14.3 Inspections, Tests, Analyses, and Acceptance Criteria

Section 14.3 explains the selection criteria and methods used to develop the U.S. EPR Tier 1 certified design material (CDM) and the inspections, tests, analyses, and acceptance criteria (ITAAC). Tier 1 means the portion of the design-related information contained in a generic FSAR that is approved and certified by the design certification rule (10 CFR 52). The design descriptions, interface requirements, and site parameters are derived from Tier 2 information. Tier 1 information includes:

- Definitions and general provisions.
- Design descriptions.
- ITAAC.
- Significant interface requirements.
- Significant site parameters.

The information in the Tier 1 portion of the FSAR is extracted from the detailed information contained in Tier 2. While the Tier 1 information must address the complete scope of the design to be certified, the amount of design information is proportional to the safety-significance of the structures and systems of the design.

There are two material categories in Tier 1: CDM and ITAAC.

- CDM is the design commitment. CDM is in the form of design descriptions, tables, and figures, and is binding for the lifetime of a facility.
- ITAAC will be used to verify the U.S. EPR as-built features. ITAAC material is in tabular format only and expires at initial fuel loading.

In the Tier 1 ITAAC entries, as-built means the physical properties of a structure. system, or component following the completion of its installation or construction activities at its final location at the plant site. Determination of physical properties of the as-built structure, system, or component may be based on measurements, inspections, or tests that occur prior to completion of installation, provided that subsequent fabrication, handling, installation activities, and testing do not alter their properties. The point at which completion of installation occurs varies according to the feature to which the ITAAC applies.

- For ASME Code Section III Division 1 ITAAC, completion of installation means the signature of the Authorized Nuclear Inspector on the ASME Code N-5 Data Report.
- For other systems, completion of installation means the point at which the equipment is mechanically (welded, bolted, mounted, etc.) attached in its final location at the plant site.

- For structures, completion of installation means mechanically attached in the final location on the plant site.

Inspections, tests, and analyses may be performed on components fabricated at a vendor shop, sub-assemblies fabricated at a vendor shop, sub-assemblies fabricated onsite, and fabrication that occurs in the final location on the plant site.

Tier 1 consists of five chapters:

- Chapter 1 (Introduction) provides definitions of terms, a figure legend, a list of acronyms and abbreviations, and general provisions applicable to design descriptions, figures, and ITAAC.

- Chapter 2 (System Based Design Descriptions and ITAAC) provides descriptions of safety-significant design features and the ITAAC verifying those features. Chapter 2 is organized by systems, and those systems are grouped into sections for convenience. Every system included in Tier 2 that is within the scope of CDM is listed in Chapter 2. The applicable portions of systems that are partially within the scope of CDM are also included in Chapter 2. Safety-significant systems outside the scope of CDM are addressed as interface requirements in Chapter 4. Interface requirements for systems that are partially in scope are included in Chapter 2 so the CDM for those systems are in one location.

- Chapter 3 (Non-System Based Design Descriptions and ITAAC) provides CDM not suited to the system design description format of Chapter 2. Material in Chapter 3 addresses security, reliability assurance program (RAP), initial test program (ITP), human factors engineering (HFE), and containment isolation.

- Chapter 4 (Interface Requirements) provides information on safety-significant interface requirements that must be met by site-specific portions of a facility that are not within the scope of CDM. Interface requirements define design features and characteristics so that the site-specific portion of the design conforms to the CDM.

- Chapter 5 (Site Parameters) provides bounding values for safety-significant site parameters that a combined license (COL) applicant referencing the U.S. EPR design will use for site selection. Compliance with these site parameters is verified during the COL application process.

Information presented in Tier 1 contains the proposed ITAAC that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a facility that incorporates the U.S. EPR design certification has been constructed and will be operated in accordance with the design certification, the provisions of the Atomic Energy Act, and NRC regulations (10 CFR 52.47(b)(1)).

A COL applicant that references the U.S. EPR design certification will provide ITAAC for emergency planning, physical security, and site-specific portions of the facility that are not included in the Tier 1 ITAAC associated with the certified design (10 CFR 52.80(a)). Additionally, a COL applicant that references the U.S. EPR design certification will describe the selection methodology for site-specific SSC to be included in ITAAC, if the selection methodology is different from the methodology described within the FSAR, and will also provide the selection methodology associated with emergency planning and physical security hardware.

14.3.1 Tier 1, Chapter 1, Introduction

Tier 1, Chapter 1 presents definitions, general provisions, a figure legend, and a list of acronyms and abbreviations. The definitions help minimize interpretation issues over the words and phrases used in Tier 1. The general provisions help with ITAAC verification of the configuration of SSC by providing more details on inspections, tests, and analyses that are common to multiple systems. The ITAAC include inspection of the functional arrangement of the system as described in the design description and as shown in the figures. A figure legend and a list of acronyms facilitate the use and interpretation of U.S. EPR design information. The technical terminology used in Tier 1 is consistent with Tier 2 terminology, industry standards, and regulatory documents.

The criteria for selecting definitions include those in Standard Review Plan (SRP) 14.3 (Reference 1) and any other terms in the FSAR that could be subject to interpretation. The selection process for determining which terms are to be defined begins with a review of the terms and definitions in Tier 2 and the guidance in SRP 14.3. Those terms that are important to Tier 1, potentially ambiguous, or unique to Tier 1 are selected.

The criteria for inclusion in the general provisions section includes those items needed to clarify the technical requirements that apply to multiple systems, provide guidance on ITAAC implementation, provide guidance on the interpretation of figures, provide guidance on operational considerations, and specify the U.S. EPR core thermal power level. Selecting the general provisions to be included in Tier 1 involves following the SRP 14.3 (Reference 1) guidance and reviewing Tier 2 against the specific criteria previously listed.

14.3.2 Tier 1, Chapter 2, System Based Design Descriptions and ITAAC

Tier 1, Chapter 2 contains CDM system design descriptions (SDD) and associated ITAAC. This chapter is the result of the process to determine which U.S. EPR design features addressed in Tier 2 should be addressed in the Tier 1 CDM SDDs, interface requirements, and site parameters. The selection process considers the U.S. EPR design philosophy of simple, redundant, and active systems coupled with advanced control technology, which reduces the frequency of transients and improves the reliability of the response to those transients. Given this design philosophy, the process of determining the safety-significant features uses the availability of probabilistic risk assessment (PRA) information to determine the significant design features and performance criteria that lead to safe operation. Using this process allows the top level Tier 1 information to be extracted from the more detailed Tier 2 design information. Tier 1, Chapter 2 provides no technical information not already presented in Tier 2.

The Tier 1 information selection process uses two distinct, parallel approaches: those based on equipment classification and those based on features credited in various analyses. The first approach uses specific equipment classification criteria derived from SRP 14.3, including the system checklists in Appendix C of SRP 14.3 (Reference 1). Examples of equipment selection criteria include ASME Code, Section III (Reference 2), Seismic Category I, and IEEE Class 1E. This selection process provides those safety significant features credited to comply with 10 CFR Parts 20, 50, 52, 73, or 100. For example, safety-significant radiation protection features credited to comply with 10 CFR Part 20 were selected that automatically terminate effluent releases to the environment or that significantly contribute to controlling effluent releases, such as delay beds with activated charcoal in the gaseous waste processing system (GWPS).

In keeping with the SRP guidance, features provided solely for equipment protection are not included in Tier 1 material.

Tier 1 SDDs developed during the first approach address each system identified in Tier 2. The amount of detail included in a Tier 1 SDD for a specific system is a function of the number and safety significance of the system design features. Systems addressed in Tier 2 that have no safety-significant features are listed in Tier 1 as ‘No entry for this system.’

The second approach to develop Tier 1 material uses assumptions and insights from key safety and integrated plant safety analyses to identify Tier 1 material. Addressing these assumptions and insights in Tier 1 means the integrity of the fundamental analyses is preserved in the as-built facility referencing the U.S. EPR design. The various review teams for this approach were led by a subject matter expert and included, at a minimum, representatives from engineering integration, PRA, and licensing. The following areas were reviewed for safety-significant design features:

- Design Basis Accidents (DBA) — Analytical input summaries and key assumptions for the safety analyses were reviewed. Also, system engineers performing containment analyses and overpressure protection analyses identified items to be included as DBA safety-significant design features. The results are in Table 14.3-1—Design Basis Accident Analysis (Safety-Significant Features).
- Radiological Protection — The radiological engineering information record that summarizes the design input for radiological analyses was reviewed for safety-

significant items. The results are in Table 14.3-2—Radiological Analysis (Safety-Significant Features).

- Fire Protection — Fire hazards analyses were reviewed for safety-significant design features. The results are in Table 14.3-3—Fire Protection (Safety-Significant Features).

- Flooding Protection — Flooding evaluations were reviewed for safety-significant design features. The results are in Table 14.3-4—Flooding Analysis (Safety-Significant Features).

- Anticipated Transient Without Scram (ATWS) —10 CFR 50.62 (the ATWS rule) and the engineering evaluation addressing ATWS were reviewed for safety-significant design features. The results are in Table 14.3-5—ATWS (Safety-Significant Features).

- PRA and Severe Accident — The PRA insights report and severe accident analyses were reviewed for safety-significant design features. Using the PRA insights report provided a process to identify non-safety-related features that are safety-significant and otherwise may not have been identified. The results are in Table 14.3-6—PRA and Severe Accident Analysis (Safety-Significant Features).

- Licensing — Three Mile Island (TMI) items from 10 CFR 50.34(f) and high-priority generic safety issues (GSI) items from NUREG-0933, Appendix B were reviewed for safety-significant design features relevant to the U.S. EPR design. The items were then compared to the other Section 14.3 tables for redundancy. Items not already addressed by another Section 14.3 table or not already addressed by other Tier 1 criteria are listed in Table 14.3-7—Licensing (Safety-Significant Features).

In addition to identifying the safety-significant features, the tables developed during the second approach (team reviews of analyses) list the Tier 2 section that describes the identified design feature. If the value of the design feature was judged to be safety significant, then a value was provided in the tables. As part of the Tier 1 development process, roadmaps were also created to maintain consistency between Tier 1 and Tier 2 material. Additionally, the information contained in the Tier 2, Section 14.3 tables was verified to be included in Tier 1, and Tier 1 material related to testing was verified to be consistent with the initial test program in Tier 2, Section 14.2.

Safety-significant structures providing radiation shielding for normal operations and post-accident conditions are also included in Tier 1. The criteria for safety-significant structures during normal operations is an area where a radiation zone 3 compartment (dose rate ≤2.5 mR/hr) is immediately adjacent to a radiation zone 7 or 8 compartment (dose rates above 5 rad/hr). The criteria for safety-significant structures during post-accident conditions is a structure needed to provide radiation shielding to reduce mission doses for personnel performing post-accident actions.

The U.S. EPR systems are listed in Table 14.3-8—ITAAC Screening Summary. Systems within the scope of Tier 1 or that contain ITAAC are identified in the table. Conceptual systems only consisting of interface requirements are not considered within the scope of Tier 1. The Kraftwerks Kennzeichen System (KKS) codes are also listed inTable 14.3-8 because Tier 1 equipment tags use the KKS identification system.

The commitments listed in the Tier 1 ITAAC tables will be verified to satisfy the acceptance criteria using the inspections, tests, and analyses listed. If the as-built item satisfies the acceptance, then the ITAAC is complete. For items not satisfying the acceptance criteria, corrective actions will be taken to resolve the issue.

14.3.2.1 Content of Tier 1 System Design Descriptions

The content of the Tier 1 SDDs for systems and structures reflects the graded approach previously approved for other certified designs, as described in SRP 14.3. This graded approach results in only the top level design features that are safety significant being included in the Tier 1 SDDs. The level of detail provided similarly reflects a graded approach, with the detail provided commensurate with the safety significance of the system. The SDDs constitute the CDM and consist of descriptive material, tables, and figures.

The checklists provided in Appendix C of SRP 14.3 were used to guide the content of the U.S. EPR Tier 1 SDDs. Generally, the following information is included:

- A brief statement of the purpose of the system or structure.
- A listing of the safety-significant functions.
- System location.
- Key design features.
- Classifications (e.g., ASME Code, seismic category, IEEE Class 1E, environmental qualification).
- Minimum controls and displays.
- 1E power requirements.
- Interface requirements.

The SDDs generally contain no numerical values. Numerical values listed in the tables within Chapter 2 are provided to be used as the basis for ITAAC acceptance criteria and appear in the associated ITAAC acceptance criteria that verify the as-built facility. To the extent practical, standardized wording is used in the SDDs to avoid confusion.

The following types of information presented in Tier 2 are not addressed in Tier 1 for the indicated reasons:

- Proprietary and safeguards information because the Office of the Federal Register requires that information incorporated into the design certification rule is publicly available.
- Portable equipment and replaceable items because the certified design descriptions focus on the permanent physical characteristics of the as-built facility and portable equipment, and replaceable items are controlled through other operational programs.
- Programmatic requirements related to operations, maintenance, and other programs are not detailed in the Tier 1 design descriptions.
- Programmatic aspects of the design and construction processes, such as worker selection, qualification, and training, are not covered in the CDM.
- Operational issues, such as procedures and training, are not design features and therefore are not presented in Tier 1.
- Integrated test requirements are presented in Tier 1, but specific details of the initial test program are not presented in Tier 1. Details of the initial testing program are presented in Tier 2, Section 14.2.
- The use of codes and standards (with the exception of the ASME Code) are minimized in Tier 1 design descriptions because the Tier 1 SDDs are intended to stand alone. Specific information needed from external documents is included in the applicable Tier 1 chapter when necessary.

14.3.2.2 Selection Criteria for ITAAC

An ITAAC table is provided for each Tier 1 system that has a design description. The ITAAC table defines the activities to be performed to verify that the as-built system conforms to the design features contained within the design description, as well as the acceptance criteria for those activities.

The following items are considered when developing the ITAAC entries:

- Section 1 of the SDDs provides a brief summary of the Tier 1 functions. Commitments of plant features begin in Section 2 and are in each subsequent section of the SDD.
- ITAAC are only intended to verify the as-built configuration of important design features and performance characteristics described in the design descriptions. Therefore, there are no ITAAC for features not addressed in the design description.

- Each U.S. EPR system that has a design description also has associated ITAAC. The scope of the ITAAC corresponds to the scope of the design descriptions.
- A single inspection, test, or analysis may verify multiple provisions in the certified design description.
- The inspections, tests, and analyses must be completed and the acceptance criteria verified prior to the initial loading of fuel (10 CFR 52.103).

14.3.2.3 Content of ITAAC

ITAAC tables for the U.S. EPR use the standard format in Appendix D of SRP 14.3. The ITAAC tables have columns for commitment wording; inspections, tests, analyses; and acceptance criteria. Each commitment in the left-hand column has an associated inspections, tests, analyses requirement in the middle column with the applicable acceptance criteria listed in the right-hand column.

Column 1 (Commitment Wording) defines the specific commitment extracted from the SDD features.

Column 2 (Inspections, Tests, Analyses) defines the specific method the licensee will use to demonstrate that the specific commitment in Column 1 has been met. The methods used are inspections, tests, analyses, or a combination of the three:

- Inspections are used when verification can be done by visual observations, physical examinations, walkdowns, or by reviewing records that are based on observations or examinations. The inspections required for basic configuration walkdown follow the general provisions in Tier 1, Section 1.2.
- Tests mean that either operating or establishing specified conditions to evaluate the performance of the as-built structures, systems, or components. In addition to testing final and installed equipment, examples of alternative testing methods include factory testing, test facility testing, and laboratory testing. Testing can also include type testing such as might be performed to demonstrate qualification to meet environmental requirements.
- Analyses are used when verification can be done by calculation or engineering evaluation of the as-built SSC.

For the methods used to demonstrate commitment satisfaction, supporting details are provided in Tier 2. The initial test program is described in Section 14.2 of Tier 2 and covers both visual inspections and tests. The details in Tier 2 are not referenced in Tier 1 CDM and are not part of the certified design.

Column 3 (Acceptance Criteria) depends upon the design feature to be verified and the method used for the verification. Acceptance criteria are objective and clear to avoid confusion over whether or not acceptance criteria have been satisfied. Some acceptance criteria contain numerical values that are not specifically identified in the

Tier 1 design description or the ITAAC table commitments column. This is acceptable because the design description defines the important design feature that needs to be included in the CDM, whereas the numerical value is a measurement standard that determines if the feature has been provided.

14.3.3 Tier 1, Chapter 3, Non-System Based Design Descriptions and ITAAC

The format and selection process for Tier 1, Chapter 3 is similar to Tier 1, Chapter 2 in that it includes CDM and ITAAC tables. Tier 1, Chapter 3 addresses the following non-system based topics:

- Section 3.1 – Security.
- Section 3.2 - Reliability assurance program (RAP).
- Section 3.3 - Initial test program (ITP).
- Section 3.4 - Human factors engineering (HFE).
- Section 3.5 - Containment isolation.
- Section 3.6 - Plant Cabling
- Section 3.7 - Accident Monitoring Instrumentation
- Section 3.8 - Pipe Break Hazards

14.3.4 Tier 1, Chapter 4, Interface Requirements

Interface requirements are items to be met by the site-specific portions of a facility that are not within the scope of the certified design. The site-specific portions of the design are those that depend on site characteristics. Interface requirements define the design features and characteristics that demonstrate that the site-specific portion of the design conforms to the certified design. Interface requirements comply with 10 CFR 52.47(a)(26) requirements.

14.3.5 Tier 1, Chapter 5, Site Parameters

Tier 1, Chapter 5 defines safety-significant site parameters that are the basis for the standard plant design presented in the U.S. EPR design certification application. The list of site parameters follows the suggested list contained in SRP 2.0 and corresponds with the requirements for site parameter information contained in 10 CFR 52.47(a)(1). Compliance with these site parameters is verified during the COL application process, so no ITAAC are necessary for site parameters.

14.3.6 Design Acceptance Criteria

As described in SECY 92-053 (Reference 3), design acceptance criteria (DAC) "are a set of prescribed limits, parameters, procedures, and attributes upon which the NRC re1ies, in a limited number of technical areas, in making a final safety determination to support a design certification. The DAC are to be objective (measurable, testable, or subject to analysis using pre-approved methods), and must be verified as a part of the ITAAC performed to demonstrate that the as-built facility conforms to the certified design." DAC are applied to (1) technologies, such as I&C systems and control room design, that are changing so rapidly that it would be unwise to freeze the details of the design many years before a plant is ready to be constructed, and (2) design areas such as piping analyses, where the as-built or as-procured information to complete the final design is not available.

As described in NEI 08-01, Section 8.3.1 (Reference 4), which is endorsed by Regulatory Guide 1.215 (Reference 5), "There are three options to close DAC, all of which involve essentially the same level of design detail. The design information necessary to close DAC should be that level which would have been provided during design certification review if DAC had not been used. Regardless of the option used to close DAC, NRC closure of DAC embodies a determination that the design has been completed in accordance with the design certification. The three options for DAC closure are:

- *Closure through amendment of design certification rule* – Under this option, the design certification applicant would submit an amendment with design information that implements the DAC. Completed DAC would be deleted from the set of design certification ITAAC; however, the ITAAC on the as-built SSCs would remain (or be modified, as necessary) to demonstrate that the as-built facility conforms to the completed DAC. The NRC would review the amendment request, issue a safety evaluation, and conduct rulemaking to amend the design certification rule.

- *Closure through the COLA review process* – Under this option, the COL application contains the additional design information needed to implement the DAC. The NRC reviews the design and includes the results of its review in the safety evaluation for the COL. The COL should reflect that the DAC have been completed. The as-built ITAAC would remain (or be modified as part of the NRC review of the COLA, as necessary) to demonstrate that the as-built facility conforms to the completed DAC.

- *Closure after COL issuance* – Under this option, the COL is issued with DAC. When the necessary additional design information is available, the licensee's DAC implementation is inspected by the NRC as part of the Engineering Design Verification (EDV) process, as described in Inspection Manual Chapter 2504. Following issuance of the NRC EDV inspection report, and resolution of any findings that would otherwise preclude DAC close-out, close-out of DAC is accomplished via the ITAAC closure process described in this document (e.g., close-out is initiated by a licensee's ITAAC close-out letter to NRC)."

U.S. EPR FSAR Tier 1 uses DAC in the areas of human factors engineering (HFE), I&C, and piping design. DAC are identified in U.S. EPR FSAR Tier 1 with {{DAC}}.

14.3.6.1 Human Factors Engineering DAC

U.S. EPR FSAR Tier 1, Table 3.4-1 contains HFE DAC, which are identified with {{DAC}}.

14.3.6.2 Instrumentation and Control DAC

I&C DAC identify the process and requirements necessary to develop the design information and acceptance criteria for the various design stages. By following these I&C DAC, the COL Licensee will have sufficient information to determine which elements of the design are necessary for each phase of the I&C DAC closure.

The following U.S. EPR FSAR Tier 1 sections contain I&C DAC, which are identified with {{DAC}}:

- Section 2.4.1.
- Section 2.4.2.
- Section 2.4.4.
- Section 2.4.10.
- Section 2.4.24.
- Section 3.7.

14.3.6.3 Piping DAC

U.S. EPR piping DAC consists of both ASME Code Section III piping analyses and pipe break analyses. The piping design may be completed on a system-by-system basis for applicable systems. Information will be made available to the NRC to facilitate reviews, inspections, and audits throughout the analyses process and, if appropriate, the NRC may inform the licensee of concerns as they are identified so that adjustments may be made in a timely manner.

ASME Code Section III prescribes certain procedures and requirements that are to be followed for completing the piping design. The piping DAC includes a verification of the ASME Code Section III design report to verify that the appropriate code design requirements for each system have been implemented. The design information (including ASME design reports) will be available to the NRC for review, inspection, and audit.

The following U.S. EPR FSAR Tier 1 sections contain ASME Code Section III DAC, which are identified with {{DAC}}:

- Sections 2.2.1 through 2.2.7.
- Section 2.3.3.
- Section 2.5.4.
- Section 2.7.1.
- Section 2.7.2.
- Section 2.7.11.
- Section 2.8.2.
- Section 2.8.6.
- Section 2.8.7.
- Section 3.5.

For completing the pipe break analyses DAC, the analyses will document that structures, systems, and components (SSC) which are required to be functional during and following a safe shutdown earthquake have adequate high-energy and moderate energy pipe break mitigation features. The pipe break analyses verify that the criteria used to postulate pipe breaks, the analytical methods used to analyze pipe breaks, and the method to confirm the adequacy of the results of the pipe break analyses are appropriate. The pipe break analyses reports provides assurance that the high-energy and moderate-energy line break analyses have been completed.

The following U.S. EPR FSAR Tier 1 sections contain pipe break hazards analysis DAC and leak before break (LBB) DAC, which are identified with {{DAC}}:

- Section 2.2.1.
- Section 3.8.

A COL applicant that references the U.S. EPR design certification will identify a plan for implementing DAC. The plan will identify 1) the evaluations that will be performed for DAC, 2) the schedule for performing these evaluations, and 3) the associated design processes and information that will be available to the NRC for audit. For subsequent plants, this plan may be an indication that the plant will apply the DAC completion that was used for the first standard plant. A subsequent plant's plan to apply the DAC completion of the first standard plant is only applicable where the standard design is used for piping, HFE, or I&C.

14.3.7 References

1. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," U.S. Nuclear Regulatory Commission, March 2007.

2. ASME Boiler and Pressure Vessel Code, Section III, "Rules of Construction of Nuclear Facility Components," Class 1, 2, and 3 Components, The American Society of Mechanical Engineers, 2004 (No Addenda).

3. SECY 92-053, "Use of Design Acceptance Criteria During 10 CFR Part 52 Design Acceptance Reviews."

4. NEI 08-01, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52," Revision 3.

5. Regulatory Guide 1.215, "Guidance for ITAAC Closure Under 10 CFR Part 52," Revision 0.

Table 14.3-1—Design Basis Accident Analysis (Safety-Significant Features) Sheet 1 of 5

Item #	Tier 2 Reference	Design Feature	Value
1-1	Table 4.4-1	Initial rated reactor power is 4590 $MW_{t.}$	4590 MW_t
1-2	Table 3.4.9-1	RCCA bank withdrawal rate.	Maximum 30 in/min (75 steps/min)
1-3	Table 5.1-1	RCS loop flowrate.	Minimum 119,692 gpm/ loop. Maximum 134,662 gpm/ loop.
1-4	Section 5.2.2.2.2	CVCS charging pump flow.	Maximum runout flow (delivered to the cold legs) of 112.66 lb_m/sec (total for both pumps)
1-5	Deleted	Deleted.	
1-6	Section 5.4.1.4	RCS flow coastdown.	Minimum flow (% of initial flow) after pump trip: Time - Flow 0.0 sec - 100% 1.0 sec - 94.03% 2.0 sec - 87.59% 4.0 sec - 77.01% 6.0 sec - 68.66% 8.0 sec - 61.81% 10.0 sec - 56.10% 20.0 sec - 38.00%
1-7	Table 5.4-2	SG steam outlet flow restrictor throat area.	Maximum 1.39 ft^2
1-8	Table 5.4-9	PSRV capacity.	Minimum 661,400 lb_m/ hr per valve at 2535 psig (Total of 3 valves)
1-9	Table 5.4-9	PSRV opening time.	Maximum 0.70 s (including pilot valves)
1-10	Section 6.2.1.1.2	Containment design pressure.	62 psig
1-11	Table 6.2-1	Containment Free Volume.	Minimum 2.755 x 10 ft^3
1-12	Table 6.3-1	Accumulator total volume.	Minimum 1942.3 ft^3 per accumulator (total of 4 accumulators)
1-13	Table 6.3-1	Accumulator fL/D + K.	Minimum 3.71 for a flow area of 0.3941 ft^2 and f = 0.014

Table 14.3-1—Design Basis Accident Analysis (Safety-Significant Features)
Sheet 2 of 5

Item #	Tier 2 Reference	Design Feature	Value
1-14	Table 6.3-2	Pumped LHSI flowrate.	Minimum runout flowrate per train (delivered to the cold leg) is 312.2 lb_m/s (cross-connects are closed)
1-15	Table 6.3-2	LHSI shutoff head.	Minimum 302 psia (cold leg pressure)
1-16	Table 6.3-3	Pumped MHSI flowrate.	Minimum runout flowrate per train (delivered to the cold leg) is 130.1 lb_m/s
1-17	Table 6.3-3	Pumped MHSI flowrate.	Maximum runout flowrate per train (delivered to the cold leg) is 153.1 lb_m/s Maximum runout flowrate per train (delivered to the cold leg with the large miniflow line open) is 112.0 lb_m/s
1-18	Table 6.3-3	MHSI shutoff head.	Minimum 1300 psia (cold leg pressure)
1-19	Table 6.3-3	MHSI shutoff head.	Maximum 1407 psia (cold leg pressure) Maximum 614 psia (cold leg pressure with large miniflow line open)
1-20	Table 6.3-4	IRWST water volume.	Minimum 66,886 ft^3 (500,342 gal)
1-21	Section 7.2.1.2.1	A reactor trip occurs on low DNBR.	
1-22	Section 7.2.1.2.2	A reactor trip occurs on high linear power density.	
1-23	Section 7.2.1.2.3	A reactor trip occurs on high neutron flux rate of change.	
1-24	Section 7.2.1.2.4	A reactor trip occurs on high core power or low saturation temperature margin in two or more loops.	
1-25	Section 7.2.1.2.5	A reactor trip occurs on low RCS loop flowrates on 2 or more loops.	
1-26	Section 7.2.1.2.6	A reactor trip occurs on low-low loop flowrate on one loop.	

Table 14.3-1—Design Basis Accident Analysis (Safety-Significant Features)
Sheet 3 of 5

Item #	Tier 2 Reference	Design Feature	Value
1-27	Section 7.2.1.2.7	A reactor trip occurs on low RC pump speed on 2 or more RC pumps.	
1-28	Section 7.2.1.2.8	A reactor trip occurs on high neutron flux during startup.	
1-29	Section 7.2.1.2.10	A reactor trip occurs on low pressurizer pressure.	
1-30	Section 7.2.1.2.11	A reactor trip occurs on high pressurizer pressure.	
1-31	Section 7.2.1.2.12	A reactor trip occurs on high pressurizer level.	
1-32	Section 7.2.1.2.13	A reactor trip occurs on low hot leg pressure in two of four loops.	
1-33	Section 7.2.1.2.14	A reactor trip occurs on high SG steam pressure rate of decrease.	
1-34	Section 7.2.1.2.15	A reactor trip occurs on low SG steam pressure.	
1-35	Section 7.2.1.2.16	A reactor trip occurs on high SG steam pressure.	
1-36	Section 7.2.1.2.17	A reactor trip occurs on low SG secondary water level.	
1-37	Section 7.2.1.2.18	A reactor trip occurs on high SG secondary water level.	
1-38	Section 7.2.1.2.20	A reactor trip occurs on SIS actuation.	
1-39	Section 7.2.1.2.21	A reactor trip occurs on emergency feedwater actuation.	
1-40	Section 7.2.1.2.22	A manual reactor trip is provided.	
1-41	Section 7.3.1.1.3	The EFW system is isolated on high SG secondary water level.	
1-42	Section 7.3.1.2.1	The SIS (4 trains) is activated on low pressurizer pressure or on low margin to saturation.	
1-43	Section 7.3.1.2.2	The EFW system (one per SG) is activated on low SG secondary water level and on SIS concurrent with LOOP.	
1-44	Section 7.3.1.2.4	A partial cooldown is accomplished by using the MSRTs to depressurize the SG secondary side in response to actuation of the SIS.	

Table 14.3-1—Design Basis Accident Analysis (Safety-Significant Features)
Sheet 4 of 5

Item #	Tier 2 Reference	Design Feature	Value
1-45	Sections 7.3.1.2.7 and 7.3.1.2.14	Main steam line isolation occurs on 1) high SG steam pressure rate of decrease, 2) low SG steam pressure, or 3) high SG level and initiation of partial cooldown.	
1-46	Section 7.3.1.2.8	The PS will initiate MFW isolation.	
1-47	Section 7.3.1.2.12	The PS will initiate EDG startup and sequence loads.	
1-48	Section 7.3.1.2.15	A trip of all reactor coolant pumps occurs on low ΔP across a reactor coolant pump concurrent with an SIS signal.	
1-49	Section 7.3.1.2.17	A turbine trip is initiated on a reactor trip signal.	
1-50	Table 10.3-2	MSRT flowrate.	Minimum of 2,844,146 lb_m/hr at valve inlet static pressure of 1370 psig per train. (Total of 4 MSRTs)
1-51	Table 10.3-2	MSSV open setpoints.	Maximum 1504 psig MSSV1 Maximum 1535 psig MSSV2
1-52	Table 10.3-2	MSSV capacities.	Minimum 1,422,073 lb_m/ hr per valve at 1504 psig (MSSV1) and 1535 psig (MSSV2). (Total of 4 MSSV1 valves and 4 MSSV2 valves)
1-53	Section 10.4.9.2.1	EFW pool volume sufficient to achieve cold shutdown.	Minimum 300,000 gallons (total for 4 pools)
1-54	Section 10.4.9.2.1	Cross-connections allow EFW pump suction on all EFW pools and pump discharge alignment with any SG.	
1-55	Section 10.4.9.2.1	Alignment of EFW pumps with any SG can be accomplished from the main control room.	
1-56	Section 10.4.9.2.1	Emergency power provides power to essential safety equipment if there is a loss of normal power.	

Table 14.3-1—Design Basis Accident Analysis (Safety-Significant Features) Sheet 5 of 5

Item #	Tier 2 Reference	Design Feature	Value
1-57	Section 10.4.9.2.1 and Table 10.4.9-1	EFW flowrate per SG.	Minimum flow of 198,416 lb_m/hr (or 399.4 gpm at 122°F) at pressures up to 1426.1 psia and linearly ramping to 61,906 lb_m/hr (or 124.6 gpm at 122°F) at 1568.2 psia
1-58	Table 10.4.9-1	EFW flowrate to a depressurized SG.	Maximum 490 gpm
1-59	Table 15.0-8	MSRT opening pressure.	Maximum of 1414.7 psia
1-60	Table 15.0-8	MSRT closure pressure.	Maximum of 609.7 psia
1-61	Table 15.0-8	MSRIV/MSRT opening time.	Maximum 1.8 s
1-62	Table 15.0-8	MSIV closure time.	Maximum 5 s after signal
1-63	Table 15.0-8	Pumped safety injection startup time from event detection to full flow.	Maximum 15 s (with offsite power available) Maximum 40 s (with loss of offsite power)
1-64	Table 15.0-8	EFW pump startup time from event detection to full flow.	Maximum 15 s (with offsite power available) Maximum 60 s (with loss of offsite power)
1-65	Table 15.0-9	PSRV open setpoints.	Maximum 2600.4 psia
1-66	Section 15.6.5.2.2	MSRT partial cooldown.	Ramped from a maximum opening pressure of 1414.7 psia to a maximum of 900 psia at a rate sufficient to reduce temperature 180°F/hr if SIS is actuated

Table 14.3-2—Radiological Analysis (Safety-Significant Features)
Sheet 1 of 2

Item #	Tier 2 Reference	Design Feature	Value
2-1	Section 6.2.3	The annulus ventilation system provides a sub-atmospheric pressure between the inner and outer containment shells during postulated accidents.	At least -0.25 inches of H_2O in ≤ 305 s from initiation of signal
2-2	Section 6.2.6.1	Leakage rate (L_a) through the primary containment.	≤ 0.25 w/o per day
2-3	Section 6.3.2.2	Post LOCA pH control ≥7 is provided for the in-containment refueling water storage tank (IRWST) with TSP-dodecahydrate.	≥12,200 lb_m TSP
2-4	Section 9.1.2	The spent fuel pool water level is maintained above the spent fuel.	≥23 feet
2-5	Sections 9.4.1.1, 9.4.1.2.3, and 15.0.3.4.1	Outside air supply to the main control room (MCR) is diverted to filtration system upon actuation by a primary containment isolation signal or by high radiation levels in the air intake ducts.	≤ 1 minute
2-6	Section 9.4.1.2.3	Filtered outside air supply to the MCR is sufficient to maintain a positive pressure relative to areas outside the MCR pressure boundary.	≥1/8 inch water gauge
2-7	Section 9.4.1.2.3	The MCR post-isolation ventilation recirculation system diverts air through a filtration system.	≥ 3000 cfm
2-8	Section 15.0.3.4.1	MCR ventilation unfiltered air inleakage.	≤ 50 cfm
2-9	Sections 9.4.2, 9.4.3, 9.4.5, 9.4.8, and 9.4.14	The Fuel Building and the radiological controlled area of safeguard building ventilation systems maintain negative pressure in the buildings with respect to the outside atmosphere, to prevent leakage of potentially contaminated air to the environment.	
2-10	Section 15.0.3.11.2	Closure time for containment isolation valves for pre-isolation filtered exhaust (KLA system).	≤ 10 s
2-11	Section 12.3.2.3	Building wall thicknesses for the Reactor Building and annulus (UJA) provide shielding to meet the radiation zone and access requirements for postaccident mitigation.	

Table 14.3-2—Radiological Analysis (Safety-Significant Features)
Sheet 2 of 2

Item #	Tier 2 Reference	Design Feature	Value
2-12	Section 12.3.2.3	Building wall and floor thicknesses for the safeguards buildings 1, 2, 3, and 4 (UJH/UJK) provide shielding to meet the radiation zone and access requirements for post accident mitigation.	
2-13	Section 12.3.2.3	Building wall and floor thicknesses for the fuel building (UFA) provide shielding to meet the radiation zone and access requirements for postaccident mitigation.	
2-14	Section 6.2.4.2.6	Closure time for remotely operated containment isolation valves, except for the pre-isolation filtered exhaust (KLA system).	<60 s

Table 14.3-3—Fire Protection (Safety-Significant Features)

Item #	Tier 2 Reference	Design Feature	Value
3-1	Section 9.5.1.2.1	Barriers are provided for Safeguard Buildings that maintain the impact of internal hazards, such as fire, contained to the building of hazard origin.	
3-2	Section 9.5.1.2.1	Barriers are provided for the Emergency Power Generating Buildings that maintain the impact of internal hazards, such as fire, contained within the building of hazard origin.	
3-3	Section 9.5.1.2.1	The remote shutdown station (RSS) is electrically isolated from the MCR.	
3-4	Section 9.5.1.2.1	The MCR together with its adjacent room complex is one common fire area separated from other fire areas.	
3-5	Section 9.5.1.2.1	The RSS is in its own fire area separated from other fire areas.	
3-6	Section 9.5.1.2.1	The plant fire alarm system is provided with a primary and secondary power source that will transfer automatically to the secondary source upon loss of the primary source. The loss of either power source will alarm in the MCR.	
3-7	Section 9.5.1.2.1	The site fire protection water supply system includes two separate fresh water storage tanks.	≥300,000 gallons each
3-8	Section 9.5.1.2.1	Site fire pumps consist of at least 1 electric motor-driven pump and at least 1 diesel engine-driven pump.	
3-9	Section 9.5.1.2.1	Fire pumps are separated from each other and other plant structures.	
3-10	Section 9.5.1.2.1	The standpipe and hose systems in areas containing systems and components required for safe plant shutdown in the event of a safe shutdown earthquake (SSE) including the water supply to these standpipes are capable of remaining functional and supplying two hose stations following an SSE.	Approximately 75 gpm per hose stream for any two hose stations
3-11	Section 9.5.1.2.1	Separation is provided between the Essential Service Water Pump Buildings to maintain the impact of internal hazards, such as fire, from affecting the other Essential Service Water Pump Buildings.	

Table 14.3-4—Flooding Analysis (Safety-Significant Features)
Sheet 1 of 2

Item #	Tier 2 Reference	Design Feature	Value
4-1	Section 3.4.1.1.1	The probable maximum flood elevation is one foot below finished yard grade.	1 foot
4-2	Section 3.4.1.1.1	Portions of seismic category I structures located below grade elevation are protected from external flooding by waterstops, water tight seals, and waterproofing.	
4-3	Section 3.4.1.1.2	Barriers are provided for Safeguard Buildings that maintain the impact of internal hazards, such as flood and energy line break, contained to the building of hazard origin.	
4-4	Section 3.4.1.1.2	Barriers are provided for the Emergency Power Generating Buildings that maintain the impact of internal hazards, such as flood, contained within the building of hazard origin.	
4-5	Section 3.4.1.1.2	Division walls in seismic category I structures below elevation +0 feet 0 inches provide strict separation and serve as flood barriers to prevent spreading of flood water to adjacent divisions.	
4-6	Section 3.4.1.1.2	Rooms below level +0 feet 0 inches within divisionally separated buildings are provided with sufficient interconnections to keep the maximum released water volume stored within the affected division.	
4-7	Section 3.4.1.1.2	Above level +0 feet 0 inches, water ingress to neighboring divisions is prevented by a combination of water resistant doors and drain paths that direct water to levels below +0 feet 0 inches.	
4-8	Section 3.4.1.1.2	In certain locations, guard pipe enclosing high energy lines reduces the likelihood of flooding.	
4-9	Section 3.4.1.1.2	Safety-related electrical systems are arranged in the upper building levels.	
4-10	Section 3.4.1.2.2	Critical locations are equipped with leakage and flood detection instrumentation to provide automatic isolation of systems with greatest flooding potential and timely indication to the MCR.	

Table 14.3-4—Flooding Analysis (Safety-Significant Features)
Sheet 2 of 2

Item #	Tier 2 Reference	Design Feature	Value
4-11	Section 3.4.1.1.2	Separation is provided between the Essential Service Water Pump Buildings to maintain the impact of internal hazards, such as fire, from affecting the other Essential Service Water Pump Buildings.	

Table 14.3-5—ATWS (Safety-Significant Features)

Item #	Tier 2 Reference	Design Feature	Value
5-1	Sections 6.8 and 15.8.1.5	The extra borating system (EBS) is available as a redundant means to bring the reactor to hot standby on conditions indicative of an ATWS.	
5-2	Section 6.8.2	EBS consists of two trains.	
5-3	Section 6.8.2.1	Activation of EBS is manual.	
5-4	Section 7.8.1.1	The diverse actuation subsystem includes equipment from sensor output to the final actuation device that is independent from the reactor protection system to provide a diverse reactor trip.	
5-5	Section 7.8.1.1	The diverse actuation subsystem automatically initiates the emergency feedwater system and initiates a turbine trip under conditions indicative of an ATWS.	

Table 14.3-6—PRA and Severe Accident Analysis (Safety-Significant Features)
Sheet 1 of 4

Item #	Tier 2 Reference	Design Feature	Value
6-1	Section 1.2.3.1.2	Each of the four Safeguard Buildings houses a separate safety division.	
6-2	Section 1.2.3.1.2	Each Safeguard Building houses one train of each of the following systems: • Component cooling water system (CCWS). • Emergency feedwater system (EFWS). • Safety injection system and residual heat removal system (SIS/RHRS) which contains MHSI and LHSI. • Essential service water system (ESWS).	
6-3	Section 1.2.3.1.2	Safeguard Buildings are designed to contain the impacts of internal hazards (e.g., fires, high-energy line break, floods) to the building of origin.	
6-4	Section 1.2.3.1.2	Each ESWS pump is located within a separate ESWS pump house. Each ESWS pump house is associated with a cooling tower.	
6-5	Section 3.8	The Shield Building, Containment Building, Safeguard Buildings, Fuel Building, Essential Service Water Buildings, Essential Service Water Cooling Towers, and Emergency Power Generating Buildings are classified as Seismic Category I.	
6-6	Section 3.8.1	The Containment Building is pre-stressed concrete and the Shield Building is reinforced concrete.	
6-7	Section 5.4.1.2.1	The U.S. EPR RCP has a standstill seal system. It provides backup seal capability independent of normal seal when the RCP is stopped.	
6-8	Section 6.3	The four trains of SIS/RHRS inject borated water into the reactor coolant system to compensate for the loss of RCS inventory or to remove residual heat from the RCS.	
6-9	Section 6.3	Each IRWST (SIS train and SAHRS) suction inlet line has debris screens.	

Table 14.3-6—PRA and Severe Accident Analysis (Safety-Significant Features)
Sheet 2 of 4

Item #	Tier 2 Reference	Design Feature	Value
6-10	Section 6.3	The in-containment refueling water storage tank (IRWST) performs the following functions: ● Supplies water to the Safety Injection System (SIS) and to the Severe Accident Heat Removal System (SAHRS). ● Provides water to flood the spreading area.	
6-11	Figure 6.4-1 and Section 7.4.1.3.4	The MCR is located in Safeguard Buildings 2/3 and is separate from the RSS.	
6-12	Section 6.8	Two trains of the extra borating system (EBS) provide injection of boric acid.	
6-13	Section 7.2	The protection system (PS) provides a means of performing the automatic and manual reactor trip.	
6-14	Section 7.4.1.3.4	The RSS is located in Safeguard Building 3.	
6-15	Section 7.4.1.3.4	The RSS has the ability to bring the plant to shutdown independent of the MCR.	
6-16	Section 8.1.2	Each safety division includes a dedicated DC electrical division.	
6-17	Section 8.3.1.1.5	There are 4 emergency diesel generators (EDG), one for each safety division.	
6-18	Section 8.4	There are 2 station blackout (SBO) diesels, for Divisions 1 and 4.	
6-19	Section 8.4	SBO DGs are independent and diverse from the EDGs.	
6-20	Sections 9.2.1 and 9.2.2	ESWS/CCWS trains remove heat from operational loads, safety-related components and decay heat during shutdown or accidents.	
6-21	Sections 9.2.1 and 9.2.2	Each CCWS/ESWS train has its own dedicated cooling tower.	
6-22	Sections 9.2.1 and 9.2.2	The ESWS/CCWS is designed with one dedicated train that cools the SAHRS heat exchanger.	
6-23	Section 9.3.4	The CVCS provides RCP seal injection.	
6-24	Section 9.4.1	MCR air conditioning system maintains positive pressure and is independent of other ventilation systems.	

Table 14.3-6—PRA and Severe Accident Analysis (Safety-Significant Features)
Sheet 3 of 4

Item #	Tier 2 Reference	Design Feature	Value
6-25	Section 9.4.1	The ventilation system for the RSS is independent of the MCR air conditioning system.	
6-26	Sections 9.4.5 and 9.4.6	Each safety division has its own dedicated HVAC system.	
6-27	Section 10.3	Each of four main steam lines includes one main steam relief valve train and two main steam safety valves.	
6-28	Section 10.3	Each main steam relief train has a fast acting main steam relief isolation valve and a main steam relief control valve.	
6-29	Section 10.4.7	The startup and shutdown system supplies feedwater to the SGs for low power operation.	
6-30	Section 17.4	Reliability assurance program provides assurance that the reliability of risk-significant SSC is maintained consistent with their PRA assumptions.	
6-31	Section 19.2	There is one train of SAHRS that provides containment heat removal and provides a means of cooling the IRWST.	
6-32	Section 19.2	The severe accident depressurization valves provide capability to depressurize the RCS.	
6-33	Section 19.2	Upon receiving an SIS signal, the MSRTs initiate an automatic partial cooldown of the RCS to permit the MHSI system to inject to the RCS.	
6-34	Section 19.2	Thermocouples indicate core outlet temperature.	
6-35	Section 19.2	The combustible gas control system (CGCS) contains passive autocatalytic recombiners (PAR) in-containment for hydrogen control.	
6-36	Section 19.2	The core melt stabilization system (CMSS) includes a lining of sacrificial concrete located in the bottom of the reactor pit.	
6-37	Section 19.2	The CMSS includes a lining of sacrificial concrete located in the spreading room.	

Table 14.3-6—PRA and Severe Accident Analysis (Safety-Significant Features)
Sheet 4 of 4

Item #	Tier 2 Reference	Design Feature	Value
6-38	Section 19.2	The CMSS sacrificial concrete in the reactor pit is backed by a protective layer of refractory material.	
6-39	Section 19.2	There is a melt plug in the center of the reactor pit.	
6-40	Section 19.2	Reactor pit designed with no direct flow path to upper containment.	
6-41	Section 19.2	Reactor pit concrete supports are provided.	
6-42	Section 19.2	A flooding wall exists to limit the ingress of water to the spreading area.	
6-43	Section 19.2	Passive valves are provided to initiate flow of water from the IRWST.	
6-44	Section 19.2	A flow limiting device exists in the SAHRS suction line from the IRWST to limit backflow into the IRWST.	
6-45	Section 19.2	The floor and walls of the spreading room contain cooling channels.	
6-46	Section 19.2	SAHRS provides a means to spray water into the containment for heat and airborne fission product removal.	
6-47	Section 19.2	SAHRS provides a means to inject water to the CMSS cooling structure.	

Table 14.3-7—Licensing (Safety-Significant Features)

Item #	Tier 2 Reference	Design Feature	Value
7-1	Section 18.7.1.3.6	Pressurizer safety relief valve position indication in the MCR and RSS.	
7-2	Section 18.7.1.3.7	Automatic and manual emergency feedwater system initiation.	
7-3	Section 18.7.1.3.7	Emergency feedwater system flow indication in the main control room and remote shutdown station.	
7-4	Section 18.7.1.3.8	The MCR and RSS contain instrumentation to monitor: • Containment Pressure • Containment Water Level • Containment Hydrogen Concentration • Containment Radiation Intensity • Vent Stack Radiation Monitoring	
7-5	Section 18.7.1.3.9	The MCR contains instrumentation to monitor reactor vessel water level.	

Table 14.3-8—ITAAC Screening Summary
Sheet 1 of 6

Structure, System, or Component	System KKS Code(s)	Within Scope of Tier 1	Has ITAAC in Tier 1	Tier 1 Section
NSSS Support Systems				
Chemical & Volume Control System	KBA, KBD, JEW	X	X	2.2.6
Coolant Degasification System	KBG	X		2.2.11
Coolant Purification System	KBE	X		2.2.12
Coolant Supply and Storage System	KBB	X		2.2.10
Coolant Treatment System	KBF	X		2.2.13
Fuel Handling System	FAA, FAB, FAE, FAF, FB, FC, SMF	X	X	2.2.8
Fuel Pool Cooling and Purification System	FAK, FAL	X	X	2.2.5
Reactor Boron and Water Makeup System	KBC	X		2.2.9
Reactor Coolant System				
Reactor Coolant System	JE, JA, JDA	X	X	2.2.1
Front Line Safety Systems				
Combustible Gas Control System	JMT	X	X	2.3.1
Core Melt Stabilization System	JMB	X	X	2.3.2
Emergency Feedwater System	LAR, LAS	X	X	2.2.4
Extra Borating System	JDH	X	X	2.2.7
In-Containment Refueling Water Storage Tank System	JNK	X	X	2.2.2
Safety Injection System and Residual Heat Removal System	JNA, JND, JNG	X	X	2.2.3
Severe Accident Heat Removal System	JMQ	X	X	2.3.3
Structures				
Access Building	UKE			
Auxiliary Power Transformers Areas	UBE			
Buried Conduit Duct Bank	UBZ			
Buried Piping & Pipe Ducts	UMZ			
Buried Piping & Pipe Ducts for Service Water	UQZ			
Cranes	SM, SN	X	X	2.10.1
Emergency Power Generating Buildings	UBP	X	X	2.1.2
Essential Service Water Pump Building	URB, UQB	X	X	2.1.5

Table 14.3-8—ITAAC Screening Summary
Sheet 2 of 6

Structure, System, or Component	System KKS Code(s)	Within Scope of Tier 1	Has ITAAC in Tier 1	Tier 1 Section
Fire Protection Storage Tanks & Building	USG			
Generator Transformer Areas	UBF			
Nuclear Auxiliary Building	UKA	X	X	2.1.3
Nuclear Island Structures	UFA, UJA, UJB, UJH, UJK, UJE, JM, UKH	X	X	2.1.1
Radioactive Waste Building	UKS	X	X	2.1.4
Switchgear Building	UBA			
Switchyard	UAA			
Turbine Building	UMA			
Distributed Systems				
Central Gas Distribution System	QJ			
Component Cooling Water System	KA	X	X	2.7.1
Compressed Air System	SC	X		2.7.12
Demineralized Water Distribution System	GHC	X		2.7.9
Essential Service Water System	PE	X	X	2.7.11
Fire Water Distribution System	SGA, SGB	X	X	2.7.5
Gaseous Fire Extinguishing System	SGJ	X	X	2.7.6
Operational Chilled Water System - Nuclear Island	QNA, QNB			
Potable and Sanitary System	GK	X		2.7.10
Safety Chilled Water System	QK	X	X	2.7.2
Seal Water Supply System	GHW	X		2.7.4
Spray Deluge System	SGC	X		2.7.8
Sprinkler Systems	SGE	X		2.7.3
Power Conversion Systems				
Circulating Water Supply System (Inside the Turbine Building)	PA	X		2.8.11
Condensate System	LC, LD, MAG	X		2.8.5
Main Condenser Evacuation	MAJ	X		2.8.10
Main Feedwater System	LA	X	X	2.8.6

Table 14.3-8—ITAAC Screening Summary
Sheet 3 of 6

Structure, System, or Component	System KKS Code(s)	Within Scope of Tier 1	Has ITAAC in Tier 1	Tier 1 Section
Main Steam System	LB	X	X	2.8.2
Secondary Sampling System	QU	X		2.8.9
Steam Generator Blowdown Demineralizer System	GDA	X		2.8.8
Steam Generator Blowdown System	LCQ	X	X	2.8.7
Turbine-Generator System	MAA	X	X	2.8.1
Turbine Seal System	MAW	X		2.8.3
HVAC Systems				
Access Building Ventilation System	KLD	X		2.6.2
Annulus Ventilation System	KLB	X	X	2.6.3
Containment Building Ventilation System	KLA	X	X	2.6.8
Electrical Division of Safeguard Building Ventilation System	SAC	X	X	2.6.7
Emergency Power Generating Building Ventilation System	SAD	X	X	2.6.9
Essential Service Water Pump Building Ventilation System	SAQ	X	X	2.6.13
Fuel Building Ventilation System	KLL	X	X	2.6.4
Main Control Room Air Conditioning System	SAB	X	X	2.6.1
Main Steam and Feedwater Valve Room Ventilation System	SAM3	X		2.6.12
Nuclear Auxiliary Building Ventilation System	KLE	X		2.6.5
Radioactive Waste Building Ventilation System	KLF	X		2.6.10
Safeguard Building Controlled Area Ventilation System	KLC	X	X	2.6.6
Smoke Confinement System	SAG	X		2.6.11
Station Blackout Room Ventilation System	SAL	X		2.6.14
Turbine Island Ventilation Systems	SAM1, SAM2, SAC70	X		2.6.15

Table 14.3-8—ITAAC Screening Summary
Sheet 4 of 6

Structure, System, or Component	System KKS Code(s)	Within Scope of Tier 1	Has ITAAC in Tier 1	Tier 1 Section
Auxiliary Systems				
Emergency Diesel Generator	XJA, XKA, XJN, XJV, XJG, XJQ, XJR, XJX	X	X	2.5.4
Gaseous Waste Processing System	KPL	X	X	2.9.3
Leak-off System	JMM	X		2.7.7
Liquid Waste Management System	KPK, KPF	X	X	2.9.1
Nuclear Island Drain and Vent Systems	KT	X	X	2.9.5
Nuclear Sampling System	KU	X		2.9.6
Sampling Activity Monitoring Systems	KLK	X	X	2.9.4
Severe Accident Sampling System	KUL	X		2.3.4
Solid Waste Management System	KPC	X	X	2.9.2
Station Blackout Alternate AC Source	XJA, XKA, XJN, XJV, XJG, XJQ, XJR, XJX	X	X	2.5.3
Electrical Systems				
12-Hour Uninterruptible Power Supply System	BRB, BRV, BRW, BRX, BUV, BUX, BRC, BRV03, BTB, BTM, BUD, BUE	X	X	2.5.11
Class 1E Uninterruptible Power Supply	BRA, BRU01, BRW, BTD, BTP, BUC, BUW, BGA	X	X	2.5.2
Class 1E Emergency Power Supply System	BD, BM, BN	X	X	2.5.1
Lighting System	BG, BJ, BL, BZL	X	X	2.5.9
Lightning Protection and Grounding	BAW	X	X	2.5.8

Table 14.3-8—ITAAC Screening Summary
Sheet 5 of 6

Structure, System, or Component	System KKS Code(s)	Within Scope of Tier 1	Has ITAAC in Tier 1	Tier 1 Section
Non-Class 1E Uninterruptible Power Supply	BRJ, BRU02, BTA, BTL, BUB, BUL, BUM, BRZ, BUZ	X	X	2.5.7
Normal Power Supply System	BB, BF, BH	X	X	2.5.10
Preferred (Offsite) Power Supply System	ACD	X	X	2.5.5
Power Transmission (Main Generator) System	BA, CHA, MK	X	X	2.5.6
Switchyard	ACA			
Instrumentation and Control Systems				
Boron Concentration Measurement System	CPF	X	X	2.4.11
Communication System	CY	X	X	2.4.21
Control Rod Drive Control System	BU	X	X	2.4.13
Diverse Actuation System	-	X	X	2.4.24
Excore Instrumentation System	JKT	X	X	2.4.17
Fatigue Monitoring System	JYL	X		2.4.18
Hydrogen Monitoring System	JMU	X	X	2.4.14
Incore Instrumentation System	JKS, JKQ, CNN	X	X	2.4.19
Leakage Detection System	JYH	X	X	2.4.8
Loose Parts Monitoring System	JYF	X		2.4.20
Main Control Room (Human Factors)	CW	X	X	3.4
Plant Fire Alarm System	CYE	X	X	2.4.6
Plant Physical Protection Systems	CZ			
Priority and Actuator Control System	DS, CLE6, CLF6, CLG6, CLH6	X	X	2.4.5
Process Automation System	CR	X		2.4.9
Process Information and Control System	CRU	X	X	2.4.10
Protection System	JR, CLE, CLF, CLG, CLH	X	X	2.4.1
Radiation Monitoring System	JYK	X	X	2.4.22

Table 14.3-8—ITAAC Screening Summary
Sheet 6 of 6

Structure, System, or Component	System KKS Code(s)	Within Scope of Tier 1	Has ITAAC in Tier 1	Tier 1 Section
Reactor Control, Surveillance and Limitation System	JS, CM	X	X	2.4.15
Reactor Pressure Vessel Level Measurement	JKR	X		2.4.16
Remote Shutdown Station (Human Factors)	CXA	X	X	3.4
Safety Automation System	DR, CXN	X	X	2.4.4
Safety Information and Control System	CWY	X	X	2.4.2
Security Alarm System	CZD			
Seismic Monitoring System	CPE	X	X	2.4.7
Severe Accident I&C	JZ, CS	X	X	2.4.3
Technical Support Center (Human Factors)	CWT	X	X	3.4
Turbine - Generator I&C	-	X		2.4.23
Vibration Monitoring System	JYG, JYM	X		2.4.12