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NuStart Bellefonte COL Project - NRC Project Number 740

SUBJECT: Request for NRC Resource Expectations and Availability

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NuStart Energy, LLC (NuStart) and Westinghouse Electric Company, LLC (Westinghouse) are considering making available for NRC review several AP1000 technical reports for pre-application review. The reports generally provide information to:

1. close all or part of specific generically-applicable combined license (COL) items in the AP1000 certified standard design,
2. identify standard design changes that are a result of the AP1000 detailed design efforts, and
3. provide specific standard design information in areas or for topics where the AP1000 design certification document (DCD) was focused on design process/methodology and design acceptance criteria (DAC).

These technical reports are generically applicable such that they could be referenced by future AP1000 COL applicants.

NuStart requests that the NRC provide estimates of the expected resources and schedule to complete the review for the AP1000 near-term (i.e., available in March or April) technical reports. Information necessary to assist NRC development of the requested estimates is provided in three attachments:

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1. Attachment 1, "NuStart Planned AP1000 Technical Reports for NRC" – This table describes the technical information that is expected to be available for NRC review in the near-term as a pre-application activity along with approximate dates identifying when a given technical report is expected to be available
2. Attachment 2, "AP1000 Near Term Design Change Report Information" – This table provides additional information pertaining to the near term AP1000 design change reports (i.e., non COL items)
3. Attachment 3, "AP1000 COL Items" – This listing is provided for the NRC's convenience and assistance in reviewing items specific to a given COL item. It is intended to be the same information presently available in the AP1000 DCD.

NuStart requests the NRC to review the information in the attachments and assess the technical resources necessary to complete the reviews of the identified technical reports. NuStart then requests the NRC respond to this request with information on the ability of NRC to support the requested technical reviews, and with information on the man-hour resources necessary for each calendar quarter of the pre-review. With this information, NuStart can make appropriate decisions regarding our resources to further engage the NRC on the process for, and advantages of, early NRC review of this and similar information.

For technical reports that will be available in the near term, detailed information including the applicable COL item (if applicable), or applicable DCD section is identified. For each COL item that would result in only partial closure, Attachment 1 contains information to identify the portions of the COL item that would be addressed and the portions that would remain open. For each design change item, NuStart/Westinghouse has provided anticipated DCD and regulatory impacts, the results of which are included in Attachment 2.

As technical reports are developed and completed for the design changes, the criteria in 10CFR Part 52, Appendix D, Section VIII, will be used to evaluate the change and identify the appropriate process for changes and departures (including the associated NRC review required).

Attachment 1 also identifies for each item a category of anticipated NRC status following completion of NRC review. These categories include the following:

- Closure of the COL item (this category would be applicable when the technical report information is sufficient that acceptable NRC review status would result in complete closure of the COL item)

- Partial closure of a COL item (this category would be applicable when the technical report information is sufficient that acceptable NRC review status would result in partial closure of a COL item, with the remaining actions re-specified)
- NRC acceptance of a design change (that has been identified through the detailed design implementation)
- Initiation of NRC/Project interactions (in design areas where the DCD primarily focused on design process/methodology, e.g. main control room design, and instrumentation and controls)
- Defer as-built COL commitment (this category would be applicable to COL items that have an as-built requirement. As this type of commitment cannot be met before construction begins and construction cannot begin before the COL is issued; these items essentially request the NRC to allow the as-built COL commitment to be fulfilled at a time after COL is granted and the associated construction is complete.)

NuStart anticipates that the NRC would produce Safety Evaluation Reports for these NRC reviews that would be suitable for referencing in any future COL applications referencing the AP1000 certified standard design.

Finally, Attachment 1 also provides a scheduled availability of AP1000 design specific technical reports that are currently anticipated beyond the near-term (i.e. beyond April 2006). The schedule for the longer-term technical reports has been identified by the quarter or year in which they are expected to be available. This information is provided to support the NRC resource planning efforts and to support early discussions regarding resource estimates.

Following receipt and evaluation of NRC resource information for the near-term technical reports, NuStart anticipates providing additional information on the remaining technical reports for similar evaluation. While Attachment 1 is expected to identify the large majority of anticipated AP1000 applicable technical reports, the need for additional NRC pre-application reviews may surface during NRC interaction or during further detailed design efforts.

We believe this request is consistent with the NRC's Design-Centered Review Approach which has been discussed in several public forums and is important to the success of the companies currently preparing COL applications referencing the AP1000 standard certified design. Review fees associated with this request should be charged to the above referenced NuStart Bellefonte Project.

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If you have further questions regarding this transmittal, please contact George Zinke at (601-368-5381) or Andrea Sterdis at (412-374-6306).

Sincerely,



George Zinke
NuStart
Licensing Lead



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Westinghouse Electric Company
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Attachment 1, NuStart PLANNED AP1000 TECHNICAL REPORTS

Tech. Report No.	COL Item No. or DCD Sec. No.	Subject	Available for NRC Review	Design Change?	Anticipated NRC Review Result	Site Specific?
9	3.8-1	Containment Vessel Design Adjacent to Large Penetrations	Mar-06	N	Closure of Standard Plant COL Item	N
15	3.9-6	Piping Benchmark Program	Mar-06	N	Closure of Standard Plant COL Item	N
62	3D	Methodology For Qualifying AP1000 Safety Related Electrical & Mechanical Equipment	Mar-06	Y	Clarification of Standard Plant Equipment Qualification	N
18	4.2-1	Changes to Reference Reactor Design	Mar-06	Y	Initiation of NRC/Project Interactions	N
32	5.2	Zinc Addition	Mar-06	Y	Acceptance of Standard Plant Design Change	N
37	6.2	Hydrogen Igniter Locations	Mar-06	Y	Acceptance of Standard Plant Design Change	N
38	6.3	PRHR Hx Design	Mar-06	Y	Acceptance of Standard Plant Design Change	N
27	6.4-3	Main Control Room Inleakage Test Frequency	Mar-06	N	Closure of Standard Plant COL Item	N
39	7.2	I&C Design Changes	Mar-06	Y	Acceptance of Standard Plant Design Change	N
48	11.2-3	Identification of Ion Exchange and Absorbent Media	Mar-06	N	Closure of Standard Plant COL Item	N
73	11.2-4	Dilution and Control of Boric Acid Discharge	Mar-06	N	Closure of Standard Plant COL Item	N
48	11.3-2	Identification of Absorbent Material	Mar-06	N	Closure of Standard Plant COL Item	N
41	16.1	Minimum Reactor Coolant System Flow	Mar-06	Y	Acceptance of Standard Plant Design Change	N
72	18.2-1	HFE Program Status Report	Mar-06	N	Initiation of NRC/Project Interactions	N
52	18.5-2	Main Control Room Position Task	Mar-06	N	Closure of Standard Plant COL Item	N
59	18.7-1	Execution and Documentation of the Human Reliability Analysis/Human Factors Engineering Integration	Mar-06	N	Closure of Standard Plant COL Item	N
3	3.7.2	Extension of NI Structures Seismic Analysis to Soil Sites	Apr-06	Y	Acceptance of Standard Plant Design Change	N
36	5.4	Pressurizer Configuration	Apr-06	Y	Acceptance of Standard Plant Design Change	N
42	7.1-2	Resolution of Generic Open Items and Plant-Specific Action Items	Apr-06	N	Closure of Standard Plant COL Item, Initiation of NRC/Westinghouse Interactions	N
43	7.2-1	FMEA for Protection System	Apr-06	N	Closure of Standard Plant COL Item	N
46	9.5-7	Fire Resistance Test Data	Apr-06	N	Closure of Standard Plant COL Item	N
56	2.5-12	Static and Dynamic Stability of Facilities (Soil Report)	2nd Qtr-06	N	TBD	N
5	3.3-1	Wind and Tornado Site Interface Criteria	2nd Qtr-06	N	TBD	N
6	3.6-1	Pipe Break Hazards Analysis (As-built ITAAC Report)	2nd Qtr-06	N	Agreement to Defer As-Built Portion of COL Item	N
8	3.6-2	LBB Evaluation of As-designed Piping	2nd Qtr-06	N	TBD	N
6	3.6-3	LBB Evaluation of As-built Piping (As-built ITAAC Report)	2nd Qtr-06	N	Agreement to Defer COL Item	N

Attachment 1, NuStart PLANNED AP1000 TECHNICAL REPORTS

Tech. Report No.	COL Item No. or DCD Sec. No.	Subject	Available for NRC Review	Design Change?	Anticipated NRC Review Result	Site Specific?
6	3.7-3	Seismic Interaction Review (As-built ITAAC Report)	2nd Qtr-06	N	Agreement to Defer COL Item	N
6	3.7-4	Reconciliation of Seismic Analyses of Nuclear Island Structures (As-built ITAAC Report)	2nd Qtr-06	N	Agreement to Defer As-Built Portion of COL Item	N
6	3.8-2	Passive Containment Cooling System Water Storage Tank Examination (As-built ITAAC Report)	2nd Qtr-06	N	Agreement to Defer COL Item	N
6	3.8-3	As-Built Summary Report (As-built ITAAC Report)	2nd Qtr-06	N	Agreement to Defer COL Item	N
6	3.8-4	In-Service Inspection of Containment Vessel (As-built ITAAC topical)	2nd Qtr-06	N	Agreement to Defer COL Item	N
6	3.9-2	Design Specification and Reports (As-built portion of Cycling & Stratification)	2nd Qtr-06	N	Agreement to Defer As-Built Portion of COL Item	N
16	3.10-1	Experience-Based Qualification	2nd Qtr-06	N	TBD	N
33	5.2	Reactor Coolant Boundary Materials	2nd Qtr-06	Y	TBD	N
6	5.3-1	Reactor Vessel Pressure – Temperature Limit Curves (As-built ITAAC Report)	2nd Qtr-06	N	Agreement to Defer COL Item	N
23	5.3-3	Surveillance Capsule Lead Factor and Azimuthal Location Confirmation	2nd Qtr-06	N	TBD	N
6	5.3-4	Reactor Vessel Materials Properties Verification (As-built ITAAC Report)	2nd Qtr-06	N	Agreement to Defer COL Item	N
35	5.4	Steam Generator Description Changes	2nd Qtr-06	Y	TBD	N
28	7.1-1	Setpoint Calculations for Protective Functions	2nd Qtr-06	N	TBD	N
44	9.1-1	New Fuel Rack Design & Structural Analysis	2nd Qtr-06	N	TBD	N
67	9.1-2	Criticality Analysis for New Fuel Rack	2nd Qtr-06	N	TBD	N
54	9.1-3	Spent Fuel Racks Design & Structural Analysis	2nd Qtr-06	N	TBD	N
65	9.1-4	Criticality Analysis for Spent Fuel Racks	2nd Qtr-06	N	TBD	N
45	9.5-5	Operator Actions Minimizing Spurious ADS Actuation	2nd Qtr-06	N	TBD	N
6	10.2-1	Turbine Maintenance and Inspection (As-built ITAAC Report)	2nd Qtr-06	N	Agreement to Defer COL Item	N
40	16.1	ES Actuation System Instrumentation	2nd Qtr-06	Y	TBD	N

Attachment 1, NuStart PLANNED AP1000 TECHNICAL REPORTS

Tech. Report No.	COL Item No. or DCD Sec. No.	Subject	Available for NRC Review	Design Change?	Anticipated NRC Review Result	Site Specific?
6	19.59.10-1	As-Built SSC HCLPF Comparison to Seismic Margin Evaluation (As-built ITAAC Report)	2nd Qtr-06	N	Agreement to Defer COL Item	N
6	19.59.10-2	Evaluation of As-Built Plant Versus Design in AP1000 PRA and Site-Specific PRA External Events (As-built ITAAC Report)	2nd Qtr-06	N	Agreement to Defer COL Item	N
6	19.59.10-3	Internal Fire and Internal Flood Analysis (As-built ITAAC Report)	2nd Qtr-06	N	Agreement to Defer COL Item	N
1	1.1-1	Construction and Startup schedule	3rd Qtr-06	N	TBD	N
29	3.9	Reactor Internals Neutron Pads	3rd Qtr-06	Y	TBD	N
30	3.9	Control Rod Drive System	3rd Qtr-06	Y	TBD	N
61	3.9	Integrated Head Package Design	3rd Qtr-06	Y	TBD	N
12	3.9-2	Design Specification and Reports (RVI SCC / Swelling)	3rd Qtr-06	N	Partial Closure of Standard Plant COL Item	N
18	4.3-1	Changes to Reference Reactor Design	3rd Qtr-06	Y	TBD	N
18	4.4-1	Changes to Reference Reactor Design	3rd Qtr-06	Y	TBD	N
18	4.4-2	Confirm Assumptions for Safety Analyses DNBR Limits	3rd Qtr-06	Y	TBD	N
31	4.5	Reactor Internals Materials	3rd Qtr-06	Y	TBD	N
34	5.4	Generic Reactor Coolant Pump	3rd Qtr-06	Y	TBD	N
26	6.3-2	Verification of Containment Resident Particulate Debris Characteristics	3rd Qtr-06	N	TBD	N
7	3.6-1	Pipe Break Hazards Analysis	4th Qtr-06	N	TBD	N
10	3.9-1	Reactor Internals Vibration Program	4th Qtr-06	N	TBD	N
13	3.9-2	Design Specification and Reports (Cycling & Stratification)	4th Qtr-06	N	Partial Closure of Standard Plant COL Item	N
24	5.3-5	Reactor Vessel Insulation	4th Qtr-06	N	TBD	N
70	13.5-1	Plant Procedures	4th Qtr-06	N	TBD	N
49	13.6-1	Security Plans, Organization and Testing	4th Qtr-06	N	TBD	N
71	14.4-2	Test Specifications and Procedures	4th Qtr-06	N	TBD	N
71	14.4-3	Conduct of Test Program	4th Qtr-06	N	TBD	N
66	19.59.10-4	Develop and Implement Severe Accident Management Guidance	4th Qtr-06	N	TBD	N

Attachment 1, NuStart PLANNED AP1000 TECHNICAL REPORTS

Tech. Report No.	COL Item No. or DCD Sec. No.	Subject	Available for NRC Review	Design Change?	Anticipated NRC Review Result	Site Specific?
68	19.59.10-5	Equipment Survivability	4th Qtr-06	N	TBD	N
11	3.9-2	Design Specification and Reports (ASME Specs & Design Reports)	Yr. 2007	N	Partial Closure of Standard Plant COL Item	N
69	3.9-2	Design Specification and Reports (Piping)	Yr. 2007	N	Partial Closure of Standard Plant COL Item	N
Many	18.2-1	Execution of the NRC Approved Human Factors Engineering Program	Yr. 2007	N	TBD	N
Many	18.5-1	Task Analysis	Yr. 2007	N	TBD	N
Many	18.8-1	Execution and Documentation of the Human System Interface Design Implementation Plan	Yr. 2007	N	TBD	N
64	18.10-1	Training Program Development	Yr. 2007	N	TBD	N
55	18.11-1	Verification and Validation of AP1000 Human Factors Engineering Program	Yr. 2007	N	TBD	N

ATTACHMENT 2, AP1000 Near Term Design Change Report Information

Report #	Subject	Anticipated DCD Impact	Anticipated Regulatory Impact
62	Methodology for Qualifying AP1000 Safety Related Electrical and Mechanical Equipment	Add a few paragraphs to 3.10, 3.11, and 3D to correct discussion about qualification by analysis and correct a few errors. Correct table in 3.11 of equipment to be qualified.	No effect on PRA No effect on Safety Analyses No effects on FSER conclusion are expected.
32	Zinc Addition A change to permit the use of zinc in the reactor coolant similar to what some operating plants have done. Zinc will be added to the list of elements found in reactor coolant and the CVS P&ID figure is modified to reflect this and a modification to optimize hydrogen addition. These changes have no effect on the make-up or water treatment functions of the CVS	Section 5.2 and Figure 9.3.6-1 CVS P&ID	No effect on PRA No effect on Safety Analyses No effect on FSER
37	Hydrogen Igniter Changes in the location of hydrogen igniters due to changes in the polar crane design and problems with the locations on the floor above the IRWST No effect on number, performance, or operation of the igniters.	Figures 6.2.4-5 and 6.2.4-9	No effect on PRA No effect on Safety Analyses No effect on FSER
38	PRHR heat exchanger The figure of the PRHR heat exchanger needs to be revise to reflect the current design and location and configuration of the supports. No effect on the function or operation of the heat exchanger	Figure 6.3-5	No effect on PRA No effect on Safety Analyses No effect on FSER
39	I&C Design Changes Changes to PMS logic Drawing and supporting text due to development of the AP1000 Plant Requirements and adoption of a new PMS platform. These are outcomes of the I&C design process. No effect on the design functions of the PMS.	Sections 7.2, 7.3. Figures in 7.2. Table 7.5-1	No effect on PRA No effect on Safety Analyses Design descriptions included in the FSER may be impacted. No effect on FSER conclusions is expected.

ATTACHMENT 2, AP1000 Near Term Design Change Report Information

Report #	Subject	Anticipated DCD Impact	Anticipated Regulatory Impact
41	Revise Tech Spec on minimum RCS flow during shutdown to reflect capability of pumps.	Tech Spec.	No effect on PRA No effect on Safety Analyses Tech Spec changes require NRC review and approval
3	<p>Extension of seismic analysis to soil sites</p> <ul style="list-style-type: none"> • Site parameter in Tier 1 extended down to 1000 fps – same parameter as AP600 • Dynamic analyses use finite element models instead of stick models in AP1000 Design Certification • 2D SASSI soil sensitivity analyses • ANSYS fixed Base and SASSI 3D analyses • Enveloping of FRS • Equivalent Static accelerations for building design <p>The report will describe the seismic methodology and summarize the results. Will include proposed revisions of Tier 2 Chapter 2 and Subsections 3.7.1 and 3.7.2.</p> <p>Detailed design calculation will be available for NRC audit.</p>	Chapter 2 Section 3.7	No effect on PRA No effect on Safety Analyses Specific FSER references to hard rock sites, parameters, and results will be impacted. Wider use of finite element models will also impact FSER description.
36	<p>Pressurizer Configuration</p> <p>The pressurizer is to be made shorter and larger in diameter because of piping acceleration issues. The effect of shorter walls of the pressurizer compartment shows up in a Tier 1 change and a large number of Tier 2 figure changes.</p>	Tier 1 Figures and Table 3.3 Approximately 30 Tier 2 figure changes.	No effect on PRA No effect on Safety Analyses No effects on FSER conclusions are expected. Reference to NRC reviews and audits based on the previous configuration may be impacted.

ATTACHMENT 3, AP1000 COL ITEMS

Item No.	Subject	DCD Sub-section	COL Item Summary
1.1-1	Construction and Startup Schedule	1.1.7	Combined License applicants referencing the AP1000 certified design will provide the construction and startup schedule information
2.1-1	Geography and Demography	2.1.1	Provide site-specific information related to site location and description, exclusion area authority and control, and population distribution
2.2-1	Identification of Site-specific Potential Hazards	2.2-1	Provide site-specific information related to the identification of potential hazards within the site vicinity, including an evaluation of potential accidents and verify that the frequency of site-specific potential hazards is consistent with the criteria outlined in AP1000 DCD Section 2.2. The site-specific information will provide a review of aircraft hazards, information on nearby transportation routes, and information on potential industrial and military hazards.
2.3-1	Regional Climatology	2.3.6.1	Address site-specific information related to regional climatology.
2.3-2	Local Meteorology	2.3.6.2	Address site-specific local meteorology information.
2.3-3	Onsite Meteorological Measurements Program	2.3.6.3	Address the site-specific onsite meteorological measurements program.
2.3-4	Short-Term Diffusion Estimates	2.3.6.4	Address the site-specific χ/Q values specified in subsection 2.3.4. For a site selected that exceeds the bounding χ/Q values, address how the radiological consequences associated with the controlling design basis accident continue to meet the dose reference values given in 10 CFR Part 50.34 and control room operator dose limits given in General Design Criteria 19 using site-specific χ/Q values. Consider topographical characteristics in the vicinity of the site for restrictions of horizontal and/or vertical plume spread, channeling or other changes in airflow trajectories, and other unusual conditions affecting atmospheric transport and diffusion between the source and receptors. No further action is required for sites within the bounds of the site parameters for atmospheric dispersion. With regard to assessment of the postulated impact of an accident on the environment, provide χ/Q values for each cumulative frequency distribution which exceeds the median value (50 percent of the time).

ATTACHMENT 3, AP1000 COL ITEMS

Item No.	Subject	DCD Sub-section	COL Item Summary
2.3-5	Long-Term Diffusion Estimates	2.3.6.5	Address long-term diffusion estimates and χ/Q values specified in AP1000 DCD subsection 2.3.5. Consider topographical characteristics in the vicinity of the site for restrictions of horizontal and/or vertical plume spread, channeling or other changes in airflow trajectories, and other unusual conditions affecting atmospheric transport and diffusion between the source and receptors. No further action is required for sites within the bounds of the site parameter for atmospheric dispersion. With regard to environmental assessment, provide estimates of annual average χ/Q values for 16 radial sectors to a distance of 50 miles from the plant.
2.4-1	Hydrological Description	2.4.1.1	Evaluate events leading to potential flooding to demonstrate that the site meets the site parameter for flood level. As necessary, propose measures to protect the plant according to the Standard Review Plan, Section 2.4.10. Events to be considered are those identified in Standard Review Plan, Section 2.4.2. Adverse effects of flooding due to high water or ice effects do not have to be considered for site-specific no safety-related structures and water sources outside the scope of the certified design. Flooding of water intake structures, cooling canals, or reservoirs or channel diversions would not prevent safe operation of the plant.

ATTACHMENT 3, AP1000 COL ITEMS

Item No.	Subject	DCD Sub-section	COL Item Summary
2.4-2	Floods	2.4.1.2	Address the following site-specific information on historical flooding and potential flooding factors, including the effects of local intense precipitation. Probable Maximum Flood on Stream and Rivers – Site-specific information that will be used to determine the design basis flooding at the site. This information will include the probable maximum flood on streams and rivers. Dam Failures – Site-specific information on potential dam failures. Probable Maximum Surge and Seiche Flooding – Site-specific information on probable maximum surge and seiche flooding. Probable Maximum Tsunami Loading – Site-specific information on probable maximum tsunami loading. Flood Protection Requirements – Site-specific information on flood protection requirements or verification that flood protection is not required to meet the site parameter for flood level. No further action is required for sites within the bounds of the site parameter for flood level.
2.4-3	Cooling Water Supply	2.4.1.3	Combined License applicants will address the water supply sources to provide makeup water to the service water system cooling tower.
2.4-4	Ground Water	2.4.1.4	Address site-specific information on groundwater. No further action is required for sites within the bounds of the site parameter for ground water.
2.4-5	Accidental Release of Liquid Effluents into Ground Water and Surface Water	2.4.1.5	Address site-specific information on the ability of the ground and surface water to disperse, dilute, or concentrate accidental releases of liquid effluents. Effects of these releases on existing and known future use of surface water resources will also be addressed.

ATTACHMENT 3, AP1000 COL ITEMS

Item No.	Subject	DCD Sub-section	COL Item Summary
2.4-6	Flood Protection Emergency Operation Procedures	2.4.1.6	<p>Address any flood protection emergency procedures required to meet the site parameter for flood level.</p> <p>NOTE: The AP1000 is designed for a normal groundwater elevation up to plant elevation 98¢ and for a flood level up to plant elevation 100¢. For structural analysis purposes, grade elevation is also established as plant elevation 100¢. Actual grade will be a few inches lower to prevent surface water from entering doorways. For a portion of the annex building the site grade will be 107 feet to permit truck access at the elevation of the floor in the annex building and inside containment. DCD Subsection 3.4.1 describes design provisions for groundwater and flooding. The Combined License applicant must evaluate events leading to potential flooding to demonstrate that the site meets the site parameter for flood level.</p>
2.5-1	Basic Geologic and Seismic Information	2.5.1	<p>Address the following regional and site-specific geological, seismological, and geophysical information as well as conditions caused by human activities:</p> <p>Structural geology of the site</p> <p>Seismicity of the site</p> <p>Geological history</p> <p>Evidence of paleoseismicity</p> <p>Site stratigraphy and lithology</p> <p>Engineering significance of geological features</p> <p>Site groundwater conditions</p> <p>Dynamic behavior during prior earthquakes</p> <p>Zones of alteration, irregular weathering, or structural weakness</p> <p>Unrelieved residual stresses in bedrock</p> <p>Materials that could be unstable because of mineralogy or unstable physical properties</p> <p>Effect of human activities in the area</p>
2.5-2	Site Seismic and Tectonic Characteristics Information	2.5.2.1	<p>Address the following site-specific information related to the vibratory ground motion aspects of the site and region:</p> <p>Seismicity</p> <p>Geologic and tectonic characteristics of site and region</p> <p>Correlation of earthquake activity with seismic sources</p>

ATTACHMENT 3, AP1000 COL ITEMS

Item No.	Subject	DCD Sub-section	COL Item Summary
			<p>Probabilistic seismic hazard analysis and controlling earthquakes</p> <p>Seismic wave transmission characteristics of the site</p> <p>SSE ground motion</p> <p>Demonstrate that the proposed site meets the following requirements:</p> <p>The free field peak ground acceleration at the foundation level is less than or equal to a 0.30g SSE.</p> <p>The site design response spectra at the foundation level in the free-field are less than or equal to those given in AP1000 DCD Figures 3.7.1-1 and 3.7.1-2.</p>
2.5-3	Geoscience Parameters	2.5.2.3	<p>If the site-specific spectra at foundation level exceed the response spectra in AP1000 DCD Figures 3.7.1-1 and 3.7.1-2 at any frequency, or if soil conditions are outside the range evaluated for AP1000 design certification, a site-specific evaluation can be performed. This evaluation will consist of a site-specific dynamic analysis and generation of in-structure response spectra to be compared with the floor response spectra of the certified design at 5-percent damping. The site design response spectra at the foundation level in the free-field given in Figures 3.7.1-1 and 3.7.1-2 were used to develop the floor response spectra. The site is acceptable for construction of the AP1000 if the floor response spectra from the site-specific evaluation do not exceed the AP1000 spectra for each of the locations identified below:</p> <p>Reactor vessel support Figure 3.7.2-17, Sheets 1–3</p> <p>Containment operating floor Figure 3.7.2-17, Sheets 4–6</p> <p>Coupled auxiliary and shield building Figure 3.7.2-15, Sheets 1–3</p> <p>at control room floor</p> <p>Coupled auxiliary and shield building Figure 3.7.2-15, Sheets 4–6</p> <p>at fuel building roof</p> <p>Coupled auxiliary and shield building Figure 3.7.2-15, Sheets 13–15</p>

ATTACHMENT 3, AP1000 COL ITEMS

Item No.	Subject	DCD Sub-section	COL Item Summary
			at shield building roof
			Steel containment vessel at polar crane support
			Figure 3.7.2-16, Sheets 1–3
			Site-specific soil structure interaction analyses must be performed by the Combined License applicant to demonstrate acceptability of sites that have seismic and soil characteristics outside the site parameters in Table 2-1. These analyses would use the site-specific soil conditions (including variation in soil properties in accordance with Standard Review Plan 3.7.2). The three components of the site-specific ground motion time history must satisfy the enveloping criteria of Standard Review Plan 3.7.1 for the response spectrum for damping values of 2, 3, 4, 5, and 7 percent and the enveloping criterion for power spectral density function. Floor response spectra determined from the site-specific analyses should be compared against the design basis of the AP1000 described above. Member forces in each of the sticks should be compared against those given in Tables 3.7.2-11 to 3.7.2-13. These evaluations and comparisons will be provided and reviewed as part of the Combined License application.
2.5-4	Surface Faulting	2.5.2.3	<p>Address the following surface and subsurface geological, seismological, and geophysical information related to the potential for surface or near-surface faulting affecting the site:</p> <p>Geological, seismological, and geophysical investigations</p> <p>Geological evidence, or absence of evidence, for surface deformation</p> <p>Correlation of earthquakes with capable tectonic sources</p> <p>Ages of most recent deformation</p> <p>Relationship of tectonic structures in the site area to regional tectonic structures</p> <p>Characterization of capable tectonic sources</p> <p>Designation of zones of quaternary deformation in the site region</p> <p>Potential for surface tectonic deformation at the site</p>

ATTACHMENT 3, AP1000 COL ITEMS

Item No.	Subject	DCD Sub-section	COL Item Summary
2.5-5	Site and Structures	2.5.4.5.1	Address site-specific information regarding the underlying site conditions and geologic features This information will include site topographical features, as well as the locations of seismic Category I structures.
2.5-6	Properties of Underlying Materials	2.5.4.5.2	<p>Establish the properties of the foundation soils to be within the range considered for design of the nuclear island basemat.</p> <p>See AP1000 DCD Subsection 2.5.4.5.2 for further details.</p>
2.5-7	Excavation and Backfill	2.5.4.5.3	<p>Address the extent (horizontal and vertical) of seismic Category I excavations, fills, and slopes, if any.</p> <p>See AP1000 DCD Subsection 2.5.4.5.3 for further details.</p>
2.5-8	Ground Water Conditions	2.5.4.5.4	Describe groundwater conditions relative to the foundation stability of the safety-related structures at the site. The soil properties of the various layers under possible groundwater conditions during the life of the plant will be compared to the range of values assumed in the standard design in DCD AP1000 Table 2-1.
2.5-9	Liquefaction Potential	2.5.4.5.5	Evaluate soils under and around seismic Category I structures for liquefaction potential for the site specific SSE ground motion. This should include justification of the selection of the soil properties, as well as the magnitude, duration, and number of excitation cycles of the earthquake used in the liquefaction potential evaluation (e.g., laboratory tests, field tests, and published data). Evaluate liquefaction potential to address seismic margin.
2.5-10	Bearing Capacity	2.5.4.5.6	<p>Verify that the site-specific allowable soil bearing capacities for static and dynamic loads are equal to or greater than the values documented in AP1000 DCD Table 2-1, or will provide a site-specific evaluation as described in AP1000 DCD subsection 2.5.4.2. The acceptance criteria for this evaluation are those of Standard Review Plan 2.5.4 as follows:</p> <p>The static and dynamic loads, and the stresses and strains induced in the soil surrounding and underlying the nuclear island, are conservatively and realistically evaluated.</p>

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Item No.	Subject	DCD Sub-section	COL Item Summary
			The consequences of the induced soil stresses and strains, as they influence the soil surrounding and underlying the nuclear island, have been conservatively assessed.
2.5-11	Earth Pressures	2.5.4.5.7	Describe the design for static and dynamic lateral earth pressures and hydrostatic groundwater pressures acting on plant safety-related facilities using soil parameters as evaluated in previous subsections.
2.5-12	Static and Dynamic Stability of Facilities	2.5.4.5.9	Address soil characteristics affecting the stability of the nuclear island addressed including foundation rebound, settlement, and differential settlement.
2.5-13	Subsurface Instrumentation	2.5.4.5.10	Provide data on instrumentation, if any, proposed for monitoring the performance of the foundations of the nuclear island. Specify the type, location, and purpose of each instrument, as well as significant details of installation methods. Address the location and installation procedures for permanent benchmarks and markers for monitoring the settlement.
2.5-14	Stability of Slopes	2.5.5	Address site-specific information about the static and dynamic stability of soil and rock slopes, the failure of which could adversely affect the nuclear island.
2.5-15	Embankments and Dams	2.5.6	Address site-specific information about the static and dynamic stability of embankments and dams, the failure of which could adversely affect the nuclear island.
3.3-1	Wind and Tornado Site Interface Criteria	3.3.3	Address site interface criteria for wind and tornado. Ensure that a tornado-initiated failure of structures and components within the Combined License applicant's scope will not compromise the safety of AP1000 safety-related structures and components (see also AP1000 DCD subsection 3.5.4).
3.4-1	Site-Specific Flooding Hazards Protective Measures	3.4.3	Demonstrate that the site satisfies the interface requirements as described in AP1000 DCD Section 2.4. If these criteria cannot be satisfied because of site-specific flooding hazards, the Combined License applicant may propose protective measures as discussed in Section 2.4.

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Item No.	Subject	DCD Sub-section	COL Item Summary
3.5-1	External Missile Protection Requirements	3.5.4	Demonstrate that the site satisfies the interface requirements provided in Section 2.2. This requires an evaluation for those external events that produce missiles that are more energetic than the tornado missiles postulated for design of the AP1000, or additional analyses of the AP1000 capability to handle the specific hazard.
3.6-1	Pipe Break Hazards Analysis	3.6.4.1	Complete the final pipe whip restraint design and address as built reconciliation of the pipe break hazards analysis in accordance with the criteria outlined in AP1000 DCD subsections 3.6.1.3.2 and 3.6.2.5. The as-built pipe rupture hazard analysis will be documented in an as-built Pipe Rupture Hazards Analysis Report.
3.6-2	Leak-Before-Break Evaluation of as-Designed Piping	3.6.4.2	Complete the leak-before-break evaluation by comparing the results of the as-designed piping stress analysis with the bounding analysis curves documented in AP1000 DCD Appendix 3B. The Combined License applicant may perform a leak-before-break application for a specific location and loading for cases not covered by the bounding analysis curves. Successfully satisfying the bounding analysis curve limits in Appendix 3B may necessitate lowering the detection limit for unidentified leakage in containment from 0.5 gpm to 0.25 gpm. If so, the Combined License applicant shall provide a leak detection system capable of detecting a 0.25 gpm leak within 1 hour and shall modify appropriate portions of the DCD including subsections 5.2.5, 3.6.3.3, 11.2.4.1, Technical Specification 3.4.7 (and Bases), Technical Specification Bases B3.4.9, and Technical Specification 3.7.8 (and Bases). The leak-before-beak evaluation will be documented in a leak-before-break evaluation report.

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Item No.	Subject	DCD Sub-section	COL Item Summary
3.6.3	Leak-Before-Break Evaluation of as-Built Piping	3.6.4.3	Address: 1) verification that the as-built stresses, diameter, wall thickness, material, welding process, pressure, and temperature in the piping excluded from consideration of the dynamic effects of pipe break are bounded by the leak-before-break bounding analysis; 2) a review of the Certified Material Test Reports or Certifications from the Material Manufacturer to verify that the ASME Code, Section III strength and Charpy toughness requirements are satisfied; and 3) complete the leak-before-break evaluation by comparing the results of the final piping stress analysis with the bounding analysis curves documented in Appendix 3B. The leak-before-break evaluation will be documented in a leak-before-break evaluation report.
3.6-4	Primary System Inspection Program for Leak-Before-Break Piping	3.6.4.4	Develop an inspection program for piping systems qualified for leak-before-break. The inspection program will consider the operating experience of the materials used in the AP1000 piping systems qualified for leak-before-break, and will include augmented inspection plans and evaluation criteria consistent with those measures imposed on or adopted by operating PWRs as part of the ongoing resolution of concerns regarding the potential for PWSCC in operating plants. The AP1000 inspection program will be consistent with the inspection program adopted for operating PWRs that use Alloy 690, 52, and 152 in approved leak-before-break applications.
3.7-1	Seismic Analysis of Dams	3.7.5.1	Evaluate dams whose failure could affect the site interface flood level specified in subsection 2.4.1.2. The evaluation of the safety of existing and new dams will use the site-specific safe shutdown earthquake.

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Item No.	Subject	DCD Sub-section	COL Item Summary
3.7-2	Post-Earthquake Procedures	3.7.5.2	Prepare site-specific procedures for activities following an earthquake. These procedures will be used to accurately determine both the response spectrum and the cumulative absolute velocity of the recorded earthquake ground motion from the seismic instrumentation system. The procedures and the data from the seismic instrumentation system will provide sufficient information to guide the operator on a timely basis to determine if the level of earthquake ground motion requiring shutdown has been exceeded. The procedures will follow the guidance of EPRI Reports NP-5930 (Reference 1), TR-100082 (Reference 17), and NP-6695 (Reference 18), as modified by the NRC staff (Reference 32). (The references in the "COL Item Summary" are located in AP1000 DCD Subsection 3.7.)
3.7-3	Seismic Interaction Review	3.7.5.3	The seismic interaction review will be updated by the Combined License applicant. This review is performed in parallel with the seismic margin evaluation. The review is based on as-procured data, as well as the as-constructed condition.
3.7-4	Reconciliation of Seismic Analyses of Nuclear Island Structures	3.7.5.5	Reconcile the seismic analyses described in AP1000 DCD subsection 3.7.2 for detail design changes at rock sites such as those due to as-procured equipment information. Deviations are acceptable based on an evaluation consistent with the methods and procedure of Section 3.7 provided the amplitude of the seismic floor response spectra including the effect due to these deviations, do not exceed the design basis floor response spectra by more than 10 percent.
3.7-5	Location of Free-Field Acceleration Sensor	3.7.5.5	Determine the location for the free-field acceleration sensor as described in AP1000 DCD subsection 3.7.4.2.1.
3.8-1	Containment Vessel Design Adjacent to Large Penetrations	3.8.6.1	The final design of containment vessel elements (reinforcement) adjacent to concentrated masses (penetrations) is completed by the Combined License applicant and documented in the ASME Code design report in accordance with the criteria described in subsection 3.8.2.4.1.2.
3.8-2	Passive Containment	3.8.6.2	Examine the structures supporting the passive containment cooling storage tank on the shield

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Item No.	Subject	DCD Sub-section	COL Item Summary
3.8-3	As-Built Summary Report	3.8.6.3	Evaluate deviations from the design due to as-procured or as-built conditions and will summarize the results of the evaluation in an as-built summary report as described in AP1000 DCD subsections 3.8.3.5.7, 3.8.4.5.3 and 3.8.5.4.2.
3.8-4	In-Service Inspection of Containment Vessel	3.8.6.4	Perform in-service inspection of the containment according to the ASME Code Section XI, Subsection IWE, as described in AP1000 DCD subsection 3.8.2.7.
3.9-1	Reactor Internal Vibration Program	3.9.8.1	Information including predicted vibration response and allowable response will be provided prior to the preoperational vibration testing of the first AP1000 consistent with the guidance of Regulatory Guide 1.20.
3.9-2	Design Specification and Reports	3.9.8.2	(a) Have available for NRC audit the design specifications and design reports prepared for ASME Section III components. (b) Address the consistency of the reactor vessel core support materials relative to known issues of irradiation-induced stress corrosion cracking or void swelling (see AP1000 DCD subsection 4.5.2.1). (e) <i>[The design report for the ASME Class 1, 2, and 3 piping will include the reconciliation of the as-built piping as outlined in subsection 3.9.3. This reconciliation includes verification of the thermal cycling and stratification loadings considered in the stress analysis discussed in subsection 3.9.3.1.2.]*</i>
3.9-3	Snubber Operability Testing	3.9.8.3	Develop a program to verify operability of essential snubbers as outlined in AP1000 DCD subsection 3.9.3.4.3.
3.9-4	Valve In-service Testing	3.9.8.4	<p>Develop an in-service test program in conformance with the valve in-service test requirements outlined in AP1000 DCD subsection 3.9.6 and Table 3.9-16. This program will include provisions for nonintrusive check valve testing methods and the program for valve disassembly and inspection outlined in subsection 3.9.6.2.3.</p> <p>Complete an evaluation as identified in subsection 3.9.6.2.2 to demonstrate that power-operated valves with low differential pressure have adequate margin and operability testing of these valves is not required.</p>

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Item No.	Subject	DCD Sub-section	COL Item Summary
3.9-5	Surge Line Thermal Monitoring	3.9.8.5	A monitoring program will be implemented by the Combined License holder at the first AP1000 to record temperature distributions and thermal displacements of the surge line piping as outlined in AP1000 DCD subsection 3.9.3.1.2.
3.9-6	Piping Benchmark Program	3.9.8.6	Implement a benchmark program as described in AP1000 DCD subsection 3.9.1.2 if a piping analysis computer program other than one of those used for design certification is used. The piping benchmark problems identified in Reference 20 for the Westinghouse AP600 are also representative for the AP1000 and can be used for the AP1000 piping benchmark program if required.
3.10-1	Experience-Based Qualification	3.10.6	<i>[Address, as part of the Combined License application, identification of the equipment qualified based on experience and include details of the methodology and the corresponding experience data. The corresponding experience data for each piece of equipment will be included in the equipment qualification file.]*</i>
3.11-1	Equipment Qualification File	3.11.5	The Combined License applicant is responsible for the maintenance of the equipment qualification file during the equipment selection and procurement phase.
4.2-1	Changes to Reference Reactor Design	4.2.5	Address changes to the reference design of the fuel, burnable absorber rods, rod cluster control assemblies, or initial core design from that presented in the DCD.
4.3-1	Changes to Reference Reactor Design	4.3.4	Address changes to the reference design of the fuel, burnable absorber rods, rod cluster control assemblies, or initial core design from that presented in the DCD.
4.4-1	Changes to Reference Reactor Design	4.4.7	Address changes to the reference design of the fuel, burnable absorber rods, rod cluster control assemblies, or initial core design from that presented in the DCD.

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Item No.	Subject	DCD Sub-section	COL Item Summary
4.4-2	Confirm Assumptions for Safety Analyses DNBR Limits	4.4.7	Following selection of the actual plant operating instrumentation and calculation of the instrumentation uncertainties of the operating plant parameters as discussed in subsection 7.1.6, Combined License applicants will calculate the design limit DNBR values using the RTDP with these instrumentation uncertainties and confirm that either the design limit DNBR values as described in Section 4.4, "Thermal and Hydraulic Design," remain valid, or that the safety analysis minimum DNBR bounds the new design limit DNBR values plus DNBR penalties, such as rod bow penalty.
5.2-1	ASME Code and Addenda	5.2.6.1	Address in its application the portions of later ASME Code editions and addenda to be used to construct components that will require NRC staff review and approval. Address consistency of the design with the construction practices (including inspection and examination methods) of the later ASME Code edition and addenda added as part of the Combined License application. Address the addition of ASME code cases approved subsequent to design certification.
5.2-2	Plant Specific Inspection Program	5.2.6.2	Provide a plant-specific preservice inspection and inservice inspection program. The program will address reference to the edition and addenda of the ASME Code Section XI used for selecting components subject to examination, a description of the components exempt from examination by the applicable code, and drawings or other descriptive information used for the examination.
			See AP1000 DCD subsection 5.2.6.2 for further details.

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Item No.	Subject	DCD Sub-section	COL Item Summary
5.3-1	Reactor Vessel Pressure – Temperature Limit Curves		The pressure-temp. curves shown in AP1000 DCD Figures 5.3-2 and 5.3-3 are generic curves for AP1000 reactor vessel design, and they are the limiting curves based on copper and nickel material composition. However, for a specific AP1000, these curves will be plotted based on material composition of copper and nickel. Use of plant-specific curves will be addressed by the Combined License applicant during procurement of the reactor vessel. As noted in the bases to Technical Specification 3.4.14, use of plant-specific curves requires evaluation of the LTOP system. This includes evaluating the set point pressure for the RNS relief valve.
5.3-2	Reactor Vessel Materials Surveillance Program	5.3.6.2	Address a reactor vessel reactor material surveillance program based on AP1000 DCD subsection 5.3.2.6.
5.3-3	Surveillance Capsule Lead Factor and Azimuthal Location Confirmation	5.3.6.3	Address confirmation of the surveillance capsule lead factors and azimuthal locations through an analysis which includes modeling of the capsule/holder.
5.3-4	Reactor Vessel Materials Properties Verification	5.3.6.4	<p>Address verification of plant-specific belt line material properties consistent with the requirements in AP1000 DCD subsection 5.3.3.1 and Tables 5.3-1 and 5.3-3. The verification will include a pressurized thermal shock evaluation based on as-procured reactor vessel material data and the projected neutron fluences for the plant design objective of 60 years. This evaluation report will be submitted for NRC staff review.</p> <p>The verification will include structural analysis of the AP1000 reactor vessel insulation and support structure.</p>
5.3-5	Reactor Vessel Insulation	5.3.6.5	The Combined License applicant will address verification that the reactor vessel insulation is consistent with the design bases established for in-vessel retention. The ULPU Configuration V test data is suitable to be used to develop the design loads for the AP1000 reactor vessel insulation design.

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Item No.	Subject	DCD Sub-section	COL Item Summary
5.4-1	Steam Generator Tube Integrity	5.4.15	Address steam generator tube integrity with a Steam Generator Tube Surveillance Program that will address the need to develop a program for periodic monitoring of degradation of steam generator internals.
6.1-1	Procedure Review for Austenitic Stainless Steels	6.1.3.1	Address review of vendor fabrication and welding procedures or other quality assurance methods to judge conformance of austenitic stainless steels with Regulatory Guides 1.31 and 1.44.
6.1-2	Coatings Program	6.1.3.2	Provide a program to control procurement, application, and monitoring of Service Level I and Service Level III coatings. The program for the control of the use of these coatings will be consistent with AP1000 DCD subsection 6.1.2.1.6.
6.2-1	Containment Leak Rate Testing	6.1.3.2	Develop "Containment Leakage Rate Testing Program" which will identify which Option is to be implemented under 10 CFR 50, Appendix J. Option A defines a prescriptive-based testing approach whereas option B defines a performance-based testing program.
6.3-1	Containment Cleanliness Program	6.3.8.1	Address preparation of a program to limit the amount of debris that might be left in the containment following refueling and maintenance outages. The cleanliness program will limit the storage of outage materials (such as temporary scaffolding and tools) inside containment during power operation consistent with COL item 6.3.8.2.

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6.3-2	Verification of Containment Resident Particulate Debris Characteristics		Perform an evaluation consistent with Regulatory Guide 1.82, revision 3, and subsequently approved NRC guidance, to demonstrate that adequate long-term core cooling is available considering debris resulting from a LOCA together with debris that exists before a LOCA. As discussed in AP1000 DCD subsection 6.3.2.2.7.1, a LOCA in the AP1000 does not generate fibrous debris due to damage to insulation or other materials included in the AP1000 design. The evaluation will consider resident fibers and particles that could be present considering the plant design, location, and containment cleanliness program. The determination of the characteristics of such resident debris will be based on sample measurements from operating plants. The evaluation will also consider the potential for the generation of chemical debris (precipitants). The potential to generate such debris will be determined considering the materials used inside the AP1000 containment, the post-accident water chemistry of the AP1000, and the applicable research/testing.
6.4-1	Local Toxic Gas Services and Monitoring	6.4.7	Define the amount and location of possible sources of toxic chemicals in or near the plant and for seismic Category I Class 1E toxic gas monitoring, as required. Regulatory Guide 1.78. addresses control room protection for toxic chemicals and evaluation of offsite toxic releases (including the potential for toxic releases beyond 72 hours) in order to meet the requirements of TMI Action Plan Item III.D.3.4 and GDC 19.
6.4-2	Procedures for Training for Control Room Habitability	6.4.7	Verify that procedures and training for control room habitability are consistent with the intent of Generic Issue 83 (see AP1000 DCD Section 1.9).
6.4-3	Main Control Room In leakage Test Frequency	6.4.7	Provide the testing frequency for the main control room in leakage test discussed in AP1000 DCD subsection 6.4.5.4.
6.6-1	Inspection Programs	6.6.9.1	Prepare a pre-service inspection program (nondestructive examination) and an inservice inspection program for ASME Code, Section III Class 2 and 3 systems, components, and supports. The pre-service inspection program will address the equipment and techniques used.

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Item No.	Subject	DCD Sub-section	COL Item Summary
6.6-2	Construction activities	6.6.9.2	Address the controls to preserve accessibility and inspectability for ASME Code, Section III, Class 2 and 3 components and piping during construction or other post design certification activities.
7.1-1	Setpoint Calculations for Protective Functions	7.1.6	Provide a calculation of setpoints for protective functions consistent with the methodology presented in Reference 5 (see AP1000 DCD subsection 7.1.7). Reference 5 is an AP600 document that describes a methodology that is applicable to AP1000. AP1000 has some slight differences in instrument spans.
7.1-2	Resolution of Generic Open Items and Plant-Specific Action Items	7.1.6	Provide resolution for generic open items and plant-specific action items resulting from NRC review of the I&C platform. This will include definition of a methodology for overall response time testing.
7.2-1	FMEA for Protection System	7.2.3	Provide an FMEA for the protection and safety monitoring system. The FMEA will include a Software Hazards Analysis. This FMEA will provide the basis for those Technical Specification Completion Times that rely on an FMEA for their basis.
8.2-1	Offsite Electrical System	8.2.5	Address the design of the ac power transmission system and its testing and inspection plan.
8.2.2	Technical Interfaces	8.2.5	Address the technical interfaces for this nonsafety-related system listed in AP1000 DCD Table 1.8-1 and subsection 8.2.2. These technical interfaces include those for ac power requirements from offsite and the analysis of the offsite transmission system and the setting of protective devices.
8.3-1	Grounding and Lightning	8.3.3	Address the design of grounding and lightning protection.
8.3-2	Onsite Electrical Power Plant Procedures	8.3.3	The Combined License applicant will establish plant procedures as required for:
			• Clearing ground fault on the Class 1E dc system
			• Checking sulfated battery plates or other anomalous conditions through periodic inspections
			• Battery maintenance and surveillance (for battery surveillance requirements, refer to DCD Chapter 16, Section 3.8)

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Item No.	Subject	DCD Sub-section	COL Item Summary
			<ul style="list-style-type: none"> Periodic testing of penetration protective devices Diesel generator operation, inspection, and maintenance in accordance with manufacturers' recommendations.
9.1-1	New Fuel Rack Design	9.1.6	Perform confirmatory structural dynamic and stress analysis for the new fuel rack, as described in AP1000 DCD subsection 9.1.1.2.1.
9.1-2	Criticality Analysis for New Fuel Rack	9.1.6	Perform a confirmatory criticality analysis for the new fuel rack, as described in AP1000 DCD subsection 9.1.1.3. This analysis should address the degradation of integral neutron absorbing material in the new fuel pool storage racks as identified in GL-96-04, and assess the integral neutron absorbing material capability to maintain a 5-percent subcriticality margin.
9.1-3	Spent Fuel Racks	9.1.6	Perform a confirmatory structural dynamic and stress analysis for the spent fuel racks, as described in subsection 9.1.2.2.1. This includes reconciliation of loads imposed by the spent fuel racks on the spent fuel pool structure described in subsection 3.8.4.
9.1-4	Criticality Analysis for Spent Fuel Racks	9.1.6	Perform a confirmatory criticality analysis for the spent fuel racks, as described in AP1000 DCD subsection 9.1.2.3. This analysis should address the degradation of integral neutron absorbing material in the spent fuel pool storage racks as identified in GL-96-04, and assess the integral neutron absorbing material capability to maintain a 5-percent subcriticality margin.
9.1-6	Radiation Monitor	9.1.6	Ensure an operating radiation monitor is mounted on any crane or fuel handling machine when it is handling fuel.
9.1-5	Inservice Inspection Program of Cranes	9.1.6	The Combined License applicant is responsible for a program for inservice inspection of the light load handling system as specified in subsection 9.1.4.4 and the overhead heavy load handling system in accordance with ANSI B30.2, ANSI B30.9, ANSI N14.6, and ASME NOG-1 as specified in subsection 9.1.5.4.
9.3-1	Air Systems (NUREG-0933 Issue 43)	9.3.7	The Combined License applicant will address DCD 1.9.4.2.3, Issue 43 as part of training and procedures identified in section 13.5.

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Item No.	Subject	DCD Sub-section	COL Item Summary
			(This issue addresses the concern that compressed air system degradation or malfunction may cause malfunction of safety-related systems and components.)
9.4-1	Ventilation Systems Operations	9.4.12	Implement a program to maintain compliance with ASME AG-1 ASME N509 ASME N510 (Reference 3) and Regulatory Guide 1.140 (Reference 30) for portions of the nuclear island nonradioactive ventilation system and the containment air filtration system identified in AP1000 DCD subsection 9.4.1 and 9.4.7. Also, provide a description of the MCR/TSC HVAC subsystem's recirculation mode during toxic emergencies, and how the subsystem equipment isolates and operates, as applicable, consistent with the toxic issues, including conformance with Regulatory Guide 1.78 to be addressed by the Combined License applicant as discussed in DCD subsection 6.4.7.
9.5-1	Qualification Requirements for Fire Protection Program	9.5.1.8	Address qualification requirements for individuals responsible for development of the fire protection program, training of firefighting personnel, administrative procedures and controls governing the fire protection program during plant operation, and fire protection system maintenance.
9.5-2	Fire Protection Analysis	9.5.1.8	Provide site-specific fire protection analysis information for the yard area, the administration
9.5-3	Regulatory Conformance	9.5.1.8	Address BTP CMEB 9.5-1 issues identified in AP1000 DCD Table 9.5.1-1 by the acronym "WA."
9.5-4	NFPA Exceptions	9.5.1.8	Address updating the list of NFPA exceptions after design certification, if necessary.
9.5-5	Operator Actions Minimizing Spurious ADS Actuation	9.5.1.8	Provide an analysis that demonstrates that operator actions which minimize the probability of the potential for spurious ADS actuation as a result of a fire can be accomplished within 30 minutes following detection of the fire and the procedure for the manual actuation of the valve to allow fire water to reach the automatic fire system in the containment maintenance floor.
9.5-6	Verification of Field Installed Fire Barriers	9.5.1.8	Address the process for identifying deviations between the as-built installation of fire barriers and their tested configurations.

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Item No.	Subject	DCD Sub-section	COL Item Summary
9.5-7	Fire Resistance Test Data	9.5.1.8	Provide 2-hour fire resistance test data in accordance with ASTM E-119 and NFPA 251 for the composite material selected for stairwell fire barriers.
9.5-8	Establishment of Procedures to Minimize Risk for Fire Areas Breached During Maintenance.	9.5.1.8	Establish procedures to minimize risk when fire areas are breached during maintenance. These procedures will address a fire watch for fire areas breached during maintenance.
9.5-9	Offsite Interfaces	9.5.2.5.1	Address interfaces to required offsite locations; this will include addressing the recommendations of BL-80-15 (AP1000 DCD subsection 9.5, Reference 21) regarding loss of the emergency notification system due to a loss of offsite power
9.5-10	Emergency Offsite Communications	9.5.2.5.2	Address the emergency offsite communication system, including the crisis management radio system.
9.5-11	Security Communications	9.5.2.5.3	Provide specific details for the security communication system as described in AP1000 DCD subsections 13.6.9 and 13.6.10.
9.5-12	Cathodic Protection	9.5.4.7	Address the site-specific need for cathodic protection in accordance with NACE Standard RP-01-69 for external metal surfaces of metal tanks in contact with the ground.
9.5-13	Fuel Degradation Protection	9.5.4.7	Address site-specific factors in the fuel oil storage tank installation specification to reduce the effects of sun heat input into the stored fuel, the diesel fuel specifications grade and the fuel properties consistent with manufacturers' recommendations, and will address measures to protect against fuel degradation by a program of fuel sampling and testing.
10.1-1	Erosion-Corrosion Monitoring	10.1.3	Prepare an erosion-corrosion monitoring program for carbon steel portions of the steam and power conversion systems that contain water or wet steam. This monitoring program will address industry guidelines and the requirements included in Generic Letter 89-08.

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Item No.	Subject	DCD Sub-section	COL Item Summary
10.2-1	Turbine Maintenance and Inspection	10.2.6	Submit to the staff for review and approval within 3 years of obtaining a Combined License, and then implement a turbine maintenance and inspection program. The program will be consistent with the maintenance and inspection program plan activities and inspection intervals identified in subsection 10.2.3.6. The Combined License holder will have available plant-specific turbine rotor test data and calculated toughness curves that support the material property assumptions in the turbine rotor analysis.
10.4-1	Circulating Water System	10.4.12.1	Address the final configuration of the plant circulating water system including piping design pressure, the cooling tower or other site-specific heat sink.
10.4-2	Condensate, Feedwater and Auxiliary Steam System Chemistry Control	10.4.12.2	The Combined License applicant will address the oxygen scavenging agent and pH adjuster selection for the turbine island chemical feed system.
10.4-3	Potable Water	10.4.12.3	Address the specific biocide to be added to potable water. A biocide such as sodium hypochlorite is recommended. Toxic gases such as chlorine are not recommended. The impact of toxic gases on the main control room compatibility is addressed in AP1000 DCD Section 6.4.
11.2-1	Liquid Radwaste Processing by Mobile Equipment	11.2.5.1	Discuss how any mobile or temporary equipment used for storing or processing liquid radwaste conforms to Regulatory Guide 1.143. For example, this includes discussion of equipment containing radioactive liquid radwaste in the nonseismic Radwaste Building.
11.2-2	Cost Benefit Analysis of Population Doses	11.2.5.2	Provide a site specific cost-benefit analysis to address the requirements of 10 CFR 50, Appendix I, regarding population doses due to liquid effluents.
11.2-3	Identification of Ion Exchange and Adsorbent Media	11.2.5.3	Identify the types of liquid waste ion exchange and adsorbent media to be used in the liquid radwaste system (WLS). This determination will be based on developments in ion exchange technology and specific characteristics of the liquid radwaste to be processed.

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Item No.	Subject	DCD Sub-section	COL Item Summary
11.2-4	Dilution and Control of Boric Acid Discharge	11.2.5.4	<p>Determine the rate of discharge and the required dilution to maintain acceptable concentrations. Refer to AP1000 DCD Section 11.5 for a discussion of the program to control releases.</p> <p>Discuss the planned discharge flow rate for borated wastes and controls for limiting the boric acid concentration in the circulating water system blowdown.</p>
11.3-1	Cost Benefit Analysis of Population Doses	11.3.5.1	Provide a site specific cost-benefit analysis to demonstrate compliance with 10 CFR 50, Appendix I, regarding population doses due to gaseous effluents.
11.3-2	Identification of Adsorbent Media	11.2.5.3	Identify the types of adsorbent media to be used in the gaseous radwaste system.
11.4-1	Solid Waste Management System Process Control Program	11.4.6	The Combined License applicant will develop a process control program in compliance with 10 CFR Sections 61.55 and 61.56 for wet solid wastes and 10 CFR Part 71 and DOT regulations for both wet and dry solid wastes.
11.5-1	Plant Offsite Dose Calculation Manual (ODCM)	11.5.7	Develop an offsite dose calculation manual that contains the methodology and parameters used for calculation of offsite doses resulting from gaseous and liquid effluents. Address operational setpoints for the radiation monitors and address programs for monitoring and controlling the release of radioactive material to the environment, which eliminates the potential for unmonitored and uncontrolled release. The offsite dose calculation manual will include planned discharge flow rates.
11.5-2	Effluent Monitoring and Sampling	11.5.7	The Combined License applicant is responsible for the site-specific and program aspects of the process and effluent monitoring and sampling per ANSI N13.1 and Regulatory Guides 1.21 and 4.15.
11.5-3	10 CFR 50, Appendix I	11.5.7	The Combined License applicant is responsible for addressing the 10 CFR 50, Appendix I guidelines for maximally exposed offsite individual doses and population doses via liquid and gaseous effluents.

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Item No.	Subject	DCD Sub-section	COL Item Summary
12.1-1	ALARA and Operational Policies	12.1.3	Address operational considerations of ALARA, as well as operational policies and continued compliance with 10 CFR 20 and Regulatory Guides 1.8, 8.8, and 8.10. In addition, address operational considerations of the Standard Review Plan to the level of detail provided in Regulatory Guide 1.70. Regulatory Guides that will be addressed include: 8.2, 8.7, 8.9, 8.13, 8.15, 8.20, 8.25, 8.26, 8.27, 8.28, 8.29, 8.34, 8.35, 8.36, and 8.38.
12.2-1	Additional Contained Radiation Sources	12.2.3	Address any additional contained radiation sources not identified in subsection 12.2.1, including radiation sources used for instrument calibration or radiography.
12.3-1	Administrative Controls for Radiological Protection	12.3.5	Address the administrative controls for use of the design features provided to control access to radiologically restricted areas, including potentially very high radiation areas, such as the fuel transfer tube during refueling operations and to the reactor cavity.
12.3-2	Criteria and Methods for Radiological Protection	12.3.5	Address the criteria and methods for obtaining representative measurement of radiological conditions, including airborne radioactivity concentrations in work areas. Address the use of portable instruments, and the associated training and procedures, to accurately determine the airborne iodine concentration in areas within the facility where plant personnel may be present during an accident.
12.5-1	Radiological Protection Organization and Procedures	12.5.5	Address the organization and procedures used for adequate radiological protection and to provide methods so that personnel radiation exposures will be maintained ALARA.
13.1-1	Organizational Structure of Combined License Applicant	13.1.1	Address the adequacy of the organizational structure.
13.2-1	Training Program for Plant Personnel	13.2.1	Develop and implement training programs for plant personnel. This includes the training program for the operations personnel who participate as subjects in the human factors engineering verification and validation. Address the scope of licensing examinations as well as new training requirements.

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Item No.	Subject	DCD Sub-section	COL Item Summary
13.3-1	Emergency Planning and Communications	13.3.1	Address emergency planning including post-72 hour actions and its communication interface.
13.3-2	Activation of Emergency Operations Facility	13.3.1	Address the activation of the emergency operations facility consistent with current operating practice and NUREG-0654/FEMA-REP-1.
13.4-1	Operational Review	13.4.1	Address each operational review.
13.5-1	Plant Procedures	13.5.1	Address plant procedures including the following:
			- Normal operation
			- Abnormal operation
			- Emergency operation
			- Refueling and outage planning
			- Alarm response
			- Maintenance, inspection, test and surveillance
			- Administrative
13.6-1	Security Plans, Organization and Testing	13.6.13.1	Address site-specific information related to the security, contingency, and guard training plans. Those plans will include descriptions of the tests planned to show operational status, maintenance of the plant security system, the security organization, communication, and response requirements.
			Develop the comprehensive physical security program which includes the security plan, contingency plan, and guard training plan. Each COL applicant will describe in its physical security plan how the requirements of 10 CFR Part 26 will be met.
			At least 60 days before loading fuel, confirm that the security systems and programs described in its physical security plan, safeguards contingency plan, and training and qualification plan have achieved operational status and are available for the staff's inspection. Operational status means that the security systems and programs are functioning. The determination that operational status has been achieved will be based on tests conducted under realistic operating conditions of sufficient duration to demonstrate that:
			- the equipment is properly operating;

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Item No.	Subject	DCD Sub-section	COL Item Summary
			<ul style="list-style-type: none"> - procedures have been developed, approved, and implemented; and - Personnel responsible for security operations and maintenance have been appropriately trained and have demonstrated their capability to perform their assigned duties and responsibilities.
13.6-2	Vital Equipment Verification	13.6.13.2	Combined License applicants referencing the AP1000 certified design will verify that the as-built location of vital equipment is inside the vital areas identified in Reference 6.
13.6-3	Site-Specific Security System	13.6.13.3	Address site-specific information related to the design, maintenance, and testing of the plant security system, including definition of the protected area; definition and location of the site boundary fence; definition, location, and detail design of the vehicle barrier; definition of control points for personnel, vehicle, and material access into the protected areas; detail design and bullet resistance of the structure that isolates the individual responsible for the last access control function for admission to the protected area; detection and alarm design features; security lighting; security power supply including the interface to the UPS system; and communication system.
13.6-4	Nuclear Material Control Requirements	13.6.13.4	Combined License applicants referencing the AP1000 certified design will address specific material control measures as required by 10 CFR Part 70 and the guidance provided in Reference 9.
14.4-1	Organization and Staffing	14.4.1	The specific staff, staff responsibilities, authorities, and personnel qualifications for performing the AP1000 initial test program are the responsibility of the Combined License applicant. This test organization is responsible for the planning, executing, and documenting of the plant initial testing and related activities that occur between the completion of plant/system/component construction and commencement of plant commercial operation. Transfer and retention of experience and knowledge gained during initial testing for the subsequent commercial operation of the plant is an objective of the test program.

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Item No.	Subject	DCD Sub-section	COL Item Summary
14.4-2	Test Specifics and Procedures	14.4.2	Provide test specifications and test procedures for the preoperational and startup tests, as identified in AP1000 DCD subsection 14.2.3, for review by the NRC.
14.4-3	Conduct of Test Program	14.4.3	The Combined License applicant is responsible for a startup administration manual (procedure) which contains the administration procedures and requirements that govern the activities associated with the plant initial test program, as identified in AP1000 DCD subsection 14.2.3.
14.4-4	Review and Evaluation of Test Results	14.4.4	The Combined License applicant or holder is responsible for review and evaluation of individual test results. Test exceptions or results which do not meet acceptance criteria are identified to the affected and responsible design organizations, and corrective actions and retests, as required, are performed.
14.4-5	Testing Interface Requirements	14.4.5	The combined license applicant is responsible for testing that may be required of structures and systems which are outside the scope of this design certification. Test Specifications and acceptance criteria are provided by the responsible design organizations as identified in subsection 14.2.3. The interfacing systems to be considered for testing are taken from Table 1.8-1 and include as a minimum, the following:
			- storm drains
			- site specific seismic sensors
			- offsite ac power systems
			- circulating water heat sink
			- raw and sanitary water systems
			- individual equipment associated with the fire brigade
			- portable personnel monitors and radiation survey instruments
14.4-5	Testing Interface Requirements	14.4.5	- equipment associated with the physical security plan
14.4-6	First-Plant-Only and Three-Plant-Only Tests	14.4.6	<i>[The COL applicant or holder for the first plant and the first three plants will perform the tests listed in subsection 14.2.5. For subsequent plants, the COL applicant or licensee shall either perform the tests listed in subsection 14.2.5, or shall provide a justification that the results of the first-plant-only tests or first-three-plant tests are applicable to the subsequent plant.]*</i>

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Item No.	Subject	DCD Sub-section	COL Item Summary
15.7-1	Consequences of Tank Failure	15.7.6	Perform an analysis of the consequences of potential release of radioactivity to the environment due to a liquid tank failure as outlined in subsection 15.7.3.
16.1-1	Technical Specification Preliminary Information	16.1	This set of technical specifications is intended to be used as a guide in the development of the plant-specific technical specifications. Combined License applicants referencing the AP1000 will replace preliminary information provided in brackets [] with final plant specific values.
16.3-1	Procedure to control Operability	16.3.2	Develop a procedure to control the operability of investment protection systems, structures and
17.5-1	Quality Assurance Design Phase	17.5	The Combined License applicant or holder will address its design phase Quality Assurance
17.5-2	Quality Assurance for Procurement, Fabrication, Installation, Construction and Testing	17.5	The Combined License applicant or holder will address its Quality Assurance program for procurement, fabrication, installation, construction and testing of structures, systems and components in the facility. The quality assurance program will include provisions for seismic Category II structures, systems, and components.
17.5-3	Design Reliability Assurance Program/Site Specific List of Systems, Structures and Components	17.5	The COL applicant or holder will establish PRA importance measures, the expert panel process, and other deterministic methods to determine the site-specific list of SSCs under the scope of RAP.
			The Combined License applicant is responsible for integrating the objectives of the O-RAP into the Quality Assurance Program developed to implement 10 CFR 50, Appendix B. This program will address failures of non-safety-related, risk-significant SSCs that result from design and operational errors in accordance with SECY-95-132, Item E.
17.5-4	Quality Assurance Program for	17.5	Address Quality Assurance program for operations.
17.5-5	Maintaining Reliability of Risk-Significant SSCs	17.5	Perform the tasks necessary to maintain the reliability of risk-significant SSCs. AP1000 DCD Chapter 17, Reference 8 contains examples of cost-effective maintenance enhancements, such as condition monitoring and shifting time-directed maintenance to condition-directed maintenance.

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Item No.	Subject	DCD Sub-section	COL Item Summary
17.5-6	Maintenance Activities Relevant to Maintenance Rule	17.5	The Maintenance Rule (10 CFR 50.65) is relevant to the Combined License applicant's Address maintenance activities that address SSC performance-related goals during plant operation.
17.5-7	Operational Reliability Assurance Activities	17.5	In addition to performing the specific tasks necessary to maintain SSC reliability at its required level, the O-RAP activities include:
			Reliability data base – Historical data available on equipment performance. The compilation and reduction of this data provides the plant with source of component reliability information.
			Surveillance and testing – In addition to maintaining the performance of the components necessary for plant operation, surveillance and testing provides a high degree of reliability for the safety-related SSCs.
			Maintenance plan – This plan describes the nature and frequency of maintenance activities to be performed on plant equipment. The plan includes the selected SSCs identified in the D-RAP.
17.5-8	Operational Reliability Assurance Program Integration with Quality Assurance Program	17.5	Integrate the objectives of the O-RAP into the Quality Assurance Program developed to implement 10 CFR 50, Appendix B. This program will address failures of non-safety-related, risk-significant SSCs that result from design and operational errors in accordance with SECY-95-132, Item E.
18.2-1	Execution of the NRC Approved	18.2.6	Execute the NRC approved human factors engineering program as presented in AP1000 DCD
18.2-2	Design of the Emergency Operations Facility	18.2.6	Design the emergency operations facility, including specification of the location, in accordance with the AP1000 human factors engineering program.
18.5-1	Task Analysis	18.5.4	Address the execution and documentation of the task analysis implementation plan presented in AP1000 DCD Section 18.5.
18.5-2	Main Control Room	18.5.4	Document the scope and responsibilities of each main control room position, considering the

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Item No.	Subject	DCD Sub-section	COL Item Summary
18.6-1	Plant Staffing	18.6.1	Address the staffing levels and qualifications of plant personnel including operations, maintenance, engineering, instrumentation and control technicians, radiological protection technicians, security, and chemists. The number of operators needed to directly monitor and control the plant from the main control room, including the staffing requirements of 10CFR50.54 (m), will be addressed.
18.7-1	Execution and Documentation of the Human Reliability Analysis/Human Factors Engineering Integration	18.7.1	Address the execution and documentation of the human reliability analysis/human factors engineering integration implementation plan that is presented in AP1000 DCD Section 18.7.
18.8-1	Execution and Documentation of	18.8.5	Address the execution and documentation of the human system interface design implementation plan
18.9-1	Procedure Development	18.9.1	See Section 13.5 for a discussion of the responsibility for procedure development.
18.10-1	Training Program Development	18.10.1	See AP1000 DCD Section 13.2 for a discussion of the responsibility for training program development.
18.11-1	Verification and Validation of AP1000 Human Factors Engineering Program	18.11.1	Address the development, execution and documentation of an implementation plan for the verification and validation of the AP1000 human factors engineering program. The programmatic level description of the AP1000 verification and validation program, presented and referenced in AP1000 DCD Section 18.11, will be used by the Combined License applicant to develop the implementation plan.
18.14-1	Human Performance Monitoring	18.14	Human performance monitoring applies after the plant is placed in operation, and is a Combined License applicant responsibility. Guidance and additional information on the objectives, scope, and methods of such programs are presented in Element 13 of Reference 1 in AP1000 DCD subsection 18.14.

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Item No.	Subject	DCD Sub-section	COL Item Summary
19.59.10-1	As-Built SSC HCLPF Comparison to Seismic Margin Evaluation	19.59.10.5	Review differences between the as-built plant and the design used as the basis for the AP1000 seismic margins analysis. A verification walkdown will be performed with the purpose of identifying differences between the as-built plant and the design. Any differences will be evaluated to determine if there is a significant adverse effect on the seismic margins analysis results. Spatial interactions are addressed by COL information item 3.7-3. Details of the process will be developed by the Combined License applicant.
19.59.10-2	Evaluation of As-Built Plant Versus Design in AP1000 PRA and Site-Specific PRA External Events	19.59.10.5	Review differences between the as-built plant and the design used as the basis for the AP1000 PRA and AP1000 DCD Table 19.59-18. If the effects of the differences are shown, by a screening analysis, to potentially result in a significant increase in core damage frequency or large release frequency, the PRA will be updated to reflect these differences. Based on site-specific information, the COL should also reevaluate the qualitative screening of external events (PRA Section 58.1). If any site-specific susceptibilities are found, the PRA should be updated to include the applicable external event.
19.59.10-3	Internal Fire and Internal Flood Analysis	19.59.10.5	Review differences between the as-built plant and the design used as the basis for the AP1000 internal fire and internal flood analysis. Differences will be evaluated to determine if there is significant adverse effect on the internal fire and internal flood analysis results.
19.59.10-4	Develop and Implement Severe Accident Management Guidance	19.59.10.5	Develop and implement severe accident management guidance using the suggested framework provided in WCAP-13914, "Framework for AP600 Severe Accident Management Guidance," (see AP1000 DCD subsection 19.59.11, Reference 19.59-1).

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Item No.	Subject	DCD Sub-section	COL Item Summary
19.59.10-5	Equipment Survivability	19.59.10.5	Perform a thermal lag assessment of the as-built equipment required to mitigate severe accidents (hydrogen igniters and containment penetrations) to provide additional assurance that this equipment can perform its severe accident functions during environmental conditions resulting from hydrogen burns associated with severe accidents. This assessment is required only for equipment used for severe accident mitigation that has not been tested at severe accident conditions. Assess the ability of the as-built equipment to perform during severe accident hydrogen burns using the Environment Enveloping method or the Test Based Thermal Analysis method discussed in EPRI NP-4354 (AP1000 DCD subsection 19.59.11, Reference 19.59-2).
The following items are FSER Items in Chapter 20 of the FSER Table 1.8-2 does not include			
20.1.4-1	USI/GSI	Table 1.9-2, Note f	The COL applicant will address those items in DCD Tier 2, Table 1.9-2, identified with Note f, as being not a design certification issue, but the responsibility of the COL applicant
20.2-1	USI/GSI	Table 1.9-2, Issue A-3	The COL applicant will develop a steam generator tube surveillance program, which includes preservice and inservice inspection programs for steam generator tubes.
20.3-1	USI/GSI	Table 1.9-2, Issue 135	The COL applicant will develop a steam generator tube surveillance program which includes access to the tubes for inspection, repair, and plugging in accordance with RG1.83.
20.3-2	USI/GSI	Table 1.9-2, Issue 142	For Issue 142, the COL applicant will implement an annual program to inspect and test all electronic isolators between Class 1E and non-Class 1E systems, and to identify the specific isolation devices used in the design.
20.4-1	USI/GSI	Table 1.9-2 Issue I.A.1.4	The COL applicant will address shift staffing and working hours of licensed operators in Issue I.A.1.4 as part of the licensing process.
20.4-2	USI/GSI	Table 1.9-2, Issue I.A.2.6(1)	The COL applicant will address qualification and training of plant personnel in Issue I.A.2.6(1) as part of the licensing process.
20.4-3	USI/GSI	Table 1.9-2, Issue II.J.3.1	For Issue II.J.3.1, the COL applicant will address the plant organization and construction, as well as any modifications to the AP1000 certified design.

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Item No.	Subject	DCD Sub-section	COL Item Summary
20.4-4	USI/GSI	Table 1.9-2, Issue II.J.4.1	For Issue II.J.4.1, the COL applicant will address plant procedures for adequate reporting in accordance with 10 CFR Part 21 and 10 CFR 50.55(e).
20.4-5	USI/GSI	Table 1.9-2, Issue II.K.1(26)	For Issue II.K.1(26), the COL applicant will address the scope of licensing examinations, as well as new training requirements for operators.
20.7.1-1	WCAP-15800	1.9.5.5	The COL applicant will review and address the bulletins and generic letters identified in WCAP-15800 as procurement, procedural, or maintenance/surveillance issues, or those identified as "Part of COL."
20.7.4-1	WCAP-15800	1.9.5.5	For Bulletin 80-15, the COL applicant will review the recommendations related to loss of the emergency notification system as a result of a loss of offsite power. address plant procedures for adequate reporting in accordance with 10 CFR Part 21 and 10 CFR 50.55(e).
20.7.4-2	WCAP-15800	1.9.5.5	For GL 96-04, the COL applicant is responsible for all COL information items described in DCD Tier 2, Section 9.1.6, as they relate to fuel storage and handling.
20.7.4-4	WCAP-15800	1.9.5.5	The COL applicant will develop plant-specific emergency operating procedures that address the boron dilution events in accordance with GL 85-05.
20.7.4-5	WCAP-15800	1.9.5.5	The COL applicant will develop a boric acid corrosion program to provide reasonable assurance of compliance with the applicable regulatory requirements, as discussed in GL88-05.
20.7.4-6	WCAP-15800	1.9.5.5	The COL applicant will address the guidance in GL 91-14, as it relates to the emergency offsite communication system, including the crisis management radio system.
20.7.4-7	WCAP-15800	1.9.5.5	The COL applicant will verify plant-specific belt line material properties, consistent with the guidance in GL 92-01. This verification will include a pressurized thermal shock evaluation based on as-procured reactor vessel neutron fluences for the plant design material data and the projected objective of 60-years, which the COL applicant will submit to the NRC for review. ²

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Item No.	Subject	DCD Sub-section	COL Item Summary
20.7.4-8	WCAP-15800	1.9.5.5	For GL 93-01, the COL applicant will address the recommendations of BL 80-15, as they relate to emergency planning, including post-72-hour actions and communications interfaces. In so doing, the COL applicant will address interfaces to required offsite locations, as well as the emergency response facility communication system, including the crisis management radio system.
20.7.4-9	WCAP-15800	1.9.5.5	The COL applicant will perform preoperational and startup testing of the rod control system as described in GL 93-04. The COL applicant will perform additional testing during the operational phase of the plant.
20.7.4-10	WCAP-15 800	1.9.5.5	The COL applicant will compare electrical schematic drawings and logic diagrams against plant surveillance test procedures to ensure that the surveillance procedures fulfill the requirements of the Technical Specifications. This will assist the COL applicant in testing safety-related logic circuits in accordance with GL 96-01.
20.7.4-11	WCAP-15800	1.9.5.5	The COL applicant will perform a confirmatory criticality analysis for the spent fuel pool storage racks. This analysis should address the degradation of Boraflex in the spent fuel pool storage racks as identified in GL 96-04, and should assess the Boraflex capability to maintain a 5-percent subcriticality margin.
20.7.4-12	WCAP-15800	1.9.5.5	For GL 97-06, the COL applicant will develop a steam generator tube surveillance program to address steam generator tube integrity, and will develop a program for periodic monitoring of degradation of steam generator internals.
22.5.9-1	16.3-1	16.3.2	The COL applicant will develop a procedure to control the operability of investment protection SSCs.