



# U.S. Nuclear Regulatory Commission

## Office of New Reactors

### Office Instruction

Office Instruction: **NRO-REG-100**

Office Instruction Title: **Acceptance Review Process for Early Site Permit, Design Certification, and Combined License Applications**

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Responsible Organization: **NRO/DARR**

**Summary of Changes:** This revision includes the following changes: 1) changed the standard for accepting an application from enough information to “begin” the review to enough information to “conduct” the review; 2) added criteria to support the new standard for acceptance; 3) added a flow chart and supporting discussion to clarify the acceptance review process; 4) expanded the applicability of this office instruction to Early Site Permit applications; 5) clarified text to indicate that acceptance reviews will be performed in 60 days; 6) added text to describe pre-application interactions; and 7) incorporated lessons learned from the APR1400 Design Certification application acceptance review.

Training: Email; division and branch presentations as requested.

ADAMS Accession No.: ML14078A152

Concurrences			
Primary Office Owner	Office of New Reactors		
Responsible Manager	Joseph Colaccino		03/27/2014
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	DE	John Tappert	10/03/2014
	NSIR/DPR	Robert Lewis	10/15/2014
	NSIR/DSP	Christiana Lui	10/15/2014
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# NRO Office Instruction

## NRO-REG-100

### Acceptance Review Process for Early Site Permit, Design Certification and Combined License Applications

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#### 1. **PURPOSE**

The purpose of NRO-REG-100, "Acceptance Review Process for Early Site Permit, Design Certification and Combined License Applications," is to provide guidance to the staff who conduct acceptance reviews for early site permit (ESP), design certification (DC) and combined license (COL) applications submitted under Title 10 of the *Code of Federal Regulations* (CFR) Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

#### 2. **GENERAL REQUIREMENTS**

The regulations in 10 CFR Part 2 prescribe the requirements for determining the acceptability of an application. In accordance with 10 CFR 2.101, "Filing of Application," paragraph (a) or Section 2.815, "Docketing and Acceptance Review," an ESP, COL or a DC application will be assigned a docket number if the tendered application has been found to be complete and acceptable for docketing. Only then will the technical review be initiated by the staff.

The staff conducts a completeness review to ensure that the applicant has submitted the information required by the applicable regulations in Part 52,<sup>1</sup> such that the staff can conduct its detailed technical review. While conformance with the U.S. Nuclear Regulatory Commission (NRC) guidance is not required, it facilitates both the preparation of an application by the applicant and the timely review of the application by the NRC staff. While checklists and other guidance are intended to cover all current regulations pertaining to an application, the application may need to address any omissions or new regulations in effect after the NRC guidance was issued.

In Staff Requirements Memorandum for COMDEK-07-0001/COMJSM-07-0001, "Report of the Combined License Review Task Force," dated June 22, 2007 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML071090128), the Commission directed the staff to determine acceptability of COL applications on the basis of the technical sufficiency as well as its completeness within a period of 60 days. The technical sufficiency review is conducted to ensure that the application contains sufficient information in scope and depth for the staff to conduct its detailed technical review within a predictable timeframe.<sup>2</sup> This office instruction provides the guidance and criteria to be used in this expanded acceptance review for COLs. The staff also applies this approach for the acceptance review of ESP and DC applications. This expanded acceptance review commences when the application is

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<sup>1</sup> The required information varies by type of licensing process: Subpart A, "Early Site Permits," Subpart B, "Standard Design Certifications," and Subpart C, "Combined Licenses."

<sup>2</sup> The term predictable timeframe refers to the baseline review schedule of a complete application. The baseline review schedule for a DC application is 42 months and for a COL application is 30 months.

successfully processed into ADAMS and will also be used to confirm planning assumptions (i.e., resources and schedule associated with the application review).

[Regulatory Guide \(RG\) 1.206, "Combined License Applications for Nuclear Power Plants-LWR Edition<sup>3</sup>](#) provides guidance to the applicant regarding the expected contents of the application. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," (SRP), design specific review standards (DSRS), and NUREG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants," (ESRP), provide guidance to the technical staff on performing their safety and environmental reviews of applications to construct and operate nuclear power plants and applications to approve standard designs and sites for nuclear power plants. These guidance documents should be used in part to evaluate and determine technical sufficiency.

For a COL application, 10 CFR 2.101(a)(5) allows the application to be submitted in two parts. One part shall be accompanied by the information required by 52.80, "Contents of applications; additional technical information," paragraph (b). The other part shall include the information required by 52.79, "Contents of applications; technical information in final safety analysis report," and 52.80(a). Whichever part is filed first shall also include the information required by 10 CFR 52.79(a)(1), 50.33, "Contents of applications; general information, and 50.37, "Agreement limiting access to Classified Information." One part may precede or follow other parts by no longer than 6 months. Each part of the tendered application will receive an acceptance review and can be docketed.

For COL applications referencing a design that is either already certified or being reviewed for certification, the staff developed a design-centered-review approach (DCRA).<sup>4</sup> With the DCRA, staff decisions made on the "reference COL (RCOL)" would apply to all "subsequent COLs (SCOL)." Therefore, during performance of an acceptance review of an SCOL application, the staff is expected to verify the degree of standardization to the RCOL but focus its review on site-specific and application-specific issues.

### **3. SPECIFIC REQUIREMENTS**

#### **3.1 Responsibilities**

##### **3.1.1 Project Management**

*Project Manager*

*The Lead Project Manager (PM) within the Office of New Reactors (NRO), as supported by other PMs*

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<sup>3</sup> RG 1.206 provides the scope of information for a COL application, including where a DC application is expected to complete information related to the design; therefore, the design-related sections of RG 1.206 are relevant for a DC application.

<sup>4</sup> Additional information on DCRA is provided in SECY-06-0019, dated January 31, 2006.

- Coordinates activities associated with the acceptance review (see Enclosure 1 for a flow chart of the acceptance review process).
- Performs administrative activities (see Section 3.3.1) associated with the acceptance review, including confirming that the application has been processed into ADAMS, and coordinating the Sensitive Unclassified Non-Safeguards Information (SUNSI) review and public release. For applications that are docketed, coordinates with Web services to create a project Web page on the NRC public Website and update as appropriate.
- Reviews assigned sections to evaluate the completeness of the application.
- Performs and documents interactions with stakeholders in accordance with the applicable Nuclear Reactor Regulation (NRR) Office Instruction COM-202, "Meetings With Applicants, Licensees, Vendors or Other Members of the Public" and/or COM-203, "Informal Interfacing and Exchange of Information with Licensees and Applicants."
- Plans, manages, and schedules acceptance review activities via Enterprise Project Management (EPM) system and interfaces with the scheduling portfolio manager and scheduler.
- Compiles inputs from all technical branches and contractors, if applicable, and as necessary, conducts teleconferences/meetings with applicant to discuss technical deficiencies identified by the staff.
- Refers technical staff to the pre-application readiness assessment report, if available.
- Refers technical staff to risk-insights, if available.
- Briefs management on branch-level results of acceptance review and makes a docketing recommendation to Division management (NRO, NRR, and Nuclear Security and Incident Response [NSIR]).
- Prepares letter to the applicant (Enclosure 2) describing the results of the NRC staff review and the docketing decision. For applications that are docketed, this includes an application-specific technical review schedule.
- Issues in the *Federal Register* the Notice of Receipt and a Notice of Acceptance, if the application is docketed.

#### *Projects Branch Chief*

- Evaluates the overall application acceptability based upon the results of the PM's and technical staff's review for completeness and technical sufficiency.
- Briefs senior management on the status and findings of the acceptance review.
- Issues results of review, Federal Register Notices (FRNs), and letters to applicant. For docketed applications, this includes an application-specific technical review schedule.

#### **Environmental Project Manager**

##### *Environmental PM in the Environmental Projects Branch within NRO*

- Coordinates activities associated with the environmental acceptance review for an ESP, DC<sup>5</sup> or COL application.
- Supports the Lead PM in performing administrative activities associated with the acceptance review.

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<sup>5</sup> The scope of the environmental review for a DC application is limited to the analysis of severe accident mitigation design alternatives.

- Leads the completeness and technical sufficiency review of the Environmental Report (ER).
- Compiles environmental inputs from assigned technical branches and contractors, if applicable.
- Provides results of environmental report acceptance review to Lead PM.
- Supports management briefings of acceptance review results.

#### *Environmental Projects Branch Chief*

- Evaluates the environmental report acceptability based upon the results of the PM's and technical staff's review for completeness and technical sufficiency.
- Supports management briefings of acceptance review results.

#### *Portfolio Manager*

- Prior to receipt of application, works with the Lead PM to develop and load EPM with pre-baseline review schedule.
- Analyzes the suggested schedule changes recommended by the technical branches to the pre-baseline review schedule, in consultation with the projects branch, to determine the effect of suggested changes on the baseline review schedule.
- Captures dependencies among concurrent review activities (e.g., review of a DC application in parallel with the review of a COL application) within the baseline review schedules.

#### *Scheduler*

- Inputs changes into the EPM pre-baseline review schedule, if application is docketed.
- Finalizes the baseline review schedule following management review and approval.
- Maintains schedule in EPM based on Lead PM change requests as well as project team status updates.

### **3.1.2 Technical Branch**

#### *Technical Staff - NRO and other offices as assigned*

[Technical assistance from appropriate contractors may be used to perform portions of the acceptance review as long as the prescribed acceptance review schedule can be maintained.]

- Before beginning the acceptance review, becomes familiar with the anticipated scope of review (e.g., applicable sections of RG 1.206, RG 4.2, the SRP, the ESRP, and applicable DSRS) and the EPM pre-baseline review schedule and estimated staff-hours.
- Reviews assigned sections to evaluate the completeness and technical sufficiency of the application.
- Reviews other sections of the application and other inputs (e.g., Chapter 1 and risk insights) to assist in specific technical reviews.
- As necessary, participates in meetings/teleconferences with applicant to better characterize nature of deficiencies.
- Obtains, as necessary, input and support from outside entities (e.g., Federal Emergency Management Agency, Department of Homeland Security, Corp of Engineers,

Environmental Protection Agency, United States Geological Survey, etc.) to support the completeness and technical sufficiency review of applicable sections and for the development of the baseline review schedule.

- Identifies changes from the EPM pre-baseline review schedule and estimates hours to be factored into the baseline review schedule.
- Identifies any known dependencies among concurrent review efforts (e.g., review of a DC application in parallel with the review of a COL application).
- Communicates results of acceptance review and proposed changes to the pre-baseline review schedule and estimated staff-hours to PMs.
- The Probabilistic Risk Assessment (PRA) branch will review the application and identify the risk-significant structures, systems, and components (SSCs) and share this with the technical staff early during the acceptance review.

#### *Technical Branch Chief*

- Reviews and evaluates the significance of technical issues and the results of the staff's acceptance review and confirms that any identified technical deficiencies fall into the scope of the acceptance review (rather than in the scope of the detailed technical review).
- Communicates potential issues to the projects and upper management, when identified, early in the acceptance review.
- Communicates to the Lead PM proposed changes to the pre-baseline review schedule and estimated staff-hours on a timely basis.
- Forwards acceptance review results via memorandum (Enclosure 2) to both projects and Planning Optimization Branch.
- Supports management briefings of acceptance review results.

#### **3.1.3 NRO/NSIR/NRR Management**

- Receives briefing(s) on results of the acceptance review.
- Reviews results of acceptance review (identified deficiencies and resolution strategies) and reaches a decision about docketing the application.

#### **3.2 Pre-application Interactions**

Consistent with the Commission's Final Policy Statement on the Regulation of Advanced Reactors (FR, Vol. 73, p. 60616, October 14, 2008), an applicant's early interaction with the NRC is encouraged to provide for early identification of regulatory requirements and to provide all interested parties, including the public, with a timely, independent assessment of the safety and security characteristics of the design. Such licensing interaction and guidance early in the design process will contribute towards minimizing complexity and adding stability and predictability in the licensing and regulation of reactors.

On a voluntary basis, a prospective applicant may engage the NRC in the following areas: administrative, planning, application submittal preparation, technical issues, and pre-application readiness assessment. The purpose of these interactions on technical issues is for the staff to become familiar with the design, particularly in areas where prospective applicants are proposing new concepts or methodologies, and identify policy or technical issues early in the

process to effectively and efficiently plan the NRC's review work and address NRC infrastructure needs.

#### *Pre-application Readiness Assessment*

The pre-application readiness assessment (see Office instruction NRO-REG-104, "Pre-application Readiness Assessment" ADAMS Accession No. ML14079A197) will allow the NRC staff to: (1) identify information gaps between the draft application and the technical content expected to be included in the final application submitted to the NRC, (2) identify major technical and/or policy issues that may adversely impact the docketing or technical review of the application, and (3) become familiar with the application, particularly in areas where prospective applicants are proposing new concepts or novel design features. The results of the readiness assessment will inform prospective applicants in finalizing their application and assist the NRC staff in planning its resources for the review once the application is formally submitted. The staff plans to engage prospective applicants to schedule a pre-application readiness assessment at least 6 months prior to the expected date of submittal. The readiness assessment is not part of the NRC's official acceptance review process and does not predetermine whether the application will be docketed.

### 3.3 **Acceptance Review**

The acceptance review includes five areas: (1) the administrative processing, (2) the technical staff portion of the acceptance review (completeness and technical sufficiency review, confirmation of planning assumptions, identification of dependencies among concurrent reviews, and documentation of technical staff results), (3) the compilation of acceptance review inputs from the technical branches, (4) the NRC's decision to docket an application, and (5) the planning and scheduling information. Examples of acceptance review schedules are shown in Enclosure 3.

Early and frequent communication is essential for meeting the Agency's objective for openness with all stakeholders. Throughout the acceptance review, the Lead PM should maintain communications with the applicant regarding identified acceptance review issues and document these interactions in accordance with NRR-COM-202 and/or NRR-COM-203.

#### 3.3.1 **Administrative Processing**

Administrative processing includes receiving, staging, and noticing the application.

#### *Electronic Submission*

The Lead PM, supported by the Office of Information Services, ensures the application follows the guidelines provided in Section 8, New Reactor-Related Application Submittals of "Guidance for Electronic Submissions to the NRC," (ADAMS Accession No. ML13031A056) and coordinates with the Document Processing Center for processing the application into ADAMS. Additional guidance can be found in the Project Manager's Handbook at the following Web site address, <http://epm.nrc.gov/know/pm-handbook/Pages/Home.aspx>. The application will initially be treated as tendered.

### *SUNSI Review*

The Lead PM as supported by the Environmental PM performs a SUNSI review in accordance with the guidance provided on the internal Web site at the following Web site address, <http://www.internal.nrc.gov/ois/divisions/irsd/sunsi/index.html>. Questions on SUNSI reviews are directed to [NRO\\_Inforeview@nrc.gov](mailto:NRO_Inforeview@nrc.gov). As applicable, the Lead PM reviews the applicant's request to withhold proprietary information from public disclosure<sup>6</sup> in accordance with NRR office instruction, LIC-204, "Handling Requests to Withhold Proprietary Information from Public Disclosure." The tendered application should be made publicly available after the SUNSI review is completed. The proprietary review should be completed as soon as practicable; however, this review may be completed after the conclusion of the acceptance review. Administrative templates are located within ADAMS folder NRO/NRO-DNRL/Templates.

### *Notifications and Publication*

The NRC recognizes the public's interest in the proper regulation of nuclear activities and provides opportunities for citizens to be heard. Therefore, once the SUNSI review is completed and the application is processed into ADAMS, the lead PM should publish the Notice of Receipt and Availability of the application. If the application is docketed, the PM should issue a *Federal Register* Notice and create a webpage on the NRC public Web site providing application and licensing information.

### **3.3.2 The Technical Staff Portion of the Acceptance Review**

Once the application is available in ADAMS,<sup>7</sup> the completeness and technical sufficiency review will be initiated by the technical staff in parallel with the administrative processing steps.

To perform the technical staff portion of the acceptance review, the assigned technical staff should use the attached application-type specific acceptance review guides (see Enclosures 4 through 8).

- Enclosure 4 is the safety analysis report (SAR) guide for a COL application acceptance review, including for a COL referencing a DC that has not been certified, a COL referencing an issued ESP and a DC that has not been certified, and SCOL referencing a DC that has not been certified;
- Enclosure 5 is a review guide for an ER submitted as part of a COL application acceptance review;
- Enclosure 6 is a SAR guide for a DC application acceptance review;
- Enclosure 7 is a checklist for a DC application acceptance review;
- Enclosure 8 is a review guide for an ER submitted as part of a DC acceptance review.

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<sup>6</sup> For a design certification rulemaking, unless information may be withheld under one or more exceptions (e.g., the document includes proprietary information, Safeguards Information, security-related SUNSI, etc.), the DCD and documents supporting the rulemaking must be publicly available.

<sup>7</sup> The timeframe associated with availability in ADAMS is approximately 5 days, if there are no processing problems requiring an electronic re-submission.

### **Completeness and Technical Sufficiency Reviews**

During the completeness and technical sufficiency reviews, technical staff should discuss identified deficiencies with branch chiefs and notify the Lead PM of the significant deficiencies as soon as they are identified. Significant deficiencies will be discussed with the applicant in order to understand the nature of the deficiency and the timeframe for the applicant to address the deficiency.

#### *Completeness Review*

The completeness portion of the acceptance review verifies the application contains all of the information required by applicable regulations set forth in 10 CFR Part 52. For an ESP, DC or COL application, the completeness review is conducted by the PMs and technical staff by comparing the information in the application against applicable checklists and guidance documents available for the particular type of license application.

For a COL application, the staff will utilize RG 1.206 in performing its completeness review. Specifically, the staff will utilize a COL application acceptance review checklist in determining the completeness of the application. The staff should note that matters resolved in a certified design that is referenced<sup>8</sup> in a COL application are not within the scope of a COL application acceptance review (or the technical review itself). However, if the acceptance review for a COL application takes place while a DC application is under formal review, the technical staff should be cognizant of unresolved issues on the DC review that could impact the COL review. For a DC application, the staff will use the checklists provided in Enclosures 7 and 8 to this office instruction. For light-water small modular reactor (SMR) applications, a DSRS may be available and should be used along with the appropriate checklist when conducting acceptance reviews. For an ESP application, the staff should use the applicable SRP sections and the environmental review acceptance checklist for ESPs.

As part of the determination of completeness, the staff should review Chapter 1 of the final safety analysis report (FSAR) included in the COL application or a DC application. This chapter is expected to provide useful information addressing general regulatory considerations including conformance with the SRP, ESRP, and RGs, operating experience and identification of new safety features. In addition, for a COL application referencing a DC or a DC and an ESP, Chapter 1 of the FSAR should identify departures from the DC and treatment of COL information or action items. The staff should also review Chapter 2 of the FSAR which is expected to provide information on how site parameters fall within site characteristics. Specific technical section(s) of the DC or other portions of the COL application will support in more detail the information in Chapters 1 and 2.

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<sup>8</sup> As provided in 10 CFR 52.63, "Finality of standard design certifications," unless certain requirements are met, matters within the scope of a standard design certification are considered resolved for a COL application referencing that design certification.

### *Technical Sufficiency Review*

For the technical sufficiency portion of the acceptance review, the staff evaluates the application in terms of expected technical content identified in RG 1.206 and guidance in the related SRP/DSRS sections or ESRP section, and identifies significant technical deficiencies. Thus, the staff verifies that the application contains sufficient technical information in scope and depth to conduct the detailed technical review within a predictable timeframe.

The minimum criteria that the staff should consider when deciding whether or not an application contains enough information to conduct the review, complete it within a predictable timeframe, and docket the application are:

- Is the level of detail sufficient for the staff to make a regulatory determination with reasonable rounds of requests for additional information<sup>9</sup> (RAI)?
- Does the application introduce a new methodology or safety feature?
  - Does the regulatory framework adequately address the methodology or safety feature?
  - Does the new methodology or safety feature create a knowledge gap?
- Are the applicable regulations and SRP acceptance criteria properly addressed?
  - Does the applicant provide justification(s) for exception(s) or difference with the current SRP or DSRS?
  - Does the justification seem adequate?
- Has all needed testing been completed by the applicant? Are there significant analyses or evaluations missing? Are sufficient data available to support the staff's independent modeling?

A technical deficiency is defined as missing, improper, inadequate, or incorrect technical information needed by the NRC staff to conduct the assigned review. A minor technical deficiency can be addressed within a reasonable round of RAIs and without notably impacting the overall review schedule of the application. A significant technical deficiency is missing information that results in the staff being unable to conduct its review of the application against the acceptance criteria in the SRP/DSRS or conduct its review within a predictable timeframe. The technical staff, in coordination with the PM, should discuss significant deficiencies with the applicant to ensure a common understanding of the issue. If supplemental information is necessary, the timeframe and schedule for submitting the information should be established prior to acceptance of the application.

In addition to the Enclosures, the following are several tools available to assist the staff in performing its technical sufficiency review.

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<sup>9</sup> The term "reasonable rounds of RAIs" could be interpreted as two to four rounds of RAIs while precluding any adverse impact on the review schedule. As stated in the Lessons Learned Report, for complex issues that can exceed the 30-day response time of RAIs, the staff should ensure a common understanding of the technical issue early in the process to obtain a timely resolution.

- Consistent with the Commission's Final Policy Statement on the Use of PRA Methods in Nuclear Regulatory Activities (FR, Vol. 60, p. 42622, August 16, 1995), risk insights<sup>10</sup> should be used during the acceptance review to help determine the scope of the technical sufficiency review. Staff should focus its technical sufficiency review on systems, structures, and components (SSCs) that have been identified as risk-significant. In addition, technical staff should consult with the PRA branch to determine whether identified technical deficiencies are risk significant (i.e., whether the technical deficiency is related to a risk-significant SSC).
- A list of review areas contained within the SRP that may potentially involve more detailed technical review (e.g., involve computer code evaluation, detailed data analysis, new safety feature, or emerging operating experience) has been developed<sup>11</sup> and is available in ADAMS (ADAMS Accession No. ML072430683). The time it will take to review these areas should be factored into the technical sufficiency review and confirmation of planning assumptions, development of the baseline schedule, and adjusted staff-hours.
- An environmental acceptance review checklist for ESP and COL applications has been developed and is also available in ADAMS (ADAMS Accession No. ML072250354). This list should be used to help determine technical sufficiency for the environmental review areas and is a comprehensive set of review issues based on RG 4.2 and NUREG-1555 applicable to ESP and COL applications.

### **Confirmation of Planning Assumptions**

Prior to the submission of an application, the Planning Optimization Branch in NRO prepares a pre-baseline review schedule for each application as captured within EPM. This pre-baseline schedule contains estimated staff-hours to conduct the review based on the anticipated scope of review (e.g., for a COL application referencing a DC, the review hours are reduced to a minimal review effort for areas incorporated by reference (IBR) to the DC, where as an SCOL application is expected to need fewer staff-hours than the RCOL). This schedule is utilized for all planning assumptions. The acceptance review provides the opportunity to identify potential changes to the schedule and review staff-hours. At the completion of the acceptance review, a baseline review schedule with adjusted staff-hours will be developed for the technical review of the application.

During the 60-day acceptance review, technical staff should compare the results of the acceptance review against the EPM pre-baseline review schedule and estimated staff-hours for each assigned task.

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<sup>10</sup> Risk-insights from an ongoing or completed DC application review should be available for a design center. For the acceptance review of a DC application or a COL application submitted concurrently referencing the DC application, the PRA branch will review the applicant's summary of its PRA and its results for identification of risk significant SSCs as part of the acceptance review or under pre-application readiness assessment. The timeframe in which the risk insights are reviewed and distributed among the staff will determine the extent to which risk-insights can inform the scope of the acceptance review.

<sup>11</sup> Not all of the SRP sections are represented in the list.

The pre-baseline review schedule may not account for the review of:

- Alternatives to SRP acceptance criteria and RGs,
- New safety features,
- Departures or exemptions from the DC, for a COL application referencing a DC,
- Variances from the ESP, for a COL application referencing an ESP, or
- Application-specific information in a standardized section, for an SCOL application as compared to the RCOL application.

The technical staff should discuss with their supervisor any resource implications associated with a change from the EPM pre-baseline review schedule. If changes to the pre-baseline review schedule are needed, the technical branch chief should provide the estimate in terms of total staff resource hours needed for the assigned task(s) to the Lead PM. Schedule implications (e.g., whether the pre-baseline schedule will have to be adjusted) will be assessed by the Lead PM and the Portfolio Manager for the overall application once the technical branches have completed their acceptance reviews.

### **Identification of Dependencies among Concurrent Reviews**

The technical staff should identify any known dependencies among concurrent reviews. An example of a dependency is as follows. If the staff has identified an issue with a DC review area, the resolution of that issue could affect the review of the COL application. For the environmental review, these dependencies may include regional or generic implications, or other environmental assessments at the same site. These dependencies should be identified by the technical staff to assist the integrated management of the concurrent reviews, such that a slippage in the DC application review schedule will be evaluated for possible impacts to the COL application review schedule. These dependencies could potentially result in changes to planning assumptions for other COL or DC applications.

### **Documenting Technical Staff Results**

Once the technical staff completes the acceptance review, each Technical Branch Chief documents the acceptance review findings by memorandum to the appropriate Projects Branch Chief. Enclosure 2, contains a template memorandum that should be used by the Technical Branch Chiefs to transmit their acceptance review results.

#### **3.3.3 Compiling the Results of Completeness and Technical Sufficiency Reviews**

The Lead PM will compile the results of the acceptance reviews, which are documented in the technical branch memoranda, and clearly identify the significant deficiencies that management needs to consider for the decision to docket the application. In addition, the Lead PM, in consultation with the portfolio manager will revise the pre-baseline review schedule using conclusions from the technical branch's acceptance review.

For areas in which significant deficiencies were identified, the technical areas and nature of deficiencies should be shared with the applicant. The Lead PM should arrange

teleconference(s)<sup>12</sup> with the applicant, as necessary, to discuss these deficiencies. The objective of these interactions is to allow the staff and applicant to have a mutual understanding of the deficiencies and the timing/ability for the applicant to address the deficiencies. In certain cases, the deficiencies may be addressed in other areas of the application. The PM should document interactions as an official agency record by creating a summary of the call and adding it to ADAMS. The results of these discussions will be used by NRC management to support its decision to docket the application.

### 3.3.4 **Docketing Decision**

The PM, with support from the technical staff, presents to senior management the results of the technical staffs' review supplemented with the information obtained through communications with the applicant. The results and supplemental information will be used to determine whether to docket the application and conduct the technical review.

The following factors should be considered in reaching this decision:

- The number of deficiencies;
- The safety significance of the deficiencies;
- The timing associated with the applicant's ability to develop/prepare the supplemental information;
- The certainty regarding the timeframe in which the staff can review the specific portion of the application.

These factors should be considered for each application. Ultimately, the goal of the acceptance review is to determine with a high level of certainty that the application review can be completed within a predictable timeframe.

The possible outcomes of the completeness and technical sufficiency portions of the acceptance review are as follows:

#### A. **Application Acceptable for Docketing**

The staff has determined that the application contains sufficient information to conduct its detailed technical review within a predictable timeframe for the following reasons:

- The number of deficiencies is small and none is significant (e.g., level or depth of deficiency);
- None of the significant deficiencies are safety significant;
- If there are any deficiencies identified, these can be resolved in the detailed technical review;
- The staff has a high level of certainty that the review of the application can be conducted within a predictable time frame.

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<sup>12</sup> For planning and documentation purposes, teleconferences should be treated as public meetings.

If management agrees with the staff's determination, the application is accepted for docketing. The Lead PM communicates the status and results of the acceptance review internally and externally in accordance with the guidance provided in this office instruction.

Following this determination, the Portfolio Manager will develop the baseline review schedule and adjusted staff-hours.

Note that the docketing of the application does not guarantee a fixed review schedule. The detailed technical review may uncover significant deficiencies that were not identified in the acceptance review. In addition, changes to the application made by the applicant for various reasons (e.g., design change to resolve a staff issue) may impact the review of that portion of the application as well as have cascading impacts on the review(s) of other sections of the application. Both of these factors may require schedule changes. These changes are not necessarily deficiencies associated with the acceptance review, but rather a scheduling risk associated with the complex aspects of a nuclear plant licensing.

#### B. Application Not Acceptable for Docketing

The staff has determined that the application does not contain sufficient information to conduct its detailed technical review within a predictable timeframe if any of the following reasons is true:

- There are multiple deficiencies in the application of which several are significant;
- A subset of the significant deficiencies are safety significant;
- At least one significant deficiency that was identified as safety significant does not have a clear resolution path prior to the start of the detailed technical review;
- The staff does not have certainty that a review can be conducted within a predictable time frame.

If management agrees with the staff's determination, the application is not accepted for docketing. The staff should communicate the deficiencies to the applicant in accordance with NRR-COM-202 and/or NRR-COM-203. The staff can either issue a letter of non-acceptance or the applicant can choose to withdraw its application. The applicant can choose to resubmit its application once the deficiencies are corrected. Subsequent to this submission, the NRC will consider and may conduct a limited acceptance review of the new or modified submitted information (This limited acceptance review should be completed in less than 60 days).

Once a determination is made that an application cannot be docketed, the Lead PM and the Projects Branch Chief should promptly communicate this to the technical staff. This will ensure that no resources will be expended on the technical review of the application. In addition, the lead PM, needs to (1) develop a Communication Plan, (2) inform the Office of the Executive Director of Operations (EDO) via an EDO daily note and conduct an EDO briefing, and (3) inform the Commission via a Commissioner's Assistant note and conduct a Commissioner's Technical Assistant briefing.

C. Application Only Acceptable for Docketing Contingent on Specific Supplemental Information

The staff has determined that the application contains sufficient information to conduct its technical review but does not contain sufficient information to develop a schedule. Specifically:

- The number of deficiencies is moderate and none are safety significant;
- The deficiencies can be resolved during the detailed technical review;
- The staff has a high certainty that the review of the application can be conducted within a predictable time frame but does not have enough information to complete the development of the baseline schedule.

If the staff determines that the applicant could address the missing information within 6 months, and management agrees, the staff may issue a letter with a request for supplemental information (RSI). During this period of time, the application will be considered to be tendered but not docketed and no resources should be expended on the technical review of the application. The application will be docketed and a baseline review schedule will be transmitted to the applicant only once the staff has reviewed the RSI responses and concluded that the application is sufficiently complete to conduct the detailed technical review and complete it within a predictable timeframe.

If the applicant is non-responsive in addressing the RSIs or the staff determines that the responses to the RSI are inadequate, the staff will recommend non-acceptance of the application to management. Management will communicate this to the applicant who may choose to withdraw its application prior to the letter of non-acceptance being issued. When the applicant resubmits its application with the deficiencies corrected, the NRC will conduct a limited acceptance review of the new or modified information (This limited acceptance review should be completed in less than 60 days).

The Lead PM communicates the status and results of the acceptance review internally and externally in accordance with the guidance provided in this office instruction.

### 3.3.5 Adjustments to Baseline Review Schedule and Estimated Staff-hours

The Portfolio Manager develops the baseline review schedule and adjusts the staff-hours based on the identified changes from the EPM pre-baseline review schedule and estimated hours. The Portfolio Manager should also capture review dependencies within the baseline review schedule. The review schedule could be one of the following:

- A. Baseline Schedule - The application is sufficiently complete to conduct a detailed technical review (ESP, DC, or COL application) and complete it within a predictable timeframe. For a COL referencing a DC, there are no significant departures from the DC, and there are no apparent unique technical issues. This does not preclude staff's use of RAIs (i.e., multiple rounds of RAIs are not anticipated) during the evaluation. A baseline schedule (e.g., for a COL referencing a DC, the pre-baseline schedule is typically 30 months from docketing the application) will be transmitted to the applicant with the acceptance letter.

- B. **Adjusted Baseline Schedule** - The application is sufficiently complete to conduct a detailed technical review (ESP, DC, or COL application) and complete it within a predictable timeframe. For a COL referencing a DC, there may be departures from the DC, new safety features, alternatives to the SRP and/or RG 1.206 guidance, new methodologies in the application; additional supporting documentation, or other design characteristics that will require additional review time beyond the baseline schedule to reach a safety finding. The applicant has provided sufficient technical detail for the staff to estimate this additional time. The staff will submit the schedule changes to the branch chief after completing Table 1 of the applicable Enclosure. The branch chief should provide the estimate in terms of total staff resource hours needed for the assigned task(s) to the Lead PM. The Portfolio Manager and the Lead PM will assess the submitted changes and their implications. An adjusted schedule that accounts for the complexity or uniqueness of the review will be transmitted to the applicant with the acceptance letter.

### 3.4 **Response to Applicant**

During the 60-day acceptance review, the Lead PM, supported by the appropriate staff and branch chiefs, should communicate the status of the staff's review with the applicant in accordance with NRR-COM-202 and/or NRR-COM-203.

Once management has made a determination on the acceptability of the application, the Lead PM will prepare the official letter (see Enclosure 2) communicating to the applicant the result of the acceptance review.

### 3.5 **Performance Measures**

Completion of the acceptance review is consistent with the EPM schedule.

## 4. **REFERENCES**

- A. Title 10, Part 52, of the *Code of Federal Regulations* (10 CFR Part 52), "Licenses, Certifications, and Approvals for Nuclear Power Plants."
- B. Staff Requirement Memorandum - COMDEK-07-0001/COMJSM-07-0001 - Report of the Combined License Review Task Force, dated June 22, 2007.
- C. Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)."
- D. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants."
- E. NUREG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants."
- F. NRR-COM-202, "Meetings with Applicants, Licensees, Interveners, Vendors or Other Members of the Public." ([ML051880011](#))

- 
- G. NRR-COM-203, "Informal Interfacing and Exchange of Information with Licensees and Applicants." ([ML082940232](#))
  - H. Guidance for Electronic Submissions to the NRC. ([ML13031A056](#))
  - I. NRR-LIC-204, "Handling Requests to Withhold Proprietary Information from Public Disclosure." ([ML062200530](#))
  - J. List of SAR Review Areas Potentially Involving More Detailed Review ([ML072430683](#))
  - K. Environmental Review Acceptance Checklist for Early Site Permit and Combined License Applications ([ML072250354](#))

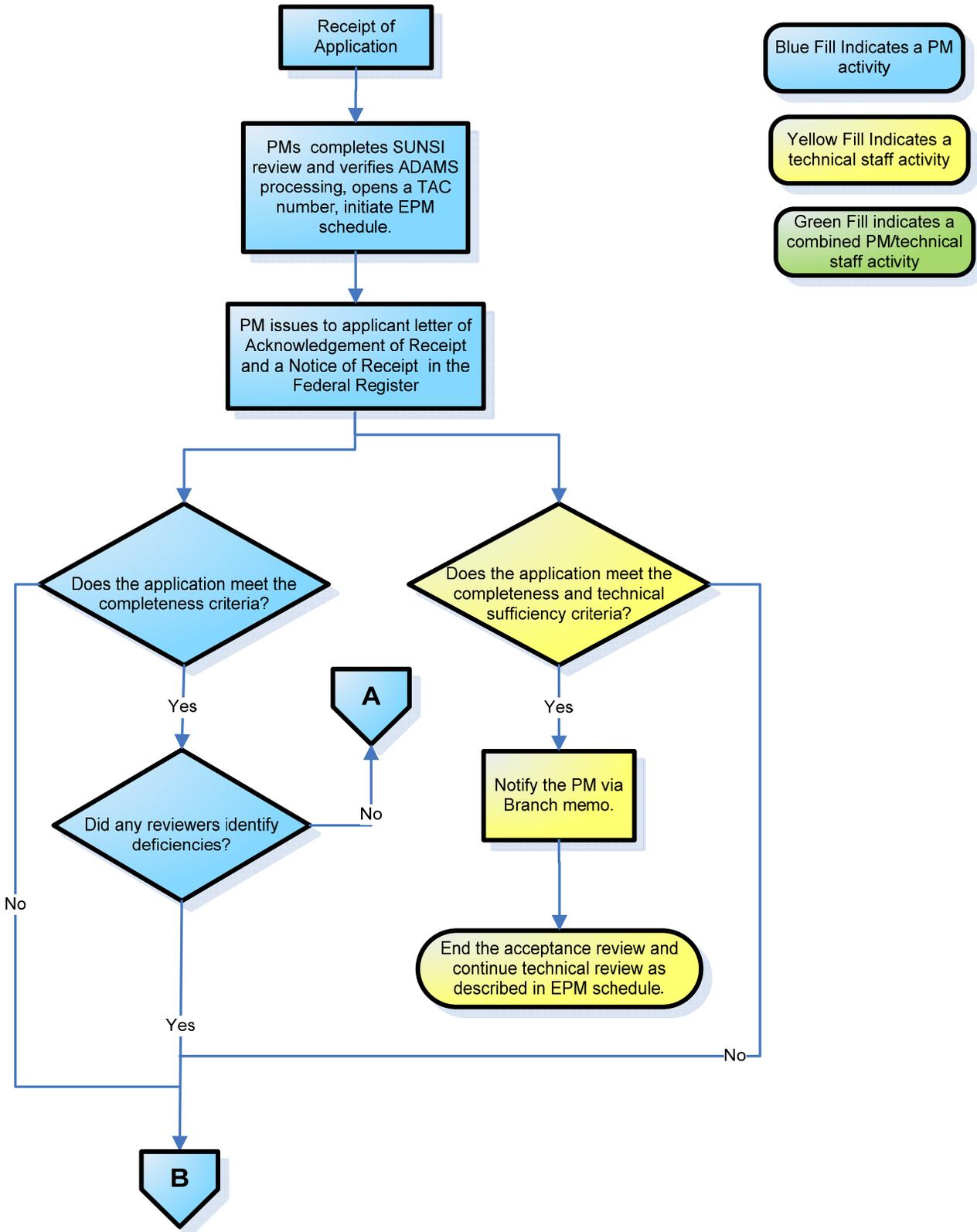
Enclosures:

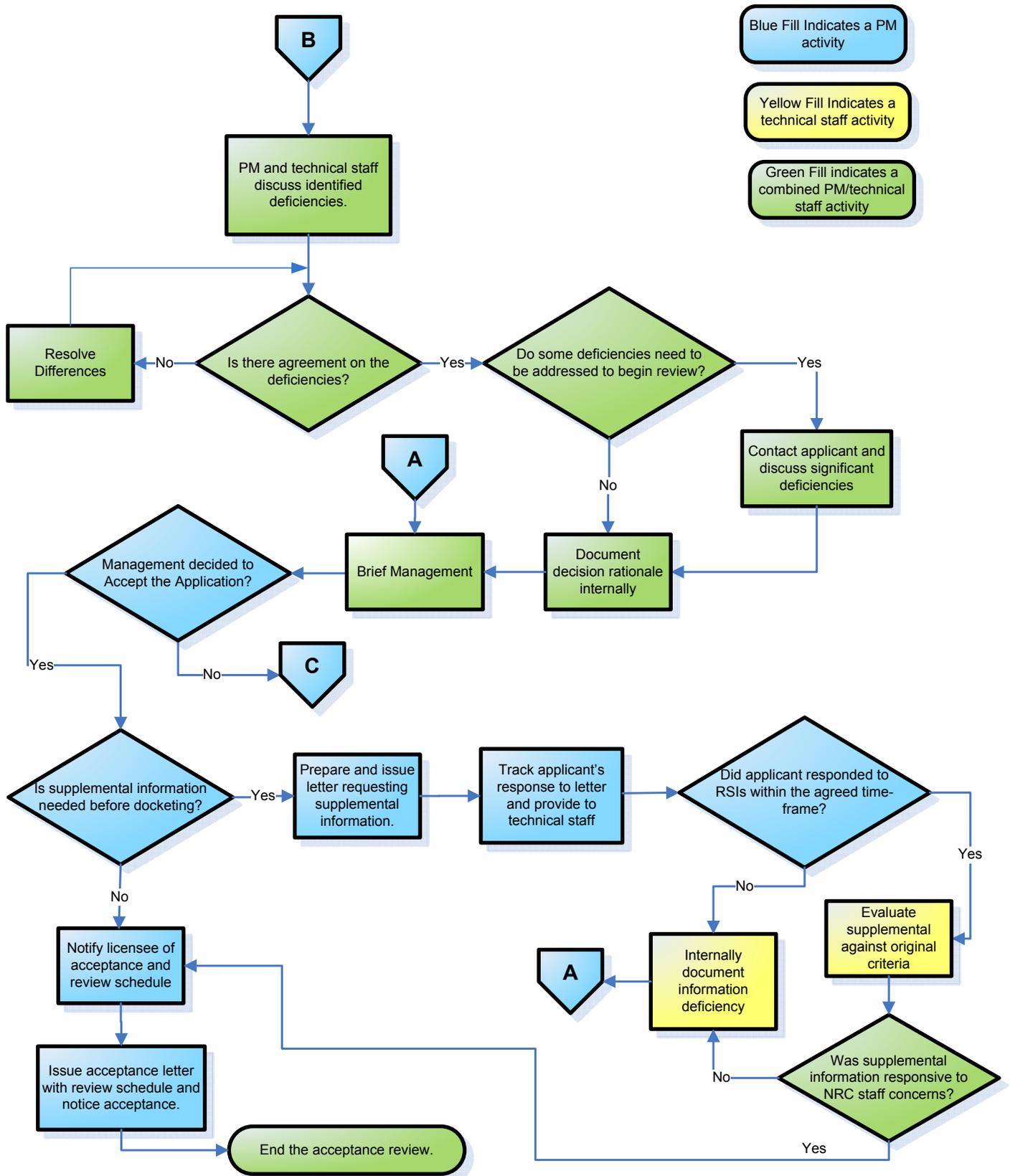
- 1. Acceptance Review Process Flow Chart
- 2. Template of Branch Memo and Letter to Applicant  
Documenting Acceptance Review Results
- 3. Examples of Acceptance Review Schedule
- 4. Safety Analysis Report Acceptance Review  
Guide - For a Combined License (COL)  
Application Referencing a Certified Design
- 5. Environmental Report Acceptance Review  
Guide - For a Combined License (COL) Application
- 6. Safety Analysis Report Acceptance Review  
Guide - For a Design Certification Application
- 7. Design Certification Application Acceptance  
Review Checklist
- 8. Environmental Report Acceptance Review  
Guide - For a Design Certification Application

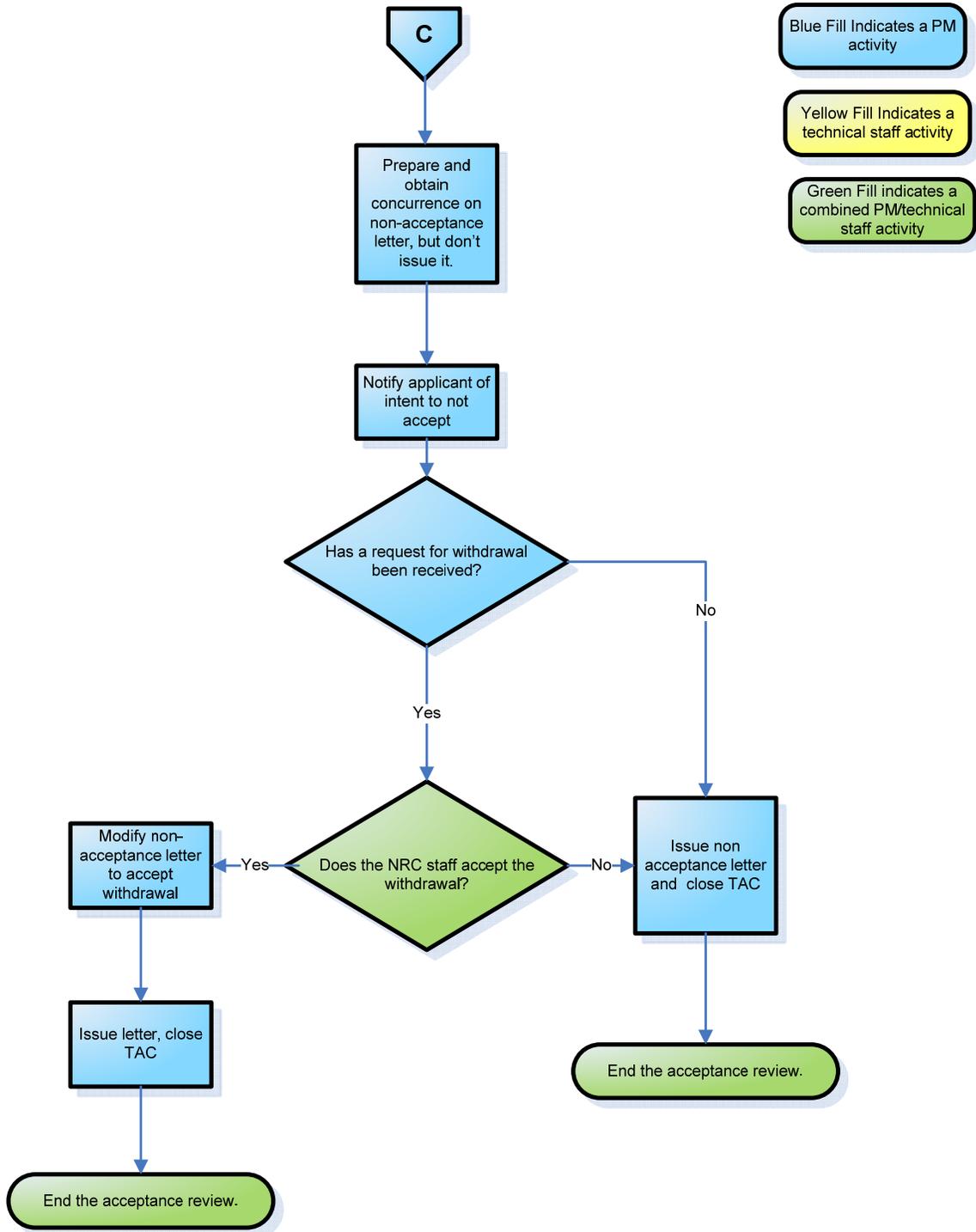
<b>NRO-REG-100 - Change History</b>			
<b>Date</b>	<b>Description of Changes</b>	<b>Method Used to Announce &amp; Distribute</b>	<b>Training</b>
09/26/07	Initial issuance. The purpose of this OI is to provide guidance to NRO staff for performing combined operating license application acceptance reviews.	Posting on NRO Webpage	Email; division and branch presentations as requested
01/07/08	Draft Revision 1. Changes: a new docketing option without issuance of a schedule based on lessons learned from South Texas Project acceptance review; a new sub-section 3.2.1 Administrative Processing in the body; clarification regarding inclusion of Table 1 within the acceptance review transmittal memo. Additional guidance is included to address design certification, combined license application referencing a design certification being reviewed in parallel, and subsequent combined license application – specific review guides provided as attachments.	Posting on NRO Webpage	Email; division and branch presentations as requested
12/18/14	Draft Revision 2. Changes: 1) changed the standard for accepting an application from enough information to “begin” the review to enough information to “conduct” the review; 2) added criteria to support the new standard for acceptance; 3) added a flow chart and supporting discussion to clarify the acceptance review process; 4) expanded the applicability of this office instruction to Early Site Permit applications; 5) clarified text to indicate that acceptance reviews will be performed in 60 days; 6) added text to describe pre-application interactions; and 7) incorporated lessons learned from the APR1400 Design Certification application acceptance review.	Posting on NRO Webpage and publically available	Email; division and branch presentations as requested

# **ENCLOSURE 1**

Acceptance Review Process Flow Chart







## **ENCLOSURE 2**

Template of Branch Memo and Letter to Applicant Documenting  
Acceptance Review Results

## EXAMPLE 1: BRANCH MEMO

[DATE]

MEMORANDUM TO: [Branch Chief Name], Chief  
[Name of PM Branch]  
[Name of Division]  
Office of New Reactors [Include if originating organization is outside NRO]

FROM: [Branch Chief Name], Chief  
[Name of Technical Branch]  
[Name of Division]  
[Name of Office, if outside NRO]

SUBJECT: ACCEPTANCE REVIEW RESULTS FOR THE [NAME OF APPLICATION] [Application type: COMBINED LICENSE/DESIGN CERTIFICATION] APPLICATION

[Name of branch (branch acronym)] has completed its acceptance review of the [plant/design XXXX] [application type: Early Site Permit (ESP), Combined License (COL), application or Design Certification (DC) application] submitted by [Applicant XXX (applicant acronym)]. This review covered the following [DC or FSAR] Section[s] for which [branch acronym] has [primary/secondary] review responsibilities and, in addition, applicable interface documentation referenced in the [Design Control Document (DCD) or FSAR]:

- [DC or FSAR] Section X; Section Y; Section Z; and etc.
- Referenced documentation
  - [reactor design XXX] Design Control Document (DCD) Tier 1 / 2, Revision #, Section[s] X, Y, and etc.
  - Technical / Topical Reports [identify XXX (e.g., design vendor, NEI)]

### Completeness and Sufficiency

Based on our review, we have concluded that the application contains the information required by applicable regulations and that the submitted information is technically sufficient for [branch acronym] to conduct the [plant XXXX ESP application, plant XXXX COL application, or design XXXX DC application] detailed technical review.

### ***[Alternate paragraph to be used when a FSAR section(s) is not technically sufficient]***

Based on our review, we have concluded that the application contains the information required by applicable regulations. However, there are significant deficiencies in the submitted information that preclude the conduct of an effective and efficient technical review and, therefore, preclude the development of a specific review schedule at this time. [Branch acronym] cannot commence the [plant [Name of Application] ESP application, plant [Name of Application] COL application, or [Name of Application] DC application] detailed technical review without the information identified in Enclosure 1.

Header Information: First initial of Branch Chief's name. Last name Page # (centered)

The significant technical deficiencies are as follows.

Schedule

The staff reviewed the pre-baseline schedule provided during the acceptance review. I confirm that there are no changes to the pre-baseline review schedule.

**[Alternate paragraph to be used when a FSAR section(s) requires changes to the schedule]**

The staff reviewed the pre-baseline schedule provided during the acceptance review and recommends the following changes to the EPM schedule:

- Assigned Reviewer
- Hours to complete the review
- Others

Review Dependencies.

[Branch acronym]'s detailed technical review of the [[Name of Application] ESP application, [Name of Application] COL application, or [Name of Application] DC application] is dependent on [Name of Agency] completing its respective review task and providing input to [Branch acronym].

[Alternate paragraph: [Branch acronym]'s detailed technical review of the [Name of Application] ESP application, [Name of Application] COL application, or [Name of Application] DC application] is independent of other ongoing application reviews by the staff.]

(Optional) Description of Significant Technical Deficiencies Request for Supplemental Information (RSIs), if applicable (Staff may use Table 1 of the applicable Safety Analysis Report or Environmental Report Review Guide – Enclosure 4, 5, 6, or 8 to this office instruction)

Enclosures: (if applicable - *this format is used when document contains two or more enclosures*)

1. Title
2. Title

DISTRIBUTION:

NRO/Division [Lead PM] [Supporting PM] [Portfolio Manager] [Other Technical Branches that have primary/secondary review]

**ADAMS Accession No.:**

OFFICE			
NAME			
DATE			

**OFFICIAL RECORD COPY**

**EXAMPLE 2: ACCEPTANCE REVIEW RESULTS OF AN APPLICATION**

[DATE]

[ADDRESSEE]

SUBJECT: ACCEPTANCE REVIEW RESULT FOR THE [NAME OF APPLICATION] [TYPE OF APPLICATION] APPLICATION – [NAME OF APPLICANT]

Dear [Addressee]:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated [Date], [Name of Applicant] submitted an application for a [type of application] of the [Name of Application], pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." The purpose of this letter is to inform you of the results of the NRC staff's acceptance review of this application.

**[FOR COMPLETE APPLICATION USE THESE PARAGRAPHS]**

In accordance with 10 CFR 2.101, 10 CFR 52.46, and 10 CFR 52.47, the NRC staff performed an acceptance review to determine if the [Type of Application] application for the [Name of Application] contains sufficient technical information in scope and depth to allow the NRC staff to conduct its detailed technical review and complete it within a predictable timeframe.

The NRC staff has reviewed your application and concluded that your [Type of Application] application is sufficiently complete to accept for docketing. Pursuant to 10 CFR 2.815, the docket number established for this application is [XXXXXX]. The NRC staff intends to publish a schedule for the detailed technical review of your application within XX days. A portion of the basis for completion of the review on this schedule is [Name of Applicant] response to Request for Additional Information (RAI) within 30 days of your receipt.

The enclosed notice of acceptance for docketing has been forwarded to the Office of the Federal Register.

**[FOR APPLICATION CONTINGENT TO SPECIFIC SUPPLEMENTAL INFORMATION USE THESE PARAGRAPHS]**

In accordance with 10 CFR 2.101, 10 CFR 52.46, and 10 CFR 52.47, the NRC staff performed an acceptance review to determine if the [Type of Application] application for the [Name of Application] contains sufficient technical information in scope and depth to allow the NRC staff to conduct its detailed technical review and complete it within a predictable timeframe.

The NRC staff has reviewed your application and concluded that the information delineated in the enclosure to this letter is necessary to enable the NRC staff to conduct its detailed technical review. In accordance with 10 CFR 2.101, the application will be considered tendered but will not be docketed until the requested information is submitted and the acceptance review process can be re-initiated to determine if the application is acceptable for review. The NRC staff requests that [Name of Applicant] address the Requests for Supplemental Information (RSIs) identified in the enclosure by [Date]. If the information requested by the NRC staff's is not

received by the above date, the application will not be docketed for review pursuant to 10 CFR 2.101. If the application is subsequently accepted for review, you will be advised of any further information needed to support the NRC staff's detailed technical review by separate correspondence.

**[FOR NON-ACCEPTANCE OF THE APPLICATION USE THESE PARAGRAPHS]**

In accordance with 10 CFR 2.815, 10 CFR 52.46, and 10 CFR 52.47, the NRC staff performed an acceptance review to determine if the [Type of Application] application for the [Name of Application] contains sufficient technical information in scope and depth to allow the NRC staff to conduct its detailed technical review and complete it within a predictable timeframe.

The NRC staff has decided not to accept the [Name of Application] [Type of Application] application for docketing at this time. [Describe interactions with the applicant where deficiencies were communicated and provide the reasons why the application is not being docketed.]

The NRC staff plans to continue pre-application interactions with your staff to support your efforts at resolving the staff's concerns and in developing the necessary information to support a complete application. Once the deficiencies have been addressed, the application may be resubmitted to the NRC.

**[IF THE APPLICANT WITHDRAWS THE APPLICATION, USE THIS PARAGRAPH]**

By letter dated [DATE], you requested to withdraw the application from NRC review. The NRC staff acknowledges your request to withdraw the application. NRC staff activities on the review have ceased and the associated Technical Assignment Control number has been closed.

The NRC staff notes that its review to date has identified that your application did not provide the following technical information in sufficient detail to enable the NRC staff to complete its detailed review. Therefore, if you decide to re-submit the request, it must include the information described in the letter dated [DATE] (Agencywide Documents Access and Management System [ADAMS] Accession No. MLXXXXXXXXX). In this letter, the NRC staff identified that the following information was needed to conduct its technical review: [List the information needed]

If you have any questions, please contact me at (301) 415-XXXX or email.

Sincerely,

[Name], Project Manager  
[Branch]  
[Division]  
Office of New Reactors

Docket No(s).

Enclosure:

cc w/encl:

DISTRIBUTION: via Listserv

**ADAMS Accession No.:**

OFFICE	PM:Division/Branch	TR:Division/Branch	TBC:Division/Branch	PBC:Division/Branch
NAME				
DATE				

**OFFICIAL RECORD COPY**

## **ENCLOSURE 3**

Examples of Acceptance Review Schedule

**A. Application Acceptable for Review**

Task Name	Duration*	Start	Finish
Administrative/ADAMS Processing	5 days	6/2/2014	6/6/2014
Receiving, Staging and Noticing Receipt of Application (including opening a TAC number)	5 days	6/2/2014	6/6/2014
SUNSI Review	5 days	6/2/2014	6/6/2014
Application Review by Technical Staff and PMs in NRO and NSIR, including support from outside entities.	25 days	6/9/2014	7/11/2014
Compilation of results	25 days	6/26/2014	7/30/2014
Prepare presentation and brief management on deficiencies to inform decisionmaking	5 day	7/31/2014	8/6/2014
Acceptance Review Complete, notify the applicant of the results via conference call	1 day	8/7/2014	8/7/2014
Letter to Applicant	1 day	8/8/2014	8/8/2014
FRN Published	4 days	8/11/2014	8/14/2014

\*Duration is in working days

**B. Application Not-Acceptable for Review**

Task Name	Duration*	Start	Finish
Administrative/ADAMS Processing	5 days	6/2/2014	6/6/2014
Receiving, Staging and Noticing Receipt of Application (including opening a TAC number)	5 days	6/2/2014	6/6/2014
SUNSI Review	5 days	6/2/2014	6/6/2014
Application Review by Technical Staff and PMs in NRO and NSIR, including support from outside entities.	25 days	6/9/2014	7/11/2014
Compilation of results	25 days	6/26/2014	7/30/2014
Prepare presentation and brief management on deficiencies to inform decisionmaking	5 day	7/31/2014	8/6/2014
Acceptance Review Complete, notify the results to the applicant via conference call	1 day	8/7/2014	8/7/2014
Letter to Applicant	1 day	8/8/2014	8/8/2014
Close TAC Number	1 day	8/11/2014	8/11/2014

\*Duration is in working days

**C. Application Only Acceptable for Docketing Contingent on Specific Supplemental Information**

Task Name	Duration*	Start	Finish
Administrative/ADAMS Processing	5 days	6/2/2014	6/6/2014
Receiving, Staging and Noticing Receipt of Application (including opening a TAC number)	5 days	6/2/2014	6/6/2014
SUNSI Review	5 days	6/2/2014	6/6/2014
Application review by Technical Staff and PMs in NRO and NSIR, including support from outside entities	25 days	6/9/2014	7/11/2014
Compilation of results	25 days	6/26/2014	7/30/2014
Conference call with applicant to discuss significant deficiencies	2 days	7/31/2014	8/1/2014
Prepare presentation and brief management on deficiencies to inform decisionmaking	5 day	8/4/2014	8/8/2014
Acceptance Review Complete, notify the results to the applicant via conference call	1 day	8/11/2014	8/11/2014
PM prepare and issue letter requesting supplemental information	2 days	8/12/2014	8/13/2014
Applicant provide requested information (duration could change due to the amount of missing information)	44 days	8/14/2007	10/14/2014
NRC staff review supplemental information	24 days	10/15/2014	11/17/2014
Prepare presentation and brief management on the review of supplemental information for final decisionmaking	5 day	11/18/2014	11/24/2014
Acceptance Review Complete, notify the results to the applicant via conference call	1 day	11/25/2014	11/25/2014
Letter to applicant	1 day	11/26/2014	11/26/2014
FRN Published	5 days	11/27/2014	12/3/2014

\*Duration is in working days

## **ENCLOSURE 4**

Safety Analysis Report Acceptance Review Guide  
For a Combined License (COL) Application Referencing a  
Certified Design

## Background Information

This Review Guide is intended to be used by the technical branches to perform their acceptance reviews of a COL application. The findings of the acceptance review will be provided to the Lead Project Manager (PM) and Portfolio Manager so they can evaluate completeness, technical sufficiency and the impacts of the technical issues identified during this review on the pre-baseline schedule. This review guide contains Table 1, "Safety Analysis Report Acceptance Review Results Table," which is organized by review area(s)/topic(s) within assigned safety evaluation report (SER) sections.

Prior to the acceptance review, the PMs and technical reviewers should be familiar with:

- The anticipated scope of review of the COL application including the following:
  - Assigned COL application section(s) and relevant supplemental information (e.g., Technical or Topical Reports), departures from the Design Control Document (DCD), Design Acceptance Criteria (DAC) and/or Inspection, Test, Analysis and Acceptance Criteria (ITAAC).
  - Design-specific finality matrices (compilation of COL information items, action items, and other COL issues) have been prepared for reference by staff reviewing COL applications referencing the DCD. This information is available within the project specific integrated workspace.
  - RG 1.206 contains the expected information for a COL application referencing a Design Certification (DC).
  - Corresponding section(s) of the standard review plan (SRP) or Design Specific Review Standard (DSRS).
  - A list of Safety Analysis Report (SAR) review areas that can potentially involve a more detailed review (Agencywide Documents Access and Management System [ADAMS] Accession No. ML072430683). This list does not replace the SRP, but rather represents a list of review areas contained within the SRP that may potentially involve more detailed technical review (e.g., involve computer code evaluation, detailed data analysis, new safety feature, or emerging operating experience).
  - The design-centered-review approach (DCRA),<sup>1</sup> such that staff decisions made on the "reference COL" would apply to all "subsequent COLs."
  - Concurrent reviews (e.g., DC application review, DC amendment review. For a subsequent COL application, review the reference COL application, and/or related topical report reviews).
  - Available risk insights applicable to COL application sections under review.
- The EPM pre-baseline review schedule and estimated staff-hours.

The following directions should be used by PMs and technical staff in performing the acceptance review. Table 1 should be used to document the acceptance review effort. The information in this table may be used to evaluate the acceptability of the COL application for docketing. Each branch may choose to make entries for each review area or SRP section in Table 1. Alternatively, a branch may choose to enter information only for those technical areas that are

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<sup>1</sup> Additional information on DCRA is provided in SECY-06-0019, dated January 31, 2006.

found to be incomplete, not technically sufficient or those areas that will require changes to resource planning assumptions.

- I. **Completeness Review:** Verify that the COL application contains all of the information required by the applicable regulations for your assigned review(s), as discussed in Section 3.3.2 of the office instruction. If the COL applicant uses the statement that a review topic is *incorporated by reference* (IBR) to the DC, this statement constitutes a complete response relative to the COL application section (and therefore no technical sufficiency review will be required for that section). In addition, the COL applicant should explain how it addressed any COL information items addressing plant-specific information. Then begin completing Table 1 as appropriate.
  - A. Document the review area(s)/topic(s) in Column 1 (List all review topics or only those found to be not complete or not technically sufficient).
  - B. Determine whether the applicant has addressed the applicable regulations for the assigned review area. *See RG 1.206 for the COL application acceptance review checklist.* [yes/no in Column 2]

10 CFR 52.79 "Contents of applications; technical information in final safety analysis report," identifies prescriptive requirements for the contents of a COL application. These requirements are captured in the RG 1.206 checklist. However, 52.79 also contains cross-cutting requirements. For the following cross-cutting requirements, determine if any apply to your review section(s). For those in your review area, determine if the applicant addressed the proper items. The applicant's compliance with these requirements should be provided in Chapter 1 of the Final Safety Analysis Report (FSAR):

1. Three Mile Island requirements [10 CFR 52.79(a)(17)];
2. Proposed technical resolutions of unresolved safety issues and medium- and high-priority generic safety issues [10 CFR 52.79(a)(20)];
3. Introduction of new safety features [10 CFR 52.79(a)(24)];
4. Operating experience insights incorporated into the plant design [10 CFR 52.79(a)(37)];
5. Conformance with SRP/DSRS [10 CFR 52.79(a)(41)].

Additional cross-cutting requirements specifically related to information required for a COL application referencing a DC include:

1. Demonstration that the site characteristics fall within the site parameters specified in the design certification [10 CFR 52.79(d)(1)] (summarized in Chapter 2 of the FSAR);
2. Demonstration that interface requirements have been met [10 CFR 52.79(d)(2)];
3. Demonstration of all requirements and restrictions set forth in the referenced design certification rule, other than those imposed under §50.36b, must be satisfied by the date of issuance of the COL [10 CFR 52.79(d)(3)] - (*this includes addressing COL information items, COL action items, identified departures from the certified design, and replacement of DC conceptual design information with site specific design details*).

- C. For each review area/topic not addressed, summarize deficiency in Column 5, and promptly notify the Lead PM if RSIs are needed.
- II. Technical Sufficiency Review: Identify significant technical deficiencies in the COL application associated with your assigned review using the attached table and the following guidelines. The information contained in the various parts of the COL application that are discussed above in the Background Information should also be considered. A technical deficiency is defined as missing, improper, inadequate, or incorrect technical information needed by the NRC staff to conduct the assigned review. A significant technical deficiency is missing information that results in the staff being unable to conduct its review of the application against the acceptance criteria in the SRP/DSRS or conduct its review within a predictable timeframe. If a significant technical deficiency is identified, the application should not be docketed unless it is able to be addressed through RSIs. Minor technical deficiencies by contrast should be able to be addressed within reasonable rounds of RAIs and without notably impacting the overall schedule for the COL application.

Additional consideration should be given to any review areas/topics contained in the Safety Analysis Report Acceptance Review List that could require more extensive review time than is reflected in the EPM pre-baseline review schedule.

As noted in Section 3.3.2, of the office instruction risk insights may be available during the acceptance review. If so, these insights should be used to help determine the depth of the technical sufficiency review. If a review area/topic is associated with a risk-significant SSC, indicate a yes in Column 6, in the attached table.

For the determined scope of technical sufficiency review:

- A. Document additional review areas/topics in Column 1, as needed.
- B. Determine whether the COL application section(s) is(are) sufficient to conduct the detailed technical review for the review areas/topics identified in Column 1 [yes/no in Column 3].
- C. Determine whether the review areas/topics identified in Column 1 can be resolved through the RSI or RAI process [yes/no in Column 4].
- D. Document the technical deficiency (ies) that could prevent you from conducting your detailed technical review in Column 5. Describe the basis (es) for the deficiencies. These review area/topics may involve a significant amount of time to address (e.g., development of computer codes or first-of-a-kind testing) and estimate how this could impact the overall review schedule for your COL application section.
- E. Notify the Lead PM of significant deficiencies and the need of RSIs as soon as they are identified.
- F. Determine whether the identified technical deficiency is related to a risk-significant SSC [yes/no in Column 6].
- III. Changes to Planning Assumptions:

*Augmenting Planned Resources (Staff-Hours):*

Re-evaluate the total review time that will be needed to conduct a review based on the significant technical deficiencies or new, unplanned review items documented in the Table 1. The

acceptance review allows the reviewer to identify potential changes from the EPM pre-baseline review schedule and estimated staff-hours so that Portfolio Manager can develop an application-specific review schedule and adjust the staff-hours. The following characteristics of a COL application may require additional review time:

- A. departures from the DCD;
- B. inclusion or reference to new safety features;
- C. alternative approaches to SRP acceptance criteria (including alternatives to regulatory guides);
- D. instances of a site characteristic falling outside of design parameters;
- E. for a subsequent COL, differences from the reference COL; or
- F. other miscellaneous review topics that have not been adequately represented within the pre-baseline model, (e.g., replacement of *DC conceptual design information with site specific design details and other COL supplemental information, new operating experience and regulations since DCD or RCOL issuance*).

Next, determine whether the review effort is reflected within the pre-baseline model (e.g., the estimated staff-hours are sufficient to perform the review of the departure?) [yes/no in Column 7]. For each “no” in table, identify the change to the EPM staff-hour planning assumptions and provide a basis (e.g., “departure not addressed in pre-baseline review schedule”) in Column 8. Identify the projected review time in staff-hours needed to address all of the applicable items above for your COL application section. This can be for the total review time and does not have to be on an individual review area/topic.

*Reducing or Eliminating Planned Resources (Staff-Hours):*

Some SRP sections may be completely IBR, where all design features in the DC are referenced with no change or further information. For this case the estimated staff-review hours for Phases 1 and 4 should be zero, and Phase 2 should be minimal to account for administrative production of the SER input. Note, the administrative production of the SER input for complete IBR may become a projects function with overall SER chapter concurrence by the technical staff. If the pre-baseline model identified staff review hours then the responsible branch should answer “no” for Column 7 in Table 1 and provide the following basis for eliminating the staff-hours required - “complete IBR.”

Some SRP sections may be a partial IBR, where design features are adopted from the DC into the COL FSAR and the applicant has provided some design specific information such as COL action items. The responsible branch then needs to adjust the pre-baseline model commensurate with the scope of review and answer “no” for Column 7 in Table 1. For each “no” in the table, identify the change to the EPM staff-hour planning assumptions and provide a basis (e.g., “limited review not reflected in pre-baseline review schedule”) in Column 8. Identify the projected review time in staff-hours needed to address all of the applicable items above for your COL application section.

As with augmenting staff-hours, reducing staff-hours can be for the total review time and does not have to be on an individual review area/topic basic.

After completing Table 1, review the pre-populated EPM pre-baseline review schedule provided by Planning and Scheduling and notify the branch chief and Lead PM if schedule changes are needed.

- IV. **Identification of Dependencies between Concurrent Reviews:** Identify any known dependencies between concurrent reviews. These dependencies could be between a DC review and a concurrent COL review (e.g., EPR DCD review concurrent with the EPR RCOL review), or there could be dependencies between reference COLs and subsequent COLs. These dependencies could potentially result in changes to planning assumptions. For example, the staff-hours associated with the review of a topical or technical report may be captured separate from the baseline review schedule. Those hours should not be double counted in related reviews. However, this does not change the duration of the task.
- A. Identify and document review dependencies in Table 1 (Columns 10 and 11).

### **Special Cases**

#### ***For a Combined License (COL) Application referencing a Design Certification (DC) that has not been certified (e.g., reviewed concurrently)***

Generally, 10 CFR 52.55(c) states, “An applicant for a construction permit or combined license may, at its own risk, reference in its application a design for which a design certification has been docketed but not granted.” Following this requirement, there would likely be a minimum 60-day lag between the submittal of a DC application and a COL application referencing the DC since the target timeframe of the expanded DC acceptance review is 60 days<sup>1</sup>.

In addition to the above:

1. The staff performing the COL acceptance review should treat a section or portion of a section IBR to the Design Control Document as “complete and technically sufficient,” as long as, the scope of information to be addressed within the COL application is complete (anticipated contents are identified in Section C.III.1, “Information Needed for a Combined License Application Referencing a Certified Design”). Missing, incomplete, or technically insufficient information should be addressed consistent with guidance within this office instruction, that is, should be documented as incomplete in Table 1.

The staff can assume that the COL review and the DC review will proceed in parallel, and that issues within the DC review will be resolved within the DC review and COL issues will be resolved within the COL review. The information IBR must become certified before the COL can be issued. Furthermore, an open item will be added to the COL safety evaluation report (SER) with open items related to the need for the COL applicant to supplement the COL application as necessary to address resolution of issues in the DC.

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<sup>1</sup> If the COL application precedes docketing of the DC application, then the schedule for the respective acceptance reviews will be determined on a case-by-case basis (e.g., Bellefonte COL application referencing proposed Revision 16 to the AP1000 Design Control Document). The acceptance reviews may be done in series, in parallel or as a combined review. Things to consider in the conduct of these reviews: efficiency, effectiveness, and complexity of the technical issues. While the acceptance review schedule(s) will be developed on a case-by-case basis, it is important to note that the Commission direction in COMDEK-07-0001/COMJSM-07-0001 prescribed the expanded acceptance review to be 60 days.

2. Section 3.3.5, Review schedules are dependent on/driven by the progress and completion of the DC review – not the target schedule of 30-months for a COL referencing a certified DC – Any delays in the DC schedule will automatically impact the COL schedule.
3. With respect to the “concurrent reviews,” the identification of certain challenging DC review areas that may impact the COL review schedule may necessitate that the NRC recommend deferral of the COL review on that topic until after the issue is resolved within the DC. The dependencies/deferral of certain review areas are reserved for those areas in which the resolution of the DC issue will cause significant rework during the COL after the issue is resolved.

***For a Combined License (COL) Application referencing a Design Certification (DC) that has not been certified (e.g., reviewed concurrently) and which also references an Early Site Permit (ESP)***

The only difference from the previous case is the additional requirements of 52.79 related to referencing an ESP as summarized below.

1. The Final Safety Analysis Report (FSAR) should include or incorporate by reference the approved ESP. Further, the FSAR should establish the design of the facility falls within the site characteristics and design parameters specified in the ESP.
2. If the final safety analysis report does not demonstrate that design of the facility falls within the site characteristics and design parameters, the application shall include a request for a variance that complies with the requirements of §§ 52.39 and 52.93. This might require additional staff-hours beyond the baseline estimates.
3. The FSAR must demonstrate that all terms and conditions that have been included in the ESP, other than those imposed under § 50.36b, will be satisfied by the date of issuance of the combined license. If any of these terms or conditions are found to be left out of the FSAR, then the staff should document this as missing information in Table 1.
4. Evaluate for completeness and technical adequacy any updates or revisions to the approved emergency plans in the ESP. If complete and integrated emergency plans were approved as part of the referenced ESP, new certifications meeting the requirements of 10 CFR 52.79(a)(22) are not required and this could result in a reduction of expected staff-hours.

***For a Subsequent Combined License (SCOL) Application referencing a Design Certification***

The primary difference between the acceptance review for an SCOL application and a reference combined license (RCOL) application is that in addition to the site-specific portions of the review, the staff verifies the degree of standardization of the SCOL application to that of the RCOL. The site-specific portions of the application are treated the same as that of a RCOL.

As it relates to the design-center-review approach (DCRA), standard information relates to information incorporated by reference (IBR) to a design certification or information that is not IBR but identical to the RCOL. For SCOL application acceptance reviews, staff verifies standard information is identical to that in the RCOL. In addition, the reviewer should be familiar with

sections of the application which may interface with their assigned section of the application for review (as may be defined in related SRP section) to ensure any review issues within those sections would not impact the standardization determination. If the section is standard, Table 1 could be excluded and the EPM pre-baseline review schedule provided by Planning Optimization Branch should be completed to reflect the assigned FSAR sections will not need technical staff resources in review Phases 1 and 2. Note, the SER inputs for completely standard sections in a SCOL SER will be developed by project staff and concurred in by the technical staff during the advanced final SER.

If the FSAR section contains site-specific information or through the acceptance review it is determined that the application is not completely standard to the RCOL, then the staff should follow the guidance for a COL application referencing a Design DC that has not been certified to capture the non-standard review areas that will require staff review effort. The staff should also update the staff effort if it differs from the adjusted baseline estimates on Table 1 and the EPM pre-baseline review schedule provided by the Planning Optimization Branch.

Similar to the parallel review of an RCOL and DC, an SCOL review can proceed in parallel with the RCOL review and issues within the RCOL review will be resolved within the RCOL review and SCOL issues will be resolved within the SCOL review. The information identified as standard is to be approved in the RCOL before the SCOL is issued. Furthermore, an open item will be added to the SCOL SER describing the need for the SCOL applicant to supplement its COL application as necessary to address resolution of issues in the RCOL. For both complete and partially standard sections, review Phase 4 will be when the applicant addresses this open item, and the staff will re-verify the standard designation. This becomes a mini-acceptance review. The review effort for new site-specific information will be assessed for schedule and resource impacts when the application is revised.

NOTE: A 4-phase review schedule will be developed for the review of a SCOL application. The 4-phase review schedule removes the SER with open items. The total duration remains at about 30 months. After the conversion, assigned staff will have the opportunity to make adjustments to the baseline schedule.

**Table 1: Safety Analysis Report Acceptance Review Results for [Applicant Name] [Design Center Name] [Application Type]<sup>2</sup>**

SAR Section: \_\_\_\_\_ Technical Branch : \_\_\_\_\_ (Primary/Secondary) Technical Reviewer: \_\_\_\_\_  
 Branch Chief: \_\_\_\_\_ SRP Section: \_\_\_\_\_ Date: \_\_\_\_\_

Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? Yes/No, Identify specific review area/topic in table below.

1. Review Area/Topic*	Completeness and Technical Sufficiency Which Form Basis for Acceptability for Docketing		5. If no, for either completeness or technical sufficiency, identify deficiency (ies). This information will be needed for technical review.	6. Is the identified technical deficiency related to a risk-significant SSC? (yes/no)****	Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule		9. Identify the total review time in staff-hours*****	10. Can the review of the area/topic be completed without the completion of a concurrent review? (yes/no)	Review Dependencies Among Concurrent Reviews
	2. Does COL section address the items required by regulation (refer to RG 1.206)? (Yes/No)	3. Is COL section technically sufficient for this review area/topic? (yes/no)**			4. Can the technical deficiency be resolved through the RSI or RAI process within a predictable timeframe? (yes/no)***	7. Are the pre-baseline review schedule and estimated staff-hours appropriate? (yes/no)			

\*Review Area/Topic: Item identified in RG 1.206 or the regulations; for a COL application referencing a DC, this includes COL information items and departures from the design certification.  
 \*\*Technical Sufficiency: The application is compared against the SRP acceptance criteria. Note: New safety features, alternate regulatory compliance approaches, and/or departures and exemptions from DCs, should not be treated as deficiencies and factored into the basis for rejecting the application, unless staff determines that there is insufficient technical information associated with the respective item. These items are factored into confirmation of planning assumptions.  
 \*\*\*Significant deficiencies are those review area/topic which impact the staff's ability to conduct the detailed technical review or complete its review within a predictable timeframe.  
 \*\*\*\* Division of Safety Systems & Risk Assessment will provide risk significance information at time of review, if available.  
 \*\*\*\*\*Identification of new review time is on a FSAR section basis and consistent with the review phases within the EPM. Changes from the pre-baseline review schedule and estimated hours should be on that basis.

<sup>2</sup> **NOTE: Branches may use this form to make entries for all review area/topics; or alternatively, to make entries only for those areas that have issues with completeness, sufficiency, or those that require changes (+ or -) to baseline estimated staff-hours.**

## **ENCLOSURE 5**

Environmental Report Acceptance Review Guide  
For a Combined License (COL) Application

## Background Information

This Review Guide is intended to be used by the environmental branches to document the results of their acceptance reviews of an application. Additionally, the results of the acceptance review will be provided to the environmental project manager (PM) and Portfolio Manager so they can evaluate the impacts of the technical issues identified during this review on the pre-baseline schedule. The environmental PM will communicate results and periodic status to the Lead PM. This review guide contains Table 1, "Environmental Report Acceptance Review Results Table," which is organized by issue area(s) within the Environmental Impact Statement (EIS).

Prior to the acceptance review, the environmental PM and technical reviewers should be familiar with:

- The anticipated scope of the combined license (COL) application environmental review including:
  - Assigned COL application environmental report (ER) issue area and relevant supplemental information (e.g., whether the COL application will reference an early site permit (ESP)).
  - Applicable sections of RG 1.206.
  - Regulatory Guide (RG) 4.2, "Preparation of Environmental Reports for Nuclear Power Stations."
  - Corresponding section(s) of the environmental standard review plan, NUREG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants," (ESRP).
  - The environmental acceptance review checklist in (Agencywide Documents Access and Management System [ADAMS] Accession No. ML072250354). This list is a comprehensive set of review issues based on RG 4.2 and ESRP and is applicable to both early site permit and COL applications.
  - Concurrent reviews (e.g., reviews with regional or generic implications).
- The EPM pre-baseline review schedule and estimated staff-hours.

The following directions should be used by the environmental PM and technical staff in performing the acceptance review. Table 1 should be used to document the acceptance review effort. The information in this table may be used to evaluate the acceptability of the COL application for docketing as discussed in Section 3.3.2 of the office instruction (OI). Each branch may choose to make entries for each review area or SRP section in Table 1.

**Alternatively, a branch may choose to enter information only for those technical areas that are found to be incomplete or technically deficient or for those areas that will require changes to resource planning assumptions.**

- I. Completeness Review: Verify that the COL application contains all of the information required by the applicable regulations for your assigned review(s) as discussed in Section 3.3.2 of the OI.
  - A. Document the review area(s)/topic(s) in Column 1 (List all or only those found to be not complete and/or requiring changes to planning assumptions).

- B. Determine whether the applicant has addressed the applicable regulations for the assigned review area. (see *RG 1.206 for a COL application acceptance review checklist.*) [yes/no in Column 2] Specifically 10 CFR 52.80(b) states the application must contain a complete environmental report as required by 10 CFR 51.50(c). RG 4.2 provides an applicant with an acceptable means of compliance with this regulation. This information is compiled in the list of review topics by RG 4.2 and the ESRP.
  - C. For each issue area not addressed, summarize deficiency in Column 5 and promptly notify management and the appropriate environmental PM.
  - D. Following review of the issue area, the environmental PM provides the results to the Lead PM.
- II. Technical Sufficiency Review: Identify significant technical deficiencies in the COL application associated with your assigned review using the attached table and the following guidelines. The information contained in the various parts of the COL application that are discussed above in the Background Information should also be considered. A technical deficiency is defined as missing, improper, inadequate, or incorrect technical information needed by the NRC staff to conduct the assigned review. A significant technical deficiency is missing information that results in the staff being unable to conduct its review of the application against the acceptance criteria in the ESRP or conduct its review within a predictable timeframe. If a significant technical deficiency is identified, the application should not be docketed unless it is able to be addressed through RSIs. Minor technical deficiencies, by contrast, should be capable of being addressed with a reasonable round of RAIs and without notably impacting the overall schedule for the COL application.

For the determined scope of technical sufficiency review:

- A. Document additional issue areas in Column 1, as needed
- B. Determine whether the COL application section(s) is(are) sufficient to conduct the detailed technical review for the issue areas identified in Column 1 [yes/no in Column 3]
- C. Determine whether the issue areas identified in Column 1 can be resolved through the RSI or RAI process. [yes/no in Column 4]
- D. Document the technical deficiency (ies) that could prevent you from beginning your detailed technical review in Column 5. Describe the basis (es) for the deficiencies. These review area/topics may involve a significant amount of time to address (e.g., development of computer codes or first-of-a-kind testing), so estimate how this could impact the overall review schedule for your COL application section.
- E. Notify the environmental PM of significant deficiencies as soon as they are identified.
- F. Following review of the issue area, the environmental PM provides the results to the Lead PM.

Changes to Planning Assumptions: Re-evaluate the total review time that will be needed to conduct a technical review based on the significant technical deficiencies documented in the attached table. The acceptance review allows the reviewer to identify

potential changes from the EPM pre-baseline review schedule and estimated staff-hours so that the Portfolio Manager can develop an application-specific baseline review schedule and adjust the resource demands.

After completing Table 1, review the pre-populated EPM pre-baseline review schedule provided by Planning and Scheduling and notify the branch chief and the environmental PM if schedule changes are needed. The environmental PM should discuss the changes with the branch chief and Lead PM.

- III. Identification of Dependencies between Concurrent Reviews: Identify any known dependencies between concurrent reviews. These dependencies include regional or generic implications, or other environmental assessments at the same site. These dependencies could potentially result in changes to planning assumptions. For example, the staff-hours associated with the review of cumulative impacts may be adopted from another EIS which may be separate from the baseline review schedule. Those hours should not be double counted in related reviews. However, this does not change the duration of the task.
- A. Identify and document review dependencies in Table 1 (Columns 10 and 11).

**Table 1: Environmental Report Acceptance Review Results for [Applicant Name] [Design Center Name] [Application Type]**

EIS Issue Area: \_\_\_\_\_ Technical Branch: \_\_\_\_\_ (Primary/Secondary) Technical Reviewer(s): \_\_\_\_\_  
 Branch Chief: \_\_\_\_\_ Date: \_\_\_\_\_

Does the issue area address the applicable regulations: Yes/No  
 Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? Yes/No, Identify specific review area/topic in table below.

1. Issue Area/Topic*	Completeness and Technical Sufficiency for Which Form Basis for Acceptability for Docketing			Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule		Review Dependencies Among Concurrent Reviews			
	2. Does the ER address the items required by regulation (refer to 10 CFR 52.80(b) and RG 4.2? (Yes/No)	3. Is ER issue area technically sufficient for this review area/topic? (yes/no)**	4. Can the technical deficiency be resolved through the RSI or RAI process within a predictable timeframe? (yes/no)**	5. If no, for either completeness or technical sufficiency, identify deficiency (ies). This information will be needed for technical review.	7. Are the pre-baseline review schedule and estimated staff-hours appropriate for the issue area? (yes/no)	8. For each no, identify the change (or basis for change).	9. Identify the total review time in staff-hours***	10. Can the review of the issue area be completed without the completion of a concurrent review? (yes/no)	11. For each no, identify which issue area section.

\*Issue Area/Topic: Item identified in 10 CFR 52.80(b) and RG 4.2.

\*\*Technical Sufficiency: The application is compared against RG 4.2 and the ESRP acceptance criteria

\*\*\*Identification of new review time is on an EIS issue area section and consistent with the review phases within the EPM. Changes from the pre-baseline review schedule and estimated hours should be on that basis.

## **ENCLOSURE 6**

Safety Analysis Report Acceptance Review Guide  
For a Design Certification (DC) Application

## Background Information

This Review Guide is intended to be used by the technical branches to perform their acceptance reviews of a design certification (DC) application. The findings of the acceptance review will be provided to the Lead Project Manager (PM) and Portfolio Manager so they can evaluate completeness, technical sufficiency and the impacts of the technical issues identified during this review on the pre-baseline schedule. This review guide contains Table 1, "Safety Analysis Report Acceptance Review Results Table," which is organized by review area(s)/topic(s) within assigned safety evaluation report (SER) sections.

Prior to the acceptance review, the project managers and technical reviewers should be familiar with:

- The anticipated scope of review of the DC application including the following:
  - Assigned DC application section(s) and relevant supplemental information (e.g., Technical Reports), Design Acceptance Criteria (DAC) and/or Inspections, Test, Analysis, and Acceptance Criteria (ITAAC).
  - Applicability of RG 1.206
    - Cognizant of complete COL application contents
    - Cognizant of COL applicant responsibility when referencing a DC (site characteristics, site-specific design information, operational programs)
  - Corresponding section(s) of the standard review plan (SRP).
  - The List of safety analysis report (SAR) Review Areas Potentially Involving More Detailed Review in ADAMS (ADAMS Accession No. ML072430683). This list does not replace the SRP, but rather represents a list of review areas contained within the SRP that may potentially involve more detailed technical review (e.g., involve computer code evaluation, detailed data analysis, new safety feature, or emerging operating experience).
  - The design-centered-review approach (DCRA),<sup>1</sup> such that staff decisions made on the "reference COL" would apply to all "subsequent COLs."
  - Concurrent reviews (e.g., other DC application reviews, COL application referencing the DC review or related topical report reviews).
  - Available risk insights applicable to DC application sections under review.
- The EPM pre-baseline review schedule and estimated staff-hours.

The following directions should be used by PMs and technical staff in performing the acceptance review. Table 1 should be used to document the acceptance review effort. The information in this table may be used to evaluate the acceptability of the COL application for docketing as discussed in Section 3.3.2 of the Office Instruction (OI). Each branch may choose to make entries for each review area or SRP section in Table 1. Alternatively, a branch may choose to enter information only for those technical areas that are found to be incomplete or not technically sufficient or those areas that will require changes to resource planning assumptions (+ or -).

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<sup>1</sup>Additional information on DCRA is provided in SECY-06-0019, dated January 31, 2006.

I. Completeness Review: Verify that the DC application contains all of the information required by the applicable regulations for your assigned review(s) as discussed in Section 3.3.2 of the OI.

- A. Document the review area(s)/topic(s) in Column 1 (List all review topics or only those found to be not complete, not technically sufficient, or requiring changes to planning assumptions).
- B. Determine whether the applicant has addressed the applicable regulations for the assigned review area. (see *Enclosure 7 list for 10 CFR 52.47, "Contents of applications, technical information,"*) [yes/no in Column 2].

10 CFR 52.47 identifies prescriptive requirements for the contents of a DC application. These requirements are captured in Enclosure 7. However, 52.47 also contains cross-cutting requirements. For the following cross-cutting requirements, determine if any apply to your review section(s). For those in your review area, determine if the applicant addressed the proper items. The applicant's compliance with these requirements should be provided in Chapter 1 of the FSAR:

1. Three Mile Island (TMI) requirements [10 CFR 52.47(a)(8)];
2. Proposed technical resolutions of unresolved safety issues and medium-and high-priority generic safety issues [10 CFR 52.47(a)(21)];
3. Introduction of new safety features [10 CFR 52.47(c)(2)];
4. Operating experience insights incorporated into the plant design [10 CFR 52.47(a)(22)];
5. Conformance with SRP [10 CFR 52.47(a)(9)]; and
6. A description and analysis of design features for the prevention and mitigation of severe accidents [10 CFR 52.47(a)(23)].

Additional cross-cutting issues specifically related to a DC application include:

The DC applicant 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 ITAAC [52.47(a)(24), (25), and (26)].

The DC applicant should also address applicable licensing and policy issues developed by the U.S. Nuclear Regulatory Commission (NRC) and documented in SECY-93-087, dated April 2, 1993 (ADAMS Accession No. ML083370250) and the associated SRM for advanced and evolutionary light-water reactor designs [per guidance provided in SRP Chapter 1].

For each review area/topic not addressed, summarize deficiency in Column 5, and promptly notify management of the projects branch.

II. Technical Sufficiency Review: Identify significant technical deficiencies in the DC application associated with your assigned review using the attached table and the

following guidelines. The information contained in the various parts of the DC application that are discussed above in the Background Information should also be considered. A technical deficiency is defined as missing, improper, inadequate, or incorrect technical information needed by the NRC staff to conduct the assigned review. A significant technical deficiency is missing information that results in the staff being unable to conduct its review of the application against the acceptance criteria in the SRP or conduct its review within a predictable timeframe. If a significant technical deficiency is identified, the application should not be docketed unless it is able to be addressed through RSIs. Minor technical deficiencies, by contrast should be able to be addressed with a reasonable round of RAIs and without notably impacting the length of the review (i.e., the applicant indicated that the information is available, but was not included as part of the application).

Additional consideration should be given to any review areas/topics contained in the Safety Analysis Report Acceptance Review List that could require more extensive review time than is reflected in the EPM pre-baseline review schedule.

As noted in Section 3.3.2 of the OI, risk insights may be available during the acceptance review. If so, these insights should be used to help determine the scope of the technical sufficiency review. If a review area/topic is associated with to a risk-significant SSC, indicate a yes in Column 6, in the attached table.

For the determined scope of technical sufficiency review:

- A. Document additional review areas/topics in Column 1, as needed
- B. Determine whether the DC application section(s) is(are) sufficient to conduct the detailed technical review for the review areas/topics identified in Column 1 [yes/no in Column 3]
- C. Determine whether the review areas/topics identified in Column 1 can be resolved through the RAI process. Discuss with management whether to categorize the deficiency as "significant." [yes/no in Column 4]
- D. Document the technical deficiency(ies) that could prevent you from conducting your detailed technical review in Column 5. Describe the basis(es) for the deficiencies. These review area/topics may involve a significant amount of time to address (e.g., development of computer codes or first-of-a-kind testing), so estimate how this could impact the overall review schedule for your DC application section.
- E. Notify the Lead PM of significant deficiencies as soon as they are identified.
- F. Determine whether the identified technical deficiency is related to a risk-significant SSC [yes/no in Column 6].

### III. Changes to Planning Assumptions:

Augmenting Planned Resources (Staff-Hours):

Re-evaluate the total review time that will be needed to conduct a review based on the significant technical deficiencies or new, unplanned review items documented in the Table 1. The acceptance review allows the reviewer to identify potential changes from the EPM pre-baseline review schedule and estimated staff-hours so that the Portfolio Manager can develop an application-specific baseline review schedule and adjust the

staff-hours. The following characteristics of a DC application may require additional review time:

- A. Inclusion or reference to new safety features;
- B. Alternative approaches to SRP acceptance criteria (including alternatives to regulatory guides);
- C. Other miscellaneous review topics that have not been adequately represented within the baseline model.

Next, determine whether the review effort is reflected within the pre-baseline model (e.g., the estimated staff-hours are sufficient to perform the review of the alternative to an SRP acceptance criteria?) [yes/no in Column 7]. For each “no” in table, identify the change to the EPM staff-hour planning assumptions and provide a basis (e.g., “departure not addressed in pre-baseline review schedule”) in Column 8. Identify the projected review time in staff-hours needed to address all of the applicable items above for your DC application section.

Reducing or Eliminating Planned Resources (Staff-Hours):

For some SRP sections, the applicant may have incorporated by reference a technical report that has previously been approved by staff. This could allow for a reduction in the level of effort for a particular review area as it would relate to ensuring applicability of the technical report and the balance of information within the scope of the review. The responsible branch then needs to determine how much to reduce the pre-baseline model and answer “no” for Column 7 in Table 1. For each “no” in the table, identify the change to the EPM staff-hour planning assumptions and provide a basis (e.g., “limited review not reflected in pre-baseline review schedule”) in Column 8. Identify the projected review time in staff-hours needed to address all of the applicable items above for your DC application section.

Review the pre-populated EPM baseline review schedule provided by Planning and Scheduling and notify the branch chief and Lead PM if schedule changes are needed.

- IV. Identification of Dependencies between Concurrent Reviews: Identify any known dependencies between concurrent reviews. These dependencies could be between a DC review and a concurrent COL review (e.g., EPR DCD review concurrent with the EPR RCOL review), or there could be dependencies between reference COLs and subsequent COLs. These dependencies could potentially result in changes to planning assumptions. For example, the staff-hours associated with the review of a topical or technical report may be captured separate from the baseline review schedule. Those hours should not be double counted in related reviews. However, this does not change the duration of the task.

- A. Identify and document review dependencies in Table 1(Columns 10 and 11).

**Table 1: Safety Analysis Report Acceptance Review Results for [Applicant Name] [Design Center Name] [Application Type]<sup>2</sup>**

SAR Section: \_\_\_\_\_ Technical Branch: \_\_\_\_\_ (Primary/Secondary) Technical Reviewer: \_\_\_\_\_  
 Branch Chief: \_\_\_\_\_ SRP Section: \_\_\_\_\_ Date: \_\_\_\_\_

Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? Yes/No, Identify specific review area/topic in table below.

1. Review Area/Topic*	Completeness and Technical Sufficiency Which Form Basis for Acceptability for Docketing			Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule		Review Dependencies Among Concurrent Reviews				
	2. Does DCA section address the items required by regulation (refer to Enclosure 7)? (Yes/No)	3. Is DC section technically sufficient for this review area/ topic? (yes/no)**	4. Can the technical deficiency be resolved through the RSI or RAI process within a predictable timeframe? (yes/no)***	5. If no, for either completeness or technical sufficiency, identify deficiency(ies). This information will be needed for technical review.	6. Is the identified technical deficiency related to a risk-significant SSC)? (yes/no)****	7. Are the pre-baseline review schedule and estimated staff-hours appropriate? (yes/no)	8. For each no, identify the change (+ or -) or basis for change.	9. Identify the total review time in staff-hours*****	10. Can the review of the area/topic be completed without the completion of a concurrent review? (yes/no)	11. For each no, identify which application (DCD or COLA) and section.

\*Review Area/Topic: Item identified in RG 1.206, SRP or the regulations.

\*\*Technical Sufficiency: The application is compared against the SRP acceptance criteria. Note: New safety features, alternate regulatory compliance approaches, should not be treated as deficiencies and factored into the basis for rejecting the application, unless staff determines that there is insufficient technical information associated with the respective item. These items are factored into confirmation of planning assumptions.

\*\*\*Significant deficiencies are those review area/topic which impact the staff's ability to conduct the detailed technical review or complete its review within a predictable timeframe.

\*\*\*\* Division of Safety Systems & Risk Assessment will provide risk significance information at time of review, if available.

\*\*\*\*\*Identification of new review time is on a FSAR section basis and consistent with the review phases within the EPM. Changes from the pre-baseline review schedule and estimated hours should be on that basis.

<sup>2</sup> **NOTE: Branches may use this form to make entries for all review area/topics; or alternatively, to make entries only for those areas that have issues with completeness, sufficiency, or those that require changes (+ or -) to baseline estimated staff-hours.**

## **ENCLOSURE 7**

Design Certification Application Acceptance Review Checklist

The DC application must include the following technical information required by 10 CFR 52.47:

Item	Information Required in DC Application 10 CFR 52.47(a)	DCD Section	Yes	No
1	The site parameters postulated for the design, and an analysis and evaluation of the design in terms of those site parameters	Ch. 2		
2	A description and analysis of the structures, systems, and components (SSCs) of the facility, with emphasis upon performance requirements, the bases, with technical justification therefore, upon which these requirements have been established, and the evaluations required to show that safety functions will be accomplished.	System-related chaps. and/or Ch. 15		
It is expected that the standard plant will reflect through its design, construction, and operation an extremely low probability for accidents that could result in the release of significant quantities of radioactive fission products. The description shall be sufficient to permit understanding of the system designs and their relationship to the safety evaluations. Such items as the [ ] shall be discussed insofar as they are pertinent:				
• Reactor Core		Ch. 4		
• RCS		Ch. 5		
• I&C Systems		Ch. 7		
• Electrical Systems		Ch. 8		
• Containment Systems		Sec. 6.2		
• Other engineered safety features		Ch. 6		
• Auxiliary Systems		Ch. 9		
• Emergency Systems		Ch. 6		
• Power Conversion Systems		Ch.10		
• Radioactive Waste Handling Systems		Ch. 11		
• Fuel Handling Systems		Sec 9.1		
The following power reactor design characteristics will be taken into consideration by the Commission:				
i) Intended use of the reactor including the proposed maximum power level and the nature and inventory of contained radioactive materials;		Ch. 1, 11, and 12		
ii) The extent to which generally accepted engineering standards are applied to the design of the reactor;		Ch. 3		
iii) The extent to which the reactor incorporates unique, unusual or enhanced safety features having a significant bearing on the probability or consequences of accidental release of radioactive materials;		Ch. 1		

Item	Information Required in DC Application 10 CFR 52.47(a)	DCD Section	Yes	No
	<p>iv) The safety features that are to be engineered into the facility and those barriers that must be breached as a result of an accident before a release of radioactive material to the environment can occur. Special attention must be directed to plant design features intended to mitigate the radiological consequences of accidents. In performing this assessment, an applicant shall assume a fission product release<sup>3</sup> from the core into the containment assuming that the facility is operated at the ultimate power level contemplated. The applicant shall perform an evaluation and analysis of the postulated fission product release, using the expected demonstrable containment leak rate and any fission product cleanup systems intended to mitigate the consequences of the accidents, together with applicable postulated site parameters, including site meteorology, to evaluate the offsite radiological consequences. The evaluation must determine that; (A) An individual located at any point on the boundary of the exclusion area for any 2-hour period following the onset of the postulated fission product release, would not receive a radiation dose in excess of 25 rem<sup>4</sup> total effective dose equivalent (TEDE); (B) An individual located at any point on the outer boundary of the low population zone, who is exposed to the radioactive cloud resulting from the postulated fission product release (during the entire period of its passage) would not receive a radiation dose in excess of 25 rem TEDE;</p> <p><sup>3</sup> The fission product release assumed for this evaluation should be based upon a major accident, hypothesized for purposes of site analysis or postulated from considerations of possible accidental events. These accidents have generally been assumed to result in substantial meltdown of the core with subsequent release into the containment of appreciable quantities of fission products.</p> <p><sup>4</sup> A whole body dose of 25 rem has been stated to correspond numerically to the once in a lifetime accidental or emergency dose for radiation workers which, according to NCRP recommendations at the time could be disregarded in the determination of their radiation exposure status (see NBS Handbook 69 dated June 5, 1959). However, its use is not intended to imply that this number constitutes an acceptable limit for an emergency dose to the public under accident conditions. This dose value has been set forth in this section as a reference value, which can be used in the evaluation of plant design features with respect to postulated reactor accidents, to assure that these designs provide assurance of low risk of public exposure to radiation, in the event of an accident.</p>	Ch. 6		
3	The application contains the design of the facility, including:			
	i) the principle design criteria for the facility [see Enclosure 1 to this appendix for a tabulated list of Appendix A to 10 CFR Part 50] establishes minimum requirements for the principal design criteria for water-cooled nuclear power plants similar in design and location to plants for which construction permits have previously been issued by the Commission and provides guidance to applicants in establishing principal design criteria for other types of nuclear power units	Sec. 3.1		
	ii) the design bases and their relation to the principal design criteria	Chps. 2–12 and 15		

Item	Information Required in DC Application 10 CFR 52.47(a)	DCD Section	Yes	No
	iii) information relative to materials of construction, arrangement, and dimensions, sufficient to provide reasonable assurance that the design will conform to the design bases with adequate margin for safety	Chps. 3–12		
4	An analysis and evaluation of the design and performance of structures, systems, and components with the objective of assessing the risk to public health and safety resulting from operation of the facility and including determination of the margins of safety during normal operations and transient conditions anticipated during the life of the facility, and the adequacy of structures, systems, and components provided for the prevention of accidents and the mitigation of the consequences of accidents.	Chps. 3–12 and 15		
5	Analysis and evaluation of emergency core cooling system (ECCS) cooling performance and the need for high-point vents following postulated loss-of-coolant accidents shall be performed in accordance with the requirements of §§ 50.46 and 50.46a of this chapter.	Secs. 5.4.12, 6.2, and 6.3		
6	The kinds and quantities of radioactive materials expected to be produced in the operation and the means for controlling and limiting radioactive effluents and radiation exposures within the limits set forth in part 20 of this chapter.	Chps. 11 and 12		
7	The information required by 10 CFR 20.1406	Chps. 11 and 12		
8	The technical qualifications of the applicant to engage in the proposed activities in accordance with the regulations in this chapter;	Sec. 1.4		
9	The information necessary to demonstrate compliance with any technically relevant portions of the Three Mile Island requirements set forth in 10 CFR 50.34(f), except paragraphs (f)(1)(xii), (f)(2)(ix), and (f)(3)(v); [see Enclosure 2 to this appendix for §50.34(f) requirements checklist]	Sec. 1.9, Ch. 19		
10	For applications for light-water cooled nuclear power plants, an evaluation of the standard plant design against the Standard Review Plan (SRP) revision in effect 6 months before the docket date of the application. The evaluation required by this section shall include an identification and description of all differences in design features, analytical techniques, and procedural measures proposed for the design and those corresponding features, techniques, and measures given in the SRP acceptance criteria. Where a difference exists, the evaluation shall 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. The SRP is not a substitute for the regulations, and compliance is not a requirement.	Sec. 1.9**		
11	The information with respect to the design of equipment to maintain control over radioactive materials in gaseous and liquid effluents produced during normal reactor operations described in 10 CFR 50.34a(e);	Ch. 11		

Item	Information Required in DC Application 10 CFR 52.47(a)	DCD Section	Yes	No
12	Proposed TS prepared in accordance with the requirements of 10 CFR 50.36 and 10 CFR 50.36a	Chps. 16 & 11		
13	An analysis and description of the equipment and systems for combustible gas control as required by 10 CFR 50.44;	Sec. 6.2.5		
14	The list of electric equipment important to safety that is required by 10 CFR 50.49(d);	Sec. 3.11, Ch. 8		
15	A description of protection provided against pressurized thermal shock events, including projected values of the reference temperature for reactor vessel beltline materials as defined in 10 CFR 50.60 and 50.61;	Sec. 5.3.2		
16	Information demonstrating how the applicant will comply with requirements for reduction of risk from anticipated transients without scram events in § 50.62;	Secs. 4.2 and 15.8		
17	A coping analysis, and any design features necessary to address station blackout, as required by 10 CFR 50.63	Sec. 8.4		
18	Information demonstrating how the applicant will comply with requirements for criticality accidents in § 50.68(b)(2)–(b)(4);	Sec. 9.1		
19	A description and analysis of the fire protection design features for the standard plant necessary to comply with 10 CFR part 50, appendix A, GDC 3, and § 50.48 of this chapter;	Sec. 9.5		
20	A description of the quality assurance program applied to the design of the structures, systems, and components of the facility. Appendix B to 10 CFR Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," sets forth the requirements for quality assurance programs for nuclear power plants. The description of the quality assurance program for a nuclear power plant shall include a discussion of how the applicable requirements of appendix B to 10 CFR part 50 were satisfied;	Ch. 17		
21	The information necessary to demonstrate that the standard plant complies with the earthquake engineering criteria in 10 CFR part 50, appendix S;	Sec. 3.7		
22	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 docket date of the application and which are technically relevant to the design;	Sec. 1.9		
23	The information necessary to demonstrate how operating experience insights have been incorporated into the plant design;	Sec. 1.9**		
24	For light-water reactor designs, a description and analysis of design features for the prevention and mitigation of severe accidents, (e.g., challenges to containment integrity caused by core-concrete interaction, steam explosion, high-pressure core melt ejection, hydrogen combustion, and containment bypass);	Ch. 19		

Item	Information Required in DC Application 10 CFR 52.47(a)	DCD Section	Yes	No
25	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 this section;	As applicable		
26	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;	As applicable		
27	Justification that compliance with the interface requirements of paragraph (a)(25) of this section 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)(1) of this section;	As applicable		
28	A description of the design-specific probabilistic risk assessment (PRA) and its results.	Ch. 19		

Item	Information Required in DC Application 10 CFR 52.47(b)	DCD Section	Yes	No
1	The proposed inspections, tests, analyses, and acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, a facility that incorporates the design certification has been constructed and will be operated in conformity with the design certification, the provisions of the Act, and the Commission's rules and regulations;	Sec. 14.3		
2	An environmental report as required by 10 CFR 51.55.	Ch. 19		

Item	Information Required in DC Application 10 CFR 52.47(c), as applicable to particular applications:	DCD Section	Yes	No
1	An application for certification of a nuclear power reactor design that is an evolutionary change from light-water reactor designs of plants that have been licensed and in commercial operation before April 18, 1989, must provide an essentially complete nuclear power plant design except for site-specific elements such as the service water intake structure and the ultimate heat sink;			
2	An application for certification of a nuclear power reactor design that differs significantly from the light-water reactor designs described in paragraph (c)(1) of this section or uses simplified, inherent, passive, or other innovative means to accomplish its safety functions must provide an essentially complete nuclear power reactor design except for site-specific elements such as the service water intake structure and the ultimate heat sink, and must meet the requirements of 10 CFR 50.43(e);	Ch. 1		
3	An application for certification of a modular nuclear power reactor design must describe and analyze the possible operating configurations of the reactor modules with common systems, interface requirements, and system interactions. The final safety analysis must also account for differences among the configurations, including any restrictions that will be necessary during the construction and startup of a given module to ensure the safe operation of any module already operating.			

### **Administrative Requirements**

The DC application meets the following administrative requirements:

<b>Item</b>	<b>Requirements</b>	<b>Yes</b>	<b>No</b>
52.45	The application must comply with the applicable filing requirements of §§ 52.3 and §§ 2.811 through 2.819 of this chapter.		
52.46	The application must contain all of the information required by 10 CFR 50.33(a) through (c) and (j).		
50.33	(a) Name of applicant		
50.33	(b) Address of applicant		
50.33	(c) Description of business or occupation of applicant		
50.33	(j) If the application contains Restricted Data or other defense information, it shall be prepared in such manner that all Restricted Data and other defense information are separated from the unclassified information.		

**10 CFR 50.34(f), “Additional TMI-Related Requirements” Checklist**

The application contains the information with respect to compliance with technically relevant positions of the TMI requirements in 10 CFR 50.34(f), with the exception of the combustible gas control requirements of §50.34(f)(1)(xii), (f)(2)(ix), and (f)(3)(v), which have been superceded by 10 CFR 50.44.

50.34(f) Item	Requirement	Action Plan Item*	N/A	Yes	No
(1) To satisfy the following requirements, the application shall provide sufficient information to describe the nature of the studies, how they are to be conducted, estimated submittal dates, and a program to ensure that the results of these studies are factored into the final design of the facility. For licensees identified in the introduction to paragraph (f) of this section, all studies shall be completed no later than 2 years following issuance of the construction permit or manufacturing license. For all other applicants, the studies must be submitted as part of the FSAR.					
(1)(i)	Perform a plant/site-specific PRA, the aim of which is to seek such improvements in the reliability of core and containment heat removal systems as are significant and practical and do not impact excessively on the plant.	II.B.8			
(1)(ii)	Perform an evaluation of the proposed auxiliary feedwater system (AFWS), to include (PWRs only):	II.E.1.1			
	(A) A simplified AFWS reliability analysis using event tree and fault-tree logic techniques				
	(B) A design review of AFWS				
(C) An evaluation of AFWS flow design bases and criteria					
(1)(iii)	Perform an evaluation of the potential for and impact of reactor coolant pump seal damage following small-break LOCA with LOOP. If damage cannot be precluded, provide an analysis of the limiting small-break LOCA with subsequent reactor coolant pump seal damage.	II.K.2.16 and II.K.3.25			
(1)(iv)	Perform an analysis of the probability of a small-break LOCA caused by a stuck-open power-operated relief valve (PORV). If this probability is a significant contributor to the probability of small-break LOCAs from all causes, provide a description and evaluation of the effect on small-break LOCA probability of an automatic PORV isolation system that would operate when the RCS pressure falls after the PORV has opened. (PWRs only)	II.K.3.2			

\* Alphanumeric designations corresponding to related action plan items in NUREG-0718 and NUREG-0660, are provided herein for information only.

50.34(f) Item	Requirement	Action Plan Item*	N/A	Yes	No
(1)(v)	Perform an evaluation of the safety effectiveness of providing for separation of high-pressure coolant injection (HPCI) and RCIC system initiation levels so that the RCIC system initiates at a higher water level than the HPCI system, and of providing that both systems restart on low water level. (For plants with high-pressure core spray [HPCS] systems in lieu of HPCI systems, substitute the words, "high-pressure core spray" for "high-pressure coolant injection" and "HPCS" for "HPCI.") (BWRs only)	II.K.3.13			
(1)(vi)	Perform a study to identify practicable system modifications that would reduce challenges and failures of relief valves, without compromising the performance of the valves or other systems. (BWRs only)	II.K.3.16			
(1)(vii)	Perform a feasibility and risk assessment study to determine the optimum automatic depressurization system (ADS) design modifications that would eliminate the need for manual activation to ensure adequate core cooling. (BWRs only)	II.K.3.18			
(1)(viii)	Perform a study of the effect on all core-cooling modes under accident conditions of designing the core spray and low-pressure coolant injection systems to ensure that the systems will automatically restart on loss of water level, after having been manually stopped, if an initiation signal is still present. (BWRs only)	II.K.3.21			
(1)(ix)	Perform a study to determine the need for additional space cooling to ensure reliable long-term operation of the RCIC and HPCI systems, following a complete LOOP to the plant for at least 2 hours. (For plants with high-pressure core spray [HPCS] systems in lieu of high-pressure coolant injection systems, substitute the words, "high-pressure core spray" for "high-pressure coolant injection" and "HPCS" for "HPCI.") (BWRs only)	II.K.3.24			
(1)(x)	Perform a study to ensure that the automatic depressurization system, valves, accumulators, and associated equipment and instrumentation will be capable of performing their intended functions during and following an accident situation, taking no credit for non-safety related equipment or instrumentation, and accounting for normal expected air (or nitrogen) leakage through valves. (BWRs only)	II.K.3.28			
(1)(xi)	Provide an evaluation of depressurization methods, other than by full actuation of the automatic depressurization system, that would reduce the possibility of exceeding vessel integrity limits during rapid cooldown. (BWRs only)	II.K.3.45			

\* Alphanumeric designations corresponding to related action plan items in NUREG-0718 and NUREG-0660, are provided herein for information only.

50.34(f) Item	Requirement	Action Plan Item*	N/A	Yes	No
(2) To satisfy the following requirements, the application shall provide sufficient information to demonstrate that the required actions will be satisfactorily completed by the operating license stage. This information is of the type customarily required to satisfy 10 CFR 50.35(a)(2) or to address unresolved GSI.					
(2)(i)	Provide a simulator capability that correctly models the control room and includes the capability to simulate small-break LOCAs. (Applicable to construction permit applicants only)	I.A.4.2			
(2)(ii)	Establish a program, to begin during construction and follow into operation, for integrating and expanding current efforts to improve plant procedures. The scope of the program shall include emergency procedures, reliability analyses, human factors engineering, crisis management, operator training, and coordination with (the Institute of Nuclear Power Operations) and other industry efforts. (Applicable to construction permit applicants only)	I.C.9			
(2)(iii)	Provide, for Commission review, a control room design that reflects state-of-the-art human factors principles prior to committing to fabrication or revision of fabricated control room panels and layouts.	I.D.1			
(2)(iv)	Provide a plant safety parameter display console that will display to operators a minimum set of parameters defining the safety status of the plant, capable of displaying a full range of important plant parameters and data trends on demand, and capable of indicating when process limits are being approached or exceeded.	I.D.2			
(2)(v)	Provide for automatic indication of the bypassed and operable status of safety systems.	I.D.3			
(2)(vi)	Provide the capability of high-point venting of noncondensable gases from the RCS, and other systems that may be required to maintain adequate core cooling. Systems to achieve this capability shall be capable of being operated from the control room, and their operation shall not lead to an unacceptable increase in the probability of LOCA or an unacceptable challenge to containment integrity.	II.B.1			

\* Alphanumeric designations corresponding to related action plan items in NUREG-0718 and NUREG-0660, are provided herein for information only.

50.34(f) Item	Requirement	Action Plan Item*	N/A	Yes	No
(2)(vii)	<p>Perform radiation and shielding design reviews of spaces around systems that may, as a result of an accident, contain accident source term<sup>11</sup> radioactive materials, and design as necessary to permit adequate access to important areas and to protect safety equipment from the radiation environment.</p> <p><sup>11</sup> Footnote 11 in 10 CFR 50.34(f) reads as follows: "The fission product release assumed for these calculations should be based upon a major accident, hypothesized for purposes of site analysis or postulated from considerations of possible accidental events, that would result in potential hazards not exceeded by those considered credible. Such accidents have generally been assumed to result in substantial meltdown of the core with subsequent release of appreciable quantities of fission products."</p>	II.B.2			
(2)(viii)	<p>Provide a capability to promptly obtain and analyze samples from the RCS and containment that may contain accident source term<sup>11</sup> radioactive materials without radiation exposures to any individual exceeding 5 rems to the whole body or 50 rems to the extremities. Materials to be analyzed and quantified include certain radionuclides that are indicators of the degree of core damage (e.g., noble gases, radioiodines and cesiums, and nonvolatile isotopes), hydrogen in the containment atmosphere, dissolved gases, chloride, and boron concentrations.</p>	II.B.3			
(2)(x)	<p>Provide a test program and associated model development, and conduct tests to qualify RCS relief and safety valves and, for PWRs, PORV block valves, for all fluid conditions expected under operating conditions, transients, and accidents. Consideration of ATWS conditions shall be included in the test program. Actual testing under ATWS conditions need not be carried out until subsequent phases of the test program are developed.</p>	II.D.1			
(2)(xi)	<p>Provide direct indication of relief and safety valve position (open or closed) in the control room.</p>	II.D.3			
(2)(xii)	<p>Provide automatic and manual auxiliary feedwater (AFW) system initiation, and provide AFW system flow indication in the control room. (PWRs only)</p>	II.E.1.2			
(2)(xiii)	<p>Provide pressurizer heater power supply and associated motive and control power interfaces sufficient to establish and maintain natural circulation in hot standby conditions with only onsite power available. (PWRs only)</p>	II.E.3.1			

\* Alphanumeric designations corresponding to related action plan items in NUREG-0718 and NUREG-0660, are provided herein for information only.

50.34(f) Item	Requirement	Action Plan Item*	N/A	Yes	No
(2)(xiv)	Provide containment isolation systems that:	II.E.4.2			
	(A) Ensure all non-essential systems are isolated automatically by the containment isolation system				
	(B) For each non-essential penetration (except instrument lines) have two isolation barriers in series				
	(C) Do not result in reopening of the containment isolation valves on resetting of the isolation signal				
	(D) Utilize a containment set point pressure for initiating containment isolation as low as is compatible with normal operation				
	(E) Include automatic closing on a high radiation signal for all systems that provide a path to the environs				
(2)(xv)	Provide a capability for containment purging/venting designed to minimize the purging time consistent with as low as reasonably achievable (ALARA) principles for occupational exposure. Provide and demonstrate high assurance that the purge system will reliably isolate under accident conditions.	II.E.4.4			
(2)(xvi)	Establish a design criterion for the allowable number of actuation cycles of the ECCS and reactor protection system consistent with the expected occurrence rates of severe overcooling events (considering both anticipated transients and accidents). (B&W designs only)	II.E.5.1			
(2)(xvii)	Provide instrumentation to measure, record, and readout in the control room (A) containment pressure, (B) containment water level, (C) containment hydrogen concentration, (D) containment radiation intensity (high level), and (E) noble gas effluents at all potential, accident release points. Provide for continuous sampling of radioactive iodines and particulates in gaseous effluents from all potential accident release points, and for onsite capability to analyze and measure these samples.	II.F.1			
(2)(xviii)	Provide instruments that provide in the control room an unambiguous indication of inadequate core cooling, such as primary coolant saturation meters in PWRs, and a suitable combination of signals from indicators of coolant level in the reactor vessel and in-core thermocouples in PWRs and BWRs.	II.F.2			
(2)(xix)	Provide instrumentation adequate for monitoring plant conditions following an accident that includes core damage.	II.F.3			

\* Alphanumeric designations corresponding to related action plan items in NUREG-0718 and NUREG-0660, are provided herein for information only.

50.34(f) Item	Requirement	Action Plan Item*	N/A	Yes	No
(2)(xx)	Provide power supplies for pressurizer relief valves, block valves, and level indicators such that (A) level indicators are powered from vital buses; (B) motive and control power connections to the emergency power sources are through devices qualified in accordance with requirements applicable to systems important to safety, and (C) electric power is provided from emergency power sources. (PWRs only)	II.G.1			
(2)(xxi)	Design auxiliary heat removal systems such that necessary automatic and manual actions can be taken to ensure proper functioning when the main feedwater system is not operable. (BWRs only)	II.K.1.22			
(2)(xxii)	Perform a failure modes and effects analysis of the integrated control system (ICS) to include consideration of failures and effects of input and output signals to the ICS. (B&W designs only)	II.K.2.9			
(2)(xxiii)	Provide, as part of the reactor protection system, an anticipatory reactor trip that would be actuated on loss of main feedwater and on turbine trip. (B&W designs only)	II.K.2.10			
(2)(xxiv)	Provide the capability to record reactor vessel water level in one location on recorders that meet normal post-accident recording requirements. (BWRs only)	II.K.3.23			
(2)(xxv)	Provide an onsite Technical Support Center, an onsite Operational Support Center, and, for construction permit applications only, a near-site Emergency Operations Facility.	III.A.1.2			
(2)(xxvi)	Provide for leakage control and detection in the design of systems outside containment that contain (or might contain) accident source term <sup>11</sup> radioactive materials following an accident. Applicants shall submit a leakage control program, including an initial test program, a schedule for retesting these systems, and the actions to be taken for minimizing leakage from such systems. The goal is to minimize potential exposures to workers and the public, and to provide reasonable assurance that excessive leakage will not prevent the use of systems needed in an emergency.	III.D.1.1			
(2)(xxvii)	Provide for monitoring of in-plant radiation and airborne radioactivity as appropriate for a broad range of routine and accident conditions.	III.D.3.3			
(2)(xxviii)	Evaluate potential pathways for radioactivity and radiation that may lead to control room habitability problems under accident conditions resulting in an accident source term <sup>11</sup> release, and make necessary design provisions to preclude such problems.	III.D.3.4			

\* Alphanumeric designations corresponding to related action plan items in NUREG-0718 and NUREG-0660, are provided herein for information only.

50.34(f) Item	Requirement	Action Plan Item*	N/A	Yes	No
(3) To satisfy the following requirements, the application shall provide sufficient information to demonstrate that the requirement has been met. This information is of the type customarily required to satisfy paragraph (a)(1) of this section or to address the applicant's technical qualifications and management structure and competence.					
(3)(i)	Provide administrative procedures for evaluating operating, design, and construction experience and for ensuring that applicable important industry experiences will be provided in a timely manner to those designing and constructing the plant.	I.C.5			
(3)(ii)	Ensure that the QA list required by Criterion II in Appendix B to 10 CFR Part 50 includes all SSC important to safety.	I.F.1			
(3)(iii)	Establish a QA program based on consideration of (A) ensuring independence of the organization performing checking functions from the organization responsible for performing the functions; (B) performing QA/quality control (QC) functions at construction sites to the maximum feasible extent; (C) including QA personnel in the documented review of and concurrence in quality related procedures associated with design, construction, and installation; (D) establishing criteria for determining QA programmatic requirements; (E) establishing qualification requirements for QA and QC personnel; (F) sizing the QA staff commensurate with its duties and responsibilities; (G) establishing procedures for maintenance of "as-built" documentation; and (H) providing a QA role in design and analysis activities.	I.F.2			
(3)(iv)	Provide one or more dedicated containment penetrations, equivalent in size to a single 3-foot-diameter opening, in order not to preclude future installation of systems to prevent containment failure, such as a filtered vented containment system.	II.B.8			
(3)(vi)	For plant designs with external hydrogen recombiners, provide redundant dedicated containment penetrations so that, assuming a single failure, the recombiner systems can be connected to the containment atmosphere.	II.E.4.1			

\* Alphanumeric designations corresponding to related action plan items in NUREG-0718 and NUREG-0660, are provided herein for information only.

50.34(f) Item	Requirement	Action Plan Item*	N/A	Yes	No
(3)(vii)	Provide a description of the management plan for design and construction activities, to include: (A) the organizational and management structure singularly responsible for direction of design and construction of the proposed plant; (B) technical resources director by the applicant; (C) details of the interaction of design and construction within the applicant's organization and the manner by which the applicant will ensure close integration of the architect engineer and the nuclear steam supply vendor; (D) proposed procedures for handling the transition to operation; (E) the degree of top-level management oversight and technical control to be exercised by the applicant during design and construction, including the preparation and implementation of procedures necessary to guide the effort.	II.J.3.1			

\* Alphanumeric designations corresponding to related action plan items in NUREG-0718 and NUREG-0660, are provided herein for information only.

## **ENCLOSURE 8**

Environmental Report Acceptance Review Guide  
For a Design Certification Application

## Background Information

This Review Guide is intended to be used by the technical branches with responsibility for the Environmental Standard Review Plan (ESRP) Chapter 7, Environmental Impacts of Postulated Accidents of NUREG-1555 and Standard Review Plan (SRP) Chapter 19, Severe Accidents, of NUREG-0800 to document the results of their acceptance reviews of a design certification application's Environmental Report (ER). The results of the acceptance review will be provided to the environmental PM and planning and scheduling project managers so they can evaluate the impacts of the technical issues identified during this review on the pre-baseline schedule. The technical branch chiefs will communicate results and periodic status of the acceptance review as necessary to the environmental PM and the Lead PM branch chiefs. This review guide contains Table 1, "Environmental Report Acceptance Review Results Table," which is organized by issue area(s) within the ESRP for Sections 7.2 and 7.3 (see Appendix A, of the Environmental Review Acceptance Checklist for Early Site Permit and Combined License Applications ADAMS Accession No. ML072250354).

Prior to the acceptance review, the environmental PM and technical reviewers should be familiar with:

- The anticipated scope of the design certification (DC) application environmental review including:
  - NUREG-0800, "Standard Review Plan" (SRP), Section 19.0, Probabilistic Risk Assessment and Severe Accident evaluation for New Reactors."
  - Section 7.2, Severe Accidents, and Section 7.3, Severe Accident Mitigation Alternatives, of the ESRP, NUREG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants."
  - Appendix A, Accidents, of the environmental acceptance review checklist in ADAMS (ADAMS Accession No. ML072250354) related to severe accidents (ESRP Section 7.2) and severe accident mitigation alternatives (ESRP Section 7.3). This list is a set of sufficiency review questions based on the specific sections in NUREG-1555<sup>1</sup>.
  - Concurrent reviews (e.g., reviews with regional or generic implications).
- The Enterprise Project Management (EPM) pre-baseline review schedule and estimated staff-hours.

The following directions should be used by the technical reviewers in performing the acceptance review. Table 1 should be used to document the acceptance review effort. The information in this table may be used to evaluate the acceptability of the DC application for docketing as discussed in Section 3.3.2 of the Office Instruction (OI). Each branch may choose to make entries for each review area or ESRP section in Table 1. Alternatively, a branch may choose to enter information only for those technical areas that are found to be incomplete or technically deficient or for those areas that will require changes to resource planning assumptions.

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<sup>1</sup>The scope of the environmental review for a DC application is limited to the analysis of severe accident mitigation design alternatives

- I. **Completeness Review:** Verify that the DC application's environmental report contains all of the information required by the applicable regulations for your assigned review(s) as discussed in Section 3.3.2 of the OI.
  - A. Document the review area(s)/topic(s) in Column 1 (List all or only those found to be not complete and/or requiring changes to planning assumptions).
  - B. Determine whether the applicant has addressed the regulatory requirements for an Environmental Report for a Standard Design Certification found at 10 CFR 51.55(a), which state: (a) Each applicant for a standard design certification under subpart B of part 52 of this chapter shall submit with its application a separate document entitled, "Applicant's Environmental Report—Standard Design Certification." The environmental report must address the costs and benefits of severe accident mitigation design alternatives, and the bases for not incorporating severe accident mitigation design alternatives in the design to be certified.
  - C. For each issue area not addressed, summarize deficiency in Column 5 and promptly notify EPM and management.
  - D. Following review of the ER, the technical branch chief(s) for ESRP Sections 7.2 and 7.3, and for SRP Section 19.0 provides a memo to the Lead PM branch chief which documents any completeness deficiencies found by technical staff during the review. The environmental PM Branch Chief would concur on the technical branch memos.
  
- II. **Technical Sufficiency Review:** Identify significant technical deficiencies in the DC application's environmental report associated with your assigned review using the attached table and the following guidelines. The information contained in the various parts of the DC application's environmental report that are discussed above in the Background Information should also be considered. A technical deficiency is defined as missing, improper, inadequate, or incorrect technical information needed by the NRC staff to conduct the assigned review. A significant technical deficiency is missing information resulting in the staff being unable to conduct its review of the application against the acceptance criteria in the ESRP or complete its review within a predictable timeframe. If a significant technical deficiency is identified, the application should not be docketed unless it is able to be addressed through RSIs. Minor technical deficiencies, by contrast, should be capable of being addressed with a reasonable round of RAIs and without notably impacting the overall schedule for the DC application.

For the determined scope of technical sufficiency review:

- A. Document additional issue areas in Column 1, as needed.
- B. Determine whether the DC application's environmental report section(s) is(are) sufficient to conduct the detailed technical review for the issue areas identified in Column 1. [yes/no in Column 3]

- C. Determine whether the issue areas identified in Column 1 can be resolved through the RAI process. Discuss with management whether to categorize the deficiency as “significant.” [yes/no in Column 4]
  - D. Document the technical deficiency(ies) that could prevent you from conducting your detailed technical review in Column 5. Describe the basis(es) for the deficiencies. These review area/topics may involve a significant amount of time to address (e.g., development of computer codes or first-of-a-kind testing) and estimate how this could impact the overall review schedule for your DC application section.
  - E. Notify the environmental and Lead PM of significant deficiencies as soon as they are identified.
  - F. Following review of the ER, the technical branch chief(s) for ESRP Sections 7.2 and 7.3, and for SRP Section 19.0, provides a memo to the Lead PM branch chief which documents any technical sufficiency deficiencies found by technical staff during the review. The environmental PM Branch Chief would concur on the technical branch memos.
- III. Changes to Planning Assumptions: Re-evaluate the total review time that will be needed to conduct a technical review based on the significant technical deficiencies documented in the Table 1. The acceptance review allows the reviewer to identify potential changes from the EPM pre-baseline review schedule and estimated staff-hours so that the Portfolio Manager can develop an application-specific baseline review schedule and adjust the resource demands.
- After completing Table 1, the technical staff and environmental PM review the pre-populated EPM baseline review schedule provided by the Planning Optimization Branch and notify the appropriate branch chiefs if schedule changes are needed. The environmental PM should discuss the changes with the technical branch chief and Lead PM.
- IV. Identification of Dependencies between Concurrent Reviews: Identify any known dependencies between concurrent reviews. These dependencies include regional or generic implications, or other environmental assessments at the same site. These dependencies could potentially result in changes to planning assumptions. Those hours should not be double counted in related reviews. However, this does not change the duration of the task.
- A. Identify and document review dependencies in Table 1 (Columns 10 and 11).

**Table 1: Environmental Report Acceptance Review Results for [Applicant Name] [Design Center Name] Design Certification**

Issue Area: \_\_\_\_\_ Technical Branch: (Primary/Secondary): \_\_\_\_\_ Technical Reviewer(s): \_\_\_\_\_ Date: \_\_\_\_\_  
 Branch Chief \_\_\_\_\_

Does the issue area address the applicable regulations: Yes/No  
 Are there any technical deficiencies, changes in planning assumptions, or dependencies on concurrent reviews? Yes/No, Identify specific review area/topic in table below.

1. Issue Area/Topic*	Completeness and Technical Sufficiency Which Form Basis for Acceptability for Docketing			Changes to Planning Assumptions to be Considered in Development of Baseline Review Schedule		Review Dependencies Among Concurrent Reviews			
	2. Does the ER address the items required by regulation (refer to 10 CFR 51.55 ? (Yes/No)	3. Is ER issue area technically sufficient for this review area/topic? (yes/no)**	4. Can the technical deficiency be resolved through the RAI process? (yes/no)**	5. If no, for either completeness or technical sufficiency, identify deficiency(ies). This information will be needed for technical review.	7. Are the pre-baseline review schedule and estimated staff-hours appropriate for the issue area? (yes/no)	8. For each no, identify the change (or basis for change).	9. Identify the total review time in staff-hours***	10. Can the review of the issue area be completed without the completion of a concurrent review? (yes/no)	11. For each no, identify which issue area section.

\*Issue Area/Topic: Item identified in 10 CFR 52.47(b)(2).  
 \*\*Technical Sufficiency: The application is compared against SRP 19.0 and the ESRP acceptance criteria of ESRP Sections 7.2 and 7.3 of the Environmental Acceptance Review Checklist for Early Site Permit and Combined License Applications (see ADAMS Accession No. ML072250354)  
 \*\*\*Identification of new review time is on an issue area section and consistent with the review phases within the EPM. Changes from the pre-baseline review schedule and estimated hours should be on that basis.