Luminant Combined License (COL) Application Project Standardization Matrix

1.0 PURPOSE

The purpose of this procedure is to provide a standardization matrix which may be used as an aid during the preparation of the COL application to identify a level of standardization for the chapters sections and sub-sections of the Final Safety Analysis Report (FSAR) as it applies to the standard plant design of the US-APWR described in the Design Certification Document (DCD). This Standardization Matrix is based on the plant design described in the DCD and additional site-specific design requirements. For the COL application, the standardization matrix will identify the chapters, sections and sub-sections of the FSAR which reflects the standard design as well as those chapters and sections which will require further design information to augment the standard DCD design to address site-specific requirements.

2.0 APPLICABILITY

The Standardization Matrix is applicable to the all of the chapters, sections and sub-sections of the COL Application Part 2, FSAR, prepared in accordance with 10 CFR 52.79 and RG1.206 as part of the COL application for Comanche Peak Nuclear Power Plant (CPNPP), Units 3 & 4. This document is provided as an aid in the preparation process of the COL application.

3.0 REFERENCES

3.1 10 CFR 52.79, "Contents of Applications; Technical Information in Final Safety Analysis Report"

3.2 Regulatory Guide (RG) 1.206, "Combined License Applications for Nuclear Power Plants (LER)," dated June, 2007

4.0 ACRONYMS AND DEFINITIONS

The following is a list of acronyms and definitions used throughout this procedure.

4.1 CPNPP – Comanche Peak Nuclear Power Plant

4.2 DCD - Design Certification Document. This document establishes the standard plant design of the US-APWR.

4.3 FSAR – Final Safety Analysis Report. As part of the COL application, the FSAR is the safety analysis that documents the design basis for the plant and provides the results of analyses that demonstrate plant safety. The FSAR must include a description of the facility, a description of the design bases and limits on its operation, and a safety analysis of the facility systems, structures and components (SSCs) and of the facility as a whole in accordance with 10 CFR52.79.

4.4 IBR - Incorporated by Reference. IBR indicates that the section of the FSAR Incorporates by Reference the corresponding section of the DCD with no supplemental information provided.

4.5 Level of Standardization – this consists of three levels: 1) Site-Specific, 2) Standard, and 3) Standard with Site-Specific.

4.6 Site-Specific - indicates that the section or sub-section of the FSAR Incorporates by Reference the corresponding section of the DCD with additional information to describe site-specific features or information unique to the applicant.

4.7 Standard – indicates that the section or sub-section of the FSAR Incorporates by Reference the corresponding section of the DCD with additional information provided that is expected to be identical for the R-COL application and future S-COL applications.

4.8 Standard with Site-Specific - indicates that the section or sub-section of the FSAR Incorporates by Reference the corresponding section of the DCD with a combination of additional standard and site-specific information provided.

5.0 PROCEDURE

The following provides an overview on each column in the Standardization Matrix and the information provided:

The Standardization Matrix (see Table 1) lists each chapter of the COL application, Part 2, FSAR, in a tabulated form. The sections and sub-sections of each chapter are further displayed at the X-Y or X-Y-Z level. This table consists of four heading over six columns. The first two headings identify the FSAR Section and FSAR/Section Title. The third heading contains one column which identifies whether the entire FSAR section incorporates the DCD by reference (IBR). In other words, the FSAR section or sub-section completely matches the DCD. The last heading contains three columns which identify the section or sub-section that incorporates the DCD by reference and is augmented with additional information identified as standard, standard with site-specific, and site-specific.

Each chapter section and sub-section is categorized in only one of the last four columns of the matrix with an "X" in the applicable column. In certain instances, the FSAR section or sub-section may not apply to the design of the US-APWR. In those cases, the section or sub-section will be categorized with an "N/A" designating "not applicable."

6.0 TABLE 1 STANDARDIZATION MATRIX

Table 1 Standardization Matrix for FSAR

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 1 – Introduction and General Description					
1.1	**Introduction**				
1.1.1	Plant Location				X
1.1.2	Containment Type	X			
1.1.3	Reactor Type	X			
1.1.4	Power Output			X	
1.1.5	Schedule			X	
1.1.6	Format and Content	X			
1.2	**General Plant Description**				X
1.3	**Comparisons with Other Facilities**			X	
1.4	**Identification of Agents and Contractors**			X	
1.5	**Requirements for Additional Technical Information**	X			
1.6	**Material Referenced**		X		
1.7	**Drawings and Other Detailed Information**			X	
1.8	**Site and Plant Design Interfaces and Conceptual Design Information**		X		
1.9	**Conformance with Regulatory Criteria**				
1.9.1	Conformance with Regulatory Guides			X	
1.9.2	Conformance with the Standard Review Plan			X	
1.9.3	Generic Issues			X	
1.9.4	Operational Experience (Generic Communications)			X	
1.9.5	Advanced and Evolutionary Light-Water Reactor Design Issues			X	

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 2 – Site Characteristics					
2.1	**Geography and Demography**				
2.1.1	Site Location and Description				X
2.1.2	Exclusion Area Authority and Control				X
2.1.3	Population Distribution				X
2.2	**Nearby Industrial, Transportation, and Military Facilities**				
2.2.1	Locations and Routes				X
2.2.2	Descriptions				X
2.2.3	Evaluation of Potential Accidents				X
2.3	**Meteorology**				
2.3.1	Regional Climatology				X
2.3.2	Local Meteorology				X
2.3.3	Onsite Meteorological Measurements Program				X
2.3.4	Short-Term Atmospheric Dispersion Estimates for Accident Releases				X
2.3.5	Long-Term Atmospheric Dispersion Estimates for Routine Releases				X
2.4	**Hydrologic Engineering**				
2.4.1	Hydrologic Description				X
2.4.2	Floods				X
2.4.3	Probable Maximum Flood on Streams and Rivers				X
2.4.4	Potential Dam Failures				X
2.4.5	Probable Maximum Surge and Seiche Flooding				X
2.4.6	Probable Maximum Tsunami				X
2.4.7	Ice Effects				X
2.4.8	Cooling Water Canals and Reservoirs				X
2.4.9	Channel Diversions				X
2.4.10	Flooding Protection Requirements				X
2.4.11	Low Water Considerations				X

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 2 – Site Characteristics					
2.4.12	Ground Water				X
2.4.13	Accidental Releases of Radioactive Liquid Effluent in Ground and Surface Waters				X
2.4.14	Technical Specification and Emergency Operation Requirements				X
2.5	**Geology, Seismology, and Geotechnical Engineering**				
2.5.1	Basic Geologic and Seismic Information				X
2.5.2	Vibratory Ground Motion				X
2.5.3	Surface Faulting				X
2.5.4	Stability of Subsurface Materials and Foundations				X
2.5.5	Stability of Slopes				X

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 3 – Design of Structures, Components, Equipment, Systems					
3.1	**Conformance with NRC General Design Criteria**	X			
3.2	**Classification of Structures, Systems, and Components**				
3.2.1	Seismic Classification			X	
3.2.2	System Quality Group Classifications			X	
3.3	**Wind and Tornado Loadings**				
3.3.1	Wind Loadings			X	
3.3.2	Tornado Loadings			X	
3.4	**Water Level (Flood) Design**				
3.4.1	Flood Protection			X	
3.4.2	Analysis Procedures	X			
3.5	**Missile Protection**				
3.5.1	Missile Selection and Description			X	
3.5.2	Structures, Systems, and Components to be Protected from Externally Generated Missiles			X	
3.5.3	Barrier Design Procedures			X	
3.6	**Protection Against Dynamic Effects Associated with the Postulated Rupture of Piping**				
3.6.1	Plant Design for Protection Against Postulated Piping Failures in Fluid Systems Outside of Containment		X		
3.6.2	Determination of Rupture Locations and Dynamic Effects Associated with the Postulated Rupture of Piping			X	
3.6.3	Leak-Before-Break Evaluation Procedures	X			
FSAR Chapter 3 – Design of Structures, Components, Equipment, Systems (cont.)					

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
3.7	**Seismic Design**				
3.7.1	Seismic Design Parameters			X	
3.7.2	Seismic System Analysis			X	
3.7.3	Seismic Subsystem Analysis			X	
3.7.4	Seismic Instrumentation			X	
3.8	**Design of Category I Structures**				
3.8.1	Concrete Containment	X			
3.8.2	Steel Containment	N/A			
3.8.3	Concrete and Steel Internal Structures of Steel or Concrete Containments	X			
3.8.4	Other Seismic Category 1 Structures			X	
3.8.5	Foundations			X	
3.9	**Mechanical Systems and Components**				
3.9.1	Special Topics for Mechanical Components			X	
3.9.2	Dynamic Testing and Analysis of Systems, Components, and Equipment			X	
3.9.3	ASME Code Class 1, 2, and 3 Components, Component Supports, and Core Support Structures				X
3.9.4	Control Rod Drive Systems	X			
3.9.5	Reactor Pressure Vessel Internals	X			
3.9.6	Functional Design, Qualification, and Inservice Testing Programs for Pumps, Valves and Dynamic Restraints			X	
3.10	**Seismic and Dynamic Qualification of Mechanical and Electrical Equipment**				
3.10.1	Seismic Qualification Criteria		X		
FSAR Chapter 3 – Design of Structures, Components, Equipment, Systems (cont.)					

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
3.10.2	Methods and Procedures for Qualifying Mechanical and Electrical Equipment and Instrumentation		X		
3.10.3	Methods and Procedures of Analysis or Testing of Supports of Mechanical and Electrical Equipment and Instrumentation		X		
3.10.4	Test And Analyses Results and Experience Database		X		
3.11	**Environmental Qualification of Mechanical and Electrical Equipment**				
3.11.1	Equipment Location and Environmental Conditions			X	
3.11.2	Qualification Tests and Analyses			X	
3.11.3	Qualification Test Results			X	
3.11.4	Loss of Ventilation			X	
3.11.5	Estimated Chemical and Radiation Environment			X	
3.11.6	Qualification of Mechanical Equipment			X	
3.12	**Piping Design Review**				
3.12.1	Introduction	X			
3.12.2	Codes and Standards	X			
3.12.3	Piping Analysis Methods	X			
3.12.4	Piping Modeling Technique	X			
3.12.5	Piping Stress Analysis Criteria	X			
3.12.6	Piping Support Design Criteria	X			
3.13	**Threaded Fasteners (ASME Code Class 1, 2, and 3)**				
3.13.1	Design Considerations		X		
3.13.2	Inservice Inspection Requirements		X		

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 4 – Reactor					
4.1	**Summary Description**	X			
4.2	**Fuel System Design**	X			
4.3	**Nuclear Design**	X			
4.4	**Thermal and Hydraulic Design**		X		
4.5	**Reactor Materials**				
4.5.1	Control Rod Drive System Structural Materials	X			
4.5.2	Reactor Internal and Core Support Materials	X			
4.6	**Functional Design of Reactivity Control System**	X			

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 5 – Reactor Coolant System and Connected Systems					
5.1	**Summary Description**	X			
5.2	**Integrity of Reactor Coolant Pressure Boundary**				
5.2.1	Compliance with ASME Codes and Code Cases		X		
5.2.2	Overpressure Protection		X		
5.2.3	Reactor Coolant Pressure Boundary Materials				X
5.2.4	Inservice Inspection and Testing of Reactor Coolant Pressure Boundary		X		
5.2.5	Reactor Coolant Pressure Boundary Leakage Detection	X			
5.3	**Reactor Vessels**				
5.3.1	Reactor Vessel Materials		X		
5.3.2	Pressure-Temperature Limits, Pressurized Thermal Shock, and Charpy Upper-Shelf Energy Data Analyses		X		
5.3.3	Reactor Vessel Integrity		X		
5.4	**Reactor Coolant System Component and Subsystem Design**				
5.4.1	Reactor Coolant Pumps		X		
5.4.2	Steam Generators		X		
5.4.3	Reactor Coolant Piping	X			
5.4.4	Main Steamline Flow Restrictions	X			
5.4.5	Reserved by NRC as per RG1.206	N/A			
5.4.6	Reactor Core Isolation Cooling System (BWR) => N/A	N/A			
5.4.7	Residual Heat Removal System	X			
5.4.8	Reactor Water Cleanup System (BWR) => N/A	N/A			
5.4.9	Reserved by NRC as per RG1.206	N/A			

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 5 – Reactor Coolant System and Connected Systems (cont.)					
5.4.10	Pressurizer	X			
5.4.11	Pressurizer Relief Tank	X			
5.4.12	Reactor Coolant System High Point Vents	X			

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 6 – Engineered Safety Features					
6.1	**Engineered Safety Feature Materials**				
6.1.1	Metallic Materials		X		
6.1.2	Organic Materials		X		
6.2	**Containment Systems**				
6.2.1	Containment Functional Design	X			
6.2.2	Containment Heat Removal System		X		
6.2.3	Secondary Containment Functional Design	N/A			
6.2.4	Containment Isolation System		X		
6.2.5	Combustible Gas Control in Containment		X		
6.2.6	Containment Leakage Testing		X		
6.2.7	Fracture Prevention of Containment Pressure Vessel		X		
6.3	**Emergency Core Cooling Systems**				
6.3.1	Design Basis	X			
6.3.2	System Design	X			
6.3.3	Performance Evaluation	X			
6.3.4	Tests and Inspections		X		
6.3.5	Instrumentation Requirements	X			
6.4	**Habitability Systems**				
6.4.1	Design Basis	X			
6.4.2	System Design		X		
6.4.3	System Operational Procedures	X			
6.4.4	Design Evaluations			X	
6.4.5	Testing and Inspection		X		
6.4.6	Instrumentation Requirements		X		
6.5	**Fission Product Removal and Control Systems**				
6.5.1	ESF Filter Systems		X		
6.5.2	Containment Spray Systems		X		

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 6 – Engineered Safety Features (cont.)					
6.5.3	Fission Product Control Systems and Structures		X		
6.5.4	Ice Condenser as a Fission Product	N/A			
6.5.5	Pressure Suppression Pool as a Fission Product Cleanup System	N/A			
6.6	**Inservice Inspection of Class 2 and 3 Components**				
6.6.1	Components Subject to Examination		X		
6.6.2	Accessibility		X		
6.6.3	Examination Techniques and Procedures		X		
6.6.4	Inspection Intervals		X		
6.6.5	Examination Categories and Requirements		X		
6.6.6	Evaluation of Examination Results		X		
6.6.7	System Pressure Tests		X		
6.6.8	Augmented Inservice Inspection to Protect Against Postulated Piping Failures		X		
6.7	**Main Steamline Isolation Valve Leakage Control System (BWR)**		N/A		

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 7 – Instrumentation and Controls					
7.1	**Introduction**				
7.1.1	Identification of Safety-Related Systems and Non Safety-Related Systems	X			
7.1.2	Identification of Safety Criteria	X			
7.1.3	Design Bases of Instrumentation and Control System	X			
7.2	**Reactor Trip System**				
7.2.1	System Description	X			
7.2.2	Design Basis Information	X			
7.2.3	Analysis	X			
7.3	**Engineered Safety Feature Systems**				
7.3.1	System Description			X	
7.3.2	Design Basis Information	X			
7.3.3	Analysis	X			
7.4	**Systems Required for Safe Shutdown**				
7.4.1	System Description			X	
7.4.2	Design Basis Information	X			
7.4.3	Analysis	X			
7.5	**Information Systems Important to Safety**				
7.5.1	System Description			X	
7.5.2	Design Basis Information	X			
7.5.3	Analysis	X			
7.6	**Interlock Systems Important to Safety**				
7.6.1	System Description	X			
7.6.2	Design Basis Information	X			
7.6.3	Analysis	X			
7.7	**Control Systems Not Required for Safety**				

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 7 – Instrumentation and Controls (cont.)					
7.7.1	Description	X			
7.7.2	Design Basis Information	X			
7.7.3	Analysis	X			
7.8	**Diverse Instrumentation and Control Systems**				
7.8.1	System Description	X			
7.8.2	Design Basis Information	X			
7.8.3	Analysis	X			
7.9	**Data Communication Systems**				
7.9.1	System Description	X			
7.9.2	Design Basis Information			X	
7.9.3	Analysis	X			

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 8-Electrical Systems					
8.1	**Introduction**			X	
8.2	**Offsite Power System**				
8.2.1	Description				X
8.2.2	Analysis				X
8.3	**Onsite Power Systems (For Nonpassive Designs Except as Noted)**				
8.3.1	AC Power Systems			X	
8.3.2	DC Power Systems			X	
8.4	**Station Blackout**				
8.4.1	Description	X			
8.4.2	Analysis			X	

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 9 – Auxiliary Systems					
9.1	**Fuel Storage and Handling**				
9.1.1	Criticality Safety of Fresh and Spent Fuel Storage and Handling	X			
9.1.2	New and Spent Fuel Storage	X			
9.1.3	Spent Fuel Pool Cooling and Cleanup System	X			
9.1.4	Light Load Handling System (Related to Refueling)	X			
9.1.5	Overhead Heavy Load Handling System	X			
9.2	**Water Systems**				
9.2.1	Station Service Water System (Open, Raw Water Cooling Systems)				X
9.2.2	Cooling System for Reactor Auxiliaries (Closed Cooling Water Systems)	X			
9.2.3	(Reserved)	N/A			
9.2.4	Potable and Sanitary Water Systems				X
9.2.5	Ultimate Heat Sink				X
9.2.6	Condensate Storage Facilities	X			
9.2.7	Chilled Water System			X	
9.2.8	Turbine Component Cooling water System	X			
9.2.9	Non-Essential Service Water System	X			
9.3	**Process Auxiliaries**				
9.3.1	Compressed Air Systems			X	
9.3.2	Process and Post Accident Sampling Systems	X			
9.3.3	Equipment and Floor Drainage System	X			
9.3.4	Chemical and Volume Control System (PWRs) (Including Boron Recovery System)	X			
9.3.5	Standby Liquid Control System (BWR)	N/A			

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 9 – Auxiliary Systems (cont.)					
9.4	**Air Conditioning, Heating, Cooling, and Ventilation**				
9.4.1	Control Room Area Ventilation System			X	
9.4.2	Spent Fuel Pool Area Ventilation System			X	
9.4.3	Auxiliary and Radwaste Area Ventilation System			X	
9.4.4	Turbine Building Area Ventilation	X			
9.4.5	Engineered Safety Feature Ventilation System			X	
9.4.6	Containment Ventilation System			X	
9.5	**Other Auxiliary Systems**				
9.5.1	Fire Protection Program			X	
9.5.2	Communication Systems			X	
9.5.3	Lighting Systems			X	
9.5.4	Emergency Gas Turbine Generator Fuel Oil Storage and Transfer System	X			
9.5.5	Reserved				
9.5.6	Emergency Gas Turbine Generator Starting System	X			
9.5.7	Emergency Gas Turbine Generator Lubrication System	X			
9.5.8	Emergency Gas Turbine Generator Combustion Air Intake and Exhaust System		X		

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 10 – Steam and Power Conversion Systems					
10.1	**Introduction**	X			
10.2	**Turbine Generator**				
10.2.1	Design Bases	X			
10.2.2	Description	X			
10.2.3	Turbine Rotor Integrity		X		
10.3	**Main Steam Supply System**				
10.3.1	Design Bases	X			
10.3.2	Description	X			
10.3.3	Evaluation	X			
10.3.4	Inspection and Testing Requirements		X		
10.3.5	Water Chemistry (PWR)			X	
10.3.6	Steam and Feedwater System Materials			X	
10.4	**Other Features of Steam and Power Conversion System**				
10.4.1	Main Condensers	X			
10.4.2	Main Condenser Evacuation System	X			
10.4.3	Turbine Gland Sealing System	X			
10.4.4	Turbine Bypass System	X			
10.4.5	Circulating Water System				X
10.4.6	Condensate Cleanup System			X	
10.4.7	Condensate and Feedwater Systems	X			
10.4.8	Steam Generator Blowdown System (PWR)			X	
10.4.9	Emergency Feedwater System (PWR)	X			
10.4.10	Chemical Injection System			X	
10.4.11	Auxiliary Steam System			X	

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 11 – Radioactive Waste Management					
11.1	**Source Terms**	X			
11.2	**Liquid Waste Management System**				
11.2.1	Design Bases	X			
11.2.2	System Description			X	
11.2.3	Radioactive Effluent Releases			X	
11.3	**Gaseous Waste Management System**				
11.3.1	Design Bases	X			
11.3.2	System Description	X			
11.3.3	Radioactive Effluent Releases			X	
11.3.4	Ventilation System	X			
11.3.5	Testing and Inspection Requirements	X			
11.3.6	Instrumentation Requirements	X			
11.4	**Solid Waste Management System**				
11.4.1	Design Bases	X			
11.4.2	System Description				X
11.4.3	Radioactive Effluent Releases				X
11.4.4	Component Description			X	
11.4.5	Malfunction Analysis	X			
11.4.6	Testing and Inspection Requirements	X			
11.4.7	Instrumentation Requirements			X	
11.5	**Process and Effluent Radiological Monitoring and Sampling Systems**				
11.5.1	Design Bases	X			
11.5.2	System Description	X			
11.5.3	Effluent Monitoring and Sampling	X			
11.5.4	Process Monitoring and Sampling	X			

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 12 – Radiation Protection					
12.1	**Assuring that Occupational Radiation Exposures Are As Low As Is Reasonably Achievable**				
12.1.1	Policy Considerations		X		
12.1.2	Design Considerations		X		
12.1.3	Operational Considerations		X		
12.2	**Radiation Sources**				
12.2.1	Contained Sources			X	
12.2.2	Airborne Radioactive Material Sources		X		
12.3	**Radiation Protection Design Features**				
12.3.1	Facility Design Features		X		
12.3.2	Shielding		X		
12.3.3	Ventilation		X		
12.3.4	Area Radiation and Airborne Radioactivity Monitoring Instrumentation		X		
12.3.5	Dose Assessment			X	
12.4	**Dose Assessment**			X	
12.5	**Operational Radiation Protection Program**				
12.5.1	**Organization**				X
12.5.2	**Equipment, Instrumentation, and Facilities**				X
12.5.3	**Procedures**				X

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 13 – Conduct of Operations					
13.1	**Organizational Structure of Applicant**				
13.1.1	Management and Technical Support Organization				X
13.1.2	Operating Organization			X	
13.1.3	Qualifications of Nuclear Plant Personnel			X	
13.2	**Training**				
13.2.1	Plant Staff Training Program		X		
13.2.2	Applicable NRC Documents		X		
13.3	**Emergency Planning**				
13.3.1	Combined License Application and Emergency Plan Content			X	
13.3.2	Emergency Plan Considerations for Multiunit Sites				X
13.3.3	Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria		X		
13.4	**Operational Program Implementation**			X	
13.5	**Plant Procedures**				
13.5.1	Administrative Procedures			X	
13.5.2	Operating and Maintenance Procedures			X	
13.6	**Physical Security**				
13.6.1	Security Plans			X	
13.7	**Fitness for Duty**			X	

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 14 – Verification Programs					
14.1	**Specific Information to be Addressed in the Initial Plant Test Program**	X			
14.2	**Initial Plant Test Program**				
14.2.1	Summary of Test Program and Objectives	X			
14.2.2	Organization and Staffing			X	
14.2.3	Test Procedures			X	
14.2.4	Conduct of Test Program			X	
14.2.5	Review, Evaluation, and Approval of Test Results			X	
14.2.6	Test Records			X	
14.2.7	Conformance of Test Program with RGs	X			
14.2.8	Utilization of Reactor Operating and Testing Experience in the Development of Test Program	X			
14.2.9	Trial Testing of Plant Operating and Emergency Procedures			X	
14.2.10	Initial Fuel Loading and Initial Criticality	X			
14.2.11	Test Program Schedule				X
14.2.12	Individual Test Descriptions			X	
14.3	**Inspections, Tests, Analysis, and Acceptance Criteria**				
14.3.1	Introduction	X			
14.3.2	Chapter 1 of Tier 1, Introduction	X			
14.3.3	Chapter 2 of Tier 1, Design Descriptions and ITAAC	X			
14.3.4	Chapter 2 of Tier 1, Development of Specific ITAAC	X			
14.3.5	Chapter 3 of Tier 1, Interface Requirements	X			

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 15 – Transient and Accident Analyses					
15	**Transient and Accident Analysis**				
15.0.0	Introduction - Transient and Accident Analysis	X			
15.0.1	Radiological Consequence Analyses Using Alternative Source Terms	X			
15.0.2	Review of Transient and Accident Analysis Methods	X			
15.0.3	Design Basis Accident Radiological Consequence Analyses for Advanced Light Water Reactors				X
15.1	**Increase in Heat Removal by the Secondary System**				
15.1.1	Decrease in Feedwater Temperature as a Result of Feedwater System Malfunctions	X			
15.1.2	Increase in Feedwater Flow as a Result of Feedwater System Malfunctions	X			
15.1.3	Increase in Steam Flow as a Result of Steam Pressure Regulator Malfunction	X			
15.1.4	Inadvertent Opening of a Steam Generator Relief or Safety Valve	X			
15.1.5	Steam System Piping Failures Inside and Outside of Containment			X	
15.2	**Decrease in Heat Removal by the Secondary System**	X			
15.3	**Decrease in Reactor Coolant System Flow Rate**				
15.3.1	Loss of Forced Reactor Coolant Flow Including Trip of Pump Motor	X			
15.3.2	Flow Controller Malfunctions	X			
15.3.3	Reactor Coolant Pump Rotor Seizure			X	

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 15 – Transient and Accident Analyses (cont.)					
15.3.4	Reactor Coolant Pump Shaft Break	X			
15.4	**Reactivity and Power Distribution Anomalies**				
15.4.1	Uncontrolled Rod Cluster Control Assembly Bank Withdrawal from a Subcritical or Low-Power Startup Condition	X			
15.4.2	Uncontrolled Rod Cluster Control Assembly Bank Withdrawal at Power	X			
15.4.3	Control Rod Misoperation (System Malfunction or Operator Error)	X			
15.4.4	Startup of an Inactive Reactor Coolant Loop or Recirculating Loop at an Incorrect Temperature	X			
15.4.5	Flow Controller Malfunction Causing an Increase in BWR Core Flow Rate	X			
15.4.6	Inadvertent Decrease in Boron Concentration in the Reactor Coolant (PWR)	X			
15.4.7	Inadvertent Loading and Operation of a Fuel Assembly in an Improper Position	X			
15.4.8	Spectrum of Rod Ejection Accidents in a (PWR)			X	
15.5	**Increase in Reactor Coolant Inventory**	X			
15.6	**Decrease in Reactor Coolant Inventory**				
15.6.1	Inadvertent Opening of a PWR Pressurizer Pressure Relief Valve or a BWR Pressure Relief Valve	X			
15.6.2	Radiological Consequences of the Failure of Small Lines Carrying Primary Coolant Outside Containment				X

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 15 – Transient and Accident Analyses (cont.)					
15.6.3	Radiological Consequences of a Steam Generator Tube Failure (PWR)			X	
15.6.4	Radiological Consequences of Main Steam Line Failure Outside Containment (BWR)	N/A			
15.6.5	Loss-of-Coolant Accidents Resulting from Spectrum of Postulated Piping Breaks Within the Reactor Coolant Pressure Boundary			X	
15.7	**Radioactive Release From a Subsystem or Component**				
15.7.1	Gas Waste Management System Leak or Failure	X			
15.7.2	Liquid Waste Management System Leak or Failure (Atmospheric Release)	X			
15.7.3	Release of Radioactivity to the Environment Due to a Liquid Tank Failure	X			
15.7.4	Fuel Handling Accident				X
15.7.5	Spent Fuel Cask Drop Accident	X			
15.8	**Anticipated Transient without Scram**	X			

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 16 – Technical Specifications					
16.1	Use and Application	X			
16.2	Safety Limits	X			
16.3 & 16.4	Limiting Conditions for Operation, and Bases				X
16.4 & 16.5	Design Features and Administrative Controls				X

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 17 – Quality Assurance and Reliability Assurance					
17.1	**Quality Assurance During the Design and Construction Phase**				
17.1.1	Early Site Permit Quality Assurance Measures	**N/A**			
17.2	**Quality Assurance During the Operations Phase**		**X**		
17.3	**Quality Assurance Program Description**		**X**		
17.4	**Reliability Assurance Program Guidance**				
17.4.1	New Section 17.4 in the Standard Review Plan			**X**	
17.4.2	Reliability Assurance Program Scope, Stages, and Goals			**X**	
17.4.3	Reliability Assurance Program Implementation			**X**	
17.4.4	Reliability Assurance Program Information Needed in a COL Application			**X**	
17.5	**Quality Assurance Program Guidance**				
17.5.1	COL Applicant QA Program Responsibilities			**X**	
17.5.2	Updated SRP Section 17.5 and the QA Program Description			**X**	
17.5.3	Evaluation of the QAPD Against the SRP and QAPD Submittal Guidance			**X**	
17.6	**Description of Applicant's Program for Implementation of 10 CFR 50.65, the Maintenance Rule**				
17.6.1	Scoping per 10 CFR 50.65(b)			**X**	
17.6.2	Monitoring per 10 CFR 50.65(a)			**X**	
17.6.3	Periodic Evaluation per 10 CFR 50.65(a)(3)			**X**	
17.6.4	Risk Assessment and Management per 10 CFR 50.65(a)(4)			**X**	
17.6.5	Maintenance Rule Training and Qualification			**X**	

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 17 – Quality Assurance and Reliability Assurance (cont.)					
17.6.6	Maintenance Rule Program Role in Implementation of Reliability Assurance Program (RAP) in the Operations Phase			X	
17.6.7	Maintenance Rule Program Implementation			X	

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 18 – Human Factors Engineering					
18.1	**HFE Program Management**				
18.1.1	General HFE Program and Scope			X	
18.1.2	HFE Team and Organization			X	
18.1.3	HFE Process and Procedure			X	
18.1.4	HFE Issues Tracking			X	
18.1.5	HFE Technical Program			X	
18.2	**Operating Experience Review**				
18.2.1	Objectives and Scopes	X			
18.2.2	Methodology	X			
18.2.3	Results	X			
18.3	**Functional Requirements Analysis and Function Allocation**				
18.3.1	Objectives and Scopes	X			
18.3.2	Methodology	X			
18.3.3	Results	X			
18.4	**Task Analysis**				
18.4.1	Objective and Scopes		X		
18.4.2	Methodology		X		
18.4.3	Results				X
18.5	**Staffing and Qualifications**				
18.5.1	Objectives and Scopes		X		
18.5.2	Methodology		X		
18.5.3	Results				X
18.6	**Human Reliability Analysis**				
18.6.1	Objectives and Scopes		X		
18.6.2	Methodology		X		
18.6.3	Results				X
18.7	**Human-System Interface Design**				
18.7.1	Objectives and Scope		X		

Table 1 Standardization Matrix for FSAR (cont.)

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by Reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 18 – Human Factors Engineering (cont.)					
18.7.2	Methodology		X		
18.7.3	Results				X
18.8	**Procedure Development**				
18.8.1	Objectives and Scope		X		
18.8.2	Methodology		X		
18.8.3	Results				X
18.9	**Training Program Development**				
18.9.1	Objectives and Scope		X		
18.9.2	Methodology		X		
18.9.3	Results			X	
18.10	**Verification and Validation**				
18.10.1	Objectives and Scope		X		
18.10.2	Methodology		X		
18.10.3	Results			X	
18.11	**Design Implementation**				
18.11.1	Objectives and Scope		X		
18.11.2	Methodology		X		
18.11.3	Results			X	
18.12	**Human Performance Monitoring**				
18.12.1	Objectives and Scope		X		
18.12.2	Methodology		X		
18.12.3	Results				X

Table 1 Standardization Matrix for FSAR (MHI scope) cont.

COLA Part 2 FSAR Section	US-APWR FSAR Section Title	Incorporated by reference (Match DCD)	Level of Standardization		
			Standard	Standard With Site-Specific	Site-Specific
FSAR Chapter 19 – Probabilistic Risk Assessment and Severe Accident Evaluation					
19.1	**Probabilistic Risk Assessment**				
19.1.1	Uses and Applications of the PRA			X	
19.1.2	Quality of PRA	X			
19.1.3	Special Design/Operational Features	X			
19.1.4	Safety insights from the Interval Events PRA for Operations at Power			X	
19.1.5	Safety Insights from the External Events PRA for Operations at Power			X	
19.1.6	Safety Insights from the PRA for Other Modes of Operation			X	
19.1.7	PRA-Related Input to Other Programs and Processes			X	
19.1.8	Conclusions and Findings			X	
19.2	**Severe Accident Evaluation**				
19.2.1	Introduction	X			
19.2.2	Severe Accident Prevention	X			
19.2.3	Severe Accident Mitigation	X			
19.2.4	Containment Performance Capability	X			
19.2.5	Accident Management			X	
19.2.6	Consideration of Potential Design Improvements Under 10 CFR 50.34(f)			X	
19.3	**Open, Confirmatory, and COL Action Items Identified as Unresolved**				
19.3.1	Open Items	X			
19.3.2	Confirmatory Items	X			
19.3.3	COL Action Items			X	