WordPerfect Document Compare Summary

Original document: P:\RG 1.206 draft\C.I.1.wpd
Revised document: @PFDesktop\:MyComputer\C:\Documents and Settings\dlc3.NRCDOMAIN\Application Data\NRC\ADAMSDesktop\Cache\ML0706300050.wpd
Deletions are shown with the following attributes and color:
~~Strikeout~~, Blue RGB(0,0,255).
Deleted text is shown as full text.
Insertions are shown with the following attributes and color:
Double Underline, Redline, Red RGB(255,0,0).

The document was marked with 219 Deletions, 260 Insertions, 0 Moves.

C.I.1. Introduction and General Description of the Plant

In accordance with Subpart C of Title 10, Part 52, of the *Code of Federal Regulations* (10 CFR Part 52), combined license (COL) applicants may incorporate by, "Combined Licenses," of 10 CFR Part 52, COL applicants may reference designs that have been certified according to Subpart B, "Standard Design Certifications," of 10 CFR Part 52 and early site permitsESPs that have been certified according to Subpart A of 10 CFR Part 52. Additional guidance for COL applicants who reference a certified design and/or early site permit is provided in Section C.III of this regulatory guide. By contrast, the guidance provided, "Early Site Permits," of 10 CFR Part 52. The guidance in Section C.I of this regulatory guide applies to COL applicants who reference neither a certified design nor an early site permitESP, but provides a design for a complete facility on a specified site (i.e., a custom design). For COL applicants who reference a certified design, Section C.III.1 of this regulatory guide furnishes additional guidance. For COL applicants who reference a certified design and an ESP, Section C.III.2 of this regulatory guide offers additional guidance.

The first chapter of the final safety analysis report (FSAR) should presentinclude an introduction to the report and a general description of the plant. This chapter should enableprovide the reviewer or reader to obtainwith a basic understanding of the overall facility without havingneeding to refer to the subsequentsubsequent chapters. RThe review of the subsequent detailed chapters that follow can then be accomplished with a better perspective and recognition of the relative safety-significance of each individual item in the overall plant design.

C.I.1.1 Introduction

In this section, the COL applicant should briefly presentdiscuss the principal aspects of the overall application, including the type of license requested,[1] the number of plant units, a brief description of the proposed plant location, the type of containment structure and its designer, the type of nuclear steam supply system and its designer, the core thermal power levels (both rated and design), the corresponding net electrical output for each thermal power level, and the scheduled completion date and anticipated commercial operation date of each unit. The following subsections address these aspects of the application.

C.I.1.1.1 *Plant Location*

The COL applicant should provide plant location information, such as the State and county in which the site will be located, as well as one or more map(s)maps showing the site location and plant arrangement within the site, including whetherthe extent (if any) to which the plant is collocated and/or interfaces with an existing operatinglicensed existing nuclear power plants.

C.I.1.1.2 plant (i.e., one that is currently located within the existing exclusion area boundary

[1] The SRP was issued to establish criteria that the NRC staff intends to use in evaluating whether an applicant/licensee meets the Commission's regulations. The SRP is not a substitute for the NRC's regulations, and compliance is not a requirement.e10 CFR 52.8, "Combining licenses; elimination of repetition," allows an applicant to combine several applications for different kinds of licenses (e.g., power reactor and an independent spent fuel storage installation) and allows the agency to combine in a single license the activities of an applicant that would otherwise be licensed separately (e.g., identical units on same site). However, multiple applicants may not file for the same license.

(EAB)).

C.I.1.1.2 *Containment Type*

The COL applicant should provide a summary- level description of the containment design [(i.e., freestanding or supported, cylindrical or spherical, liner or vessel type, and shield building type (, such as reinforced concrete, or post-tensioned, etc.)].

C.I.1.1.3 *Reactor Type*

The COL applicant should specify the nuclear steam supply system model and designer, as well as whether the reactor is a pressurized-water reactor (PWR) or boiling-water reactor (BWR).

C.I.1.1.4 *Power Output*

The COL applicant should provide the approximate net electrical output (for information only) and the core thermal power ratinglevels (both rated and design).[2]

C.I.1.1.5 *Schedule*

The COL applicant should provide estimated schedules for the completion of construction and startand the start of commercial operation (estimates may be specified in duration, rather than calendar dates, based on the application submittal date). As an alternative, COL applicants may include a commitment to provide the construction and startup schedules after issuance of the COL once the licensee has made a positive decision to construct the plant.

C.I.1.1.6 *Format and Content*

The COL applicant should provide information on the following aspects of the format and content of its application:

1.1.6.1 This section should discuss conformance with regulatory guides on the format and content of a COL application (i.e., DG-1145).

1.1.6.2 guidance of this regulatory guide (i.e., RG 1.206).

1.1.6.2 This section should discuss conformance with the standard review plan (NUREG-0800) (i.e., evaluation ofNUREG-0800 in effect 6 months before the application submittal date[3] (i.e., the applicant should evaluate the differences in the design features, analytical techniques, and procedural measures proposed for a facility and those corresponding features, techniques, and measures given in the SRP

---

[2] Rated power is defined as the power level at which the plant would operate if licensed. Design power is defined as the highest power level that would be permitted by the plant design and that is used in some safety evaluations.

[3] Although the requirements of 10 CFR Part 52 specify "in effect 6 months prior to docket date," NRC practice for implementation of this requirement has been to use 6 months before application submittal. However, the rule language has been retained as "docket date" to retain flexibility for situations in which an applicant submits an incomplete application that the staff does not docket for an extended period of time because of the additional work required of the applicant to complete the application. This footnote applies to the other references in this section to information with a baseline of 6 months before docket date.

acceptance criteria).

1.1.6.3 This section should provide the format, content, and numbering of text, tables, and figures included in the application, and a discussion of discuss their use.

1.1.6.4 format for numbering of pages in the application

1.1.6.5 the method by whichThis section should discuss the format for page numbering.

1.1.6.5 This section should discuss the method used to identify and reference proprietary information is identified and referenced.

1.1.6.6 aThis section should list ofthe acronyms used in the FSAR (documents. Documents that are not part of the FSAR, but are part of the application should include their own list of acronyms).

C.I.1.2 General Plant Description

In this section, the COL applicant should provide a summary description ofize the principal characteristics of the site and provide a concise description of the facility. The facility description should include a brief discussion of the principal design criteria, operating characteristics, and safety considerations for the facility; the engineered safety features (ESF) and emergency systems; the instrumentation, control, and electrical systems; the power conversion system; the fuelfuel handling and storage systems; the cooling water and other auxiliary systems; and the radioactiveand radioactive waste management system. The applicant should indicate the general arrangement of major structures and equipment should also be indicated by the use ofusing plan and elevation drawings, furnished in sufficient number and detail to provide a reasonable understanding of the general layout of the plant.[4] ThoseThe applicant also should identify those features of the plant that are likely to be of special interest because of their relationship to safety should also be identified. In addition, suchthe COL applicant should highlight items such as unusual site characteristics, solutions to particularly difficult engineering and/or construction problemsconsiderations (e.g., modular construction techniques or plans), and significant extrapolations in technology represented by the design should be highlighted.

C.I.1.3 Comparison with Other Facilities

The COL applicant should provide a comparison with other facilities of similar design and comparable power level.

C.I.1.4 Identification of Agents and Contractors

In this section, the COL applicant should identify the primary agents or contractors for the design, construction, and operation of the nuclear power plant. The applicants should note the principal consultants and outside service organizations (such as those providing audits of the quality assuranceQA program). The applicant also should also be identified. Thedelineate the division of responsibility between the reactoramong the reactor/facility designer, architect-engineer, constructor, and plant operator should also be delineated.

---

[4] The general arrangement drawings of buildings other than primary containment may warrant a designation as sensitive unclassified nonsafeguards information in accordance with the agency guidance described in SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated October 19, 2004.

C.I.1.5 Requirements for ~~Further~~Additional Technical Information

In this section, COL applicants who do not reference a certified design should provide information to demonstrate the performance of new safety features for nuclear power plants that either differ significantly from those of evolutionary ~~light-water reactors~~LWRs or ~~utilize~~use simplified, inherent, passive, or other innovative means to accomplish their safety functions. The requirement to provide this information is ~~included in~~part of 10 CFR Part 52 and is necessary to ensure that (1) these new safety features will perform as predicted in the applicant's FSAR, (2) the effects of system interactions are acceptable, and (3) the applicant provides sufficient data to validate analytical codes. The design qualification testing requirements may be met with either separate effects or integral system tests; prototype tests; or a combination of tests, analyses, and operating experience. These requirements implement the Commission's policy on proof-of-performance testing for all advanced reactors (Volume 51, page 24643 of the *Federal Register* (51 FR 24643), dated July 8, 1986), as well as the Commission's goal of resolving all safety issues before authorizing construction.

The ~~guidance provided in this regulatory guide is based on a~~ COL applicant who does not reference a certified design as part of the application~~. Instead, this guidance focuses on a COL applicant who~~ must provide ~~a complete~~ design information for the entire proposed facility, ~~with the same~~including a level of detail necessary to resolve all safety issues (i.e., the same level of detailed design ~~completeness~~ information ~~provided for~~as that supplied in a certified design). ~~Because~~Although a COL applicant who does not reference a certified design must ~~provide~~furnish sufficient design information for a complete facility, the NRC ~~staff anticipates that there may only be minimal requirements for further technical information to supplement the information included~~expects that it may need additional technical information (beyond that in the application ~~discussions. These minimal requirements may include such~~), including items such as verification of unique design concepts (e.g., ~~for example,~~concepts that may require tests and/or additional verification analyses for the first plant, the first three plants, and so forth).

~~It is the responsibility of t~~The COL applicant is responsible for providing a complete design for its proposed facility to identify any requirements for ~~further~~additional technical information in its application, including an estimated schedule for ~~providing~~furnishing the additional technical information that may be necessary for issuance of a ~~combined license~~COL.

C.I.1.6 Material Referenced

In this section, the COL applicant should tabulate all topical reports that are incorporated by reference as part of the application. In this context, ~~"topical~~topical reports~~"~~ are defined as reports that ~~have been prepared by~~ reactor designers and manufacturers, architect-engineers, or other organizations~~,~~ have prepared and filed separately with the NRC in support of this application ~~or other~~or of other applications or product lines. For each topical report, this tabulation should include the report number and title, the date ~~on which~~that the report was submitted to the NRC, and the sections of the COL application ~~in which~~that reference the report ~~is referenced~~. For any topical reports that have been withheld from public disclosure as proprietary documents pursuant to 10 CFR 2.~~790~~390(b), this tabulation should also reference nonproprietary summary descriptions of the general content of each such report. This section should also include a tabulation of any documents submitted to the Commission in other applications that are incorporated in whole or in part ~~by reference~~ into the application by reference. If any information submitted in connection with other applications is incorporated by reference into th~~is~~e application, ~~summaries of~~the applicant should summarize such information ~~should be included~~ in appropriate sections of th~~is~~e application, as necessary, to provide clarity

and context.

RThe applicant may submit results of test and analyses may be submitted as separate reports. In such cases, this section should reference these reports should be referenced in this section and summarized in, which the appropriate section(s)sections of the FSAR should summarize.

C.I.1.7 Drawings and Other Detailed Information

The COL applicant should provide a tabulation of all instrument and control functional diagrams, as well as and electrical one-line diagrams cross-referenced to the related application section(s)sections, including legends for electrical power, instrument and control, lighting, and communication drawings.

In addition, the COL applicant should providefurnish a tabulation of system drawings (e.g., piping and instrumentation diagrams) and system designators that are cross-referenced to the related section(s)sections of the application. This information should include the applicable drawing legends and notes.

C.I.1.8 Interfaces (with Standard Designs and Early Site Permits)

The guidance provided in this section of the regulatory guide is for COL applicants who do not reference a certified design as part of the application. Instead, the COL applicant who is the focus of this guide must provide a design information for a complete facility (i.e., which is not limited in scope such as a certified design, but to the same of level of), including a level of detail necessary to resolve all safety issues (i.e., the same level of detailed design information as that provided in a certified design). By definition, there isare no interface requirements between standard designs and site-specific designs for a complete facility design. AThe expectation is that all interfaces, such as those that may exist between certified designs, early site permitsESPs, and a COL application that references those documents, are expected toa certified design and/or ESP, will be integral to a COL application that provides a complete facility design. That is, there are no interfaces from a certified design and/or early site permit for a COL applicant who does not reference those documents.

Based on the focus of this section of the regulatory guide, there should be no interface requirements identified for a COL applicant who does notCOL applicants who reference a certified design and/or early site permit. Likewise, a COL application that doesESP are the only applicants who will have interface requirements.

COL applicants who do not reference a certified design, by definition, will need to submit design information on the entire facility and should not include any conceptual design information for the facility. In order tTo facilitate the NRC staff's review of previous applications for design certification, conceptual designs were included in their design control documents (DCDs) to provideoffer a comprehensive design perspective. However, the conceptual design portions of the DCDs were not (and were not intended to be) certified by the NRC. Rather, these conceptual designs typically included portions of the balance-of-plant. Thus, the NRC expects that COL applicants who do not reference a certified design are expected to providewill provide complete designs for the facility without reliance on conceptual designs.

C.I.1.9 Conformance with Regulatory Criteria

C.I.1.9.1 *Conformance with Regulatory Guides*

The requirements of ~~*proposed*~~ 10 CFR 52.79(a)(4)(~~i~~l) specify that the content~~s~~ of a COL application must include information on the design of the facility, including its principal design criteria. Appendix A ~~to 10 CFR Part 50~~, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, establishes minimum requirements for the principal design criteria for water-cooled nuclear power plants that are similar in design and location to plants for which the Commission has previously issued construction permits~~, and~~. Appendix A also provides guidance to applicants for use in establishing principal design criteria for other types of nuclear power units. In general, regulatory guides describe methods that the NRC staff considers acceptable for ~~use in implementing~~implementing the general design criteria (GDC) specified in Appendix~~-~~A to 10~~-~~CFR Part 50. Thus, COL applicants should provide an evaluation of conformance with the guidance ~~provided in the NRC's~~in NRC regulatory guides ~~that are~~ in effect 6 months before the ~~docket~~submittal date of the COL application. That evaluation should also include an identification and description of ~~any departures~~deviations from the guidance ~~contained~~ in the NRC~~'s~~ regulatory guides~~,~~ as well as suitable justifications for ~~the~~any alternative approaches proposed by the COL applicant.

COL applicants should furnish an evaluation of conformance with the following groups of regulatory guides:

- Division 1, Power Reactors
- Division 4, Environmental and Siting (applies to the environmental report and should be discussed therein)
- Division 5, Materials and Plant Protection (applies to the security plan and should be discussed therein)
- Division 8, Occupational Health

C.I.1.9.2 *Conformance with ~~the~~ Standard Review Plan*

The requirements of ~~*proposed*~~ 10 CFR 52.79(a)(41) specify that ~~for~~COL applications for a light-water~~-~~cooled nuclear power plant ~~combined licenses, COL applicants should provide an evaluation of~~should evaluate the ~~facility's conformance with~~facility against the ~~standard~~NRC's application and review ~~plan (SRP)~~guidance in effect 6 months before the docket date of the application.[4] The evaluation required by this ~~section should~~section must include an identification and description of a~~ny~~ll differences in design features, analytical techniques, and procedural measures proposed for the facility and those corresponding features, techniques, and measures ~~specified~~ in the ~~SRP~~ acceptance criteria in the application and review guidance. ~~Where~~If differences exist, the evaluation should discuss how the proposed alternative provides an acceptable method of complying with the Commission's regulations, or portions thereof, that underlie the corresponding ~~SRP~~ acceptance criteria.

C.I.1.9.3 *Generic Issues*

The requirements of ~~*proposed*~~ 10 CFR 52.79(a)(20) specify that ~~the contents of~~ a COL application must include the proposed technical resolutions for those unresolved safety issues (USIs) and medium- and high-priority generic safety issues (GSIs) that ~~are (1) technically relevant to the design, and (2)~~(1) are identified in the version of NUREG-0933, "A Prioritization of Generic Safety Issues," ~~in effect~~current on the date up to 6 months before the docket date of the ~~COL~~ application and (2) are technically relevant to the design.

Since the inception of the generic issues program in 1976, the NRC has identified and categorized reactor safety issues. ~~These~~The NRC grouped these issues ~~were grouped~~ into Three Mile Island (TMI) action plan items, task action plan items, new generic items, human factors issues, and Chernobyl issues, ~~and are~~ collectively ~~called "generic safety issues" (~~calling them GSIs~~)~~. Section C.IV.8 of this regulatory guide provides ~~a list of~~additional guidance for addressing the~~se GSIs (i.e., those unresolved safety issues~~ USIs and medium- and high-priority GSIs that ~~are identified in the version of NUREG-0933 that was current as of the date of issuance of DG-1145) for use by COL applicants. In preparing that list, the NRC staff reviewed these GSIs to determine whether they have been closed by other Commission actions or requirements. Those issues that remain open and are technically relevant to the COL applicant's design should be addressed in the application.~~

~~**C.I.1.9.4**~~ NUREG-0933 identifies.

C.I.1.9.4 ***Operational Experience (Generic Communications)***

The requirements of ~~*proposed*~~ 10 CFR 52.79(a)(37) specify that the ~~contents of a~~ COL application must include information to demonstrate how operating experience insights from generic letters and bulletins ~~up to~~issued after the most recent revision of the applicable SRP and 6 months before the docket date of the application, or comparable international operating experience, have been incorporated into the plant design.

To ensure that the knowledge base for reviewers and applicants captured the operational experience described in generic letters and bulletins from decades of nuclear power plant operation in the United States ~~is incorporated into the designs for new/standardized nuclear power plants, the application should review and assess the highlights of this~~, the NRC staff incorporated the insights from these generic letters and bulletins into the updates to applicable SRPs.[5] To ensure that the operational experience ~~(as documented in generic NRC communications~~in these SRP updates is considered, applicants with plant designs that are based on, or are evolutions of, plants that have operated in the United States are required by 10 CFR 52.79(a)(41) to evaluate their facility designs against the review guidance (i.e., SRPs) in effect 6 months before the docket date of the application. In addition, applicants are required to demonstrate how the operating experience insights from generic letters and bulletins issued after the review guidance update (i.e., in or about March 2007) have been incorporated into the plant design (i.e., address those generic communications not incorporated in the SRP update). The significance of limiting this review to generic letters and bulletins is that these documents pertain to issues that ~~were considered to have risen~~rose to a level of ~~safety-significance~~safety significance such that ~~they required~~ responses and resolutions from nuclear operating plant licensees were required. Other forms of generic communications have included circulars, information notices, and regulatory information summaries (RIS); however, as these types of generic communications do not require responses or actions on the part of licensees, COL applicants need not address them. In addition, the issues discussed in these types of communications are generally of a more specific (rather than generic) nature.

~~A listing of generic communications (i.e., generic letters and bulletins that had been issued prior to the date of issuance of DG-1145) has been provided in Section C.IV.8, Generic Issues, of this regulatory guide for use by COL applicants. A review of these generic communications was performed to determine whether they have been superceded by other~~

[5] The NRC updated the SRP in March 2007 to support COL applications for new nuclear power plants that were planned for submittal to the NRC as early as September 2007.

NRC generic communications, NRC actions, or requirements. Those generic communications that remain open and that are technically relevant to theAlternatively, COL applicants facilitywith a plant design should be addressed in the application.

C.I.1.9.4.1 *Comparable International Operating Experience*

Applicants for certified designs or combined licenses are required to addressthat is not based on, or is not an evolution of, plants that have operated in the United States should demonstrate how they have incorporated comparable international operating experience in accordance with *proposed* 10 CFR 52.47(a)(19) and 10 CFR 52.79(a)(37), respectively. To the extent that the design (or portions thereof), for which an applicant seeks a design certification or COL, originates or is based on international design, the application should address how international operating experience has contributed to the design processinto the plant design. Nuclear industry regulators or owners groups in countries that include nuclear reactor vendors and/or nuclear power plants (e.g., Canada, France, Germany, Japan, etc.) may track, maintain, and/or issue operating experience bulletins or reports similar to the NRC's generic letters and bulletins. Thus, the design certification or COLThe COL applicant should address how this body ofit assessed and/or incorporated the applicable operating experience has been assessed and/or incorporated into the plant design. Design certification andIn addition, COL applicants are responsible for procuring anyshould consult organizations such as the Institute of Nuclear Power Operations (INPO) or the World Association of Nuclear Operators for applicable comparable international operating experience information for use in this assessment.

C.I.1.9.5 *Advanced and Evolutionary Light-Water Reactor Design Issues*

This section (i.e., Section C.I) of the regulatory guide is applicable to COL applicants who do not reference a certified design. Therefore, such applicants should provide sufficient information on the complete design of the proposed facility, including those portions of the facility design that are typically provided by reactor vendors or applicants for reactor design certification in accordance with Subpart B of 10 CFR Part 52. As suchTherefore, COL applicants should address the licensing and policy issues developed by the NRC and documented in the Office of the Secretary of the Commission (SECY) documents listed below and the associated staff requirements memoranda (SRM) for advanced and evolutionary light-water reactorLWR designs that are applicableapply to the proposed facility design. The following SECY documents provide guidance to applicants on issues that they should be considered and/or and, as appropriate, addressed in a COL application that does not reference a certified design (i.e., a custom design); however, this list may not be comprehensive for, and some of the references may not apply to all potential COL applicants:

SECY-89-013, "Design Requirements Related to the Evolutionary Advanced Light-Water Reactors (ALWRs)"

SECY-90-016, "Evolutionary Light-Water Reactor (ELWR) Certification Issues and Their Relationship to Current Regulatory Requirements"

SECY-90-241, "Level of Detail Required for Design Certification Uunder Part 52"

SECY-90-377, "Requirements for Design Certification Uunder 10 CFR Part 52"

SECY-91-074, "Prototype Decisions for Advanced Reactor Designs"

SECY-91-178, “ITAAC for Design Certifications and Combined Licenses”

SECY-91-210, “ITAAC Requirements for Design Review and Issuance of FDA”

SECY-91-229, “Severe Accident Mitigation Design Alternatives for Certified Standard Designs”

SECY-91-262, “Resolution of Selected Technical and Severe Accident Issues for Evolutionary Light-Water Reactor (LWR) Designs”

SECY-92-053, “Use of Design Acceptance Criteria During the 10 CFR Part 52 Design Certification Reviews”

SECY-92-092, “The Containment Performance Goal, External Events Sequences, and the Definition of Containment Failure for Advanced LWRs”

SECY-93-087, “Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor (ALWR) Designs”

SECY-94-084, “Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems in Passive Plant Design (RTNSS)”

SECY-94-302, “Source-Term-Related Technical and Licensing Issues Relating to Evolutionary and Passive Light-Water-Reactor Designs”

SECY-95-132~~, “Policy and Technical Issues Associated with Regulatory Treatment of Non-Safety Systems in Passive Plant Designs”SECY-91-229, “Severe Accident Mitigation Design Alternatives for Certified Standard Designs”~~

~~SECY-91-262, “Resolution of Selected Technical and Severe Accident Issues for Evolutionary Light-Water Reactor (LWR) Designs”~~

~~SECY-92-053, “Use of Design Acceptance Criteria During the 10 CFR Part 52 Design Certification Reviews”~~

~~SECY-92-092, “The Containment Performance Goal, External Events Sequences, and the Definition of Containment Failure for Advanced LWRs”~~

~~SECY-93-087, “Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor (ALWR) Designs”~~

~~SECY-94-084~~, “Policy and Technical Issues Associated with ~~the~~ Regulatory Treatment of Non~~-~~Safety Systems in Passive Plant ~~Design (RTNSS)”~~Designs”

~~SECY-94-302, “Source-Term-Related Technical and Licensing Issues Relating to Evolutionary and Passive Light-Water-Reactor Designs”~~