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52-006

Subject: Westinghouse AP1000 Rev. 15 DCD Table 1.8-2 Database Excerpt

Please find attached an improved version of Attachment 3 from a March 8, 2006 letter 52.75 from George Zinke and Andrea Sterdis to the U.S. NRC, "Request for NRC Resource Expectation and Availability." Please consider this a replacement for that attachment.

Very truly yours,

A. Sterdis
A. Sterdis, Manager
Licensing & Customer Interface
Regulatory Affairs and Standardization

/Attachment

1. "AP1000 COL Information Items as per DCD Table 1.8-2", dated November 15, 2006, excerpt from internal Westinghouse AP1000 COL Database. (28 pages)

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AP1000 COL Information Items as per DCD Table 1.8-2

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
1.1-1	Construction and Startup Schedule	1.1.7 Combined License Information 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 Combined License Information for Geography and Demography Combined License applicants referencing the AP1000 certified design will provide site-specific information related to site location and description, exclusion area authority and control, and population distribution. Site Information - Site-specific information on the site and its location will include political subdivisions, natural and man-made features, population, highways, railways, waterways, and other significant features of the area. Exclusion Area - Site-specific information on the exclusion area will include the size of the area and the exclusion area authority and control. Activity that may be permitted within the exclusion area will be included in the discussion. Population Distribution - Site-specific information will be included on population distribution.
2.2-1	Identification of Site-specific Potential Hazards	2.2.1 Combined License Information for Identification of Site-specific Potential Hazards Combined License applicants referencing the AP1000 certified design will 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 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 Regional Climatology Combined License applicants referencing the AP1000 certified design will address site-specific information related to regional climatology.
2.3-2	Local Meteorology	2.3.6.2 Local Meteorology Combined License applicants referencing the AP1000 certified design will address site-specific local meteorology information.
2.3-3	Onsite Meteorological Measurements Program	2.3.6.3 Onsite Meteorological Measurements Program Combined License applicants referencing the AP1000 certified design will address the site-specific onsite meteorological measurements program.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
2.3-4	Short-Term Diffusion Estimates	<p>2.3.6.4 Short-Term Diffusion Estimates</p> <p>Combined License applicants referencing the AP1000 certified design will address the site-specific +/Q values specified in subsection 2.3.4. For a site selected that exceeds the bounding +/Q values, the Combined License applicant will 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 +/Q values. The Combined License applicant should 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.</p> <p>With regard to assessment of the postulated impact of an accident on the environment, the COL applicant will provide +/Q values for each cumulative frequency distribution which exceeds the median value (50 percent of the time).</p>
2.3-5	Long-Term Diffusion Estimates	<p>2.3.6.5 Long-Term Diffusion Estimates</p> <p>Combined License applicants referencing the AP1000 certified design will address long-term diffusion estimates and +/Q values specified in subsection 2.3.5. The Combined License applicant should 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.</p> <p>With regard to environmental assessment, the COL applicant will also provide estimates of annual average +/Q values for 16 radial sectors to a distance of 50 miles from the plant.</p>
2.4-1	Hydrological Description	<p>2.4.1.1 Hydrological Description</p> <p>Combined License applicants referencing the AP1000 certified design will describe major hydrologic features on or in the vicinity of the site including critical elevations of the nuclear island and access routes to the plant.</p>
2.4-2	Floods	<p>2.4.1.2 Floods</p> <p>Combined License applicants referencing the AP1000 certified design will address the following site-specific information on historical flooding and potential flooding factors, including the effects of local intense precipitation.</p> <ul style="list-style-type: none"> ·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. <p>No further action is required for sites within the bounds of the site parameter for flood level.</p>

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
2.4-3	Cooling Water Supply	2.4.1.3 Cooling Water Supply Combined License applicants will address the water supply sources to provide makeup water to the service water system cooling tower.
2.4-4	Groundwater	2.4.1.4 Groundwater Combined License applicants referencing the AP1000 certified design will 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 and Surface Water	2.4.1.5 Accidental Release of Liquid Effluents in Ground and Surface Water Combined License applicants referencing the AP1000 certified design will 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.
2.4-6	Flood Protection Emergency Operation Procedures	2.4.1.6 Emergency Operation Requirement Combined License applicants referencing the AP1000 certified design will address any flood protection emergency procedures required to meet the site parameter for flood level.
2.5-1	Basic Geologic and Seismic Information	2.5.1 Basic Geological and Seismic Combined License Information Combined License applicants referencing the AP1000 certified design will address the following regional and site-specific geological, seismological, and geophysical information as well as conditions caused by human activities: <ul style="list-style-type: none"> ·Structural geology of the site ·Seismicity of the site ·Geological history ·Evidence of paleoseismicity ·Site stratigraphy and lithology ·Engineering significance of geological features ·Site groundwater conditions ·Dynamic behavior during prior earthquakes ·Zones of alteration, irregular weathering, or structural weakness ·Unrelieved residual stresses in bedrock ·Materials that could be unstable because of mineralogy or unstable physical properties ·Effect of human activities in the area

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
2.5-2	Site Seismic and Tectonic Characteristics Information	<p>2.5.2.1 Combined License Seismic and Tectonic Characteristics Information</p> <p>Combined License applicants referencing the AP1000 certified design will address the following site-specific information related to the vibratory ground motion aspects of the site and region:</p> <ul style="list-style-type: none"> ·Seismicity ·Geologic and tectonic characteristics of site and region ·Correlation of earthquake activity with seismic sources ·Probabilistic seismic hazard analysis and controlling earthquakes ·Seismic wave transmission characteristics of the site ·SSE ground motion <p>The Combined License applicant must demonstrate that the proposed site meets the following requirements:</p> <ul style="list-style-type: none"> ·The free field peak ground acceleration at the foundation level is less than or equal to a 0.30g SSE. <p>The site design response spectra at the foundation level in the free-field are less than or equal to those given in Figures 3.7.1-1 and 3.7.1-2.</p>
2.5-3	Geoscience Parameters	<p>2.5.2.3 Sites with Geoscience Parameters Outside the Certified Design</p> <p>If the site-specific spectra at foundation level exceed the response spectra in 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> <ul style="list-style-type: none"> ·Reactor vessel supportFigure 3.7.2-17, Sheets 1-3 ·Containment operating floorFigure 3.7.2-17, Sheets 4-6 ·Coupled auxiliary and shield buildingFigure 3.7.2-15, Sheets 1-3 at control room floor ·Coupled auxiliary and shield buildingFigure 3.7.2-15, Sheets 4-6 at fuel building roof ·Coupled auxiliary and shield buildingFigure 3.7.2-15, Sheets 13-15 at shield building roof ·Steel containment vessel at polar crane supportFigure 3.7.2-16, Sheets 1-3 <p>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.</p>

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2.5-4	Surface Faulting	<p>2.5.3 Surface Faulting Combined License Information</p> <p>Combined License applicants referencing the AP1000 certified design will 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> <ul style="list-style-type: none"> ·Geological, seismological, and geophysical investigations ·Geological evidence, or absence of evidence, for surface deformation ·Correlation of earthquakes with capable tectonic sources ·Ages of most recent deformation ·Relationship of tectonic structures in the site area to regional tectonic structures ·Characterization of capable tectonic sources ·Designation of zones of quaternary deformation in the site region <p>Potential for surface tectonic deformation at the site</p>
2.5-5	Site and Structures	<p>2.5.4.5 Combined License Information</p> <p>Combined License applicants referencing the AP1000 design will address the following site specific information related to the geotechnical engineering aspects of the site. No further action is required for sites within the bounds of the site parameters.</p> <p>2.5.4.5.1 Site and Structures - Site-specific information regarding the underlying site conditions and geologic features will be addressed. This information will include site topographical features, as well as the locations of seismic Category I structures.</p>

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
2.5-6	Properties of Underlying Materials	<p>2.5.4.5 Combined License Information Combined License applicants referencing the AP1000 design will address the following site specific information related to the geotechnical engineering aspects of the site. No further action is required for sites within the bounds of the site parameters.</p> <p>2.5.4.5.2 The Combined License applicant will establish the properties of the foundation soils to be within the range considered for design of the nuclear island basemat. Properties of Underlying Materials - A determination of the static and dynamic engineering properties of foundation soils and rocks in the site area will be addressed. This information will include a discussion of the type, quantity, extent, and purpose of field explorations, as well as logs of borings and test pits. Results of field plate load tests, field permeability tests, and other special field tests (e.g., bore-hole extensometer or pressuremeter tests) will also be provided. Results of geophysical surveys will be presented in tables and profiles. Data will be provided pertaining to site-specific soil layers (including their thicknesses, densities, moduli, and Poisson's ratios) between the basemat and the underlying rock stratum. Plot plans and profiles of site explorations will be provided. Properties of Materials Adjacent to Nuclear Island Exterior Walls - A determination of the static and dynamic engineering properties of the surrounding soil will be made to demonstrate they are competent and provide passive earth pressures greater than or equal to those used in the seismic stability evaluation for sliding of the nuclear island. Seismic stability requirements are satisfied if the soil layers adjacent to the nuclear island foundation are composed predominantly of rock, or sand and rock (gravel), or sands that can be classified as medium to dense (standard penetration test having greater than 10 blows per foot). If the soil adjacent to the exterior walls is made up of clay, sand and clay, or other types of soil other than those classified above as competent, then the Combined License applicant will evaluate the seismic stability against sliding as described in subsection 3.8.5.5.3 using the site-specific soil properties, or ensure that the soils have properties that exceed the following: ·Submerged soil density of 60 pounds/ft³ ·Angle of internal friction of 32 degrees Laboratory Investigations of Underlying Materials - Information about the number and type of laboratory tests and the location of samples used to investigate underlying materials will be provided. Discussion of the results of laboratory tests on disturbed and undisturbed soil and rock samples obtained from field investigations will be provided.</p>

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2.5-7	Excavation and Backfill	<p>2.5.4.5 Combined License Information Combined License applicants referencing the AP1000 design will address the following site specific information related to the geotechnical engineering aspects of the site. No further action is required for sites within the bounds of the site parameters.</p> <p>2.5.4.5.3 Excavation and Backfill Information concerning the extent (horizontal and vertical) of seismic Category I excavations, fills, and slopes, if any will be addressed. The sources, quantities, and static and dynamic engineering properties of borrow materials will be described in the site-specific application. The compaction requirements, results of field compaction tests, and fill material properties (such as moisture content, density, permeability, compressibility, and gradation) will also be provided. Information will be provided concerning the specific soil retention system, for example, the soil nailing system, including the length and size of the soil nails, which is based on actual soil conditions and applied construction surcharge loads. If backfill is to be placed adjacent to the exterior walls of the nuclear island, information will be provided concerning compaction of the backfill and any additional loads on the exterior walls of the nuclear island. Information will also be provided on the waterproofing system along the vertical face and the mudmat. Information will be provided on the mudmat to demonstrate its ability to resist the structural bearing and shear loads described in subsection 2.5.4.2. The maximum bearing pressure is 830 psi. The mudmat may be designed as structural plain concrete in accordance with ACI 318-02 (Reference 1). This requires the specified concrete compressive strength to be no less than 2500 psi. The commentary states this requirement is imposed in the code because "lean concrete mixtures may not produce adequately homogeneous material or well formed surfaces." If the Combined License applicant proposes to use a concrete with strength less than 2500 psi, the applicant must demonstrate that the mix will result in an acceptable homogeneous material.</p>
2.5-8	Ground Water Conditions	<p>2.5.4.5 Combined License Information Combined License applicants referencing the AP1000 design will address the following site specific information related to the geotechnical engineering aspects of the site. No further action is required for sites within the bounds of the site parameters.</p> <p>2.5.4.5.4 Ground Water Conditions - Groundwater conditions will be described 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 Table 2-1.</p>
2.5-9	Liquefaction Potential	<p>2.5.4.5 Combined License Information Combined License applicants referencing the AP1000 design will address the following site specific information related to the geotechnical engineering aspects of the site. No further action is required for sites within the bounds of the site parameters.</p> <p>2.5.4.5.5 Liquefaction Potential - Soils under and around seismic Category I structures will be evaluated 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). Liquefaction potential will also be evaluated to address seismic margin.</p>

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
2.5-10	Bearing Capacity	<p>2.5.4.5 Combined License Information Combined License applicants referencing the AP1000 design will address the following site specific information related to the geotechnical engineering aspects of the site. No further action is required for sites within the bounds of the site parameters.</p> <p>2.5.4.5.6 Bearing Capacity - The Combined License applicant will verify that the site-specific allowable soil bearing capacities for static and dynamic loads are equal to or greater than the values documented in Table 2-1, or will provide a site-specific evaluation as described in subsection 2.5.4.2. The acceptance criteria for this evaluation are those of Standard Review Plan 2.5.4 as follows: ·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. ·The consequences of the induced soil stresses and strains, as they influence the soil surrounding and underlying the nuclear island, have been conservatively assessed.</p>
2.5-11	Earth Pressures	<p>2.5.4.5 Combined License Information Combined License applicants referencing the AP1000 design will address the following site specific information related to the geotechnical engineering aspects of the site. No further action is required for sites within the bounds of the site parameters.</p> <p>2.5.4.5.7 Earth Pressures - The Combined License applicant will 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.</p>
2.5-12	Static and Dynamic Stability of Facilities	<p>2.5.4.5 Combined License Information Combined License applicants referencing the AP1000 design will address the following site specific information related to the geotechnical engineering aspects of the site. No further action is required for sites within the bounds of the site parameters.</p> <p>2.5.4.5.9 Static and Dynamic Stability of Facilities - Soil characteristics affecting the stability of the nuclear island will be addressed including foundation rebound, settlement, and differential settlement.</p>
2.5-13	Subsurface Instrumentation	<p>2.5.4.5 Combined License Information Combined License applicants referencing the AP1000 design will address the following site specific information related to the geotechnical engineering aspects of the site. No further action is required for sites within the bounds of the site parameters.</p> <p>2.5.4.5.10 Subsurface Instrumentation - Data will be provided on instrumentation, if any, proposed for monitoring the performance of the foundations of the nuclear island. This will specify the type, location, and purpose of each instrument, as well as significant details of installation methods. The location and installation procedures for permanent benchmarks and markers for monitoring the settlement will be addressed.</p>
2.5-14	Stability of Slopes	<p>2.5.5 Combined License Information for Stability of Slopes Combined License applicants referencing the AP1000 design will 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.</p>

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
2.5-15	Embankments and Dams	2.5.6 Combined License Information for Embankments and Dams Combined License applicants referencing the AP1000 design will 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 Combined License Information Combined License applicants referencing the AP1000 certified design will address site interface criteria for wind and tornado. The Combined License applicant will 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 subsection 3.5.4).
3.4-1	Site-Specific Flooding Hazards Protective Measures	3.4.3 Combined License Information The Combined License applicant will demonstrate that the site satisfies the interface requirements as described in 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.
3.5-1	External Missile Protection Requirements	3.5.4 Combined License Information The Combined License applicant will 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 Pipe Break Hazard Analysis Combined License applicants referencing the AP1000 certified design will 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 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 Leak-before-Break Evaluation of as-Designed Piping Combined License applicants referencing the AP1000 certified design will complete the leak-before-break evaluation by comparing the results of the as-designed piping stress analysis with the bounding analysis curves documented in Appendix 3B. The Combined License applicant may perform leak-before-break evaluation 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 one 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-break evaluation will be documented in a leak-before-break evaluation report.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
3.6-3	Leak-Before-Break Evaluation of as-Built Piping	<p>3.6.4.3 Leak-before-Break Evaluation of as-Built Piping</p> <p>Combined License applicants referencing the AP1000 certified design will 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.</p>
3.6-4	Primary System Inspection Program for Leak-Before-Break Piping	<p>3.6.4.4 Primary System Inspection Program for Leak-before-Break Piping</p> <p>Combined License applicants referencing the AP1000 certified design will 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.</p>
3.7-1	Seismic Analysis of Dams	<p>3.7.5.1 Seismic Analysis of Dams</p> <p>Combined License applicants referencing the AP1000 certified design will 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.</p>
3.7-2	Post-Earthquake Procedures	<p>3.7.5.2 Post-Earthquake Procedures</p> <p>Combined License applicants referencing the AP1000 certified design will 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).</p>
3.7-3	Seismic Interaction Review	<p>3.7.5.3 Seismic Interaction Review</p> <p>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.</p>
3.7-4	Reconciliation of Seismic Analyses of Nuclear Island Structures	<p>3.7.5.4 Reconciliation of Seismic Analyses of Nuclear Island Structures</p> <p>The Combined License applicant will reconcile the seismic analyses described in 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.</p>

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
3.7-5	Location of Free-Field Acceleration Sensor	3.7.5.5 Free Field Acceleration Sensor The Combined License applicant will determine the location for the free-field acceleration sensor as described in subsection 3.7.4.2.1.
3.8-1	Containment Vessel Design Adjacent to Large Penetrations	3.8.6.1 Containment Vessel Design Adjacent to Large Penetrations 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 Cooling System Water Storage Tank Examination	3.8.6.2 Passive Containment Cooling System Water Storage Tank Examination The Combined License applicant will examine the structures supporting the passive containment cooling storage tank on the shield building roof during initial tank filling as described in subsection 3.8.4.7.
3.8-3	As-Built Summary Report	3.8.6.3 As-Built Summary Report The Combined License applicant will 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 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 In-Service Inspection of Containment Vessel The Combined License applicant will perform in-service inspection of the containment according to the ASME Code Section XI, Subsection IWE, as described in subsection 3.8.2.7.
3.9-1	Reactor Internal Vibration Response	3.9.8.1 Reactor Internals Vibration Assessment and Predicted Response 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 Design Specifications and Reports Combined License applicants referencing the AP1000 design will have available for NRC audit the design specifications and design reports prepared for ASME Section III components. Combined License applicants will address consistency of the reactor vessel core support materials relative to known issues of irradiation-assisted stress corrosion cracking or void swelling (see subsection 4.5.2.1). 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.
3.9-3	Snubber Operability Testing	3.9.8.3 Snubber Operability Testing Combined License applicants referencing the AP1000 design will develop a program to verify operability of essential snubbers as outlined in subsection 3.9.3.4.3.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
3.9-4	Valve Inservice Testing	3.9.8.4 Valve Inservice Testing Combined License applicants referencing the AP1000 design will develop an inservice test program in conformance with the valve inservice test requirements outlined in 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. The Combined License applicant will 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.
3.9-5	Surge Line Thermal Monitoring	3.9.8.5 Surge Line Thermal Monitoring 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 subsection 3.9.3.1.2.
3.9-6	Piping Benchmark Program	3.9.8.6 Piping Benchmark Program The Combined License applicant will implement a benchmark program as described in 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 Combined License Information Item on Experienced-Based Qualification [The Combined License applicant will 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.]*
3.11-1	Equipment Qualification File	3.11.5 Combined License Information Item for Equipment Qualification File 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 Combined License Information Combined License applicants referencing the AP1000 certified design will 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 Combined License Information This section contains no requirement for additional information to be provided in support of the combined license. Combined License applicants referencing the AP1000 certified design will 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 Combined License Information Combined License applicants referencing the AP1000 certified design will 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.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
4.4-2	Confirm Assumptions for Safety Analyses DNBR Limits	<p>4.4.7 Combined License Information</p> <p>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 DCD 2 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.</p>
5.2-1	ASME Code and Addenda	<p>5.2.6.1 ASME Code and Addenda</p> <p>The Combined License applicant will 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. The Combined License applicant will 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. The Combined License applicant will address the addition of ASME code cases approved subsequent to design certification.</p>
5.2-2	Plant Specific Inspection Program	<p>5.2.6.2 Plant-Specific Inspection Program</p> <p>The Combined License applicant will 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.</p> <p>The preservice inspection program will include examinations of the reactor vessel closure head equivalent to those outlined in subsection 5.3.4.7.</p> <p>The inservice inspection program will address the susceptibility calculations, inspection categorization, inspections of the reactor vessel closure head, and associated reports and notifications as defined in NRC Order EA-03-009, "Interim Inspection Requirements for Reactor Vessel Heads at PWRs" or NRC requirements that may supercede the Order.</p> <p>The COL applicant will identify any areas of inspection required by Order EA-03-009, or required by subsequent NRC requirements that may supercede the Order, that the applicant will be unable to perform or choose to perform an alternate. The applicant will submit to the NRC for review and approval a description of the proposed inspections to be performed, a description of any differences from the applicable NRC requirements, and an assessment of the acceptability of the inspection the applicant proposes to perform to address NRC requirements.</p> <p>The inservice inspection program will also include provisions to ensure that boric acid corrosion does not degrade the reactor coolant pressure boundary.</p>
5.3-1	Reactor Vessel Pressure - Temperature Limit Curves	<p>5.3.6.1 Pressure-Temperature Limit Curves</p> <p>The pressure-temp. curves shown in 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 setpoint pressure for the RNS relief valve.</p>

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
5.3-2	Reactor Vessel Materials Surveillance Program	5.3.6.2 Reactor Vessel Materials Surveillance Program The Combined License applicant will address a reactor vessel reactor material surveillance program based on subsection 5.3.2.6.
5.3-3	Surveillance Capsule Lead Factor and Azimuthal Location Confirmation	5.3.6.3 Surveillance Capsule Lead Factor and Azimuthal Location Confirmation The Combined License Applicant will 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 Reactor Vessel Materials Properties Verification The Combined License applicant will address verification of plant-specific belt line material properties consistent with the requirements in 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 60-year period of the COL. This evaluation report will be submitted for NRC staff review. The verification will include structural analysis of the AP1000 reactor vessel insulation and support structure.
5.3-5	Reactor Vessel Insulation	5.3.6.5 Reactor Vessel Insulation 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.
5.4-1	Steam Generator Tube Integrity	5.4.15 Combined License Information The Combined License applicant will address steam generator tube integrity with a Steam Generator Tube Surveillance Program and 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 Procedure Review The Combined License applicants referencing the AP1000 will 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	Coating Program	6.1.3.2 Coating Program The Combined License applicants referencing the AP1000 will 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 subsection 6.1.2.1.6.
6.2-1	Containment Leak Rate Testing	6.2.6 Combined License Information for Containment Leak Rate Testing The Combined License applicant is responsible for developing a "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.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
6.3-1	Containment Cleanliness Program	6.3.8.1 Containment Cleanliness Program The Combined License applicants referencing the AP1000 will 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.
6.3-2	Verification of Containment Resident Particulate Debris Characteristics	6.3.8.2 Verification of Water Sources for Long-Term Recirculation Cooling Following a LOCA The Combined License applicants referencing the AP1000 will perform an evaluation consistent with Regulatory Guide 1.82, revision 3, and subsequent 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 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 the containment cleanliness program have an average specific surface area · 50,000 ft ² /ft ³ and an average specific gravity · 1.1. The determination of these characteristics of such resident debris will be based on sample measurements from operating plants. If these characteristics are not satisfied, then a determination will be made that the resident debris particle characteristics, when considering the plant-specific cleanliness program, will allow for adequate core cooling. 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 Combined License Information Combined License applicants referencing the AP1000 certified design are responsible for 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 (Reference 5) 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 Combined License Information Combined License applicants referencing the AP1000 certified design are responsible for verifying that procedures and training for control room habitability are consistent with the intent of Generic Issue 83 (see Section 1.9).
6.4-3	Main Control Room Inleakage Test Frequency	6.4.7 Combined License Information The Combined License applicant will provide the testing frequency for the main control room inleakage test discussed in subsection 6.4.5.4.
6.6-1	Inspection Programs	6.6.9.1 Inspection Programs Combined License applicants referencing the AP1000 certified design will 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.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
6.6-2	Construction Activities	6.6.9.2 Construction Activities Combined License applicants referencing the AP1000 certified design will 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 Combined License Information Combined License applicants referencing the AP1000 certified design will provide a calculation of setpoints for protective functions consistent with the methodology presented in Reference 5. 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 Combined License Information Combined License applicants referencing the AP1000 certified design will 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	
8.2-1	Offsite Electrical Power	8.2.5 Combined License Information for Offsite Electrical Power Combined License applicants referencing the AP1000 certified design will address the design of the ac power transmission system and its testing and inspection plan.
8.2-2	Technical Interfaces	8.2.5 Combined License Information for Offsite Electrical Power The Combined License applicant will address the technical interfaces for this nonsafety-related system listed in 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 Protection	8.3.3 Combined License Information for Onsite Electrical Power Combined License applicants referencing the AP1000 certified design will address the design of grounding and lightning protection.
8.3-2	Onsite Electrical Power Plant Procedures	8.3.3 Combined License Information for Onsite Electrical Power 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) ·Periodic testing of penetration protective devices ·Diesel generator operation, inspection, and maintenance in accordance with manufacturers' recommendations.
9.1-1	New Fuel Rack	9.1.6 Combined License Information for Fuel Storage and Handling The Combined License applicant is responsible for a confirmatory structural dynamic and stress analysis for the new fuel rack, as described in subsection 9.1.1.2.1.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
9.1-2	Criticality Analysis for New Fuel Rack	9.1.6 Combined License Information for Fuel Storage and Handling The Combined License applicant is responsible for a confirmatory criticality analysis for the new fuel rack, as described in 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 Combined License Information for Fuel Storage and Handling The Combined License applicant is responsible for 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 Combined License Information for Fuel Storage and Handling The Combined License applicant is responsible for a confirmatory criticality analysis for the spent fuel racks, as described in 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.
9.1-5	Inservice Inspection Program of Cranes	9.1.6 Combined License Information for Fuel Storage and Handling The Combined License applicant is responsible for a program for the inservice inspection of cranes which can carry equipment over the new or spent fuel site the light load handling system as specified in subsection 9.1.4.4 and the overhead heavy load handling system in accordance with procedure ANSI B30.2, ANSI B30.9, ANSI N14.6, and ASME NOG-1 as specified in . This program should include the inspection and testing found in subsections 9.1.4.4 and 9.1.5.4.
9.1-6	Radiation Monitor	9.1.6 Combined License Information for Fuel Storage and Handling The Combined License applicant/holder is responsible to ensure an operating radiation monitor is mounted on any crane or fuel handling machine when it is handling fuel.
9.3-1	Air Systems (NUREG-0933 Issue 43)	9.3.7 Combined License Information The Combined License applicant will address DCD1.9.4.2.3, Issue 43 as part of training and procedures identified in section 13.5.
9.4-1	Ventilation Systems Operations	9.4.12 Combined License Information The Combined License applicants referencing the AP1000 certified design will implement a program to maintain compliance with ASME AG-1 (Reference 36), ASME N509 (Reference 2), 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 subsection 9.4.1 and 9.4.7. The Combined License applicant will 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 (Reference 37), to be addressed by the Combined License applicant as discussed in DCD subsection 6.4.7.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
9.5-1	Qualification Requirements for Fire Protection Program	9.5.1.8 Combined License Information The Combined License applicant will 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 Information	9.5.1.8 Combined License Information The Combined License applicant will provide site-specific fire protection analysis information for the yard area, the administration building, and for other outlying buildings consistent with Appendix 9A.
9.5-3	Regulatory Conformance	9.5.1.8 Combined License Information The Combined License applicant will address BTP CMEB 9.5-1 issues identified in Table 9.5.1-1 by the acronym "WA."
9.5-4	NFPA Exceptions	9.5.1.8 Combined License Information The Combined License applicant will 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 Combined License Information [Part 1] The Combined License applicant will 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 [Part 2] 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 Combined License Information The Combined License applicant will address the process for identifying deviations between the as-built installation of fire barriers and their tested configurations.
9.5-7	Fire Resistance Test Data	9.5.1.8 Combined License Information The Combined License applicant will 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 Combined License Information The Combined License applicant will establish procedures to address a fire watch for fire areas breached during maintenance.
9.5-9	Offsite Interfaces	9.5.2.5.1 Offsite Interfaces Combined License applicants referencing the AP1000 certified design will address interfaces to required offsite locations; this will include addressing the recommendations of BL-80-15 (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 Emergency Offsite Communications The emergency offsite communication system, including the crisis management radio system, will be addressed by the Combined License applicant.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
9.5-11	Security Communications	9.5.2.5.3 Security Communications Specific details for the security communication system are the responsibility of the Combined License applicant as described in subsections 13.6.9 and 13.6.10.
9.5-12	Cathodic Protection	9.5.4.7 Combined License Information Combined License applicants referencing the AP1000 certified design will 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 Combined License Information Combined License applicants referencing the AP1000 certified design will 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 Combined License Information on Erosion-Corrosion Monitoring The Combined License holder will address preparation of 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.
10.2-1	Turbine Maintenance and Inspection	10.2.6 Combined License Information on Turbine Maintenance and Inspection The Combined License holder will 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 Supply	10.4.12.1 Circulating Water System The Combined License applicant will address the final configuration of the plant circulating water system including piping design pressure, the cooling tower or other site-specific heat sink. As applicable, the Combined License applicant will address the acceptable Langelier or Stability Index range, the specific chemical selected for use in the CWS water chemistry control, pH adjuster, corrosion inhibitor, scale inhibitor, dispersant, algicide and biocide applications reflecting potential variations in site water chemistry and in micro macro biological lifeforms. 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 Section 6.4.
10.4-2	Condensate, Feedwater and Auxiliary Steam System Chemistry Control	10.4.12.2 Condensate, Feedwater and Auxiliary Steam System Chemistry Control The Combined License applicant will address the oxygen scavenging agent and pH adjuster selection for the turbine island chemical feed system.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
10.4-3	Potable Water	10.4.12.3 Potable Water The Combined License applicant will address the specific biocide. 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 Section 6.4.
11.2-1	Liquid Radwaste Processing by Mobile Equipment	11.2.5.1 Liquid Radwaste Processing by Mobile Equipment The Combined License applicant will 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 Cost Benefit Analysis of Population Doses The analysis performed to determine offsite dose due to liquid effluents is based upon the AP1000 generic site parameters included in Chapter 1 and Tables 11.2-5 and 11.2-6. The Combined License applicant will 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 Identification of Ion Exchange and Adsorbent Media The Combined License applicant will 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.
11.2-4	Dilution and Control of Boric Acid Discharge	11.2.5.4 Dilution and Control of Boric Acid Discharge The Combined License applicant will determine the rate of discharge and the required dilution to maintain acceptable concentrations. Refer to Section 11.5 for a discussion of the program to control releases. The Combined License applicant will discuss the planned discharge flow rate for borated wastes and controls for limiting the boric acid concentration in the circulating water system blowdown.
11.3-1	Cost Benefit Analysis of Population Doses	11.3.5.1 Cost Benefit Analysis of Population Doses The analysis performed to determine offsite dose due to gaseous effluents is based upon the AP1000 generic site parameters included in Chapter 1 and Tables 11.3-1, 11.3-2 and 11.3-4. The Combined License applicant will 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	11.3.5.2 Identification of Adsorbent Media The Combined License applicant will identify the types of adsorbent media to be used in the gaseous radwaste system.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
11.4-1	Solid Waste Management System Process Control Program	<p>11.4.6 Combined License Information for Solid Waste Management System Process Control Program</p> <p>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. Process control programs will also be provided by vendors providing mobile or portable processing or storage systems. It will be the plant operators responsibility to assure that the vendors have appropriate process control programs for the scope of work being contracted at any particular time. The process control program will identify the operating procedures for storing or processing wet solid wastes. The mobile systems process control program will include a discussion of conformance to Regulatory Guide 1.143 (Reference 7), Generic Letter GL-80-009 (Reference 8), and Generic Letter GL-81-039 (Reference 9) and, information of equipment containing wet solid wastes in the nonseismic Radwaste Building. In the event additional onsite storage facilities are a part of Combined License plans, this program will include a discussion of conformance to Generic Letter GL-81-038 (Reference 10).</p>
11.5-1	Plant Offsite Dose Calculation Manual (ODCM)	<p>11.5.7 Combined License Information</p> <p>The Combined License applicant will develop an offsite dose calculation manual that contains the methodology and parameters used for calculation of offsite doses resulting from gaseous and liquid effluents. The Combined License applicant will 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.</p>
11.5-2	Effluent Monitoring and Sampling	<p>11.5.7 Combined License Information</p> <p>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..</p>
11.5-3	10 CFR 50, Appendix I	<p>11.5.7 Combined License Information</p> <p>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.</p>
12.1-1	ALARA and Operational Policies	<p>12.1.3 Combined License Information</p> <p>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, will be addressed by the Combined Operating License applicant. In addition, the Combined Operating License applicant will 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.</p>
12.2-1	Additional Contained Radiation Sources	<p>12.2.3 Combined License Information</p> <p>The Combined License applicant will address any additional contained radiation sources not identified in subsection 12.2.1, including radiation sources used for instrument calibration or radiography.</p>

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
12.3-1	Administrative Controls for Radiological Protection	12.3.5 Combined License Information The Combined License applicant will 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 Combined License Information The Combined License applicant will address the criteria and methods for obtaining representative measurement of radiological conditions, including airborne radioactivity concentrations in work areas. The Combined License applicant will also 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 Combined License Information The Combined License applicant will 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 Combined License Information Item Combined License applicants referencing the AP1000 certified design will address adequacy of the organizational structure.
13.2-1	Training Program for Plant Personnel	13.2.1 Combined License Information Item Combined License applicants referencing the AP1000 certified design will 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. These Combined License applicant training programs will address the scope of licensing examinations as well as new training requirements.
13.3-1	Emergency Planning and Communications	13.3.1 Combined License Information Item Combined License applicants referencing the AP1000 certified design will address emergency planning including post-72 hour actions and its communication interface.
13.3-2	Activation of Emergency Operations Facility	13.3.1 Combined License Information Item Combined License applicants referencing the AP1000 certified design will 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 Combined License Information Item Combined License applicants referencing the AP1000 certified design will address each operational review.
13.5-1	Plant Procedures	New item needs to be identified and scheduled. TR 70 (APP-GW-GLR-040) addressed 18.9-1

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
13.6-1	AP1000 Enhancement Report	<p>13.6.13.1 Security Plans, Organization, and Testing</p> <p>Combined License applicants referencing the AP1000 certified design will 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.</p> <p>The Combined License applicant will 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, the Combined License applicant will 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:</p> <ul style="list-style-type: none"> ·the equipment is properly operating; ·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	<p>13.6.13.2 Vital Equipment</p> <p>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.</p>
13.6-3	Site-Specific Security System	<p>13.6.13.3 Plant Security System</p> <p>Combined License applicants referencing the AP1000 certified design will 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; detection and alarm design features; security lighting; security power supply including the interface to the UPS system; and communication system.</p>
13.6-4	Nuclear Material Control Requirements	<p>13.6.13.4 Nuclear Material Control System</p> <p>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.</p>
14.4-1	Organization and Staffing	<p>14.4.1 Organization and Staffing</p> <p>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.</p>
14.4-2	Test Specifications and Procedures	<p>14.4.2 Test Specifications and Procedures</p> <p>The Combined License applicant is responsible for providing test specifications and test procedures for the preoperational and startup tests, as identified in subsection 14.2.3, for review by the NRC.</p>

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
14.4-3	Conduct of Test Program	14.4.3 Conduct of Test Program 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 subsection 14.2.3.
14.4-4	Review and Evaluation of Test Results	14.4.4 Review and Evaluation of Test Results 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 Interface Requirements 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: <ul style="list-style-type: none"> ·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 ·equipment associated with the physical security plan
14.4-6	First-Plant-Only and Three-Plant-Only Tests	14.4.6 First-Plant-Only and Three-Plant-Only Tests [The COL applicant or licensee 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.]*
15.7-1	Consequences of Tank Failure	15.7.6 Combined License Information Combined License applicant referencing the AP1000 certified design will 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 Technical Specifications Combined License Information 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 of Investment Protection Systems, Structures and Components	16.3.2 Combined License Information Combined License applicants referencing the AP1000 will develop a procedure to control the operability of investment protection systems, structures and components in accordance with Table 16.3-2.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
17.5-1	Quality Assurance Design Phase	17.5 Combined License Information Items The Combined License applicant or holder will address its design phase Quality Assurance program, ...{THE REMAIN PORTION OF THIS SENTENCE IS IN ACTION ITEM 17.5-2}. The quality assurance program will include provisions for seismic Category II structures, systems, and components.
17.5-2	Quality Assurance for Procurement, Fabrication, Installation, Construction and Testing	17.5 Combined License Information Items The Combined License applicant or holder will address ... {THE REMOVED PORTION OR THIS SENTENCE IS IN ACTION ITEM 17.5-1} 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 Combined License Information Items 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.
17.5-4	Quality Assurance Program for Operations	17.5 Combined License Information Items The Combined License applicant or holder will address its Quality Assurance program for operations.
17.5-5	Maintaining Reliability of Risk-Significant SSCs	17.5 Combined License Information Items The Combined License applicant is responsible for performing the tasks necessary to maintain the reliability of risk-significant SSCs. Reference 8 contains examples of cost-effective maintenance enhancements, such as condition monitoring and shifting time-directed maintenance to condition-directed maintenance.
17.5-6	Maintenance Activities Relevant to Maintenance Rule	17.5 Combined License Information Items The Maintenance Rule (10 CFR 50.65) is relevant to the Combined License applicant's maintenance activities in that it prescribes SSC performance-related goals during plant operation.
17.5-7	Operational Reliability Assurance Activities	17.5 Combined License Information Items 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 Combined License Information Items 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.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
18.2-1	Execution of the NRC Approved Human Factors Engineering Program	18.2.6 Combined License Information The Combined License applicant referencing the AP1000 certified design is responsible for the execution of the NRC approved human factors engineering program as presented by Section 18.2.
18.2-2	Design of the Emergency Operations Facility	18.2.6 Combined License Information The Combined License applicant referencing the AP1000 certified design is responsible for designing 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 Combined License Information Item Combined License applicants referencing the AP1000 certified design will address the execution and documentation of the task analysis implementation plan presented in Section 18.5.
18.5-2	Main Control Room	18.5.4 Combined License Information Item Combined License applicants referencing the AP1000 certified design will document the scope and responsibilities of each main control room position, considering the assumptions and results of the task analysis.
18.6-1	Plant Staffing	18.6.1 Combined License Information Item Combined License applicants referencing the AP1000 design will 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 Combined License Information Combined License applicants referencing the AP1000 certified design will address the execution and documentation of the human reliability analysis/human factors engineering integration implementation plan that is presented in Section 18.7.
18.8-1	Execution and Documentation of the Human System Interface Design Implementation Plan	18.8.5 Combined License Information Combined License applicants referencing AP1000 certified design will address the execution and documentation of the human system interface design implementation plan that is presented by Section 18.8.
18.9-1	Procedure Development	18.9.1 Combined License Information See Section 13.5 for a discussion of the responsibility for procedure development.
18.10-1	Training Program Development	18.10.1 Combined License Information See Section 13.2 for a discussion of the responsibility for training program development.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
18.11-1	Verification and Validation of AP1000 Human Factors Engineering Program	18.11.1 Combined License Information Combined License applicants referencing the AP1000 certified design will 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 by 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 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.
19.59.10-1	As-Built SSC HCLPF Comparison to Seismic Margin Evaluation	19.59.10.5 Combined License Information The Combined License applicant referencing the AP1000 certified design will review differences between the as-built plant and the design used as the basis for the AP1000 seismic margins analysis. A verification walkdowns 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. Spacial interactions are addressed by COL information item 3.7-3. Details of the process will be developed by the Combined License applicant. The Combined License applicant referencing the AP1000 certified design should compare the as-built SSC HCLPFs to those assumed in the AP1000 seismic margin evaluation. Deviations from the HCLPF values or assumptions in the seismic margin evaluation should be evaluated to determine if vulnerabilities have been introduced. The requirements to which the equipment is to be purchased are included in the equipment specifications. Specifically, the equipment specifications include: 1. Specific minimum seismic requirements consistent with those used to define the Table 19.55-1 HCLPF values. This includes the known frequency range used to define the HCLPF by comparing the required response spectrum (RRS) and test response spectrum (TRS). The range of frequency response that is required for the equipment with its structural support is defined. 2. Hardware enhancements that were determined in previous test programs and/or analysis programs will be implemented.
19.59.10-2	Evaluation of As-Built Plant Versus Design in AP1000 PRA and Site Specific PRA External Events	19.59.10.5 Combined License Information The Combined License applicant referencing the AP1000 certified design will review differences between the as-built plant and the design used as the basis for the AP1000 PRA and 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 Analyses	19.59.10.5 Combined License Information The Combined License applicant referencing the AP1000 certified design will 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.

<i>Info Item or DCD Section</i>	<i>Subject</i>	<i>Description</i>
19.59.10-4	Develop and Implement Severe Accident Management Guidance	19.59.10.5 Combined License Information The Combined License applicant referencing the AP1000 certified design will develop and implement severe accident management guidance using the suggested framework provided in WCAP-13914, "Framework for AP600 Severe Accident Management Guidance," (Reference 19.59-1).
19.59.10-5	Equipment Survivability	19.59.10.5 Combined License Information The Combined License applicant referencing the AP1000 certified design will 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. The Combined License applicant will 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 (Reference 19.59-2).
-	Bulletins and Generic Letters (WCAP-15800, Revision 3, July 2004)	
-	Unresolved Safety Issues and Generic Safety Issues	

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