U.S. NUCLEAR REGULATORY COMMISSION

STANDARD REVIEW PLAN

1. 0 INTRODUCTION AND INTERFACES

REVIEW RESPONSIBILITIES

Primary - Licensing project manager

Secondary - All review organizations

I. AREAS OF REVIEW

This section provides guidance to the licensing project manager and all review organizations performing the review of the introductory material contained in Chapter 1 of the applicant's safety analysis report. This is a general chapter for an application for a construction permit (CP) or an operating license (OL) submitted under 10 CFR Part 50 or an early site permit (ESP), a design certification (DC), or combined license (COL) submitted under 10 CFR Part 52. The scope of information to be reviewed in this SRP chapter is that for a COL application unless otherwise noted. There are two types of information presented.

- General information, which enables the reviewer or reader to obtain a basic understanding of the overall facility without having to refer to the subsequent chapters. Review of the rest of the application that follows can then be accomplished with a better perspective and recognition of the relative safety-significance of each individual item in the overall plant description.

- Specific information, which relates to regulatory considerations that apply throughout the balance of the application (e.g., conformance with the SRP acceptance criteria).

[Month] 2007

USNRC STANDARD REVIEW PLAN

This Standard Review Plan, NUREG-0800, has been prepared to establish criteria that the U.S. Nuclear Regulatory Commission staff responsible for the review of applications to construct and operate nuclear power plants intends to use in evaluating whether an applicant/licensee meets the NRC's regulations. The Standard Review Plan is not a substitute for the NRC's regulations, and compliance with it is not required. However, an applicant is required to identify differences between the design features, analytical techniques, and procedural measures proposed for its facility and the SRP acceptance criteria and evaluate how the proposed alternatives to the SRP acceptance criteria provide an acceptable method of complying with the NRC regulations.

The standard review plan sections are numbered in accordance with corresponding sections in Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)." Not all sections of Regulatory Guide 1.70 have a corresponding review plan section. The SRP sections applicable to a combined license application for a new light-water reactor (LWR) are based on Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)."

These documents are made available to the public as part of the NRC's policy to inform the nuclear industry and the general public of regulatory procedures and policies. Individual sections of NUREG-0800 will be revised periodically, as appropriate, to accommodate comments and to reflect new information and experience. Comments may be submitted electronically by email to NRR_SRP@nrc.gov.

Requests for single copies of SRP sections (which may be reproduced) should be made to the U.S. Nuclear Regulatory Commission, Washington, DC 20555, Attention: Reproduction and Distribution Services Section, or by fax to (301) 415-2289; or by email to DISTRIBUTION@nrc.gov. Electronic copies of this section are available through the NRC's public Web site at http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0800/, or in the NRC's Agencywide Documents Access and Management System (ADAMS), at http://www.nrc.gov/reading-rm/adams.html, under Accession # MLxxxxxxxxx.

The specific areas of review are as follows:

1. Introduction

   The principal aspects of the overall application are reviewed. These principal aspects include: the type of license requested, 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.

2. General Plant Description

   A summary description of the principal characteristics of the site and a concise description of the facility is reviewed. 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 and emergency systems; the instrumentation, control, and electrical systems; the power conversion system; the fuel handling and storage systems; the cooling water and other auxiliary systems; and the radioactive waste management system. The general arrangement of major structures and equipment should also be indicated by the use of plan and elevation drawings in sufficient number and detail to provide a reasonable understanding of the general layout of the plant. 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, such items as unusual site characteristics, solutions to particularly difficult engineering and/or construction considerations (e.g., modular construction techniques or plans), and significant changes in technology represented by the design should be highlighted.

3. Comparison with Other Facilities

   A comparison with other facilities of similar design and comparable power level is reviewed.

4. Identification of Agents and Contractors

   The primary agents or contractors for the design, construction, and operation of the nuclear power plant are reviewed. The principal consultants and outside service organizations (such as those providing audits of the quality assurance program) are also reviewed. The division of responsibility between the reactor/facility designer(s), architect-engineer(s), constructor(s), and plant operator should also be delineated by the applicant.

5. Performance of New Safety Features

   For a DC application or COL application that does not reference a certified design, this review addresses information or references to where information is located to demonstrate the performance of new safety features for nuclear power plants that differ significantly from those of evolutionary light-water reactors or utilize simplified, inherent, passive, or other innovative means to accomplish their safety functions.

6. Material Referenced

A table of all topical reports that are incorporated by reference as part of the application is reviewed. In this context, "topical reports" are defined as reports that have been prepared by reactor designers and manufacturers, architect-engineers, or other organizations, and filed separately with the NRC in support of this application or other applications or product lines. For each topical report, this table should include the report number and title, the date on which the report was submitted to the NRC, and the sections of the COL application in which the report is referenced. For any topical reports that have been withheld from public disclosure as proprietary documents pursuant to 10 CFR 2.390(b), this table should also reference nonproprietary summary descriptions of the general content of each such report.

A table of any documents submitted to the Commission in other applications that are incorporated in whole or in part by reference in the application is reviewed. If any information submitted in connection with other applications is incorporated by reference in this application, summaries of such information should be included in appropriate sections of this application, as necessary, to provide clarity and context.

Results of test and analyses may be submitted as separate reports. In such cases, these reports should be referenced in this section and summarized in the appropriate section(s) of the FSAR.

7. Drawings and Other Detailed Information

A table of all instrument and control functional diagrams, as well as electrical one-line diagrams cross-referenced to the related application section(s), including legends for electrical power, instrument and control, lighting, and communication drawings is reviewed.

A table of system drawings (e.g., piping and instrumentation diagrams) and system designators that are cross-referenced to the related section(s) of the application is reviewed. This information should include the applicable drawing legends and notes.

8. Interfaces with Standard Designs

For a DC application or a COL application referencing a DC, this SRP section addresses interface requirements contained in a design certification (DC) application and a combined license (COL) application that references a certified design. For a DC, this review will address: interface requirements for those design features that are outside the scope of the certified design as identified by the applicant; a representative conceptual design for those portions of the plant for which the application does not seek certification; and justification that the interface requirements can be verified with the inspections, tests, or analyses and that the method for verification is included in the proposed inspections, tests, analyses, and acceptance criteria (ITAAC). For a COL, this review will address how a COL application addresses the interface requirements established for the design. The COL review will be based on complete design information, as any conceptual design information included in a DC final safety analysis report (FSAR) will be replaced by site-specific information.

9. Conformance with Regulatory Criteria

Regulatory Guides

A table of conformance with the NRC's regulatory guides that are applicable to the application is reviewed. The table should also include an identification and description of deviations from the guidance contained in the NRC's regulatory guides, as well as suitable justifications for any alternative approaches proposed by the COL applicant with appropriate references to the FSAR sections where they are addressed.

Conformance with the review guidance

An evaluation of the facility against the NRC's review guidance in effect 6 months before the submittal date of the application is reviewed. The evaluation should include an identification and description of all differences in design features, analytical techniques, and procedural measures proposed for the facility and those corresponding features, techniques, and measures given in the acceptance criteria in the review guidance. Where differences exist, the evaluation should discuss or provide references to the FSAR section that describes how the proposed alternative provides an acceptable method of complying with the Commission's regulations that underlie the corresponding acceptance criteria.

Generic Issues and Three Mile Island requirements

A table that identifies proposed technical resolutions for those Unresolved Safety Issues and medium- and high-priority generic safety issues which are identified in the version of NUREG-0933 current on the date up to 6 months before the submittal date of the application and which are technically relevant to the design and identifies FSAR section references where the resolutions are addressed is reviewed. The table also identifies Three Mile Island requirements set forth in 10 CFR 50.34(f).

Operational Experience (Generic Communications)

Information from the applicant that demonstrates how operating experience insights from generic letters and bulletins issued after the most recent revision of the applicable standard review plan and 6 months before the submittal date of the application, or comparable international operating experience, have been incorporated into the plant design is reviewed.

Advanced and Evolutionary Light-Water Reactor Design Issues

A table that identifies the information addressing the applicable licensing and policy issues developed by the NRC and documented in SECY-93-087 and the associated SRM for advanced and evolutionary light-water reactor designs is reviewed.

COL Action Items

A table of information demonstrating how COL Action Items were addressed, or appropriate FSAR section references as to where this information is provided, is reviewed.

10. Nuclear Power Plants to be Operated on Multi-Unit Sites

This section addresses the review of an evaluation of potential hazards to the SSCs important to safety of the operating units resulting from construction activities, as well as a description of the managerial and administrative controls to be used to provide assurance that the limiting conditions for operation are not exceeded as a result of construction activities at the multi-unit sites.

Review Interfaces

Other SRP sections interface with this section as follows:

1. The general information provided in the areas of review enables the reviewer or reader to obtain a basic understanding of the overall facility without having to refer to the subsequent chapters. Review of the detailed chapters that follow can then be accomplished with a better understanding of the relative safety-significance of each individual item in the overall plant design.

2. The specific information provided in the areas of review provides references to where the regulatory considerations are addressed throughout the balance of the application.

The specific acceptance criteria and review procedures are contained in the applicable SRP sections.

II. ACCEPTANCE CRITERIA

Requirements

Acceptance criteria are based on meeting the relevant requirements of the following Commission regulations:

1. 10 CFR 50.33, 10 CFR 50.34, 10 CFR 52.17, 10 CFR 52.47, and 10 CFR 52.79 as they relate to general introductory matters.

2. Interfaces with standard designs

   A. 10 CFR 52.47(a)(24) requires the DC application to contain a representative conceptual design for those portions of the plant for which the application does not seek certification, to aid the NRC in its review of the FSAR and to permit assessment of the adequacy of the interface requirements in paragraph (a)(25) of 10 CFR 52.47.

   B. 10 CFR 52.47(a)(25) requires the DC FSAR to contain the interface requirements to be met by those portions of the plant for which the application does not seek certification. These requirements must be sufficiently detailed to allow completion of the FSAR.

   C. 10 CFR 52.47(a)(26) requires the DC FSAR to contain justification that compliance with the interface requirements of paragraph (a)(25) of 10 CFR 52.47 is verifiable through inspections, tests, or analyses. The method

to be used for verification of interface requirements must be included as part of the proposed ITAAC required by paragraph (b)(2) of 10 CFR 52.47.

D. 10 CFR 52.79(d)(2) requires that for a COL referencing a standard design certification, the FSAR demonstrate that the interface requirements established for the design under 10 CFR 52.47 have been met.

3. 10 CFR 50.34(h), 10 CFR 52.17(a)(1)(xii), 10 CFR 52.47(a)(9), and 10 CFR 52.79(a)(41) as they relate to an evaluation of the application against the applicable NRC review guidance in effect 6 months before the submittal date of the application.

4. 10 CFR 52.47(a)(21) and 10 CFR 52.79(a)(20) as they relate to proposed technical resolutions of those Unresolved Safety Issues and medium- and high-priority generic safety issues which are identified in the version of NUREG-0933 current on the date up to 6 months before the submittal date of the application and which are technically relevant to the design.

5. 10 CFR 50.34(f)[1], 10 CFR 52.47(a)(8) and 10 CFR 52.79(a)(17) as they relate to compliance with technically relevant positions of the Three Mile Island requirements.

6. 10 CFR 52.47(a)(22) and 10 CFR 52.79(a)(37) as they relate to the information necessary to demonstrate how operating experience insights from generic letters and bulletins issued after the most recent revision of the applicable standard review plan and 6 months before the submittal date of the application, or comparable international operating experience, have been incorporated into the plant design.

7. 10 CFR 50.43(e) as it relates to requirements for approval of applications for a design certification, combined license, manufacturing license, or operating license that propose nuclear reactor designs which differ significantly from light-water reactor designs that were licensed before 1997, or use simplified, inherent, passive, or other innovative means to accomplish their safety functions.

8. 10 CFR 52.79(a)(31) regarding nuclear power plants to be operated on multi-unit sites, as it relates to an evaluation of the potential hazards to the structures, systems, and components important to safety of operating units resulting from construction activities, as well as a description of the managerial and administrative controls to be used to provide assurance that the limiting conditions for operation are not exceeded as a result of construction activities at the multi-unit sites.

SRP Acceptance Criteria

Specific SRP acceptance criteria acceptable to meet the relevant requirements of the NRC's regulations identified above are as follows for the review described in this SRP section. The SRP is not a substitute for the NRC's regulations, and compliance with it is not required.

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[1]For Part 50 applicants not listed in 10 CFR 50.34(f), the applicable provisions of 10 CFR 50.34(f) will be made a requirement during the licensing process.

However, an applicant is required to identify differences between the design features, analytical techniques, and procedural measures proposed for its facility and the SRP acceptance criteria and evaluate how the proposed alternatives to the SRP acceptance criteria provide acceptable methods of compliance with the NRC regulations.

1. There are no specific SRP acceptance criteria associated with these general requirements.

2. For the regulatory considerations, acceptance is based on addressing the regulatory requirements as discussed within this FSAR section or within the referenced FSAR section. The SRP acceptance criteria associated with the referenced section will be reviewed within the context of that review.

3. For performance of new safety features, the information is sufficient to provide a reasonable assurance 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.

III. REVIEW PROCEDURES

The reviewer will select material from the procedures described below, as may be appropriate for a particular case.

These review procedures are based on the identified SRP acceptance criteria. For deviations from these acceptance criteria, the staff should review the applicant's evaluation of how the proposed alternatives provide an acceptable method of complying with the relevant NRC requirements identified in Subsection II.

1. General information

   The licensing project manager will review the information for sufficiency to enable the reviewer or reader to obtain a basic understanding of the overall facility without having to refer to the subsequent chapters.

2. Regulatory considerations

   The licensing project manager will review the information for sufficiency. The licensing project manager will coordinate the reviews of the specific technical issues as referenced.

3. Potential hazards from construction to SSCs important to safety on an operating reactor

   The licensing project manager will review the evaluation with consult with the organization responsible for the review of site hazards and the operating reactor project manager.

IV. EVALUATION FINDINGS

The licensing project manager, with support from the identified technical reviewers, verifies that the applicant has provided sufficient information and that the review and evaluations (if applicable) support conclusions of the following type to be included in the staff's safety evaluation report. The reviewer also states the bases for those conclusions.

As applicable to the type of license application: The applicant has provided sufficient information to enable the reviewer or reader to obtain a basic understanding of the overall facility without having to refer to the subsequent chapters.

The applicant provided sufficient information to address the regulatory considerations, including potential hazards to SSCs of the operating reactor as a result of construction [if applicable]. The staff concludes, the requirements identified above have been met.

V. IMPLEMENTATION

The staff will use this SRP section in performing safety evaluations of DC applications and license applications submitted by applicants pursuant to 10 CFR Part 50 or 10 CFR Part 52. Except when the applicant proposes an acceptable alternative method for complying with specified portions of the Commission's regulations, the staff will use the method described herein to evaluate conformance with Commission regulations.

The provisions of this SRP section apply to reviews of applications submitted six months or more after the date of issuance of this SRP section, unless superseded by a later revision.

VI. REFERENCES

1. 10 CFR Part 50, as noted.

2. 10 CFR Part 52, as noted.

PAPERWORK REDUCTION ACT STATEMENT

The information collections contained in the Standard Review Plan are covered by the requirements of 10 CFR Part 50 and 10 CFR Part 52, and were approved by the Office of Management and Budget, approval number 3150-0011 and 3150-0151.

PUBLIC PROTECTION NOTIFICATION

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

SRP Chapter 1.0
Description of Changes

This is a new introductory SRP chapter which subsumes SRP Section 1.8.