuracy caused by limiting postulated events (only for those systems required to mitigate consequences of an accident). The setpoints are chosen such that the accuracy of the instrument is adequate to meet the assumptions of the safety analysis.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			The instrumentation range is based on the span necessary for the associated function. Narrow range instruments are used where necessary. Instruments are selected based on expected environmental and accident conditions. The need for qualification testing is evaluated and justified on a channel-by-channel basis. Administrative procedures coupled with the present cabinet alarms and/or locks provide sufficient control over the setpoint adjustment mechanism such that no integral setpoint securing device is required. Integral setpoint locking devices are not supplied.
f.	10CFR50 App. A R.G. 1.53	Acceptable	Regulatory Guide 1.53 endorses IEEE Std. 379-72 which has been superseded by IEEE Std. 379-94. This version is not endorsed by a regulatory guide but its use should not result in deviation from the design philosophy otherwise stated in Regulatory Guide 1.53. The guidelines are applicable to safety-related dc power systems. There are no safety-related ac power sources in the AP1000.
SRP 15.6.2 - Radiological Consequences of the Failure of Small Lines Carrying Primary Coolant Outside Containment (Rev. 2, 7/81)			
	10CFR100 R.G. 1.11	Acceptable	
SRP 15.6.3 - Radiological Consequences of Steam Generator Tube Failure (Rev. 2, 7/81)			
Paragraph 1	10CFR100 Sec. 11	Acceptable	
Paragraph 2	R.G. 1.4	Exception	The guidance in Regulatory Guide 1.4 A has been superseded by Regulatory Guide 1.183 See SRP 15.0.1 for AP1000 position.
SRP 15.6.4 - Radiological Consequences of Main Steam Line Failure Outside Containment (Rev. 2, 7/81)			
		N/A	Applies only to BWR.
SRP 15.6.5 - Loss-of-Coolant Accidents Resulting from Spectrum of Postulated Piping Breaks within the Reactor Coolant Pressure Boundary (Rev. 2, 7/81)			
1.	10 CFR Part 50 10 CFR 50.46	Acceptable	
	10CFR50 App. K	Exception	The September 17, 1988 Revision to 10CFR50.46 permits the use of best estimate Loss of Coolant Accident (LOCA) analyses which demonstrate that the emergency core cooling system design meets the licensing requirements. Westinghouse has developed a best

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
			estimate LOCA computer code, WCOBRA/TRAC, and applied it to the AP1000 large break LOCA analysis. WCOBRA/TRAC is also being used to analyze the ECCS performance of conventional PWRs. The small break LOCA analysis has been performed using the approved 10CFR50 Appendix K Evaluation Model computer code, NOTRUMP, as modified to represent the AP1000 passive safety systems. A small break LOCA calculation has also been performed using the best estimate WCOBRA/TRAC computer code and reported in the reference (a) AP1000 DCD.
2.	10 CFR Part 100	Acceptable	
3.	TMI Plan II.E.2.3	Exception	Testing of the passive safety systems (core makeup tanks, automatic depressurization system) demonstrate their capability to mitigate small break LOCA events. Modeling of pertinent phenomena observed during testing will be implemented in the LOCA analysis computer codes.
	TMI Plan II.K.2.8	N/A	For Babcock & Wilcox design auxiliary feedwater systems only.
	TMI Plan II.K.3.5	N/A	AP1000 includes an automatic reactor coolant pump trip.
	TMI Plan II.K.3.25	N/A	The AP1000 canned motor reactor coolant pumps do not possess seals, so no seal failure can possibly occur.
	TMI Plan II.K.3.40	N/A	The AP1000 canned motor reactor coolant pumps do not possess seals, so no seal failure can possibly occur.
	TMI Plan II.K.3.30	N/A	Use of best estimate LOCA analysis techniques is now permitted, the best estimate LOCA computer code(s) are validated against appropriate experimental data for the AP1000 plant design.
	TMI Plan II.K.3.31	N/A	
1.e		Acceptable	Applies only to the containment penetration valves.
1.f		Acceptable	Applies only to the containment penetration valves.
1.g, (1)		Acceptable	
1.g, (2)		Acceptable	
1.g, (3)		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
1.g, (4)		Acceptable	
1.g, (5)		Acceptable	
1.h		Acceptable	
1.i	10CFR 20.1(c)	Acceptable	
	R.G. 8.8, C.2.f(2)	Acceptable	
	R.G. 8.8, C.2.f(3)	Acceptable	

References:

a. AP1000 Design Control Document.

SRP 15.6.5, Appendix A - Radiological Consequences of a Design Basis Loss-of-Coolant Accident Including Containment Leakage Contribution (Rev. 1, 7/81)

The guidance in SRP 15.6.5 Appendix A has been superseded by SRP 15.0.1 See SRP 15.0.1 for AP1000 position

SRP 15.6.5, Appendix B - Radiological Consequences of a Design Basis Loss-of-Coolant Accident: Leakage From Engineered Safety Feature Components Outside Containment (Rev. 1, 7/81)

N/A — The AP1000 does not recirculate post-accident sump solution outside containment.

SRP 15.6.5, Appendix D - Radiological Consequences of a Design Basis Loss-of-Coolant Accident: Leakage From Main Steam Isolation Valve Leakage Control System (Rev. 1, 7/81)

N/A — Applies only to BWR.

SRP 15.7.3 - Postulated Radioactive Releases Due to Liquid-Containing Tank Failures (Rev. 2, 7/81)

1.	GDC 60	Acceptable	
2.	10CFR20	N/A	This criterion cannot be applied to a generic site since the analysis is dependent on the specific site's geological/hydrological characteristics.

SRP 15.7.4 - Radiological Consequences of Fuel Handling Accidents (Rev. 1, 7/81)

The guidance in SRP 15.1.5 Appendix A has been superseded by SRP 15.0.1. See SRP 15.0.1 for AP1000 position

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 15.7.5 - Spent Fuel Cask Drop Accidents (Rev. 2, 7/81)			
1.	10CFR100	N/A	See item 5 below.
2.	GDC 61	N/A	See item 5 below.
3.	R.G. 1.25	N/A	See item 5 below.
4.		N/A	See item 5 below.
5.		Exception	The spent fuel cask handling crane cannot move over spent fuel pool. Although cask lift height can exceed 30 feet, no determination of radiological consequences is required for the cask drop accident.
SRP 15.8 - Anticipated Transients Without SCRAM (Rev. 1, 7/81)			
a.	10CFR50 App. A GDC 10	N/A	SRP 15.8 contains interim criteria pending outcome of the commission rulemaking. Rulemaking resulted in 10CFR50.62 (July 1984) which AP1000 meets.
b.	10CFR50 App. A GDC 15	N/A	
c.	10CFR50 App. A GDC 26	N/A	
d.	10CFR50 App. A GDC 27	N/A	
e.	10CFR50 App. A GDC 29	N/A	
f.		N/A	Applies only to BWR.

16 TECHNICAL SPECIFICATIONS

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 16.0 - Technical Specifications (Rev. 1, 7/81)			
	NUREG-0452	Exception	The NRC Policy Statement (Federal Register, Vol. 52, No. 25, February 6, 1987) criteria was used to identify all structures, systems and parameters for which Limiting Conditions for Operation (LCOs) have been included in the AP1000 Technical Specifications. The content of the AP1000 Technical Specifications meets the 10CFR50.36 requirements and is generally consistent with the new Standard Technical Specifications, Draft NUREG-1431.

17 QUALITY ASSURANCE

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 17.1 - Quality Assurance During the Design and Construction Phase (Rev. 2, 7/81)			
		N/A	Superseded by SRP 17.3 for AP1000 design phase.
SRP 17.2 - Quality Assurance During the Operations Phase (Rev. 2, 7/81)			
		N/A	Not applicable to the design phase.
SRP 17.3 - Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (Rev. 0, 8/90)			
A.1.a		Acceptable	
A.1.b		Acceptable	
A.1.c		Acceptable	
A.1.d		Acceptable	
A.2.a		Acceptable	
A.2.b		Acceptable	
A.2.c		Acceptable	
A.2.d		Acceptable	
A.2.d (1)		Acceptable	
A.2.d (2)		Acceptable	
A.2.d (3)		Acceptable	
A.2.d (4)		Acceptable	
A.2.e (1)		Acceptable	
A.2.e (2)		Acceptable	
A.2.e (3)		Acceptable	
A.2.e (4)		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
A.3.a		Acceptable	
A.3.b		Acceptable	
A.3.c		Acceptable	
A.3.d		Acceptable	
A.3.e		Acceptable	
A.3.f		Acceptable	
A.4.a		Acceptable	
A.4.b		Acceptable	
A.5.a		Acceptable	
A.5.b		Acceptable	
A.5.c		Acceptable	
A.6.a		Acceptable	
A.6.b		Acceptable	
A.6.c		Acceptable	
A.6.d		Acceptable	
A.6.e		Acceptable	
A.7.a	10CFR Part 21	Acceptable	
	10CFR Part 50 Crit. 1 of App. A	Acceptable	
	10CFR Part 50 App. B	Acceptable	
	10CFR50.55 (a)	Acceptable	
	10CFR50.55 (e)	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
A.7.b	R.G. 1.8	N/A	Qualification and training of personnel for nuclear power plants is not applicable to design certification. This is the Combined License applicant's responsibility.
	R.G. 1.26	Exception	Exceptions are taken to Criteria Sections C.1.a, C.1.b, and C.3 as described in Appendix 1A of the referenced (a) DCD. Criteria Sections C.1.c, C.2.d, and C.2.e are not applicable as described in Appendix 1A of the referenced (a) DCD. AP1000 position is acceptable for the other criteria sections.
	R.G. 1.28	Exception	The Westinghouse quality assurance program is described in Chapter 17 of the (Reference a) DCD.
	R.G. 1.29	Exception	Exceptions are taken to Criteria Sections C.1.d, C.1.g, and C.1.n as described in Appendix 1A of (Reference a) DCD. Criteria Sections C.1.e and C.1.i are not applicable as described in Appendix 1A of the (Reference a) DCD. AP1000 position is acceptable for all other criteria sections.
	R.G. 1.33	N/A	QA program requirements for operation do not apply to design certification. This is the Combined License applicant's responsibility.
	R.G. 1.152	Acceptable	
	Generic letter89-02 and endorsement of EPRI NP-5652	Acceptable	
A.7.c	Branch Technical Position CMEB 9.5-1 (Regulatory Positions 2 and 4)	Acceptable	
	R.G. 1.143	Exception	Exceptions are taken to Criteria Sections C.5.1.1, C.5.1.2, C.5.2.1, C.5.2.4, and C.5.2.6 as described in Appendix 1A of the (Reference a) DCD. AP1000 position is acceptable for all other.
	R.G. 1.36	Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
	R.G. 1.54	Exception	Coatings meet ASTM Standards in lieu of ANSI N101.4. Coatings inside containment include nonsafety-related and safety-related coatings. Application of coatings is controlled by procedures using qualified personnel to provide a high quality product.
	R.G. 2.5	N/A	QA program requirements for research reactors do not apply to design certification.
	R.G. 3.3	N/A	QA program requirements for fuel reprocessing plants and for plutonium processing and fuel fabrication plants do not apply to design certification.
	R.G. 3.21	N/A	QA requirements for protective coatings applied to fuel reprocessing and to plutonium processing and fuel fabrication plants do not apply to design certification.
	R.G. 4.15	N/A	QA requirements for radiological monitoring programs (normal operation) effluent streams and the environment do not apply to design certification.
	R.G. 7.10	Acceptable	
A.7.d	ASME Section III	Acceptable	Except for the AP1000 positions identified in Criteria Section A.7.b.
A.7.e	10CFR50.54 (a) (3) 10CFR50.55 (f) (3)	Acceptable	
B.1.a		Acceptable	
B.1.b		Acceptable	
B.1.c		Acceptable	
B.1.d		Acceptable	
B.2.a		Acceptable	
B.2.b		Acceptable	
B.2.c		Acceptable	
B.2.d		Acceptable	
B.2.e		Acceptable	
B.2.f		Acceptable	
B.2.g		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
B.2.h		Acceptable	
B.3.a		Acceptable	
B.3.b		Acceptable	
B.3.c		Acceptable	
B.3.d		Acceptable	
B.3.e		Acceptable	
B.3.f		Acceptable	
B.4.a		Acceptable	
B.4.b		Acceptable	
B.4.c		Acceptable	
B.4.d		Acceptable	
B.4.e		Acceptable	
B.4.f		Acceptable	
B.4.g		Acceptable	
B.4.h		Acceptable	
B.4.i		Acceptable	
B.5.a		Acceptable	
B.5.b		Acceptable	
B.6.a		Acceptable	
B.6.b		Acceptable	
B.7.a		Acceptable	
B.7.b		Acceptable	
B.7.c		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
B.7.d		Acceptable	
B.8.a		Acceptable	
B.8.b		Acceptable	
B.8.c		Acceptable	
B.8.d		Acceptable	
B.8.e		Acceptable	
B.8.f		Acceptable	
B.9.a		Acceptable	
B.9.b		Acceptable	
B.9.c		Acceptable	
B.9.d		Acceptable	
B.9.e		Acceptable	
B.9.f		Acceptable	
B.9.g		Acceptable	
B.10.a		Acceptable	
B.10.b		Acceptable	
B.11.a		Acceptable	
B.11.b		Acceptable	
B.11.c		Acceptable	
B.12.a		Acceptable	
B.12.b		Acceptable	
B.12.c		Acceptable	
B.12.d		Acceptable	

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
B.12.e		Acceptable	
B.13.a		Acceptable	
B.13.b		Acceptable	
B.14.a		Acceptable	
B.14.b		Acceptable	
B.14.c		Acceptable	
B.14.d		Acceptable	
B.14.e		Acceptable	
B.15.a		Acceptable	
B.15.b		Acceptable	
C.1.a		Acceptable	
C.1.b		Acceptable	
C.1.c		Acceptable	
C.1.d		Acceptable	
C.2.a		Acceptable	
C.2.b		Acceptable	
C.2.c		Acceptable	
C.2.d		Acceptable	
C.2.e		Acceptable	
C.2.f		Acceptable	
C.2.g		Acceptable	
C.2.h		Acceptable	

References:

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
a.	AP1000 Design Control Document.		

18 HUMAN FACTORS ENGINEERING

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 18.0 - Human Factors Engineering - Introduction (Rev. 1, 9/84)			
		N/A	No criteria are provided in SRP Section 18.0.
SRP 18.1 - Control Room (Rev. 0, 9/84)			
A.	NUREG-0660 Item I.D.1	N/A	Only applicable to existing control rooms or already designed control rooms. Design features have excluded specific design requirements i.e., SPDS functions is an integrated part of the AP1000 control room design.
B.	GDC 19	Acceptable	
	NUREG-0700, App. B	Acceptable	
SRP 18.1, Appendix A - Evaluation Criteria for Detailed Control Room Design Reviews (Rev. 0, 9/84)			
NOTE: The criteria for Detailed Control Room Design Reviews (DCRDR) will be implemented in the AP1000 control room.			
1.1(1)		N/A	Design features have excluded specific design requirements (i.e., SPDS functions will be part of main control room information system.
1.1(2)		N/A	Only applicable to existing control rooms or already designed control rooms.
1.1(3)		N/A	This effort is a function of the output of task 1.1(2).
1.1(4)		N/A	This effort is a function of the output of task 1.1(2).
1.2	NUREG-0737 Supp. 1	Acceptable	The AP1000 M-MIS integrates all the emergency response capability.
1.3	NUREG-0700	Exception	The AP1000 will not have one major DCRDR, rather a Man-Machine Interface Systems team will be an integral part of the entire control centers design process. Human engineering deficiencies will be identified and corrected during the design process. Verification and validation testing will provide the final phase of control room verification.

Criteria Section	Reference Criteria	AP1000 Position	Comments/Summary of Exceptions
SRP 18.2 - Safety Parameter Display System (SPDS) (Rev. 0, 11/84)			
		Exception	The AP1000 does not have a separate Safety Parameter Display System (SPDS). Safety Parameter Display System requirements are integrated into the overall human system interface design to avoid the need for another system that is infrequently used. The Safety Parameter Display System is discussed in subsection 18.8.2. The human system interface design addresses the regulatory requirements for the Safety Parameter Display System included in 10 CFR 50.34 (f) (2) (iv) and NUREG-0737, Supplement 1.
SRP 18.2, Appendix A - Human Factors Review Guidelines for The Safety Parameter Display System (SPDS) (Rev. 0, 11/84)			
		Exception	Section 5 of NUREG-0696 presents the need for human-factors engineering in the design of the Safety Parameter Display System. The Safety Parameter Display System is designed using the implementation plan described in subsection 18.8.1. This implementation plan includes the application of human factors engineering principles that address the criteria of the Human Factors Engineering Program Review Model (NUREG-0711).