



NuStart<sub>sm</sub> Energy

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July 17, 2006

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

SUBJECT: NuStart Bellefonte COL Project - NRC Project No. 740  
Response to RIS 2006-06, New Reactor Standardization Needed  
to Support the Design-Centered Licensing Review Approach

REFERENCE: NRC Regulatory Issue Summary 2006-06, *New Reactor  
Standardization Needed to Support the Design-Centered Licensing  
Review Approach*; dated May 31, 2006

In the reference Regulatory Issue Summary (RIS), the Nuclear Regulatory Commission (NRC) indicated that it is developing its resource estimates and project plan for a Design Centered Review Approach (DCRA) strategy. To support this effort, the NRC identified several specific schedule and standardization information items that would be useful in their preparation.

The NuStart members support and endorse the DCRA proposed by the NRC. Responses to the specific bulleted items from the RIS are provided in Enclosure 1 for the Bellefonte COL Project, which has been identified in previous communications as the AP1000 Reference Plant (R-COL). As indicated in the enclosure, this information has been coordinated with the other declared AP1000 applicants known to NuStart as of the date of this letter (each of whom is a NuStart member).

If you have any questions, please contact Peter Hastings at (980) 373-7820 or at [pshastings@duke-energy.com](mailto:pshastings@duke-energy.com).

Sincerely,

Marilyn C. Kray  
President

Enclosures: 1) Response to RIS 2006-06  
2) AP1000 Standardization Matrix

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cc: W. D. Beckner, NRC/NRR.  
J. A. Bailey, TVA  
S. D. Bloom, NRC/NRR  
J. A. Calvo, NRC/NRR  
S. M. Coffin, NRC/NRR  
G. W. Curtis, TVA Licensing Lead  
S. P. Frantz, Esq., Morgan Lewis & Bockius  
P. S. Hastings, NuStart AP1000 Reference Plant Licensing Lead  
D. B. Matthews, NRC/NRR  
T. P. Miller, DOE  
T. P. Mundy, NuStart Project Manager  
R. A. Reister, DOE  
J. L. Starefos, NRC/NRR  
A. L. Sterdis, Westinghouse  
W. D. Travers, NRC/RII  
G. A. Zinke, NuStart Licensing Lead

**Enclosure 1**  
**Bellefonte Project Response to NRC RIS 2006-06**  
**New Reactor Standardization Needed to Support the**  
**Design-Centered Licensing Review Approach**

Each RIS 2006-06 information request is addressed below. The information provided in response to the request has been coordinated with the other prospective AP1000 applicants known to NuStart as of the date of this letter, each of whom is a NuStart member, as listed below (each project refers to a two-unit application):

- TVA Bellefonte (identified previously as the AP1000 Reference Plant);
- Duke Energy Lee Nuclear Project;
- Progress Energy Harris Project and Florida site to be announced;
- SCE&G Summer Project; and
- Southern Company Vogtle Project.

Information Request #1: Whether applicants for the four designs discussed in this RIS will be organized into design-centered working groups (DCWGs); if so, the schedule for such organization and, if a single point of contact is designated for the DCWG, the contact's identity.

Response: NuStart Energy intends to submit a combined license application for two new reactors of the AP1000 design. The companies currently identified as also having intent to submit a combined license application for the AP1000 design have organized into a DCWG in collaboration with Westinghouse and supporting COL contractors, as discussed with the NRC Staff previously.

Peter Hastings of Duke Energy has been identified as the AP1000 Reference Plant Licensing Lead for NuStart and NRC point of contact for the AP1000 DCWG.

Information Request #2: If a design-centered program is followed for a particular design, which applicant referencing the design will be designated as the R-COL applicant. In addition, when will (month and year) each of the COL applications be submitted for review?

Response: For the new reactors of the AP1000 design, the reference combined license (R-COL) applicant will be the Bellefonte Project, as discussed with the NRC Staff previously (each currently declared AP1000 applicant is a member of NuStart). The Bellefonte Project COL application is scheduled for submittal in October 2007. The Bellefonte Project COL application is expected to be the earliest COL application for the AP1000 design. This date is, however, dependent on several key assumptions:

- a) design information approved as part of the certified design is treated by the NRC Staff as final and sufficient for design issues;
- b) the approved DG-1145 (COL application guidance currently being developed) is finalized in a timely fashion and in a manner consistent with stakeholder discussions in recent workshops (the industry is consistently supporting the NRC DG-1145 workshops

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and providing comments and feedback so that the industry understands the information needs for a complete, high-quality COL application); and

- c) the acceptance criteria of the NRC standard review plan sections will also be revised consistent with the industry's understanding (following the DG-1145 discussions and feedback) of the information needs.

Changes to this schedule (e.g., as a result of changes in the assumptions above or additional detailed planning) will be communicated promptly to the NRC Staff.

Information Request #3: Whether applicants implementing the DCRA intend to provide RAI responses within the typical 30-day period.

Response: Based on experience with other licensing actions, we acknowledge that there can be significant variability in the level of effort needed to provide a complete and quality response to an RAI. We also recognize the need for NRC planning purposes to assume a response time to a "typical" RAI. Importantly, the distinct benefit of working with a "standardized" design comes with the need for a sometimes significant consensus process, which will extend, by necessity, any "typical" response period.

Accordingly, the Bellefonte Project expects to provide responses to most standard-content RAIs within a 45-day period, and most site-specific content within a 30-day period. RAIs requiring substantial new evaluation or analysis, or consisting of a substantial number of questions, obviously will require longer periods. Further, a typical 30- or 45-day period would be contingent on timely, effective pre-request discussions between NRC, applicant, and/or industry representatives so that the information needs included within the RAIs are well understood (similar to the process utilized on the three original ESP application reviews and on recent DC application reviews). At the time of such pre-request discussions, exceptions to the typical response time will be discussed so as to establish a mutually acceptable due date.

Information Request #4: To what degree standardization will be achieved, appropriately documented, and replicated in COL applications. Specifically, what portions of the R-COL application (chapter by chapter, section by section, subsection by subsection) will be standardized (i.e., replicated verbatim) in S-COL applications and what portions of the application are likely to be site-specific.

Response: The NuStart members support and endorse the design-centered review approach proposed by the NRC. Standardization is expected to be substantial for the AP1000 COL applications. The exact scope of standardization is still under review and is somewhat dependent on discussions with NRC staff over the next several months. The current AP1000 standardization matrix (on a subsection-by-subsection basis) is enclosed. This document is

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subject to modifications as the development of actual COL application material progresses, but is being provided as a basis for future discussions with the NRC later this year.

The Bellefonte Project expects to identify (document) standardized material so that the NRC is aware of the appropriate utilization of the “one issue, one review, one position” strategy. However, details of the method of identification for the standardized material are currently being determined. The Bellefonte Project intends to incorporate standardized material to the full extent practical.

Information Request #5: Whether, for each design-centered program, the vendor and applicants intend to submit pre-application topical reports for staff review. If so, how many? For each such report anticipated, please summarize the report scope and content and the proposed submittal schedule.

Response: The AP1000 DCWG does intend to submit pre-application topical reports for Staff review. The intended near-term pre-application topical reports were identified by a May 26, 2006, NuStart letter from Peter Hastings to Stephanie Coffin, “NuStart Bellefonte COL Project - NRC Project No. 740, AP-1000 Pre-Application Submittals” (and subsequent status updates). Additional standardized items are also being considered by the DCWG but have not yet been finalized. Information concerning such submittals will be coordinated with the NRC Staff in advance to facilitate planning and resource allocation.

Information Request #6: Whether any applicants intend to apply for an ESP prior to submitting their COL applications. If so, when (month and year) would the proposed ESP be submitted to the NRC for review?

Response: The Bellefonte Project does not intend to apply for an early site permit (ESP) prior to submitting the COL application.

**Enclosure 2**  
**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
<b>Part 1</b>	<b>General and Administrative Information</b>				
	General Information		X		
	Financial Information		X		
	Other Information		X		
<b>Part 2</b>	<b>Final Safety Analysis Report</b>				
<b>1.1</b>	<b>Introduction</b>		X		
1.1.1	Plant Location			X	
1.1.2	Containment Type	X			No change to DCD content anticipated.
1.1.3	Reactor Type	X			No change to DCD content anticipated.
1.1.4	Power Output	X			No change to DCD content anticipated.
1.1.5	Schedule			X	
1.1.6	Format and Content	X			
1.1.7	Combined License Information			X	
<b>1.2</b>	<b>General Plant Description</b>		X		
1.2.1	Design Criteria, Operating Characteristics, and Safety Considerations	X			No change to DCD content anticipated.
1.2.2	Site Description			X	
1.2.3	Plant Arrangement Description		X		No change to DCD content anticipated.
1.2.4	Nuclear Island		X		No change to DCD content anticipated.
1.2.5	Annex Building		X		No change to DCD content anticipated.
1.2.6	Diesel Generator Building		X		No change to DCD content anticipated.
1.2.7	Radwaste Building		X		No change to DCD content anticipated.
1.2.8	Turbine Building		X		No change to DCD content anticipated.
1.2.9	Combined License Information				
<b>1.3</b>	<b>Comparisons With Similar Facility Designs</b>	X			
<b>1.4</b>	<b>Identification of Agents and Contractors</b>		X		
1.4.1	Applicant – Program Manager		X		

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		Standard	Standard with Site Specific	Site Specific	
1.4.2	Other Contractors and Participants		X		
1.4.3	Combined License Information		X		
<b>1.5</b>	<b>Requirements for Further Technical Information</b>	X			No change to this section anticipated.
1.5.1	AP600 Safety-Related Tests	X			
1.5.2	AP600 Component Design Tests	X			
1.5.3	Combined License Information	X			
1.5.4	References	X			
<b>1.6</b>	<b>Material Referenced (AP1000)</b>		X		
				X	
<b>1.7</b>	<b>Drawings and Other Detailed Information</b>			X	Potential changes needed for site-specific drawings and drawing conventions/symbols.
1.7.1	Electrical and Instrumentation and Control Drawings			X	
1.7.2	Piping and Instrumentation Diagrams			X	
1.7.3	Combined License Information				
<b>1.8</b>	<b>Interfaces for Standard Design</b>		X		
<b>1.9</b>	<b>Conformance With Regulatory Criteria</b>		X		
1.9.1	Regulatory Guides		X		
1.9.2	Compliance With Standard Review Plan (NUREG-0800)		X		
1.9.3	Three Mile Island Issues	X			
1.9.4	Unresolved Safety Issues and Generic Safety Issues	X			
1.9.5	Advanced Light Water Reactor Certification Issues		X		
1.9.6	References			X	Applicant to provide site-specific references.
<b>1A</b>	<b>Conformance With Regulatory Guides</b>	X			No change to DCD content anticipated.

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		Standard	Standard with Site Specific	Site Specific	
1A.1	References	X			
<b>1B</b>	<b>Severe Accident Mitigation Design Alternatives</b>				
1B.1	AP1000 SAMDA Evaluation				
1B.2	References				
<b>2.0</b>	<b>Site Characteristics</b>			X	
2.1	Geography and Demography			X	
2.2	Nearby Industrial, Transportation and Military Facilities			X	
2.3	Meteorology			X	
2.4	Hydrology			X	
2.5.1	Basic Geologic and Seismic Information			X	
2.5.2	Vibratory Ground Motion			X	
2.5.3	Surface Faulting			X	
2.5.4	Stability of Subsurface Materials and Foundations			X	
2.5.5	Stability of Slopes			X	
2.5.6	Embankments and Dams			X	
<b>3.0</b>	<b>Design of Structures, Components, Equipment, and Systems</b>				
3.1	Conformance with Nuclear Regulatory Commission General Design Criteria	X			No change to DCD content anticipated.
3.1.1 <sup>a</sup>	Overall Requirements	X			No change to DCD content anticipated.
3.1.2 <sup>a</sup>	Protection by Multiple Fission Product Barriers	X			No change to DCD content anticipated.
3.1.3 <sup>a</sup>	Protection and Reactivity Control Systems	X			No change to DCD content anticipated.



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		Standard	Standard with Site Specific	Site Specific	
3.1.4 <sup>a</sup>	Fluid Systems	X			No change to DCD content anticipated.
3.1.5 <sup>a</sup>	Reactor Containment	X			No change to DCD content anticipated.
3.1.6 <sup>a</sup>	Fuel and Reactivity Control	X			No change to DCD content anticipated.
3.1.7	Combined License Information	X			No change to DCD content anticipated.
3.1.8	References	X			No change to DCD content anticipated.
3.2	Classification of Structures, Components, and Systems		X		
3.2.1	Seismic Classification	X			No change to DCD content anticipated.
3.2.2	AP1000 Classification System	X			
	Table 3.2-3			X	Applicant to provide site-specific changes or additions related to circulating water and others as applicable.
3.2.3	Inspection Requirements	X			No change to DCD content anticipated.
3.2.4	Application of AP1000 Safety-Related Equipment and Seismic Classification System	X			No change to DCD content anticipated.
3.2.5	Combined License Information	X			No change to DCD content anticipated.
3.2.6	References	X			No change to DCD content anticipated.
3.3	Wind and Tornado Loadings		X		
3.3.1	Wind Loadings			X	Since this addresses design wind loadings selected based on the most severe location in accordance with the applicable standard, this section should be primarily specific to Rx technology; however, comparison of the design vs. site-specific loadings should be presented.
3.3.2	Tornado Loadings	X			
3.3.3	Combined License Information	X			

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		Standard	Standard with Site Specific	Site Specific	
3.3.4	References		X		
3.4	Water Level (Flood) Design		X		Applicants will need to modify Section 3.4 if the site design incorporates features to prevent site flooding above the site interface criteria.
3.4.1	Flood Protection		X		
3.4.2	Analytical and Test Procedures	X			No change to DCD content anticipated.
3.4.3	Combined License Information Items		X		
3.4.4	References		X		
3.5	Missile Protection		X		
3.5.1	Missile Selection and Description		X		Plant specific turbine system maintenance program and probability calculations of turbine missile generation may be needed.
3.5.2	Structures, Systems, and Components To Be Protected from Externally Generated Missiles	X			No change to DCD content anticipated.
3.5.3	Barrier Design Procedures	X			No change to DCD content anticipated.
3.5.4	Combined License Information Items			X	
3.6	Protection Against Dynamic Effects Associated With the Postulated Rupture of Piping	X			
3.6.1	Postulated Piping Failures in Fluid Systems Outside of Containment	X			
3.6.2	Determination of Break Locations and Dynamic Effects Associated with the Postulated Rupture of Piping	X			No change to DCD content anticipated.
3.6.3	Leak-before-Break Evaluation Procedures	X			
3.7	Seismic Design	X			

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		Standard	Standard with Site Specific	Site Specific	
3.7.1	Seismic Input	X			Applicant to confirm the site-specific seismic inputs are bounded by the AP 1000 seismic design.
3.7.1.4		X			
3.7.2	Seismic System Analysis	X			
3.7.3	Seismic Subsystem Analysis	X			
3.7.4	Seismic Instrumentation	X			
3.7.5	Combined License Information	X			
3.7.6	References	X			
3.8	<b>Design of Category I Structures</b>	X			
3.8.1	Concrete Containment	X			
3.8.2	Steel Containment	X			
3.8.3	Concrete and Steel Internal Structures of Steel Containment	X			No change to DCD content anticipated.
3.8.4	Other Category I Structures	X			No change to DCD content anticipated.
3.8.5	Foundations	X			
3.8.6	Combined License Information	X			
3.8.7	References	X			
3.9	<b>Mechanical Systems and Components</b>	X			
3.9.1	Special Topics for Mechanical Components	X			
3.9.2	Dynamic Testing and Analysis	X			
3.9.3	ASME Code Classes 1, 2, and 3 Components, Component Supports, and Core Support Structures	X			
3.9.4	Control Rod Drive System (CRDS)	X			
3.9.5	Reactor Pressure Vessel Internals	X			
3.9.6	Inservice Testing of Pumps and Valves	X			
3.9.7	Integrated Head Package	X			

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		Standard	Standard with Site Specific	Site Specific	
3.9.8	Combined License Information	X			
3.9.9	References	X			
<b>3.10</b>	<b>Seismic and Dynamic Qualification of Seismic Category I Mechanical and Electrical Equipment</b>	X			
3.10.1	Seismic and Dynamic Qualification Criteria	X			No change to DCD content anticipated.
3.10.2	Methods and Procedures for Qualifying Electrical Equipment, Instrumentation, and Mechanical Components	X			
3.10.3	Method and Procedures for Qualifying Supports of Electrical Equipment, Instrumentation, and Mechanical Components	X			No change to DCD content anticipated.
3.10.4	Documentation	X			
3.10.5	Standard Review Plan Evaluation	X			
3.10.6	Combined License Information Item on Experienced-Based Qualification	X			
3.10.7	References	X			
<b>3.11</b>	<b>Environmental Qualification of Mechanical and Electrical Equipment</b>	X			
3.11.1	Equipment Identification and Environmental Conditions	X			
3.11.2	Qualification Tests and Analysis	X			
3.11.3	Loss of Ventilation	X			
3.11.4	Estimated Radiation and Chemical Environment	X			
3.11.5	Combined License Information Item for Equipment Qualification File	X			
3.11.6	References	X			
<b>3A</b>	<b>HVAC Ducts and Supports</b>	X			

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		Standard	Standard with Site Specific	Site Specific	
3B	Leak-Before-Break Evaluation of the AP1000 Piping	X			
3C	Reactor Coolant Loop Analysis Methods	X			
3D	Methodology for Qualifying AP1000 Safety-Related Electrical and Mechanical Equipment	X			
3E	High-Energy Piping in the Nuclear Island	X			
3F	Cable Trays and Cable Tray Supports	X			
3G	Not Used	X			
3H	Auxiliary and Shield Building Critical Sections	X			
4.0	Reactor				
4.1	Summary Description	X			No change to DCD content anticipated.
4.1.1	Principal Design Requirements	X			No change to DCD content anticipated.
4.1.2	Combined License Information	X			No change to DCD content anticipated.
4.1.3	References	X			No change to DCD content anticipated.
4.2	Fuel System Design	X			
4.2.1	Design Basis	X			
4.2.2	Description and Design Drawings	X			
4.2.3	Design Evaluation	X			
4.2.4	Testing and Inspection Plan	X			
4.2.5	Combined License Information	X			
4.2.6	References	X			
4.3	Nuclear Design	X			
4.3.1	Design Basis	X			
4.3.2	Description	X			
4.3.3	Analytical Methods	X			
4.3.4	Combined License Information	X			

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		Standard	Standard with Site Specific	Site Specific	
4.3.5	References	X			
4.4	<b>Thermal and Hydraulic Design</b>	X			
4.4.1	Design Basis	X			
4.4.2	Description of Thermal and Hydraulic Design of the Reactor Core	X			
4.4.3	Description of the Thermal and Hydraulic Design of the Reactor Coolant System	X			
4.4.4	Evaluation	X			
4.4.5	Testing and Verification	X			
4.4.6	Instrumentation Requirements	X			
4.4.7	Combined License Information	X			
4.4.8	References	X			
4.5	<b>Reactor Materials</b>	X			
4.5.1	Control Rod and Drive System Structural Materials	X			
4.5.2	Reactor Internal and Core Support Materials	X			
4.5.3	Combined License Information	X			
4.6	<b>Functional Design of Reactivity Control Systems</b>	X			No change to DCD content anticipated.
4.6.1	Information for Control Rod Drive System	X			No change to DCD content anticipated.
4.6.2	Evaluations of the Control Rod Drive System	X			No change to DCD content anticipated.
4.6.3	Testing and Verification of the Control Rod Drive System	X			No change to DCD content anticipated.
4.6.4	Information for Combined Performance of Reactivity Systems	X			No change to DCD content anticipated.
4.6.5	Evaluation of Combined Performance	X			No change to DCD content anticipated.
4.6.6	Combined License Information	X			No change to DCD content anticipated.

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		Standard	Standard with Site Specific	Site Specific	
<b>5.0</b>	<b>Reactor Coolant and Connected Systems</b>				
<b>5.1</b>	<b>Summary Description</b>	X			No change to DCD content anticipated.
5.1.1	Design Bases	X			No change to DCD content anticipated.
5.1.2	Design Description	X			No change to DCD content anticipated.
5.1.3	System Components	X			No change to DCD content anticipated.
5.1.4	System Performance Characteristics	X			No change to DCD content anticipated.
5.1.5	Combined License Information	X			No change to DCD content anticipated.
<b>5.2</b>	<b>Integrity of Reactor Coolant Pressure Boundary</b>	X			
5.2.1	Compliance with Codes and Code Cases	X			Assumes that ASME code edition, Addenda and use of code cases are common for all applicants.
5.2.2	Overpressurization Protection	X			No change to DCD content anticipated.
5.2.3	Reactor Coolant Pressure Boundary Materials	X			No change to DCD content anticipated.
5.2.4	Inservice Inspection and Testing of Class 1 Components	X			Assumes that ASME code edition, Addenda and use of code cases are common for all applicants.
5.2.5	Detection of Leakage Through Reactor Coolant Pressure Boundary	X			No change to DCD content anticipated.
5.2.6	Combined License Information Items	X			
5.2.7	References	X			
<b>5.3</b>	<b>Reactor Vessels</b>	X			
5.3.1	Reactor Vessel Design	X			No change to DCD content anticipated.
5.3.2	Reactor Vessel Materials	X			Subsequent to COL submittal, applicant to provide fracture toughness data based on verified Rx vessel material properties following procurement and manufacture.

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		Standard	Standard with Site Specific	Site Specific	
5.3.3	Pressure-Temperature Limits	X			Subsequent to COL submittal, applicant to generate final PT curves based on verified Rx vessel material properties following procurement and manufacture.
5.3.4	Reactor Vessel Integrity	X			Pressurized Thermal Shock verification to be submitted following fabrication of the Rx vessel.
5.3.5	Reactor Vessel Insulation	X			
5.3.6	Combined License Information	X			
5.3.7	References	X			
5.4	<b>Component and Subsystem Design</b>	X			
5.4.1	Reactor Coolant Pump Assembly	X			
5.4.2	Steam Generators	X			
5.4.3	Reactor Coolant System Piping	X			No change to DCD content anticipated.
5.4.4	Main Steam Line Flow Restriction	X			No change to DCD content anticipated.
5.4.5	Pressurizer	X			
5.4.6	Automatic Depressurization System Valves	X			
5.4.7	Normal Residual Heat Removal System	X			
5.4.8	Valves	X			
5.4.9	Reactor Coolant System Pressure Relief Devices	X			No change to DCD content anticipated.
5.4.10	Component Supports	X			No change to DCD content anticipated.
5.4.11	Pressurizer Relief Discharge	X			No change to DCD content anticipated.
5.4.12	Reactor Coolant System High Point Vents	X			No change to DCD content anticipated.
5.4.13	Core Makeup Tank	X			No change to DCD content anticipated.
5.4.14	Passive Residual Heat Removal Heat Exchanger	X			No change to DCD content anticipated.
5.4.15	Combined License Information	X			
5.4.16	References	X			



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		Standard	Standard with Site Specific	Site Specific	
<b>6.0</b>	<b>Engineered Safety Features</b>				
<b>6.1</b>	<b>Engineered Safety Features Materials</b>	X			
6.1.1	Metallic Materials	X			
6.1.2	Organic Materials	X			
6.1.3	Combined License Information Items	X			
6.1.4	References	X			
<b>6.2</b>	<b>Containment Systems</b>	X			
6.2.1	Containment Functional Design	X			No change to DCD content anticipated.
6.2.2	Passive Containment Cooling System	X			No change to DCD content anticipated.
6.2.3	Containment Isolation System	X			No change to DCD content anticipated.
6.2.4	Containment Hydrogen Control System	X			
6.2.5	Containment Leak Rate Test System	X			
6.2.6	Combined License Information for Containment Leak Rate Testing	X			No change to DCD content anticipated.
6.2.7	References	X			
<b>6.3</b>	<b>Passive Core Cooling System</b>	X			
6.3.1	Design Basis	X			No change to DCD content anticipated.
6.3.2	System Design	X			
6.3.3	Performance Evaluation	X			No change to DCD content anticipated.
6.3.4	Post-72 Hour Actions	X			No change to DCD content anticipated.
6.3.5	Limits on System Parameters	X			No change to DCD content anticipated.
6.3.6	Inspection and Testing Requirements	X			No change to DCD content anticipated.
6.3.7	Instrumentation Requirements	X			No change to DCD content anticipated.
6.3.8	Combined License Information	X			
6.3.9	References	X			
<b>6.4</b>	<b>Habitability Systems</b>		X		
6.4.1	Safety Design Basis		X		
6.4.2	System Description		X		

**Enclosure 2**  
**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
6.4.3	System Operation		X		
6.4.4	System Safety Evaluation		X		
6.4.5	Inservice Inspection/Inservice Testing	X			
6.4.6	Instrumentation Requirements		X		
6.4.7	Combined License Information		X		
6.4.8	References		X		
6.5	<b>Fission Product Removal and Control Systems</b>	X			No change to DCD content anticipated.
6.5.1	Engineered Safety Feature (ESF) Filter Systems	X			No change to DCD content anticipated.
6.5.2	Containment Spray System	X			No change to DCD content anticipated.
6.5.3	Fission Product Control Systems	X			No change to DCD content anticipated.
6.5.4	Combined License Information	X			No change to DCD content anticipated.
6.5.5	References	X			No change to DCD content anticipated.
6.6	<b>Inservice Inspection of Class 2 and 3 Components</b>		X		
6.6.1	Components Subject to Examination	X			
6.6.2	Accessibility	X			
6.6.3	Examination Techniques and Procedures	X			
6.6.4	Inspection Intervals	X			
6.6.5	Examination Categories and Requirements	X			
6.6.6	Evaluation of Examination Results	X			
6.6.7	System Pressure Tests	X			
6.6.8	Augmented Inservice Inspection to Protect against Postulated Piping Failures		X		
6.6.9	Combined License Information Items		X		
6A	<b>Fission Product Distribution in the AP1000 Post-Design Basis Accident Containment Atmosphere</b>	X			

**Enclosure 2**  
**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
<b>7.0</b>	<b>Instrumentation and Controls</b>				
<b>7.1</b>	<b>Introduction</b>	X			
7.1.1	The AP1000 Instrumentation and Control Architecture	X			
7.1.2	Protection and Safety Monitoring System	X			
7.1.3	Plant Control System	X			
7.1.4	Identification of Safety Criteria	X			
7.1.5	AP1000 Protective Functions	X			
7.1.6	Combined License Information	X			
7.1.7	References	X			
<b>7.2</b>	<b>Reactor Trip</b>	X			
7.2.1	Description	X			
7.2.2	Analyses	X			
7.2.3	Combined License Information	X			
7.2.4	References	X			
<b>7.3</b>	<b>Engineered Safety Features</b>	X			No change to DCD content anticipated.
7.3.1	Description	X			No change to DCD content anticipated.
7.3.2	Analysis for Engineered Safety Features Actuation	X			No change to DCD content anticipated.
7.3.3	Combined License Information	X			No change to DCD content anticipated.
7.3.4	References	X			No change to DCD content anticipated.
<b>7.4</b>	<b>Systems Required for Safe Shutdown</b>	X			No change to DCD content anticipated.
7.4.1	Safe Shutdown	X			No change to DCD content anticipated.
7.4.2	Safe Shutdown Systems	X			No change to DCD content anticipated.
7.4.3	Safe Shutdown from Outside the Main Control Room	X			No change to DCD content anticipated.
7.4.4	Combined License Information	X			No change to DCD content anticipated.
7.4.5	References	X			No change to DCD content anticipated.

**Enclosure 2**  
**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
<b>7.5</b>	<b>Safety-Related Display Information</b>	X			No change to DCD content anticipated.
7.5.1	Introduction	X			No change to DCD content anticipated.
7.5.2	Variable Classifications and Requirements	X			No change to DCD content anticipated.
7.5.3	Description of Variables	X			No change to DCD content anticipated.
7.5.4	Processing and Display Equipment	X			No change to DCD content anticipated.
7.5.5	Combined License Information	X			No change to DCD content anticipated.
<b>7.6</b>	<b>Interlock Systems Important to Safety</b>	X			No change to DCD content anticipated.
7.6.1	Prevention of Overpressurization of Low-Pressure Systems	X			No change to DCD content anticipated.
7.6.2	Availability of Engineered Safety Features	X			No change to DCD content anticipated.
7.6.3	Combined License Information	X			No change to DCD content anticipated.
<b>7.7</b>	<b>Control and Instrumentation Systems</b>	X			No change to DCD content anticipated.
7.7.1	Description	X			No change to DCD content anticipated.
7.7.2	Analysis	X			No change to DCD content anticipated.
7.7.3	Combined License Information	X			No change to DCD content anticipated.
<b>8.0</b>	<b>Electrical Power</b>				
<b>8.1</b>	<b>Introduction</b>		X		No content under this number.
8.1.1	Utility Grid Description			X	a. Applicant to provide site-specific description of utility grid system. b. Applicant to review SRP conformance statement for site specific content.
8.1.2	Onsite Power System Description			X	Applicant to provide description of maintenance source of power provided through the reserve auxiliary transformer.
8.1.3	Safety-Related Loads	X			No change to DCD content anticipated.
8.1.4	Design Basis	X			No change to DCD content anticipated.
8.1.5	Combined License Information	X			No change to DCD content anticipated.

**Enclosure 2**  
**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
<b>8.2</b>	<b>Offsite Power System</b>		X		
8.2.1	System Description			X	Applicant to provide description of offsite power system.
8.2.2	Grid Stability			X	
8.2.3	Conformance to Criteria		X		
8.2.4	Standards and Guides	X			
8.2.5	Combined License Information for Offsite Electrical Power		X		
8.2.6	References		X		
<b>8.3</b>	<b>Onsite Power Systems</b>		X		
8.3.1	A.C. Power Systems		X		Individual applicants to confirm acceptability of large house loads.
8.3.2	D.C. Power Systems	X			
8.3.3	Combined License Information for Onsite Electrical Power		X		
8.3.4	References		X		
<b>9.0</b>	<b>Auxiliary Systems</b>				
<b>9.1</b>	<b>Fuel Storage and Handling</b>	X			
9.1.1	New Fuel Storage	X			
9.1.2	Spent Fuel Storage	X			
9.1.3	Spent Fuel Pool Cooling System	X			No change to DCD content anticipated.
9.1.4	Light Load Handling System (Related to Refueling)	X			No change to DCD content anticipated.
9.1.5	Overhead Heavy Load Handling Systems	X			
9.1.6	Combined License Information for Fuel Storage and Handling	X			
9.1.7	References	X			

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
<b>9.2</b>	<b>Water Systems</b>		X		
9.2.1	Service Water System	X			
9.2.2	Component Cooling Water System	X			
9.2.3	Demineralized Water Treatment System	X			
9.2.4	Demineralized Water Transfer and Storage System	X			
9.2.5	Potable Water System		X		
9.2.6	Sanitary Drainage System			X	
9.2.7	Central Chilled Water System		X		
9.2.8	Turbine Building Closed Cooling Water System	X			
9.2.9	Waste Water System	X			
9.2.10	Hot Water Heating System	X			
9.2.11	Combined License Information	X			
9.2.12	References	X			
<b>9.3</b>	<b>Process Auxiliaries</b>	X			
9.3.1	Compressed and Instrument Air System	X			
9.3.2	Plant Gas System	X			
9.3.3	Primary Sampling System	X			
9.3.4	Secondary Sampling System	X			
9.3.5	Equipment and Floor Drainage Systems	X			
9.3.6	Chemical and Volume Control System	X			
9.3.7	Combined License Information	X			
9.3.8	References	X			
<b>9.4</b>	<b>Air-Conditioning, Heating, Cooling, and Ventilation System</b>		X		
9.4.1	Nuclear Island Nonradioactive Ventilation System		X		If there are site-specific hazards, there will be additional information required.

**Enclosure 2**  
**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
9.4.2	Annex/Auxiliary Buildings Nonradioactive HVAC System		X		
9.4.3	Radiologically Controlled Area Ventilation System		X		
9.4.4	Balance-of-Plant-Interface	X			
9.4.5	Engineered Safety Features Ventilation System	X			
9.4.6	Containment Recirculation Cooling System	X			
9.4.7	Containment Air Filtration System	X			
9.4.8	Radwaste Building HVAC System	X			
9.4.9	Turbine Building Ventilation System	X			
9.4.10	Diesel Generator Building Heating and Ventilation System	X			
9.4.11	Health Physics and Hot Machine Shop HVAC System		X		
9.4.12	Combined License Information		X		
9.4.13	References		X		
Other 9.4 subsections				X	Applicants to provide statements regarding the existence of HVAC systems for other buildings.
9.5	Other Auxiliary Systems		X		
9.5.1	Fire Protection System	X			
9.5.2	Communication System			X	
9.5.3	Plant Lighting System		X		Security-related lighting issues to be addressed in the Security Plan.
9.5.4	Standby Diesel and Auxiliary Boiler Fuel Oil System	X			
9.5.5	References		X		
9A	Fire Protection Analysis		X		

**Enclosure 2**  
**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
9A.1	Introduction	X			
9A.2	Fire Protection Analysis Methodology	X			
9A.2.1	Fire Area Description	X			
9A.2.2	Combustible Material Survey	X			
9A.2.3	Fire Severity Categorization	X			
9A.2.4	Combustible Loading and Equivalent Fire Duration Calculations	X			
9A.2.5	Fire Protection Adequacy	X			
9A.2.6	Fire Protection System Integrity	X			
9A.2.7	Safe Shutdown Evaluation	X			
9A.3	Fire Protection Analysis Results	X			
9A.3.1	Nuclear Island	X			
9A.3.2	Turbine Building	X			
9A.3.3	Yard Area and Outlying Buildings			X	Tables will need to be revised for site- specifics.
9A.3.4	Annex Building	X			
9A.3.5	Radwaste Building	X			
9A.3.6	Diesel Generator Building	X			
9A.3.7	Special Topics		X		
9A.4	References		X		
<b>10</b>	<b>Steam and Power Conversion</b>				
<b>10.1</b>	<b>Summary Description</b>	<b>X</b>			
10.1.1	General Description	X			
10.1.2	Protective Features	X			
10.1.3	Combined License Information on Erosion- Corrosion Monitoring	X			
<b>10.2</b>	<b>Turbine-Generator</b>	<b>X</b>			



**Enclosure 2**  
**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
10.2.1	Design Basis	X			
10.2.2	System Description	X			
10.2.3	Turbine Rotor Integrity	X			
10.2.4	Evaluation	X			
10.2.5	Instrumentation Applications	X			
10.2.6	Combined License Information on Turbine Maintenance and Inspection	X			
10.2.7	References	X			
<b>10.3</b>	<b>Main Steam Supply System</b>	X			No change to DCD content anticipated.
10.3.1	Design Basis	X			No change to DCD content anticipated.
10.3.2	System Description	X			No change to DCD content anticipated.
10.3.3	Safety Evaluation	X			No change to DCD content anticipated.
10.3.4	Inspection and Testing Requirements	X			No change to DCD content anticipated.
10.3.5	Water Chemistry	X			No change to DCD content anticipated.
10.3.6	Steam and Feedwater System Materials	X			No change to DCD content anticipated.
10.3.7	Combined License Information	X			No change to DCD content anticipated.
10.3.8	References	X			No change to DCD content anticipated.
<b>10.4</b>	<b>Other Features of Steam and Power Conversion System</b>		X		
10.4.1	Main Condensers	X			No change to DCD content anticipated.
10.4.2	Main Condenser Evacuation System	X			No change to DCD content anticipated.
10.4.3	Gland Seal System	X			No change to DCD content anticipated.
10.4.4	Turbine Bypass System	X			No change to DCD content anticipated.
10.4.5	Circulating Water System				
10.4.6	Condensate Polishing System	X			No change to DCD content anticipated.
10.4.7	Condensate and Feedwater System	X			No change to DCD content anticipated.
10.4.8	Steam Generator Blowdown System	X			No change to DCD content anticipated.
10.4.9	Startup Feedwater System	X			No change to DCD content anticipated.

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
10.4.10	Auxiliary Steam System	X			No change to DCD content anticipated.
10.4.11	Turbine Island Chemical Feed	X			
10.4.12	Combined License Information			X	
10.4.13	References		X		
<b>11</b>	<b>Radioactive Waste Management</b>				
<b>11.1</b>	<b>Source Terms</b>	X			No change to DCD content anticipated.
11.1.1	Design Basis Reactor Coolant Activity	X			No change to DCD content anticipated.
11.1.2	Design Basis Secondary Coolant Activity	X			No change to DCD content anticipated.
11.1.3	Realistic Reactor Coolant and Secondary Coolant Activity	X			No change to DCD content anticipated.
11.1.4	Core Source Term	X			No change to DCD content anticipated.
11.1.5	Process Leakage Sources	X			No change to DCD content anticipated.
11.1.6	Combined License Information	X			No change to DCD content anticipated.
11.1.7	References	X			No change to DCD content anticipated.
<b>11.2</b>	<b>Liquid Waste Management Systems</b>	X			
11.2.1	Design Basis	X			
11.2.2	System Description	X			
11.2.3	Radioactive Releases	X			
11.2.4	Preoperational Testing	X			
11.2.5	Combined License Information	X			
11.2.6	References	X			
<b>11.3</b>	<b>Gaseous Waste Management System</b>	X			
11.3.1	Design Basis	X			
11.3.2	System Description	X			
11.3.3	Radioactive Releases	X			
11.3.4	Inspection and Testing Requirements	X			

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
11.3.5	Combined License Information	X			
11.3.6	References	X			
11.4	<b>Solid Waste Management</b>	X			
11.4.1	Design Basis	X			No change to DCD content anticipated.
11.4.2	System Description	X			
11.4.3	System Safety Evaluation	X			
11.4.4	Tests and Inspections	X			
11.4.5	Quality Assurance	X			
11.4.6	Combined License Information for Solid Waste Management System Process Control Program	X			
11.4.7	References	X			
11.5	<b>Radiation Monitoring</b>	X			
11.5.1	Design Basis	X			
11.5.2	System Description	X			
11.5.3	Effluent Monitoring and Sampling	X			
11.5.4	Process and Airborne Monitoring and Sampling	X			
11.5.5	Post-Accident Radiation Monitoring	X			No change to DCD content anticipated.
11.5.6	Area Radiation Monitors	X			No change to DCD content anticipated.
11.5.7	Combined License Information		X		
12	<b>Radiation Protection</b>				
12.1	<b>Assuring that Occupational Radiation Exposures Are As-Low-As-Reasonably Achievable (ALARA)</b>	X			
12.1.1	Policy Considerations	X			
12.1.2	Design Considerations	X			No change to DCD content anticipated.
12.1.3	Combined License Information	X			

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
<b>12.2</b>	<b>Radiation Sources</b>	X			
12.2.1	Contained Sources	X			
12.2.2	Airborne Radioactive Material Sources	X			No change to DCD content anticipated.
12.2.3	Combined License Information	X			
12.2.4	References	X			
<b>12.3</b>	<b>Radiation Protection Design Features</b>	X			
12.3.1	Facility Design Features	X			
12.3.2	Shielding	X			No change to DCD content anticipated.
12.3.3	Ventilation	X			No change to DCD content anticipated.
12.3.4	Area Radiation and Airborne Radioactivity Monitoring Instrumentation	X			
12.3.5	Combined License Information	X			
12.3.6	References	X			
<b>12.4</b>	<b>Dose Assessment</b>	X			
12.4.1	Occupational Radiation Exposure	X			
12.4.2	Radiation Exposure at the Site Boundary	X			
12.4.3	Combined License Information	X			
<b>12.5</b>	<b>Health Physics Facilities Design</b>	X			
12.5.1	Objectives	X			
12.5.2	Equipment, Instrumentation, and Facilities	X			
12.5.3	Other Design Features	X			
12.5.4	Controlling Access and Stay Time	X			
12.5.5	Combined License Information	X			
<b>13.0</b>	<b>Conduct of Operations</b>				
<b>13.1</b>	<b>Organizational Structure of Applicant</b>		X		Applicant will need to add a site-specific discussion in Subsection 13.1.1.

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
13.1.1 (DCD)	Combined License Information Item	X			This section would remain unchanged except for adding references to sections where COL items are addressed.
13.1.1 (DG-1145)	Management and Technical Support Organization	X			
13.1.2	Operating Organization	X			
13.1.3	Qualifications of Nuclear Plant Personnel	X			
13.2	Training	X			
13.2.1 (DCD)	Combined License Information Item	X			This section would remain unchanged except for adding references to sections where COL items are addressed.
13.2.1 (DG-1145)	Plant Staff Training Program	X			
13.2.2	Training Program for Licensed Personnel (need to reconcile title and content with DG-1145)	X			
13.2.3	Training Program for Non-Licensed Personnel (need to reconcile title and content with DG-1145)	X			
13.2.3	Applicable NRC Documents	X			
13.3	Emergency Planning		X		
13.3.1 (DCD)	Combined License Information Item	X			
13.3.1 (DG-1145)	Emergency Plan		X		
13.3.3 (DG-1145)	Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria (EP-ITAAC)		X		Applicant specific ITAAC may be needed.
13.4	Operational Review	X			

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
13.4.1	Combined License Information Item	X			No change to DCD content anticipated.
13.4.2	Onsite Review	X			
13.4.3	Independent Review	X			
13.4.4	Audit Program	X			
13.4.5 (DG-1145)	Operational Program Implementation	X			
<b>13.5</b>	<b>Plant Procedures</b>		X		
13.5.1	Combined License Information Item	X			No change to DCD content anticipated.
13.5.2	Administrative Procedures		X		
13.5.3	Station Operating and Maintenance Procedures		X		
13.5.3.1	Operating and Emergency Operating Procedures	X			
13.5.3.2	Maintenance and Other Operating Procedures	X			
<b>13.6</b>	<b>Security</b>		X		
13.6.1	Preliminary Planning	X			No change to DCD content anticipated.
13.6.2	Security Plan			X	The comprehensive physical security program will be addressed in the security plan, contingency plan and guard training plan. These plans will be submitted under separate cover by the applicant.
13.6.3	Plant Protection System	X			No change to DCD content anticipated.
13.6.4	Physical Security Organization	X			No change to DCD content anticipated.
13.6.5	Physical Barriers	X			No change to DCD content anticipated.
13.6.6	Access Requirements	X			No change to DCD content anticipated.
13.6.7	Detection Aids	X			No change to DCD content anticipated.
13.6.8	Security Lighting	X			No change to DCD content anticipated.
13.6.9	Security Power Supply System	X			No change to DCD content anticipated.
13.6.10	Communications	X			No change to DCD content anticipated.
13.6.11	Testing and Maintenance	X			No change to DCD content anticipated.

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
13.6.12	Response Requirements	X			No change to DCD content anticipated.
13.6.13	Combined License Information Item	X			No change to DCD content anticipated.
<b>14</b>	<b>Initial Test Program</b>				
14.1	Specific Information to be Included in Preliminary/Final Safety Analysis Report				NA to AP 1000
14.2	Specific Information to be Included in Standard Safety Analysis Reports		X		
14.2.1	Summary of Test Program and Objectives	X			
14.2.2	Organization, Staffing, and Responsibilities	X			
14.2.3	Test Specifications and Test Procedures	X			
14.2.4	Compliance of Test Program with Regulatory Guides	X			
14.2.5	Utilization of Reactor Operating and Testing Experience in the Development of Test Program	X			
14.2.6	Use of Plant Operating and Emergency Procedures	X			
14.2.7	Initial Fuel Loading and Initial Criticality	X			
14.2.8	Test Program Schedule				
14.2.9	Preoperational Test Descriptions	X			
14.2.10	Startup Test Procedures	X			
14.3	Certified Design Material	X			No change to DCD content anticipated.
14.3.1	CDM Section 1.0, Introduction	X			No change to DCD content anticipated.
14.3.2	CDM Section 2.0, System Based Design Descriptions and ITAAC	X			No change to DCD content anticipated.
14.3.3	CDM Section 3.0, Non-System Based Design Descriptions and ITAAC	X			No change to DCD content anticipated.

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Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
14.3.4	Certified Design Material Section 4.0, Interface Requirements	X			No change to DCD content anticipated.
14.3.5	CDM Section 5.0, Site Parameters	X			No change to DCD content anticipated.
14.3.6	Initial Test Program	X			No change to DCD content anticipated.
14.3.7	Elements of AP1000 Design Material Incorporated into the Certified Design Material	X			No change to DCD content anticipated.
14.3.8	Summary	X			No change to DCD content anticipated.
14.3.9	References	X			No change to DCD content anticipated.
<b>14.4</b>	<b>Combined License Applicant Responsibilities</b>		X		
14.4.1	Organization and Staffing		X		
14.4.2	Test Specifications and Procedures		X		
14.4.3	Conduct of Test Program		X		
14.4.4	Review and Evaluation of Test Results		X		
14.4.5	Interface Requirements		X		
14.4.6	First-Plant-Only and Three-Plant-Only Tests	X			
<b>14.5</b>	<b>Site-Specific ITAAC Decision Criteria</b>		X		
<b>15</b>	<b>Accident Analyses</b>				With the exception of Section 15.7, Chapter 15 is expected to remain as provided in the DCD.
15.0.1	Classification of Plant Conditions	X			No change to DCD content anticipated.
15.0.2	Optimization of Control Systems	X			No change to DCD content anticipated.
15.0.3	Plant Characteristics and Initial Conditions Assumed in the Accident Analyses	X			No change to DCD content anticipated.
15.0.4	Reactivity Coefficients Assumed in the Accident Analysis	X			No change to DCD content anticipated.
15.0.5	Rod Cluster Control Assembly Insertion Characteristics	X			No change to DCD content anticipated.



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Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
15.0.6	Protection and Safety Monitoring System Setpoints and Time Delays to Trip Assumed in Accident Analyses	X			No change to DCD content anticipated.
15.0.7	Instrumentation Drift and Calorimetric Errors, Power Range Neutron Flux	X			No change to DCD content anticipated.
15.0.8	Plant Systems and Components Available for Mitigation of Accident Effects	X			No change to DCD content anticipated.
15.0.9	Fission Product Inventories	X			No change to DCD content anticipated.
15.0.10	Residual Decay Heat	X			No change to DCD content anticipated.
15.0.11	Computer Codes Used	X			No change to DCD content anticipated.
15.0.12	Component Failures				No change to DCD content anticipated.
15.0.13	Operator Actions	X			No change to DCD content anticipated.
15.0.14	Loss of Offsite ac Power	X			No change to DCD content anticipated.
15.0.15	Combined License Information	X			No change to DCD content anticipated.
15.0.16	References	X			No change to DCD content anticipated.
15.1	<b>Increase in Heat Removal From the Primary System</b>	X			No change to DCD content anticipated.
15.1.1	Feedwater System Malfunctions that Result in a Decrease in Feedwater Temperature	X			No change to DCD content anticipated.
15.1.2	Feedwater System Malfunctions that Result in an Increase in Feedwater Flow	X			No change to DCD content anticipated.
15.1.3	Excessive Increase in Secondary Steam Flow	X			No change to DCD content anticipated.
15.1.4	Inadvertent Opening of a Steam Generator Relief or Safety Valve	X			No change to DCD content anticipated.
15.1.5	Steam System Piping Failure	X			No change to DCD content anticipated.
15.1.6	Inadvertent Operation of the PRHR Heat Exchanger	X			No change to DCD content anticipated.
15.1.7	Combined License Information	X			No change to DCD content anticipated.

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
15.1.8	References	X			No change to DCD content anticipated.
<b>15.2</b>	<b>Decrease in Heat Removal by the Secondary System</b>	X			No change to DCD content anticipated.
15.2.1	Steam Pressure Regulator Malfunction or Failure that Results in Decreasing Steam Flow	X			No change to DCD content anticipated.
15.2.2	Loss of External Electrical Load	X			No change to DCD content anticipated.
15.2.3	Turbine Trip	X			No change to DCD content anticipated.
15.2.4	Inadvertent Closure of Main Steam Isolation Valves	X			No change to DCD content anticipated.
15.2.5	Loss of Condenser Vacuum and Other Events Resulting in Turbine Trip	X			No change to DCD content anticipated.
15.2.6	Loss of AC Power to the Plant Auxiliaries	X			No change to DCD content anticipated.
15.2.7	Loss of Normal Feedwater Flow	X			No change to DCD content anticipated.
15.2.8	Feedwater System Pipe Break	X			No change to DCD content anticipated.
15.2.9	Combined License Information	X			No change to DCD content anticipated.
15.2.10	References	X			No change to DCD content anticipated.
<b>15.3</b>	<b>Decrease in Reactor Coolant System Flow Rate</b>	X			No change to DCD content anticipated.
15.3.1	Partial Loss of Forced Reactor Coolant Flow	X			No change to DCD content anticipated.
15.3.2	Complete Loss of Forced Reactor Coolant Flow	X			No change to DCD content anticipated.
15.3.3	Reactor Coolant Pump Shaft Seizure (Locked Rotor)	X			No change to DCD content anticipated.
15.3.4	Reactor Coolant Pump Shaft Break	X			No change to DCD content anticipated.
15.3.5	Combined License Information	X			No change to DCD content anticipated.
15.3.6	References	X			No change to DCD content anticipated.
<b>15.4</b>	<b>Reactivity and Power Distribution Anomalies</b>	X			No change to DCD content anticipated.

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
15.4.1	Uncontrolled Rod Cluster Control Assembly Bank Withdrawal from a Subcritical or Low-power Startup Condition	X			No change to DCD content anticipated.
15.4.2	Uncontrolled Rod Cluster Control Assembly Bank Withdrawal at Power	X			No change to DCD content anticipated.
15.4.3	Rod Cluster Control Assembly Misalignment (System Malfunction or Operator Error)	X			No change to DCD content anticipated.
15.4.4	Startup of an Inactive Reactor Coolant Pump at an Incorrect Temperature	X			No change to DCD content anticipated.
15.4.5	A Malfunction or Failure of the Flow Controller in a Boiling Water Reactor Loop that Results in an Increased Reactor Coolant Flow Rate				NA to AP 1000
15.4.6	Chemical and Volume Control System Malfunction that Results in a Decrease in the Boron Concentration in the Reactor Coolant	X			No change to DCD content anticipated.
15.4.7	Inadvertent Loading and Operation of a Fuel Assembly in an Improper Position	X			No change to DCD content anticipated.
15.4.8	Spectrum of Rod Cluster Control Assembly Ejection Accidents	X			No change to DCD content anticipated.
15.4.9	Combined License Information	X			No change to DCD content anticipated.
15.4.10	References	X			No change to DCD content anticipated.
15.5	<b>Increase in Reactor Coolant Inventory</b>	X			No change to DCD content anticipated.
15.5.1	Inadvertent Operation of the Core Makeup Tanks During Power Operation	X			No change to DCD content anticipated.
15.5.2	Chemical and Volume Control System Malfunction That Increases Reactor Coolant Inventory	X			No change to DCD content anticipated.
15.5.3	Boiling Water Reactor Transients				NA to AP 1000
15.5.4	Combined License Information	X			No change to DCD content anticipated.

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
15.5.5	References	X			No change to DCD content anticipated.
15.6	<b>Decrease in Reactor Coolant Inventory</b>	X			No change to DCD content anticipated.
15.6.1	Inadvertent Opening of a Pressurizer Safety Valve or Inadvertent Operation of the ADS	X			No change to DCD content anticipated.
15.6.2	Failure of Small Lines Carrying Primary Coolant Outside Containment	X			No change to DCD content anticipated.
15.6.3	Steam Generator Tube Rupture	X			No change to DCD content anticipated.
15.6.4	Spectrum of Boiling Water Reactor Steam System Piping Failures Outside of Containment				NA to AP 1000
15.6.5	Loss-of-coolant Accidents Resulting from a Spectrum of Postulated Piping Breaks Within the Reactor Coolant Pressure Boundary	X			No change to DCD content anticipated.
15.6.6	References	X			No change to DCD content anticipated.
15.7	<b>Radioactive Release from a Subsystem or Component</b>	X			
15.7.1	Gas Waste Management System Leak or Failure	X			
15.7.2	Liquid Waste Management System Leak or Failure (Atmospheric Release)	X			
15.7.3	Release of Radioactivity to the Environment Due to a Liquid Tank Failure	X			
15.7.4	Fuel Handling Accident	X			
15.7.5	Spent Fuel Cask Drop Accident	X			
15.7.6	Combined License Information	X			
15.7.7	References	X			
15.8	<b>Anticipated Transients Without Scram</b>	X			No change to DCD content anticipated.
15.8.1	General Background	X			No change to DCD content anticipated.
15.8.2	Anticipated Transients Without Scram in the AP1000	X			No change to DCD content anticipated.

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
15.8.3	Conclusion	X			No change to DCD content anticipated.
15.8.4	Combined License Information	X			No change to DCD content anticipated.
15.8.5	References	X			No change to DCD content anticipated.
15A	<b>Evaluation Models and Parameters for Analysis of Radiological Consequences of Accidents</b>		X		No change to DCD content anticipated.
15A.1	Offsite Dose Calculation Models	X			No change to DCD content anticipated.
15A.1.1	Immersion Dose (Effective Dose Equivalent)	X			No change to DCD content anticipated.
15A.1.2	Inhalation Dose (Committed Effective Dose Equivalent)	X			No change to DCD content anticipated.
15A.1.3	Total Dose (Total Effective Dose Equivalent)	X			No change to DCD content anticipated.
15A.2	Main Control Room Dose Models	X			No change to DCD content anticipated.
15A.2.1	Immersion Dose Models	X			No change to DCD content anticipated.
15A.2.2	Inhalation Dose	X			No change to DCD content anticipated.
15A.2.3	Total Dose (Total Effective Dose Equivalent)	X			No change to DCD content anticipated.
15A.3	General Analysis Parameters	X			No change to DCD content anticipated.
15A.3.1	Source Terms	X			No change to DCD content anticipated.
15A.3.2	Nuclide Parameters	X			No change to DCD content anticipated.
15A.3.3	Atmospheric Dispersion Factors		X		No change to DCD content anticipated.
15A.4	References	X			No change to DCD content anticipated.
15B	Removal of Airborne Activity From the Containment Atmosphere Following a LOCA	X			No change to DCD content anticipated.
16	<b>Technical Specifications</b>	X			

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
<b>17</b>	<b>Quality Assurance</b>	<b>X</b>			Several subsections of Chapter 17 are potentially standard for all COLAs regardless of the specific reactor technology. Evaluations are ongoing.
17.1	Quality Assurance During Design and Construction	X			
17.2	Quality Assurance During the Operations Phase	X			
17.3	Quality Assurance Program Document	X			
17.4	Reliability Assurance Program During Design Phase	X			
17.5	Quality Assurance Program Description	X			
17.6	Maintenance Rule Program	X			
<b>18</b>	<b>Human Factors Engineering</b>				
<b>18.1</b>	<b>Overview</b>	<b>X</b>			
18.1.1	References	X			
<b>18.2</b>	<b>Human Factors Engineering Program Management</b>	<b>X</b>			
18.2.1	Human Factors Engineering Program Goals, Scope, Assumptions, and Constraints	X			
18.2.2	Human System Interface Design Team and Organization	X			
18.2.3	Human Factors Engineering Processes and Procedures	X			
18.2.4	Human Factors Engineering Issues Tracking	X			
18.2.5	Human Factors Engineering Technical Program and Milestones	X			
18.2.6	Combined License Information	X			

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
18.2.7	References	X			
18.3	<b>Operating Experience Review</b>	X			
18.3.1	Combined License Information	X			
18.3.2	References	X			
18.4	<b>Functional Requirements Analysis and Allocation</b>	X			
18.4.1	Combined License Information	X			
18.4.2	References	X			
18.5	<b>AP1000 Task Analysis Implementation Plan</b>	X			
18.5.1	Task Analysis Scope	X			
18.5.2	Task Analysis Implementation Plan	X			
18.5.3	Job Design Factors	X			
18.5.4	Combined License Information Item	X			
18.5.5	References	X			
18.6	<b>Staffing</b>		X		
18.6.1	Combined License Information Item		X		
18.6.2	References		X		
18.7	<b>Integration of Human Reliability Analysis with Human Factors Engineering</b>	X			
18.7.1	Combined License Information	X			
18.7.2	References	X			
18.8	<b>Human System Interface Design</b>	X			
18.8.1	Implementation Plan for the Human System Interface Design	X			
18.8.2	Safety Parameter Display System (SPDS)	X			
18.8.3	Operation and Control Centers System	X			

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
18.8.4	Human Factors Design for the Non-Human-System Interface Portion of the Plant	X			
18.8.5	Combined License Information	X			
18.8.6	References	X			
<b>18.9</b>	<b>Procedure Development</b>	<b>X</b>			
18.9.1	Combined License Information	X			
18.9.2	References	X			
<b>18.10</b>	<b>Training Program Development</b>	<b>X</b>			
18.10.1	Combined License Information	X			
18.10.2	References	X			
<b>18.11</b>	<b>Human Factors Engineering Verification and Validation</b>	<b>X</b>			
18.11.1	Combined License Information	X			
18.11.2	References	X			
<b>18.12</b>	<b>Inventory</b>	<b>X</b>			
18.12.1	Inventory of Displays, Alarms, and Controls	X			
18.12.2	Minimum Inventory of Main Control Room Fixed Displays, Alarms, and Controls	X			
18.12.3	Remote Shutdown Workstation Displays, Alarms, and Controls	X			
18.12.4	Combined License Information	X			
18.12.5	References	X			
<b>18.13</b>	<b>Design Implementation</b>	<b>X</b>			
18.13.1	References	X			
<b>18.14</b>	<b>Human Performance Monitoring</b>	<b>X</b>			
18.14.1	References	X			



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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
<b>19</b>	<b>Probabilistic Risk Assessment</b>				
<b>19.1</b>	<b>Introduction</b>	X			
19.1.1	Background and Overview	X			
19.1.2	Objectives	X			
19.1.3	Technical Scope	X			
19.1.4	Project Methodology Overview	X			
19.1.5	Results	X			
19.1.6	Plant Definition	X			
19.1.7	References	X			
<b>19.2</b>	<b>Internal Initiating Events</b>	X			
<b>19.3</b>	<b>Modeling of Special Initiators</b>	X			
<b>19.4</b>	<b>Event Tree Models</b>	X			
<b>19.5</b>	<b>Support Systems</b>	X			
<b>19.6</b>	<b>Success Criteria Analysis</b>	X			
<b>19.7</b>	<b>Fault Tree Guidelines</b>	X			
<b>19.8</b>	<b>Passive Core Cooling System - Passive Residual Heat Removal</b>	X			
<b>19.9</b>	<b>Passive Core Cooling System - Core Makeup Tanks</b>	X			
<b>19.10</b>	<b>Passive Core Cooling System - Accumulator</b>	X			
<b>19.11</b>	<b>Passive Core Cooling System - Automatic Depressurization System</b>	X			
<b>19.12</b>	<b>Passive Core Cooling System - In- Containment Refueling Water Storage</b>	X			
<b>19.13</b>	<b>Passive Containment Cooling</b>	X			
<b>19.14</b>	<b>Main and Startup Feedwater System</b>	X			
<b>19.15</b>	<b>Chemical and Volume Control System</b>	X			
19.15.1	System Description	X			

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
19.15.2	System Operation	X			
19.15.3	Performance during Accident Conditions	X			
19.15.4	Initiating Event Review	X			
19.15.5	System Logic Models	X			
19.16	Containment Hydrogen Control System	X			
19.17	Normal Residual Heat Removal System	X			
19.18	Component Cooling Water System	X			
19.19	Service Water System	X			
19.20	Central Chilled Water System	X			
19.21	AC Power System	X			
19.22	Class 1E dc & UPS System	X			
19.23	Non-Class 1E dc & UPS System	X			
19.24	Containment Isolation	X			
19.25	Compressed and Instrument Air System	X			
19.26	Protection and Safety Monitoring System	X			
19.27	Diverse Actuation System	X			
19.28	Plant Control System	X			
19.29	Common Cause Analysis	X			
19.30	Human Reliability Analysis	X			
19.31	Other Event Tree Node Probabilities	X			
19.32	Data Analysis and Master Data Bank	X			
19.33	Fault Tree and Core Damage Quantification	X			
19.34	Severe Accident Phenomena Treatment	X			
19.34.1	Introduction	X			
19.34.2	Treatment of Physical Processes	X			
19.34.3	Analysis Method	X			
19.34.4	Severe Accident Analyses	X			
19.34.5	Insights and Conclusions	X			

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
19.34.6	References	X			
19.35	Containment Event Tree Analysis	X			
19.36	Reactor Coolant System Depressurization	X			
19.37	Containment Isolation	X			
19.38	Reactor Vessel Reflooding	X			
19.39	In-Vessel Retention of Molten Core Debris	X			
19.39.1	Introduction	X			
19.39.2	Background on the Application of In-Vessel Retention in the Passive Plant	X			
19.39.3	Application of In-Vessel Retention to the AP1000 Passive Plant	X			
19.39.4	Reactor Vessel Failure Criteria	X			
19.39.5	In-Vessel Melt Progression and Relocation	X			
19.39.6	Application of Heat Transfer Correlations to the AP1000	X			
19.39.7	Quantification of Heat Load on the Reactor Vessel Wall	X			
19.39.8	Reactor Coolant System Depressurization	X			
19.39.9	Reactor Cavity Flooding	X			
19.39.10	Reactor Vessel Insulation Design Concept	X			
19.39.11	Reactor Vessel Failure	X			
19.39.12	Summary	X			
19.39.13	References	X			
19.40	Passive Containment Cooling	X			
19.41	Hydrogen Mixing and Combustion Analysis	X			
19.41.1	Introduction	X			
19.41.2	Controlling Phenomena	X			

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
19.41.3	Major Assumptions and Phenomenological Uncertainties	X			
19.41.4	Hydrogen Generation and Mixing	X			
19.41.5	Hydrogen Burning at Igniters	X			
19.41.6	Early Hydrogen Combustion	X			
19.41.7	Diffusion Flame Analysis	X			
19.41.8	Early Hydrogen Detonation	X			
19.41.9	Deflagration in Time Frame 3	X			
19.41.10	Detonation in Intermediate Time Frame	X			
19.41.11	Safety Margin Basis Containment Performance Requirement	X			
19.41.12	Summary	X			
19.41.13	References	X			
19.42	Conditional Containment Failure Probability Distribution	X			
19.43	Release Frequency Quantification	X			
19.44	MAAP4.0 Code Description and AP1000 Modeling	X			
19.45	Fission Product Source Terms	X			
19.46	Deleted				
19.47	Deleted				
19.48	Deleted				
19.49	Offsite Dose Evaluation	X			
19.50	Importance and Sensitivity Analysis	X			
19.51	Uncertainty Analysis	X			
19.52	Deleted				
19.53	Deleted				
19.54	Low Power and Shutdown PRA Assessment	X			

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
<b>19.55</b>	<b>Seismic Margin Analysis</b>	X			
19.55.1	Introduction	X			
19.55.2	Calculation of HCLPF Values	X			
19.55.3	Seismic Margin Model	X			
19.55.4	Calculation of HCLPF	X			
19.55.5	Sensitivity Analyses	X			
19.55.6	Results and Insights	X			
19.55.7	References	X			
<b>19.56</b>	<b>PRA Internal Flooding Analysis</b>	X			
<b>19.57</b>	<b>Internal Fire Analysis</b>	X			
<b>19.58</b>	<b>Winds, Floods, and Other External Events</b>	X			
<b>19.59</b>	<b>PRA Results and Insights</b>	X			
19.59.1	Introduction	X			
19.59.2	Use of PRA in the Design Process	X			
19.59.3	Core Damage Frequency from Internal Initiating Events at Power	X			
19.59.4	Large Release Frequency for Internal Initiating Events at Power	X			
19.59.5	Core Damage and Severe Release Frequency from Events at Shutdown	X			
19.59.6	Results from Internal Flooding, Internal Fire, and Seismic Margin Analyses	X			
19.59.7	Plant Dose Risk From Release of Fission- Products	X			
19.59.8	Overall Plant Risk Results	X			
19.59.9	Plant Features Important to Reducing Risk	X			
19.59.10	PRA Input to Design Certification Process	X			
19.59.11	References	X			

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
<b>19A</b>	<b>Thermal Hydraulic Analysis to Support Success Criteria</b>	X			
<b>19B</b>	<b>Ex-Vessel Severe Accident Phenomena</b>	X			
<b>19C</b>	<b>Additional Assessment of AP1000 Design Features</b>	X			
<b>19D</b>	<b>Equipment Survivability Assessment</b>	X			
<b>19E</b>	<b>Shutdown Evaluation</b>	X			
<b>20</b>	<b>Construction Impacts on Existing Units</b>			X	Identified as FSAR content in proposed Part 52
<b>Part 3</b>	<b>Environmental Report</b>			X	
<b>Part 4</b>	<b>Technical Specifications</b>	X			
<b>Part 5</b>	<b>Emergency Plan</b>			X	Existing plans will be modified/supplemented.
<b>Part 6</b>	<b>Site Redress Plan</b>		X		Subsections of the Site Redress Plan are potentially standard for all COLAs, regardless of the specific reactor technology. Site-specific input is required. Evaluations needed.
<b>Part 7</b>	<b>Generic DCD Departures</b>		X		

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**AP1000 Standardization Matrix**

Part/ Section	Description	Standardization Assessment <sup>1</sup>			Notes
		Standard	Standard with Site Specific	Site Specific	
<b>Part 8</b>	<b>Safeguards/Security Plans</b>				Some subsections of the Safeguards/ Security Plans are potentially standard for all COLAs, regardless of the specific reactor technology. Evaluations are ongoing.
	Physical Security Plan		X		
	Training and Qualification Plan		X		
	Safeguards Contingency Plan		X		
<b>Part 9</b>	<b>Plant-Specific PRA</b>		X		
<b>Part 10</b>	<b>ITAAC</b>		X		