

C.1 Application Format & Content

2. PART 2 – Safety Analysis Report

The Safety Analysis Report comprises Part 2 of the licensing application under 10 CFR Part 52. Requirements for content of the safety analysis report for a combined license (COL), standard design certification (DC), and early site permit (ESP) are set forth, respectively, in § 52.79(a), § 52.47(a), and § 52.17(a)(1) and (b).

The safety analysis report submitted as part of an application should adhere to the standardized format and content identified in the Appendices of this regulatory guide. While the requirements of 10 CFR Part 52 determine the scope and content of the respective safety analysis reports, safety analysis reports should share a common format to include organization, structure, and numbering scheme similar to the organization and chapter/section numbering of NUREG-0800, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition. This standardization facilitates assurance that the safety analysis report is complete and supports an efficient and effective NRC review and licensing process.

Table 2, Safety Analysis Reports – Format & Content, identifies the safety analysis report chapters and denotes the chapters as mandatory (“✓”) or “not applicable” for each type of application. Additionally, Table 2 includes explanatory notes which summarize the chapter content and address the similarities and differences regarding a COL application that references a DC and/or an ESP.

The Appendices to this regulatory guide correlate with Table 2 and provide detailed guidance regarding the scope, technical content, level of detail, and format for each chapter/section of the safety analysis report for each type of application.

- Appendix A – Combined License Final Safety Analysis Report (FSAR)
- Appendix B – Early Site Permit Site Safety Analysis Report (SSAR)
- Appendix C – Standard Design Certification FSAR (aka Design Control Document (DCD))
- Appendix D – Combined License FSAR – for applicants referencing a Standard Design Certification and/or Early Site Permit

Table 2: Safety Analysis Reports – Format & Content

	Combined License (COL)	Early Site Permit (ESP)	Standard Design Certification (DC)	COL Referencing ESP and/or DC
Safety Analysis Report Chapters	FSAR [Refer to Note 1]	SSAR [Refer to Note 2]	FSAR [Refer to Note 3]	FSAR [Notes 4 & 5]
Chapter 1: Introduction and Interfaces	✓	✓	✓	✓
Chapter 2: Site Characteristics and Site Parameters	✓	✓	✓	✓
Chapter 3: Design of Structures, Components, Equipment & Systems	✓	✓ [limited scope]	✓	✓
Chapter 4: Reactor	✓	Not Applicable	✓	✓
Chapter 5: Reactor Coolant System and Connected Systems	✓	Not Applicable	✓	✓
Chapter 6: Engineered Safety Features	✓	Not Applicable	✓	✓
Chapter 7: Instrumentation and Controls	✓	Not Applicable	✓	✓
Chapter 8: Electric Power	✓	Not Applicable	✓	✓
Chapter 9: Auxiliary Systems	✓	Not Applicable	✓	✓
Chapter 10: Steam and Power Conversion System	✓	Not Applicable	✓	✓
Chapter 11: Radioactive Waste Management	✓	✓ [limited scope]	✓	✓
Chapter 12: Radiation Protection	✓	Not Applicable	✓	✓
Chapter 13: Conduct of Operations	✓	✓ [limited scope]	✓	✓
Chapter 14: Initial Test Program and ITAAC	✓	[optional]	✓	✓
Chapter 15: Transient & Accident Analysis	✓	✓	✓	✓
Chapter 16: Technical Specifications	✓	Not Applicable	✓	✓
Chapter 17: Quality Assurance	✓	✓	✓	✓
Chapter 18: Human Factors Engineering	✓	Not Applicable	✓	✓
Chapter 19: Severe Accidents	✓	Not Applicable	✓	✓

Table 2, Note 1:

COL applications referencing neither a standard design certification nor an early site permit include a comprehensive FSAR with detailed site-specific characteristics and design-specific safety-relevant information sufficient to support issuance of a COL [§52.79(a)]. Guidance for the FSAR format and detailed content is provided in Appendix A of this regulatory guide.

Table 2, Note 2:

The ESP application includes an SSAR [§ 52.17] which correlates in format to a COL FSAR. The SSAR content includes detailed site-specific characteristics and the potential reactor facility information applicable to issuance of an early site permit. The SSAR contains the following chapters:

- ✓ Chapter 1 – content is analogous to Chapter 1 for a COL FSAR for the potential future facility
- ✓ Chapter 2 – content is analogous to Chapter 2 for a COL FSAR for the potential reactor designs
- ✓ Chapter 3 – content is limited to Section 3.5 regarding aircraft hazards
- ✓ Chapter 11 – content limited to addressing whether effluent release limits can be met for the site
- ✓ Chapter 13 – content is limited to Section 13.3 regarding emergency planning
- ✓ Chapter 14 – [optional] addresses ITAAC applicable to emergency planning and/or LWA
- ✓ Chapter 15 – content is analogous to Chapter 15 for a COL FSAR for potential reactor designs
- ✓ Chapter 17 – content is analogous to Chapter 17 for a COL FSAR but related to design, construction, testing of potential future facility [§ 52.17(b)]

Guidance for the SSAR format and content is provided in Appendix B of this regulatory guide.

Table 2, Note 3:

The DC application includes an FSAR [§ 52.47(a)] which correlates to a COL FSAR. The FSAR describes the facility, presents the design bases and limits on its operation, and presents a safety analysis of the facility's SSCs. Site-related information is addressed by postulated site parameters for the design in lieu of site-specific characteristics. Guidance for the FSAR format and detailed content is provided in Appendix C of this regulatory guide.

- ✓ Chapters 1 and 2 – address the facility design and envelope of site-related parameters that the reactor design is intended to accommodate
- ✓ Chapters 3 through 19 – contain comprehensive information applicable to the reactor design and, where appropriate, to the interfaces for SSCs.

Table 2, Note 4:

The FSAR for a COL application incorporating by reference a DC correlates in both format and content to a COL FSAR (Note 1). One key distinction is that the detailed site-specific information must describe all interfaces with the referenced design, as well as all departures/supplements/exemptions from the referenced design certification. The detailed reactor design information which is wholly unchanged in content from the DC FSAR is identified as “incorporated by reference” rather than duplicated in the COL FSAR. Guidance for the FSAR format and content is provided in Appendix D of this regulatory guide.

- ✓ Chapters 1 and 2 – content is analogous to Chapters 1 and 2 for a COL FSAR (Note 1) and, additionally, content includes detailed site-specific information related to interfaces with the certified design
- ✓ Chapters 3 through 19 – contain detailed plant-specific and site-specific information and, additionally, detailed information pertaining to departures/supplements/exemptions from the referenced certified design. For information that is wholly unchanged from the referenced design certification FSAR, the phrase “incorporated by reference” is inserted in the appropriate COL FSAR chapter/section.

Table 2, Note 5:

The FSAR for a COL application incorporating by reference both a DC and an ESP correlates in both format and content to a COL FSAR (Note 1). One key distinction is that the detailed site-specific information must (1) describe all interfaces with the referenced reactor design and all departures/supplements/exemptions from the referenced design certification; and, (2) address all variances from the early site permit. If the site-specific information is wholly unchanged from the referenced design certification FSAR or the early site permit SSAR, the phrase “incorporated by reference” is inserted in the appropriate COL FSAR chapter/section. Guidance for the FSAR format and content is provided in Appendix D of this regulatory guide.