

Part 5 — Combined License Application

1. COL Table of Contents

As an additional task, a preliminary table of contents for a Combined License (COL) Application was developed based on a review of 10 CFR 52, 10 CFR 50, and related NRC and industry guidance documents. The preliminary table of contents is provided in Table 1-1 and would be expected to change based on further review and understanding of the NRC's requirements and expectations under the new 10 CFR 52 licensing process. Major parts of the COL Application are described below.

■ Part 0 – Transmittal Letter

A transmittal letter is prepared and signed by a company executive under oath or affirmation.

■ Part 1 – License Application

The License Application contains the information required by 10 CFR 52.77 and 10 CFR 50.33 including Class of License, Financial Information, Emergency Response Plans, Schedule, List of Agencies Having Jurisdiction/List of Trade and News Publications, Restricted Data, Decommissioning Funding Information, and Antitrust Information.

■ Part 2 – Final Safety Analysis Report

The Final Safety Analysis Report would contain the information required by 10 CFR 52.79(b) and 10 CFR 50.34(b). Existing guidance, such as Regulatory Guide 1.70, "Standard Format and Contents of Safety Analysis Reports for Nuclear Power Plants, and NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants" would be used in the preparation of the FSAR.

If the COL Application references an ESP, information from the ESP Application would be incorporated by reference. Similarly, if the COL Application references a 10 CFR 52 Subpart C Design Certification, information from the Design Certification or Design Certification Application would be incorporated by reference.

■ Part 3 – Environmental Report

If the COL Application references an ESP, the ESP Application Environmental Report would be incorporated by reference. However, any environmental issues not addressed at the ESP stage would need to be included in the COL Application.

If the COL Application does not reference an ESP, a full environmental report satisfying the requirements of 10 CFR 52.79(a)(2), 10 CFR 51, and NUREG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants," would be prepared.

■ Part 4 – Technical Specifications

If the COL Application references an ESP and Design Certification, the COL Technical Specifications would incorporate information from the ESP and Design Certification.

■ Part 5 – Programs, Plans, and Manuals

Numerous programs, plans, and manuals would be required to satisfy 10 CFR 52 and 10 CFR requirements. A significant new program under 10 CFR 52 would be the development of the Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) required by 10 CFR 52.79(c). As applicable, information from the ESP and Design Certification would be incorporated. Tables of contents for several programs and plans are included in Table 1-1 to illustrate how extensive many of the programs and plans will be to satisfy NRC requirements.

■ Other

Other activities associated with a COL would include development of a Project Execution Plan; preparation of a Writer’s Guide; evaluation of NRC generic communications such as Bulletins, Notices, and Generic Letters; the NRC review and hearing process and the Applicant’s support of that process; and support of the NRC’s Construction Inspection Program and ITAAC process.

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
PART 0 – TRANSMITTAL LETTER		
---	Transmittal Letter – Signed under Oath or Affirmation	<ul style="list-style-type: none"> • 10 CFR 52.75 • 10 CFR 50.4 • 10 CFR 50.30(a), (b)
PART 1 – LICENSE APPLICATION		
---	Table of Contents List of Tables List of Figures Abbreviations	<ul style="list-style-type: none"> • 10 CFR 52.77 • 10 CFR 50.33
1.	INTRODUCTION	None
2.	APPLICATION FORMAT AND CONTENT	None

Table 1-1. Preliminary Combined License Application Table of Contents

Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
3.	INFORMATION REQUIRED BY 10 CFR 50.33(a) THROUGH (k) Applicant Information Class of License Financial Information Emergency Response Plans Schedule List of Agencies Having Jurisdiction/List of Trade and News Publications Restricted Data Decommissioning Funding Information Antitrust Information	<ul style="list-style-type: none"> • 10 CFR 52.77 • 10 CFR 50.33(a) through (k) • 10 CFR 52.79(b) • 10 CFR 50.34(b)(7) • 10 CFR 50.75 • Regulatory Guides 9.1, 9.2, 9.3
4.	REFERENCES	None
PART 2 – FINAL SAFETY ANALYSIS REPORT		
---	Table of Contents Acronyms List of Tables List of Figures Abbreviations If the COL Application references an ESP and Design Certification, the COL Application FSAR will incorporate the ESP Application SSAR and the Design Certification information by reference.	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 50.34(a)(1) • 10 CFR 52.47(a) • Regulatory Guide 1.70 • NUREG-0800 • ESP Application SSAR • Design Certification Information
1.	INTRODUCTION AND GENERAL DESCRIPTION OF PLANT	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Chapter 1 • NUREG-0800, Chapter 1
1.1	Introduction	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 1.1
1.2	General Plant Description	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 1.2
1.3	Comparison Tables	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 1.3
1.4	Identification of Agents and Contractors	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 1.4
1.5	Requirements for Further Technical Information	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 1.5
1.6	Material Incorporated by Reference	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 1.6
1.7	Drawings and Other Detailed Information	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 1.7
1.8	Conformance to NRC Regulatory Guides	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 1.8
1.9	Standard Designs	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 1.9 • NUREG-0800, Section 1.8

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
2.	<p>SITE CHARACTERISTICS</p> <p>If the COL Application references an ESP, FSAR Chapter 2 would incorporate Chapter 2 of the Early Site Permit Application Site Safety Analysis Report (SSAR) by reference.</p> <p>If the COL Application does not reference an ESP, a complete FSAR Chapter 2 would be needed. See Table 7-1 in Parts 2 and 3 for an outline of SSAR Chapter 2.</p>	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Chapter 2 • NUREG-0800, Chapter 2 • ESP Application, SSAR Chapter 2
3.	<p>DESIGN OF STRUCTURES, COMPONENTS, EQUIPMENT, AND SYSTEMS</p> <p>If the COL Application references an ESP and Design Certification, FSAR Chapter 3 would incorporate this material by reference and focus on demonstrating that the ESP and Design Certification are compatible.</p>	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Chapter 3 • NUREG-0800, Chapter 3
3.1	Conformance with NRC General Design Criteria	<ul style="list-style-type: none"> • 10 CFR 50 Appendix A • Regulatory Guide 1.70, Section 3.1
3.2	Classification of Structures, Systems, and Components	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 3.2 • Regulatory Guides 1.26, 1.29 • NUREG-0800, Sections 3.2.1 and 3.2.2
3.3	Wind and Tornado Loadings	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 3.3 • NUREG-0800, Sections 3.3.1 and 3.3.2
3.4	Water Level (Flood) Design	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 3.4 • Regulatory Guides 1.59, 1.102 • NUREG-0800, Sections 3.4.1 and 3.4.2
3.5	Missile Protection	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 3.5 • Regulatory Guides 1.3, 1.27, 1.76, 1.91, 1.115, 1.117 • NUREG-0800, Sections 3.5.1.1 through 3.5.1.6, 3.5.2, 3.5.3
3.6	Protection Against Dynamic Effects Associated With the Postulated Rupture of Piping	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 3.6 • Regulatory Guides 1.11, 1.70 • NUREG-0800, Sections 3.6.1 and 3.6.2
3.7	Seismic Design	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 3.7 • Regulatory Guides 1.12, 1.60, 1.61, 1.70, 1.92, 1.122 • NUREG-0800, Sections 3.7.1 through 3.7.4

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
3.8	Design of Category I Structures	<ul style="list-style-type: none"> • 10 CFR 50.55a • Regulatory Guide 1.70, Section 3.8 • Regulatory Guides 1.10, 1.15, 1.18, 1.19, 1.29, 1.35, 1.55, 1.57, 1.60, 1.61, 1.70, 1.76, 1.90, 1.92, 1.94, 1.103, 1.107, 1.124, 1.142 • NUREG-0800, Sections 3.8.1 through 3.8.5
3.9	Mechanical Systems and Components	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 3.9 • Regulatory Guides 1.20, 1.26, 1.29, 1.48, 1.61, 1.63, 1.68, 1.73, 1.89, 1.92, 1.100, 1.124, 1.130, 1.131, 1.148, 1.174, 1.175 • NUREG-0800, Sections 3.9.1 through 3.9.8 • Generic Letters 89-04, 89-08, 89-10, 96-05
3.10	Seismic Qualification of Seismic Category I Instrumentation and Electrical Equipment	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 3.10 • Regulatory Guides 1.69, 1.89, 1.92, 1.100 • NUREG-0800, Section 3.10
3.11	Environmental Design of Mechanical and Electrical Equipment	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 3.11 • Regulatory Guides 1.40, 1.63, 1.73, 1.89, 1.131 • NUREG-0800, Section 3.11
4.	REACTOR If the COL Application references an ESP and Design Certification, FSAR Chapter 4 would incorporate this material by reference and focus on demonstrating that the ESP and Design Certification are compatible.	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Chapter 4 • NUREG-0800, Chapter 4
4.1	Summary Description	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 4.1
4.2	Fuel System Design	<ul style="list-style-type: none"> • 10 CFR 50.46 • 10 CFR 50 Appendix K • Regulatory Guide 1.70, Section 4.2 • NUREG-0800, Section 4.2 • Regulatory Guide 1.77
4.3	Nuclear Design	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 4.3 • NUREG-0800, Section 4.3
4.4	Thermal and Hydraulic Design	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 4.4 • NUREG-0800, Section 4.4 • Regulatory Guides 1.68, 1.133

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
4.5	Reactor Materials	<ul style="list-style-type: none"> • 10 CFR 50.55a • Regulatory Guide 1.70, Section 4.5 • NUREG-0800, Sections 4.5.1 and 4.5.2 • Regulatory Guide 1.31, 1.37, 1.44, 1.85
4.6	Functional Design of Reactivity Control Systems	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 4.6 • NUREG-0800, Section 4.6
5.	REACTOR COOLANT SYSTEM AND CONNECTED SYSTEMS If the COL Application references an ESP and Design Certification, FSAR Chapter 5 would incorporate this material by reference and focus on demonstrating that the ESP and Design Certification are compatible.	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Chapter 5 • NUREG-0800, Chapter 5
5.1	Summary Description	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 5.1
5.2	Integrity of the Reactor Coolant Pressure Boundary	<ul style="list-style-type: none"> • 10 CFR 50 Appendix G • 10 CFR 50.55a • Regulatory Guide 1.70, Section 5.2 • NUREG-0800, Sections 5.2.1.1, 5.2.1.2, 5.2.2 through 5.2.5 • Regulatory Guides 1.23, 1.84, 1.85, 1.147
5.3	Reactor Vessels	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 5.3 • NUREG-0800, Sections 5.3.1 through 5.3.3
5.4	Component and Subsystem Design	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 5.4 • NUREG-0800, Sections 5.4, 5.4.1.1, 5.4.2.1, 5.4.2.2, 5.4.6, 5.4.7, 5.4.8, 5.4.11, 5.4.12
6.	ENGINEERED SAFETY FEATURES If the COL Application references an ESP and Design Certification, FSAR Chapter 6 would incorporate this material by reference and focus on demonstrating that the ESP and Design Certification are compatible.	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Chapter 6 • NUREG-0800, Chapter 6
6.1	Engineering Safety Features Materials	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 6.1 • NUREG-0800, Sections 6.1.1 and 6.1.2
6.2	Containment Systems	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 6.2 • NUREG-0800, Sections 6.2.1, 6.2.1.1A through 6.2.1.1C, 6.2.1.2 through 6.2.1.5, 6.2.2 through 6.2.7
6.3	Emergency Core Cooling System	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 6.3 • NUREG-0800, Section 6.3
6.4	Habitability Systems	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 6.4 • NUREG-0800, Section 6.4

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
6.5	Fission Product Removal and Control Systems	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 6.5 NUREG-0800, Sections 6.5.1 through 6.5.5
6.6	Inservice Inspection of Class 2 and 3 Components	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 6.6 NUREG-0800, Section 6.6 Regulatory Guides 1.147, 1.175, 1.178
6.7	Main Steam Isolation Valve Leakage Control Systems	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 6.7 NUREG-0800, Section 6.7
6.8	Other Engineered Safety Features	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 6.8
7.	INSTRUMENTATION AND CONTROLS If the COL Application references an ESP and Design Certification, FSAR Chapter 7 would incorporate this material by reference and focus on demonstrating that the ESP and Design Certification are compatible.	<ul style="list-style-type: none"> Regulatory Guide 1.70, Chapter 7 NUREG-0800, Chapter 7
7.1	Introduction	<ul style="list-style-type: none"> NUREG-0800, Section 7.1
7.2	Reactor Trip System	<ul style="list-style-type: none"> NUREG-0800, Section 7.2 Regulatory Guide 1.70, Section 7.2
7.3	Engineered Safety Features System	<ul style="list-style-type: none"> NUREG-0800, Section 7.3 Regulatory Guide 1.70, Section 7.3
7.4	Safe Shutdown Systems	<ul style="list-style-type: none"> NUREG-0800, Section 7.4 Regulatory Guide 1.70, Section 7.4
7.5	Information Systems	<ul style="list-style-type: none"> NUREG-0800, Section 7.5 Regulatory Guide 1.70, Section 7.5
7.6	Interlock Systems	<ul style="list-style-type: none"> NUREG-0800, Section 7.6
7.7	Control Systems	<ul style="list-style-type: none"> NUREG-0800, Section 7.7 Regulatory Guide 1.70, Sections 7.6 and 7.7
7.8	Diverse I&C Systems	<ul style="list-style-type: none"> NUREG-0800, Section 7.8 Regulatory Guide 1.70, Section 7.6
7.9	Data Communication Systems	<ul style="list-style-type: none"> NUREG-0800, Section 7.9
8.	ELECTRIC POWER If the COL Application references an ESP and Design Certification, FSAR Chapter 8 would incorporate this material by reference and focus on demonstrating that the ESP and Design Certification are compatible.	<ul style="list-style-type: none"> Regulatory Guide 1.70, Chapter 8 NUREG-0800, Chapter 8
8.1	Introduction	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 8.1 NUREG-0800, Section 8.1

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
8.2	Offsite Power System	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 8.2 NUREG-0800, Section 8.2
8.3	Onsite Power Systems	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 8.3 NUREG-0800, Sections 8.3.1 and 8.3.2
9.	AUXILIARY SYSTEMS If the COL Application references an ESP and Design Certification, FSAR Chapter 9 would incorporate this material by reference and focus on demonstrating that the ESP and Design Certification are compatible.	<ul style="list-style-type: none"> Regulatory Guide 1.70, Chapter 9 NUREG-0800, Chapter 9
9.1	Fuel Storage and Handling	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 9.1 NUREG-0800, Sections 9.1.1 through 9.1.5
9.2	Water Systems	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 9.2 NUREG-0800, Sections 9.2.1 through 9.2.6
9.3	Process Auxiliaries	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 9.3 NUREG-0800, Sections 9.3.1 through 9.3.5
9.4	Air Conditioning, Heating, Cooling, and Ventilation	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 9.4 NUREG-0800, Sections 9.4.1 through 9.4.5
9.5	Other Auxiliary Systems	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 9.5 NUREG-0800, Sections 9.5.1 through 9.5.8
10.	STEAM AND POWER CONVERSION SYSTEM If the COL Application references an ESP and Design Certification, FSAR Chapter 10 would incorporate this material by reference and focus on demonstrating that the ESP and Design Certification are compatible.	<ul style="list-style-type: none"> Regulatory Guide 1.70, Chapter 10 NUREG-0800, Chapter 8
10.1	Summary Description	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 10.1
10.2	Turbine-Generator	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 10.2 NUREG-0800, Sections 10.2 and 10.2.3
10.3	Main Steam Supply System	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 10.3 NUREG-0800, Section 10.3 and 10.3.6
10.4	Other Features of Steam and Power Conversion System	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 10.4 NUREG-0800, Sections 10.4.1 through 10.4.9

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
11.	RADIOACTIVE WASTE MANAGEMENT If the COL Application references an ESP and Design Certification, FSAR Chapter 11 would incorporate this material by reference and focus on demonstrating that the ESP and Design Certification are compatible.	<ul style="list-style-type: none"> Regulatory Guide 1.70, Chapter 11 NUREG-0800, Chapter 11
11.1	Source Terms	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 11.1 NUREG-0800, Section 11.1
11.2	Liquid Waste Management System	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 11.2 NUREG-0800, Section 11.2
11.3	Gaseous Waste Management System	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 11.3 NUREG-0800, Section 11.3
11.4	Solid Waste Management System	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 11.4 NUREG-0800, Section 11.4
11.5	Process and Effluent Radiological Monitoring and Sampling Systems	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 11.5 NUREG-0800, Section 11.5
12.	RADIATION PROTECTION If the COL Application references an ESP and Design Certification, FSAR Chapter 12 would incorporate this material by reference and focus on demonstrating that the ESP and Design Certification are compatible.	<ul style="list-style-type: none"> Regulatory Guide 1.70, Chapter 12 NUREG-0800, Chapter 12
12.1	Ensuring that Occupational Radiation Exposures Are As Low As Is Reasonably Achievable	<ul style="list-style-type: none"> 10 CFR 19 10 CFR 20 Regulatory Guide 1.70, Section 12.1 NUREG-0800, Section 12.1 Regulatory Guides 1.8, 1.33, 8.8, 8.10
12.2	Radiation Sources	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 12.2 NUREG-0800, Section 12.2
12.3	Radiation Protection Design Features	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 12.3 NUREG-0800, Section 12.3
12.4	Dose Assessment	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 12.4 NUREG-0800, Section 12.4
12.5	Health Physics Program	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 12.5 NUREG-0800, Section 12.5 Regulatory Guides 1.8, 1.33, 1.97, 5.9, 8.2, 8.3, 8.4, 8.6, 8.7, 8.8, 8.9, 8.10, 8.13, 8.14, 8.15, 8.20, 8.26, 8.27, 8.28
13.	CONDUCT OF OPERATIONS	<ul style="list-style-type: none"> Regulatory Guide 1.70, Chapter 13 NUREG-0800, Chapter 13

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
13.1	Organizational Structure of Applicant	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 13.1 NUREG-0800, Sections 13.1.1 and 13.1.2 Regulatory Guides 1.8, 1.68, 1.33, 1.114
13.2	Training	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 13.2 NUREG-0800, Sections 13.2.1 and 13.2.2 Regulatory Guides 1.8, 1.149
13.3	Emergency Planning	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 13.3 NUREG-0800, Section 13.3
13.4	Review and Audit	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 13.4 NUREG-0800, Section 13.4 Regulatory Guides 1.8, 1.33
13.5	Plant Procedures	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 13.5 NUREG-0800, Sections 13.5.1 and 13.5.2 Regulatory Guide 1.33
13.6	Industrial Security	<ul style="list-style-type: none"> Regulatory Guide 1.70, Section 13.6 NUREG-0800, Section 13.6 Regulatory Guides 5.12, 5.20, 5.44, 5.50
14.	INITIAL TEST PROGRAM Elements of the initial test program are related to or support corresponding activities in the Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) contained in Part 5 of the COL Application.	<ul style="list-style-type: none"> 10 CFR 50.34(b)(6)(iii) Regulatory Guide 1.70, Chapter 14 NUREG-0800, Chapter 14 Regulatory Guides 1.18, 1.20, 1.30, 1.37, 1.41, 1.52, 1.56, 1.68, 1.68.1, 1.68.2, 1.68.3, 1.72, 1.79, 1.80, 1.95, 1.108, 1.116, 1.128, 1.139, 1.140
15.	ACCIDENT ANALYSIS If the COL Application references an ESP and Design Certification, FSAR Chapter 15 would incorporate this material by reference and focus on demonstrating that the ESP and Design Certification are compatible.	<ul style="list-style-type: none"> NUREG-0800, Section 15 NUREG-0800, Section 15.0, 15.0.1, and 15.0.2 Regulatory Guide 1.70, Chapter 15
15.1	Increase in Heat Removal by the Secondary System	<ul style="list-style-type: none"> NUREG-0800, Section 15.1 NUREG-0800, Sections 15.1.1 through 15.1.5
15.2	Decrease in Heat Removal by the Secondary System	<ul style="list-style-type: none"> NUREG-0800, Section 15.2 NUREG-0800, Sections 15.2.1 through 15.2.8

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
15.3	Decrease in Reactor Coolant System Flow Rate	<ul style="list-style-type: none"> • NUREG-0800, Section 15.3 • NUREG-0800, Sections 15.3.1 through 15.3.4
15.4	Reactivity and Power Distribution Anomalies	<ul style="list-style-type: none"> • NUREG-0800, Section 15.4 • NUREG-0800, Sections 15.4.1 through 15.4.9
15.5	Increase in Reactor Coolant Inventory	<ul style="list-style-type: none"> • NUREG-0800, Section 15.5 • NUREG-0800, Section 15.5.1
15.6	Decrease in Reactor Coolant Inventory	<ul style="list-style-type: none"> • NUREG-0800, Section 15.6 • NUREG-0800, Sections 15.6.1 through 15.6.5
15.7	Radioactive Release from a Subsystem or Component	<ul style="list-style-type: none"> • NUREG-0800, Section 15.7 • NUREG-0800, Sections 15.7.1 through 15.7.5
15.8	Anticipated Transients Without Scram	<ul style="list-style-type: none"> • NUREG-0800, Section 15.8 • NUREG-0800, Section 15.8
16.	TECHNICAL SPECIFICATIONS	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Chapter 16 • NUREG-0800, Sections 16.0 and 16.1
17.	QUALITY ASSURANCE	<ul style="list-style-type: none"> • 10 CFR 50 Appendix A • Regulatory Guide 1.70, Chapter 17 • NUREG-0800, Chapter 17 • Regulatory Guide 1.8, 1.26, 1.28, 1.29, 1.30, 1.33, 1.37, 1.38, 1.39, 1.58, 1.64, 1.74, 1.88, 1.94, 1.116, 1.123, 1.144, 1.146, 1.152
17.1	Quality Assurance During Design and Construction	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 17.1 • NUREG-0800, Section 17.1 and 17.3
17.2	Quality Assurance During Operations	<ul style="list-style-type: none"> • Regulatory Guide 1.70, Section 17.2 • NUREG-0800, Section 17.2 and 17.3
18.	HUMAN FACTORS ENGINEERING If the COL Application references an ESP and Design Certification, FSAR Chapter 18 would incorporate this material by reference and focus on demonstrating that the ESP and Design Certification are compatible.	<ul style="list-style-type: none"> • NUREG-0800, Chapter 18.0
18.1	Introduction	<ul style="list-style-type: none"> • NUREG-0800, Section 18.0
18.2	Control Room and Appendix A	<ul style="list-style-type: none"> • NUREG-0800, Section 18.1 • Regulatory Guides 1.23, 1.47, 1.97
18.3	Safety Parameter Display System and Appendix A	<ul style="list-style-type: none"> • NUREG-0800, Section 18.2

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
19.	PROBABILISTIC RISK ASSESSMENT If the COL Application references an ESP and Design Certification, FSAR Chapter 19 would incorporate this material by reference and focus on demonstrating that the ESP and Design Certification are compatible.	<ul style="list-style-type: none"> • NUREG-0800, Chapter 19 and Section 19.0
PART 3 – ENVIRONMENTAL REPORT		
	<p>If the COL Application references an ESP, the COL Environmental Report will reference the ESP Environmental Report. Any issues not addressed in the ESP Environmental Report will need to be included in the COL Application. These issues may include severe accidents, severe accident mitigation alternatives, and alternative site evaluations (subject of a petition for rulemaking from the Nuclear Energy Institute). Also any significant environmental issues not considered in the ESP Environmental Report must be addressed per 10 CFR 52.89.</p> <p>If the COL Application does not reference an ESP, a full environmental report satisfying the requirements of 10 CFR 52.79(a)(2), 10 CFR 51, and NUREG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants," would be prepared.</p>	<ul style="list-style-type: none"> • 10 CFR 52.79(a)(2) • 10 CFR 52.89 • ESP Application Environmental Report • NUREG-1555 • Regulatory Guide 4.2

Table 1-1. Preliminary Combined License Application Table of Contents

Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
PART 4 – TECHNICAL SPECIFICATIONS		
Volume 1	SPECIFICATIONS 1.0 USE AND APPLICATION 1.1 Definitions 1.2 Logical Connectors 1.3 Completion Times 1.4 Frequency 2.0 SAFETY LIMITS 2.1 Safety Limits 2.2 Safety Limit Violations 3.0 LIMITING CONDITION FOR OPERATION APPLICABILITY SURVEILLANCE REQUIREMENT APPLICABILITY 3.1 Reactivity Control Systems 3.2 Power Distribution Limits 3.3 Instrumentation 3.4 Reactor Coolant System 3.5 Emergency Core Cooling System 3.6 Containment Systems 3.7 Plant Systems 3.8 Electrical Power Systems 3.9 Refueling Operations 4.0 DESIGN FEATURES 4.1 Site Location 4.2 Reactor Core 4.3 Fuel Storage 5.0 ADMINISTRATIVE CONTROLS 5.1 Responsibility 5.2 Organization 5.3 Unit Staff Qualifications 5.4 Procedures 5.5 Programs and Manuals 5.6 Reporting Requirements 5.7 High Radiation Area	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 50.34(b)(6)(vi) • 10 CFR 50.36 • NUREG-1431 (provides an example of Standard Technical Specifications, in this case, for Westinghouse plants)

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
Volume 2	<p>BASES</p> <p>B2.0 SAFETY LIMITS</p> <p>B2.1 Reactor Core Safety Limits</p> <p>B2.2 Reactor Coolant System (RCS) Pressure Safety Limit</p> <p>B3.0 LIMITING CONDITIONS FOR OPERATION (LCO) APPLICABILITY</p> <p>SURVEILLANCE REQUIREMENT (SR) APPLICABILITY</p> <p>B3.1 Reactivity Control Systems</p> <p>B3.2 Power Distribution Limits</p> <p>B3.3 Instrumentation</p> <p>B3.4 Reactor Coolant System (RCS)</p> <p>B3.5 Emergency Core Cooling System (ECCS)</p> <p>B3.6 Containment Systems</p> <p>B3.7 Plant Systems</p> <p>B3.8 Electrical Power Systems</p> <p>B3.9 Refueling Operations</p>	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 50.34(b)(6)(vi) • 10 CFR 50.36 • NUREG-1431 (provides an example of Standard Technical Specifications, in this case, for Westinghouse plants)
PART 5 – PROGRAMS, PLANS, AND MANUALS		
--	<p>Quality Assurance Programs</p> <ul style="list-style-type: none"> • Quality Assurance Program During COL Application Preparation • Quality Assurance Program for Design and Construction • Operational Quality Assurance Program 	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 50.34(b)(6)(ii) • 10 CFR 50.34(a)(7) • 10 CFR 50 Appendix B
--	<p>Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)</p>	<ul style="list-style-type: none"> • 10 CFR 52.79(c)
--	<p>Emergency Plan</p> <p>The COL Application Emergency Plan will incorporate the ESP Application Emergency Plan (major features plan or complete Emergency Plan, if included in the ESP Application) by reference. A major features plan, if approved in the ESP Application, will be expanded to become a complete Emergency Plan in the COL Application.</p>	<ul style="list-style-type: none"> • 10 CFR 52.79(d) • 10 CFR 50.77 • 10 CFR 50.33(g) • 10 CFR 50.34(b)(6)(v) • 10 CFR 50 Appendix E • ESP Application Emergency Plan • NUREG-0654, Revision 1 • Regulatory Guide 1.101
--	<p>Site Redress Plan</p> <p>The COL Application Site Redress Plan will incorporate the Early Site Permit Application Site Redress Plan (if a plan was included in the ESP Application) by reference.</p>	<ul style="list-style-type: none"> • 10 CFR 52.79(a)(3) • 10 CFR 50.10(e)(1) • 10 CFR 52.17(c) • ESP Application Site Redress Plan
--	<p>Radiation Protection Program</p>	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 50.34(b)(3)
--	<p>Operator Requalification Program</p>	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 50.34(b)(8)

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
--	Training Program	<ul style="list-style-type: none"> • 10 CFR 50.54(h)(I-1) • 10 CFR 55.59 • 10 CFR 50.120 • 10 CFR 55.4
--	Physical Security Plan	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 50.34(c), (e) • 10 CFR 11 • 10 CFR 73 • 10 CFR 26
--	Safeguards Contingency Plan	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 50.34(d), (e) • 10 CFR 73
--	Fire Protection Program	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 52.83 • 10 CFR 50.83 • 10 CFR 50 Appendix R • Regulatory Guide 1.120
--	Maintenance Rule Program 1. PURPOSE 2. APPLICABILITY/SCOPE 3. REFERENCES 4. DEFINITIONS 5. RESPONSIBILITIES 6. PROCEDURE 6.1 Expert Panel 6.2 Maintenance Rule Program Manual 6.3 Periodic Maintenance Effectiveness Assessment Report 6.4 Performance Monitoring Of Systems and Components 6.5 Structural Condition Monitoring 6.6 Functional Failures 6.7 Goal Setting 6.8 Performance Criteria Revisions 6.9 Performance Criteria Reporting 6.10 Removal of Equipment from Service 6.11 Balancing Unavailability and Reliability 6.12 Industry Experience 6.13 Unavailability Determination 6.14 Reliability Determination 7. RECORDS	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 52.83 • 10 CFR 50.65 • Regulatory Guide 1.160

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
--	Inservice Inspection Program 1. PURPOSE 2. APPLICABILITY/SCOPE 3. REFERENCES 4. DEFINITIONS 5. RESPONSIBILITIES 6. PROCEDURE 6.1 Inservice Inspection Program 6.2 Inservice Inspection Program Plan 6.3 Inservice Inspection Testing Program 6.4 Augmented Testing Program 6.5 Conduct of Inspections and Testing 6.6 Evaluation of Inservice Inspection and Inservice Testing 6.7 Results 6.8 Records and Reports 7. RECORDS	<ul style="list-style-type: none"> • 10 CFR 52.83 • 10 CFR 50.55a (f) and (g)
--	Equipment Qualification Program	<ul style="list-style-type: none"> • 10 CFR 52.83 • 10 CFR 50.49
--	Offsite Dose Calculation Manual/Radioactive Effluents Monitoring Program	<ul style="list-style-type: none"> • 10 CFR 52.83 • 10 CFR 50.34a • 10 CFR 50.36a • 40 CFR 190
--	Fitness for Duty Program	<ul style="list-style-type: none"> • 10 CFR 52.83 • 10 CFR 55 • 10 CFR 55.53(j) • 10 CFR 26
--	Decommissioning Funding Program	<ul style="list-style-type: none"> • 10 CFR 52.77 • 10 CFR 50.33(k) • 10 CFR 50.75(b), (c), (e)
--	Pressurized Thermal Shock	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 50.34(b)(9) • 10 CFR 50.61(b)(1), (b)(2) • Regulatory Guide 1.154
--	Demonstration of Compliance with Early Site Permit Interface Requirements (for COL Application that reference an ESP)	<ul style="list-style-type: none"> • 10 CFR 52.79(a)(1) • 10 CFR 50.34(b)(1) • 10 CFR 100 • ESP Application

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
--	Demonstration of Compliance with Design Certification Interface Requirements (for COL Applications that reference a Design Certification) <ul style="list-style-type: none"> • Plant Specific Design Criteria Document • Plant Specific Technical Specifications • Demonstration of compliance with site parameters and interface requirements • Information that addresses the COL action items • Information required by 10 CFR 52.47(a) that is not include in Design Certification • Proprietary and safeguards information referenced in vendor DCD 	<ul style="list-style-type: none"> • 10 CFR 52, Appendices A-X, Section IV, "Additional Requirements and Restrictions" • 10 CFR 52.79(b)
--	Procurement Specifications and Construction and Installation Specifications Available for NRC Audit	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 52.47(a)(2)
--	Plant Procedures Program	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 50.34(b)(6)(iv)
	Appendix K ECCS Analysis	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 50.34(b)(4) • 10 CFR 50.34(a)(4) • 10 CFR 50.46
--	Loose Parts Monitoring Program	<ul style="list-style-type: none"> • 10 CFR 52.83 • Regulatory Guide 1.133
	Description of Research and Development Programs	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 50.34(b)(5)
--	Turbine Maintenance/Testing Program	<ul style="list-style-type: none"> • 10 CFR 52.83 • NUREG 0800, Section 10.2.3
--	Process Control Program	<ul style="list-style-type: none"> • 10 CFR 52.83 • 10 CFR 61.55 • 10 CFR 61.56 • 10 CFR 71
--	Snubber Testing Program	<ul style="list-style-type: none"> • 10 CFR 52.83 • 10 CFR 50.55a • NUREG-0800, Sections 3.9.2 and 3.9.3
--	Erosion/Corrosion Monitoring Program	<ul style="list-style-type: none"> • 10 CFR 52.83 • Generic Letter 89-08
--	Coatings Program	<ul style="list-style-type: none"> • 10 CFR 52.83 • Regulatory Guide 1.54
--	Containment Cleanliness Program	<ul style="list-style-type: none"> • 10 CFR 52.83 • Regulatory Guide 1.82

Table 1-1. Preliminary Combined License Application Table of Contents		
Section	Section Title	Regulatory Requirements Applicable Guidance Reference Documents
--	Reactor Vessel Surveillance Program	<ul style="list-style-type: none"> • 10 CFR 52.83
--	Evaluation of Impacts on Existing Facilities	<ul style="list-style-type: none"> • 10 CFR 52.79(b) • 10 CFR 50.34(b)(6)(vii) • 10 CFR 50.59
--	Containment Leakage Testing Program	<ul style="list-style-type: none"> • 10 CFR 52.83 • 10 CFR 50.54(o)
OTHER		
--	Evaluation of Unresolved Safety Issues and Generic Safety Issues	<ul style="list-style-type: none"> • 10 CFR 52.83 • 10 CFR 50
--	Evaluation of NRC Generic Communications	<ul style="list-style-type: none"> • 10 CFR 52.83 • 10 CFR 50
--	NRC Review and Hearing NRC Application Fees NRC Review Fees Applicant Support of NRC Review and Hearing	<ul style="list-style-type: none"> • 10 CFR 52 • 10 CFR 170
--	NRC Construction Inspection Program and ITAAC Process NRC Resource Requirements Applicant Resource Requirements	<ul style="list-style-type: none"> • 10 CFR 52.79(b), (c) • 10 CFR 50
--	Project Execution Plan	None
--	Communication Plan	None
--	Writer's Guide	None

2. COL Resource Estimate Approach

This section outlines a general 3-step approach that could be used to estimate the resources and schedule necessary to prepare a COL Application and support the NRC review and hearing process. See Table 2-1 at the end of this section for a sample estimate worksheet for a COL resource estimate.

■ Step 1 – Develop Detailed COL Application Outline

The preliminary COL table of contents would be finalized and expanded into a detailed outline of each section, program, and plan in the COL Application. This would be captured in column 1 of Table 2-1 and would be similar to the level of detail included in Table 7-1 of Parts 2 and 3.

■ Step 2 – Estimate COL and First-Time Engineering Resources

In column 2, the COL resources needed to prepare the different parts and sections of the COL Application would be estimated. Column 2 would include only the resources necessary to adapt first time engineering deliverables into acceptable documents for NRC review and approval.

The first-time engineering resources necessary to develop the underlying engineering deliverables would be described in column 3 and estimated in column 4. The resource requirements estimated in column 4 would not represent the full extent of first-time engineering that would be needed for construction of the new nuclear plant. Rather, column 4 would include only that portion of the total engineering effort that would be needed for the COL process.

■ Step 3 – Estimate Remaining Activities

Other activities such as development of the project execution documents and level-of-effort activities including project management, administration, quality assurance, etc. would be estimated.

* * *

Using this general approach, the resources and schedule required to support the COL process could be estimated. Considering the new and yet untested requirements of the 10 CFR 52 COL process, it is anticipated that a multi-discipline project team of 8 to 10 senior engineering and project management personnel from the applicant, engineer, and reactor vendor organizations would require several months to develop an order of magnitude COL estimate.

Table 2-1. Sample Estimate Worksheet for Combined License Application			
1	2	3	4
COL Application Section	Combined License Resource Requirements (Hours)	First-Time Engineering	
		Description	Resource Requirements (Hours)
FSAR Section 8.2, "Offsite Power System"	?? hours	Design of offsite power system, including preparation of drawings, analyses, calculations, specifications, etc.	?? hours
Equipment Qualification Program	?? hours	System and equipment design including preparation of specifications for equipment purchase and testing	?? hours