NEI 08-01 [Revision 4 – DRAFT ~~E~~F]

Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52

~~February~~ May 2010

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Nuclear Energy Institute

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Nuclear Energy Institute, 1776 I Street N. W., Suite 400, Washington D.C. (202.739.8000)

ACKNOWLEDGEMENTS

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NOTICE

EXECUTIVE SUMMARY

NEI 08-01, *Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52*, Revision 4, provides generic guidance for the inspections, tests, analyses and acceptance criteria (ITAAC) program for new nuclear plants licensed under 10 CFR Part 52. The document reflects the discussions at Nuclear Regulatory Commission (NRC) public workshops during 2007-010 concerning the development of the NRC's construction inspection program for new plants.

ITAAC closure guidance contained in Revision 3 of NEI 08-01 was endorsed by the NRC in Regulatory Guide 1.215, *Guidance for ITAAC Closure Under 10 CFR Part 52*. Revision 4 of NEI 08-01 includes guidance on maintaining the validity of ITAAC conclusions following submittal of ITAAC closure letters in support of the final ITAAC finding required by 10 CFR 52.103(g) that all ITAAC are met. NRC endorsement of NEI 08-01, Revision 4, is expected in 2010 following review by the NRC and opportunity for public comment~~,~~.

A main objective of this guideline is to provide all stakeholders a common framework and understanding of the Part 52 ITAAC closure and maintenance process.

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ITAAC CLOSURE PROCESS

1 INTRODUCTION

This guideline documents an approach that Combined License (COL) holders may use to satisfy NRC regulatory requirements under 10 CFR 52.99 related to the completion and closure of Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) for new nuclear power plants. Some activities relating to ITAAC may be conducted before the COL is granted. Therefore, portions of the guidance in this document would apply both to COL applicants performing construction-related activities and to COL holders ("licensees") performing construction-related activities.

This guidance has been developed based on a series of public workshops at which NRC Staff and industry representatives have discussed implementation of the ITAAC inspection and closure process for plants licensed and built under 10 CFR Part 52. In 2009, the NRC endorsed ITAAC closure guidance contained in Revision 3 of NEI 08-01 in Regulatory Guide 1.215.

1.1 PURPOSE AND SCOPE

The purpose of this guidance is to provide a logical, consistent, and workable framework for ITAAC closure and maintenance that will maximize the efficiency of this process while ensuring that NRC requirements are fully met. A description of the purpose of ITAAC is provided below to provide context for this guidance.

The role of ITAAC in the new-plant licensing process is established by the Atomic Energy Act of 1954, as amended (AEA). AEA Section 185.b., 42 U.S. C. § 2235, provides that:

> *After holding a public hearing under Section 189a.(1)(A), the Commission shall issue to the applicant a combined construction and operating license if the application contains sufficient information to support the issuance of a combined license and the Commission determines that there is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of this Act, and the Commission's rules and regulations. The Commission shall identify within the combined license the inspections, tests, and analyses, including those applicable to emergency planning, that the licensee shall perform, and the acceptance criteria that, if met, are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will be operated in conformity with the license, the provisions of this Act, and the Commission's rules and regulations. Following issuance of the combined license, the Commission shall ensure that the prescribed inspections, tests, and analyses are performed and, prior to operation of the facility, shall find that the prescribed acceptance criteria are met. Any finding made under this subsection shall not require a hearing except as provided in section 189a.(1)(B). and NOTE. [footnote omitted].*

NRC regulations implement the AEA's provisions. In particular, the Commission findings that must be made in connection with the issuance of a COL are set forth in 10 CFR 52.97. The Commission will identify within the COL the inspections, tests and analyses that the licensee shall perform, and the acceptance criteria that, if met, "are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will be operated in conformity with" the license, the AEA, and NRC regulations. 10 CFR 52.97(b). The licensee verifies that the plant has been built according to the COL, the Atomic Energy Act and the Commission's regulations by performing ITAAC that are part of the COL.

The acceptance criteria of the ITAAC are carefully selected during the design certification and licensing process to ensure that their completion by the licensee will provide reasonable assurance that the plant will operate safely as designed. ITAAC, in turn, verify that specific acceptance criteria are met prior to fuel load. Additional, non-ITAAC NRC inspection activities will be performed to verify that operational programs, start-up testing, training, quality assurance, corrective action, and other important aspects of plant construction and operation are in accordance with licensee commitments, license conditions, and applicable regulations for plant construction and operation.

This document provides guidance on the major aspects of the ITAAC closure process, including:

- Summary of the Part 52 ITAAC process
- Schedule considerations for ITAAC-related activities
- Licensee process for review and preparation of ITAAC closure letters
- Guidance for ITAAC closure letter content
- Guidance for the 225-day notifications regarding uncompleted ITAAC
- Special Topics, including post-completion maintenance of ITAAC conclusions and thresholds for submittal of Supplemental ITAAC Closure Letters

2 DEFINITIONS[1]

225-Day Notification Letter is the letter the licensee sends, by the date 225-days before the scheduled date for initial loading of fuel, notifying the NRC that the prescribed inspections, tests, or analyses for all uncompleted ITAAC will be performed and that the prescribed acceptance criteria will be met prior to operation.

Acceptance criteria refers to the performance, physical condition, or analysis result for a structure, system, or component (SSC) or program, which demonstrates that the design requirement/commitment is met.

All ITAAC Complete Letter is the letter the licensee sends to notify the NRC that all inspections, tests, and analyses have been performed; all acceptance criteria have been met; and all ITAAC conclusions are being maintained.

Analysis means a calculation, mathematical computation, or engineering/technical evaluation.

As-built means the physical properties of a structure, system, or component following the completion of its installation or construction activities at its final location at the plant site. In cases where it is technically justifiable, determination of physical properties of the as-built structure, system, or component may be based on measurements, inspections, or tests that occur prior to installation, provided that subsequent fabrication, handling, installation, and testing do not alter the properties.

Combined License ("COL") means a combined construction permit and operating license with conditions for a nuclear power facility, issued under 10 CFR Part 52. See 10 CFR 52.1(a).

Condition means the existence, occurrence or observation of a situation that requires further review, evaluation or action for resolution. [NEI 08-02]

Design Acceptance Criteria (*DAC*) are a set of prescribed limits, parameters, procedures, and attributes upon which the NRC relies, in a limited number of technical areas, in making a final safety determination to support a design certification. See SECY-92-053, page 3.

Determination R~~r~~eport is a narrative provided in the ITAAC completion package describing how the licensee determined that the ITAAC acceptance criteria have been met. This report will be summarized in the ITAAC closure letter.

Inspect or inspection means visual observations, physical examinations, or review of records based on visual observation or physical examination that compare the SSC

[1] These definitions are intended to apply only within the context of this guidance document, and are not meant to replace or modify existing definitions in NRC regulations. In cases where a term's definition in a final design certification document (DCD) does not match the definition provided in this guidance document, licensees should utilize the DCD definition applicable to their chosen design, as required.

condition to one or more design commitments. Examples include walkdowns, configuration checks, measurements of dimensions, or non-destructive examinations (NDEs).

ITAAC Closure comprises the NRC staff activities to determine the inspections, tests, and analyses are successfully completed and the acceptance criteria are met for each ITAAC.

ITAAC Closure Letter (also known as ITAAC completion notification) is the letter the licensee sends to notify the NRC that an ITAAC is complete in accordance with 10 CFR 52.99(c)(1).

ITAAC Completion Package refers to the information and records documenting the work performed to complete an ITAAC. Once completed, the ITAAC completion package will be available for NRC inspection at the plant site.

ITAAC Completion comprises the licensee activities to perform the inspections, tests and analyses and meet the prescribed acceptance criteria for each ITAAC, including documentation.

~~*ITAAC Component Replacement Letter* is the letter the licensee periodically sends following submittal of an ITAAC Closure Letter to inform the NRC that one or more components specifically identified and verified as part of the ITAAC have been replaced.~~

ITAAC Determination Basis is the information provided in the ITAAC closure letter that summarizes the methodology for conducting the inspections, tests and analyses, and the results that demonstrate the acceptance criteria are met.

ITAAC Finding is a regulatory violation that is greater than minor, is associated with a specific ITAAC for which the licensee has submitted the ITAAC closure letter, and is material to the ITAAC acceptance criteria. This type of finding could prevent the ITAAC from being verified as met and could require that previously closed ITAAC be re-opened. An ITAAC finding may be related to a single ITAAC or a family of ITAAC.

ITAAC-Related Construction Finding (IRCF) is a regulatory violation that is greater than minor, is associated with a specific ITAAC for which the licensee has not yet submitted the ITAAC closure letter, and is material to the ITAAC acceptance criteria. This type of finding could prevent the ITAAC from being closed out and therefore must be corrected and addressed in the licensee's ITAAC closure letter. An ITAAC-Related Construction Finding may be related to a single ITAAC or a family of ITAAC.

Supplemental ITAAC Closure Letter is the licensee notification of NRC ~~required by Section 52.99(x)~~ regarding information that materially alters the ITAAC Determination Basis in an original ITAAC Closure Letter, the reasons for the change(s), and the basis for concluding that acceptance criterion continue to be met.

Test means actuation or operation, or establishment, of specified conditions to evaluate the performance or integrity of as-built SSCs, unless explicitly stated otherwise, to determine whether an ITAAC acceptance criterion is met.

Type Test means a test on one or more sample components of the same type and manufacturer to qualify other components of the same type and manufacturer. A type test is not necessarily a test of the as-built structures, systems, or components.

3 GENERAL DESCRIPTION OF 10 CFR PART 52 AND ITAAC PROCESSES

This section provides an overview of NRC regulations related to ITAAC. The NRC Standard Review Plan (NUREG 0800- *Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants*, Section 14.3 Standard Plant Designs, Initial Test Program - Final Design Approval (FDA)) describes the purpose of ITAAC as follows:

> *The purpose of the ITAAC is to verify that an as-built facility conforms to the approved plant design and applicable regulations. When coupled in a COL with the ITAAC for site-specific portions of the design, they constitute the verification activities for a facility that should be successfully met prior to fuel load. If the licensee demonstrates that the ITAAC are met and the NRC agrees that they are successfully met, then the licensee will be permitted to load fuel. Once completion of ITAAC and the supporting design information demonstrate that the facility has been properly constructed, it then becomes the function of existing programs such as the technical specifications, the in-service inspection and in-service testing program, the quality assurance program, and the maintenance program, to demonstrate that the facility continues to operate in accordance with the certified design and the license.*

3.1 ROLE OF ITAAC IN PART 52 PROCESS

ITAAC establish a set of actions and criteria that "are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility has been constructed and will be operated in conformity with the combined license, the provisions of the Act, and the Commission's rules and regulations." See 10 CFR 52.80(a). The licensee must complete all ITAAC, the NRC staff verifies successful ITAAC completion, and the Commission must find that all ITAAC are met before the licensee may operate the facility. See 10 CFR 52.103(g). See also NRC Inspection Manual Chapter 2503.

After the Commission makes the finding required by Section 52.103(g), "the ITAAC do not, by virtue of their inclusion in the combined license, constitute regulatory requirements either for licensees or for renewal of the license; except for the specific ITAAC for which the Commission has granted a hearing under [52.103], all ITAAC expire upon final Commission action in the proceeding." 10 CFR 52.103(h).

Licensee programs (including but not limited to the technical specifications, the in-service inspection and in-service testing program, the quality assurance program, and the maintenance program), as well as the Commission's continuing regulatory oversight, continue to assure that the facility is operated in accordance with the license and NRC regulations.

3.1.1 Relationship of ITAAC to Engineering Design Verification Process

ITAAC are used to demonstrate that as-built conditions and performance characteristics of SSCs meet established acceptance criteria. The purpose of

engineering design verification (EDV), on the other hand, is to enable the NRC to verify that the NRC-approved design has been properly translated into drawings, specifications, and other design information used to procure materials and equipment and to construct the plant. EDV may be conducted before or after the design certification is granted and continued through the COL phase and into the early stages of construction. EDV is intended to gather necessary information on the licensee's first of a kind engineering for the standard plant, site-specific design, and related design information. EDV conducted post-COL may include the NRC assessment of the licensee's implementation of Design Acceptance Criteria (DAC). While EDV efforts are aimed at verifying the proper translation of the approved design, such activities are not a prerequisite for design certification or COL issuance. The NRC staff's ITAAC verification process will focus on assuring SSCs meet ITAAC acceptance criteria consistent with the approved design.

The NRC performs EDV inspections under its Construction Inspection Program when the applicant (design certification or COL), licensee, or its contractor has sufficient drawings, purchase specifications, or other construction documentation to support inspections. Post-COL EDV inspections are expected to be completed early in the construction phase.

The NRC is expected to apply the design centered review approach to EDV, i.e., perform a confirmatory review only, for subsequent applicants/licensees that use the same detailed design information that was previously reviewed by the staff.

3.1.2 Role of the Quality Assurance Program

The role of the Quality Assurance Program (QAP) is the same under 10 CFR Part 52 as for existing plants licensed under 10 CFR Part 50. The QAP is the continuous licensee process of assuring that design and construction activities are performed in accordance with the license, NRC regulations and applicable codes and standards, and that SSCs will perform their intended functions.

The quality assurance requirements of Part 50 Appendix B are applicable to plants licensed under Part 52. Section 52.79(a)(25) requires information concerning the licensee's QAP and how the QAP meets the requirements of Part 50 Appendix B to be submitted with each COL application. The COL applicant's description of the QAP is reviewed and approved by the NRC as part of COL issuance. QAP implementation by the licensee should assure that quality-related activities associated with plant design, procurement, fabrication, construction, testing and operation are implemented properly and in accordance with licensee procedures, applicable codes and standards and NRC regulations. QA/QC deficiencies will be handled by the normal process for licensee operational programs (e.g. NRC regulatory oversight, NRC inspection findings, and 10 CFR 2.206 petitions). See Section 3.2.1 below.

The role of ITAAC is different from the role of the QAP. While the QAP assures the proper implementation of quality-related construction activities, ITAAC focus

on verifying that as-built SSCs satisfy the top level design and performance standards specified in the COL. Additionally, ITAAC play a special role under Part 52 in defining the scope of the post-construction hearing opportunity.

As reflected in NUREG 1789, *10 CFR Part 52 Construction Inspection Program Framework Document*, the QA requirements of Appendix B to Part 50 apply to all safety-related activities being conducted by the licensee during the design, construction, and operations phase, including those safety-related activities performed to satisfy ITAAC. However, there are ITAAC activities that are not safety-related but that play a significant role in the verification of the design integrity of the as-built facility. All ITAAC, including ITAAC for SSCs that are not safety-related, will be implemented using written procedures or instructions.

QAP requirements governing licensee procurement, fabrication, construction, inspection and test activities for SSCs covered by ITAAC are specified in accordance with the safety classification and/or safety significance of the SSCs involved. ITAAC encompass SSCs of varying safety significance and safety classification, including safety-related and non-safety-related SSCs. Because ITAAC have special regulatory significance under Part 52, licensees should document ITAAC completion under their QAP.

The NRC staff has determined that a QA/QC deficiency may be considered in determining whether an ITAAC has been successfully completed. If a QA/QC deficiency is determined to be material to the ITAAC acceptance criteria, it will be documented by the NRC as an ITAAC Related Construction Finding (IRCF). Based on the resolution of the IRCF, the NRC will determine whether there is a reasonable basis for concluding that the relevant aspect of the ITAAC has been successfully completed.

There may be programmatic QA/QC deficiencies that are not relevant to one or more aspects of a given ITAAC under review and, therefore, should not be relevant to or considered in the NRC's determination as to whether that ITAAC has been successfully completed. Similarly, individual QA/QC deficiencies unrelated to an aspect of the ITAAC in question would not form the basis for an NRC determination that an ITAAC has not been met. NUREG-1789, p. C-6.

3.1.3 Sampling Based Construction Inspection Program

While the scope of NRC's Construction Inspection Program (CIP) is comprehensive, the NRC program does not inspect 100% of ITAAC related activities. Consistent with historical practice, NRC will employ a sampling based inspection program. For plants licensed under Part 52, the sampling based inspection targets to be included in the NRC's baseline inspection program will be selected based on a process that identifies those ITAAC having a higher inspection value. For subsequent construction projects, the NRC's baseline inspection scope may be adjusted based on prior inspection experience. For more information about the NRC's sampling based CIP for new plants. See SECY-07-0047 and Inspection Manual Chapter-2503, *Construction Inspection Program: Inspections of Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC).*

As identified in SECY-08-0117, all Emergency Planning and Security ITAAC will be inspected (no sampling).

Regardless of the set of ITAAC selected for inspection by the NRC, the licensee is responsible for ensuring that applicable quality requirements are implemented for all quality related SSCs and all ITAAC.

3.1.4 ITAAC Performance by Licensees and Verification by NRC

A licensee must complete each ITAAC before plant operation (including initial fuel load) can begin. The ITAAC may be satisfied at any time prior to fuel load, including prior to issuance of a combined license. (The NRC may find that certain ITAAC are met at the time of issuing the COL and exclude those from the 10 CFR 52.103(g) finding; See Section 3.2.3.) It is the licensee's responsibility to ensure that the action in each ITAAC is performed and that the established acceptance criteria are met. To accomplish this, the licensee establishes a process for completing ITAAC. The licensee will also maintain auditable records that provide the basis for the licensee's conclusion that ITAAC have been successfully completed. See Section 5.1.3 on guidance for developing ITAAC completion packages.

Many ITAAC require verification of "as-built" SSCs. However, some of these ITAAC will involve measurements and/or testing that can only be conducted at the vendor site due to the configuration of equipment or modules or the nature of the test (e.g., measurements of reactor vessel internals). For these specific items where access to the component for inspection or test is impractical after installation in the plant, the ITAAC completion documentation (e.g., test or inspection record) will be generated at the vendor site and provided to the licensee. Onsite activities for these ITAAC will likely be limited to receipt and placement of the component/module in its final location. Closure letters for such ITAAC would not be submitted to the NRC until after the component/module is installed in its final location. A closure letter relying on a record review of the inspections or tests at the vendor site should reflect consideration of issues documented during subsequent fabrication, handling, installation, and testing. A licensee intending to rely upon a vendor inspection or test to satisfy an ITAAC requirement must take care that such reliance is consistent with the applicable DCD, including the DCD definitions of relevant terms, such as "inspection," "test," and "as-built." As discussed in Section 4 of this document, the licensee will provide schedule information to the NRC, including plans to perform certain ITAAC activities in vendor shops, so the staff can plan their inspection and ITAAC verification resources accordingly.

The licensee is responsible for notifying the NRC when an ITAAC is complete and ready for review by the NRC. Before the licensee submits an ITAAC closure letter to NRC under Section 52.99, it will have resolved any identified ITAAC-related construction findings (IRCF) that would otherwise preclude NRC Staff from determining that the ITAAC has been met.

The NRC's determination of successful ITAAC completion is based on a combination of inspection results and a review of the information contained in or referenced by ITAAC closure letters submitted by the licensee. The ITAAC verification inspection, as described in IMC-2503, Section 07.04, may include:

- Inspection related to the specific ITAAC;
- Inspection results from direct inspection of similar ITAAC within an ITAAC family; and
- Inspection results from direct inspection of processes related to that specific ITAAC.

The NRC plans to perform closure verification of the licensee's ITAAC closure letters and review NRC inspection records to confirm that any associated IRCFs are satisfactorily resolved. At its discretion (i.e., depending on the nature of the ITAAC and the licensee's performance in completing similar ITAAC), however, the NRC may elect to inspect the licensee's ITAAC completion package or perform specific inspections.

The NRC may, if necessary, delay its closure determination for a non-targeted ITAAC until at least some target ITAAC inspection has been completed in a particular ITAAC family to confirm that the licensee's performance within that ITAAC family is satisfactory.

After determining that the prescribed inspections, tests, and analyses in the ITAAC have been performed and the acceptance criteria met, the NRC will issue notices of its determination of the successful completion of those inspections, tests, and analyses "at appropriate intervals." See 10 CFR 52.99(e). These notices are published in the *Federal Register*.

The NRC will make publicly available the licensee notifications submitted under 52.99(c). See 10 CFR 52.99(e)(2).

If the NRC determines after an ITAAC closure letter has been submitted that an ITAAC was, in fact, not met, the licensee would be subject to an ITAAC Finding. In determining the severity level of an ITAAC finding, the NRC should weigh the circumstances that led to the submittal of information later found to be incorrect. After the ITAAC letter is submitted, events may occur that adversely affect an SSC that was the subject of a previously closed ITAAC. The process for tracking and correcting these issues to restore the SSC is discussed in Section 8.1 of this document.

3.2 ITAAC CLOSURE PROCESS

3.2.1 Section 52.99 Process

10 CFR 52.99, "Inspection During Construction," sets forth the requirements to support the NRC's inspections during nuclear plant construction. It establishes the regulatory process for ensuring that ITAAC are performed so that the NRC may make the necessary finding under 10 CFR 52.103(g) that the acceptance criteria in

the COL are met. See 72 Fed. Reg. 49,352, 49,450 (Aug. 28, 2007). Appendix A to this document includes the text of Section 52.99.[2]

(a) The licensee shall submit to the NRC, no later than 1 year after issuance of the combined license or at the start of construction as defined in 10 CFR 50.10(a), whichever is later, its schedule for completing the inspections, tests, or analyses in the ITAAC. The licensee shall submit updates to the ITAAC schedules every 6 months thereafter and, within 1 year of its scheduled date for initial loading of fuel, the licensee shall submit updates to the ITAAC schedule every 30 days until the final notification is provided to the NRC under paragraph (c)(1) of this section.

The NRC added this provision to Section 52.99 so that the NRC Staff would have information on the ITAAC completion schedule that could be used in developing NRC inspections and activities necessary to support the required finding that all of the ITAAC have been met prior to the licensee's scheduled date for fuel load. See 72 Fed. Reg. 49,366. Even in the case where there are no changes to a licensee's ITAAC schedule during an update cycle, the NRC expects licensees to so notify NRC. 72 Fed. Reg. 49,450. See also Section 4.2 below.

(b) With respect to activities subject to an ITAAC, an applicant for a combined license may proceed at its own risk with design and procurement activities, and a licensee may proceed at its own risk with design, procurement, construction, and pre-operational activities, even though the NRC may not have found that any one of the prescribed acceptance criteria have been met.

(c)(1) The licensee shall notify the NRC that the prescribed inspections, tests, and analyses have been performed and that the prescribed acceptance criteria have been met. The notification must contain sufficient information to demonstrate that the prescribed inspections, tests, and analyses have been performed and that the prescribed acceptance criteria have been met.

(c)(2) If the licensee has not provided, by the date 225-days before the scheduled date for initial loading of fuel, the notification required by paragraph (c)(1) of this section for all ITAAC, then the licensee shall notify the NRC that the prescribed inspections, tests, or analyses for all uncompleted ITAAC will be performed and that the prescribed acceptance criteria will be met prior to operation. The notification must be provided no later than the date 225-days before the scheduled date for initial loading of fuel, and must provide sufficient information to demonstrate that the prescribed inspections, tests, or analyses will be performed and the prescribed acceptance criteria for the uncompleted ITAAC will be met, including, but not limited to, a description of the specific procedures and analytical methods to be used for performing the prescribed inspections,

[2] The major elements of the 10 CFR 52.99 process are also reflected in Section IX of each of the design certification rules. See 72 Fed. Reg. 49,352, 49,450 (Aug. 28, 2007).

tests, and analyses and determining that the prescribed acceptance criteria have been met.

Section 52.99(c) specifies two separate but related notification requirements for licensees concerning completion of ITAAC. The overall purpose of each notification is to ensure that the COL holder provides the NRC with sufficient publicly available information to summarize the basis for the conclusion that ITAAC are met (or will be met before initial operation) and to support the Section 52.103 ITAAC hearing opportunity. See 72 Fed. Reg. 49,450.

Section 52.99(c)(1) requires the licensee to notify the NRC when prescribed inspections, tests and analyses have been performed and the prescribed acceptance criteria have been met. In the discussion accompanying the 2007 final rule amending 10 CFR Part 52, NRC provided guidance as to what constitutes "sufficient information" under Section 52.99(c)(1) to demonstrate that the acceptance criteria have been met:

> It is the licensee's burden to demonstrate compliance with the ITAAC and the NRC expects the information submitted under paragraph (c)(1) to contain more than just a simple statement that the licensee believes the ITAAC has been completed and the acceptance criteria met. The NRC expects the notification to be sufficiently complete and detailed for a reasonable person to understand the bases for the licensee's representation that the inspections, tests, and analyses have been successfully completed and the acceptance criteria have been met. The term 'sufficient information' requires, at a minimum, a summary description of the bases for the licensee's conclusion that the inspections, tests, or analyses have been performed and that the prescribed acceptance criteria have been met. 72 Fed. Reg. 49,450; See also 72 Fed. Reg. at 49,366.

Section 52.99(c)(2) imposes an additional notification requirement on the licensee if it has not made a Section 52.99(c)(1) ITAAC completion notice for all ITAAC by 225-days before scheduled initial fuel load. Under this provision, licensees must notify the NRC and affirmatively represent that the prescribed inspections, tests, or analyses for all uncompleted ITAAC *will be performed* and that the prescribed acceptance criteria *will be met* prior to plant operation.

Note that the rule language in Section 52.99(c)(2) appears more prescriptive than the language in Section 52.99(c)(1) as to what constitutes "sufficient information" (e.g., "including but not limited to" a description of the specific procedures and analytical methods to be used). In the discussion accompanying the 2007 Part 52 final rule, NRC stated that it expects notifications under Section 52.99(c)(2) "to be sufficiently detailed such that the NRC can determine what activities it will need to undertake to determine if the acceptance criteria for each of the uncompleted ITAAC have been met, once the licensee notifies the NRC that those ITAAC have been successfully completed and their acceptance criteria met." See 72 Fed. Reg. 49,450.

In accordance with existing NRC regulations, ITAAC closure notifications to the NRC must be complete and accurate in all material respects. 10 CFR 52.6(a). Licensees should seek to provide the appropriate level of detail for "completeness," without including extraneous information that might create confusion or expand the scope of issues inappropriately. In the case of ITAAC closure notifications, reliance on routine programs (e.g., quality assurance program, corrective action program) to provide assurance that the ITAAC are completed successfully should be expected. Information on these programs is not required in this context unless a program inadequacy calls into question the successful completion of ITAAC. Challenges to the adequacy of program implementation of routine programs may be made under a 10 CFR 2.206 petition to modify the terms and conditions of the COL.

In amending Part 52, NRC explained that: "Inasmuch as the ITAAC themselves have already been approved by the NRC and their adequacy may not be challenged except under the provisions of 10 CFR 52.103(f), a contention which alleges the deficiency of the ITAAC is not admissible under 10 CFR 52.103(b)." 72 Fed. Reg. 49,352, 49,367, note 3. NRC further stated that the agency expects that any proposed contentions regarding uncompleted ITAAC would "focus on any inadequacies of the specific procedures and analytical methods described by the licensee under [Section 52.99(c)(2)], in the context of the findings called for by 10 CFR 52.103(b)(2)." 72 Fed. Reg. at 49,367. This refers to inadequacies in the specific procedures and analytical methods (described by the COL holder's Section 52.99(c)(2) notification) "to be used for performing the prescribed inspections, tests, and analysis and determining that the prescribed acceptance criteria have been met." 10 CFR 52.99(c)(2). See also 10 CFR 52.103(b)(1)-(2), which sets forth requirements that requests for an ITAAC hearing must meet.

The licensee will continue to submit notification letters under Section 52.99 (c)(1) after submitting the (c)(2) notification, as 52.99(c)(2) does not relieve the licensee from the requirements of 52.99(c)(1) during this late period of construction.

Following submittal of ITAAC Closure Letters, ~~The purpose of~~ Supplemental ITAAC Closure Letters ~~is~~should be submitted to formally notify NRC of significant activities that materially alter the ITAAC Determination Bases summarized in the initial ~~related to the maintenance of ITAAC conclusions after an~~ ITAAC Closure Letter ~~is submitted to the NRC~~, and to assure a complete and accurate public record of information pertinent to ITAAC closure. Like ITAAC Closure Letters, Supplemental ITAAC Closure Letters will be made publically available in accordance with Section 52.99(e)(2). Thresholds for determining when a Supplemental ITAAC Closure Letter should be submitted to the NRC ~~staff~~ are discussed in Section 8.1.2.

Records related to ITAAC closure and maintenance, including the results of evaluations to determine if conditions warrant a Supplemental ITAAC Closure Letter should be retained in ITAAC Completion Packages in accordance with the licensee's QAP.

(d)(1) In the event that an activity is subject to an ITAAC derived from a referenced standard design certification and the licensee has not demonstrated that the ITAAC has been met, the licensee may take corrective actions to successfully complete that ITAAC or request an exemption from the standard design certification ITAAC, as applicable. A request for an exemption must also be accompanied by a request for a license amendment under § 52.98(f).

(d)(2) In the event that an activity is subject to an ITAAC not derived from a referenced standard design certification and the licensee has not demonstrated that the ITAAC has been met, the licensee may take corrective actions to successfully complete that ITAAC or request a license amendment under § 52.98(f).

This sub-section addresses two options for the licensee if it is determined that any ITAAC acceptance criteria have not been met. Section 52.99 (d)(1) refers to activities subject to an ITAAC derived from a referenced certified design, for which the ITAAC have not been shown to be met. In this case, because the ITAAC are the subject of a rule, the licensee may take corrective actions to successfully complete the ITAAC or request an exemption from the rule (which must be accompanied by a request for a license amendment). Paragraph (d)(2) refers to an activity subject to an ITAAC not derived from a referenced certified design (and so not the subject of a rule). In this case, the licensee may take corrective action to successfully complete the ITAAC or request a license amendment. See 72 Fed. Reg. at 49,450-51.

(e) The NRC shall ensure that the prescribed inspections, tests, and analyses in the ITAAC are performed.

(1) At appropriate intervals until the last date for submission of requests for hearing under § 52.103(a), the NRC shall publish notices in the Federal Register of the NRC Staff's determination of the successful completion of inspections, tests, and analyses.

(2) The NRC shall make publicly available the licensee notifications under paragraph (c)(1), and, no later than the date of publication of the notice of intended operation required by § 52.103(a), make available all licensee notifications under paragraphs (c)(1) and (c)(2) of this section.

This sub-section imposes requirements on the NRC to ensure that the ITAAC are successfully completed. Section 52.99 (e)(1) requires the NRC to publish in the Federal Register the Staff's determination of the successful completion of ITAAC, up to the last date for submission of requests for hearing under 10 CFR 52.103(a). Section 52.99(e)(2) requires that the NRC make publicly available the licensee notifications submitted under Section 52.99(c)(1). Regarding the latter provision, the Part 52 final rule Supplementary Information states: "In general, the NRC expects to make the paragraph (c)(1) notifications availability [sic] shortly after the NRC has received the notifications

and concluded that they are complete and detailed." 72 Fed. Reg. 49,451. In addition, the rule *requires* NRC to make publicly available all of the notifications received under 52.99(c)(1) and (c)(2) no later than the date of the notice of intended operation required by 10 CFR 52.103(a).

~~*(f) new requirement for supplemental notifications re: ITAAC maintenance*~~

~~The purpose of Supplemental ITAAC Closure Letters is to formally notify NRC of significant activities related to the maintenance of ITAAC conclusions after an ITAAC Closure Letter is submitted to the NRC, and to assure a complete and accurate record of information pertinent to ITAAC closure. Like ITAAC Closure Letters, Supplemental ITAAC Closure Letters will be made publically available in accordance with Section 52.99(e)(2). Thresholds for determining when a Supplemental ITAAC Closure Letter should be submitted to the NRC staff are discussed in Section 8.1.2.~~

3.2.2 ITAAC Closure Continues Until All ITAAC Are Closed

After the NRC ceases to publish the Federal Register notices as required by Section 52.99(e)(1), the licensee continues to submit the notifications required by Section 52.99(c)(1) until all ITAAC are considered completed. The NRC Staff will continue to review a licensee's notifications of completed ITAAC and, as necessary, continue to conduct audits or inspections of the facility and the licensee's records.

To facilitate an NRC staff recommendation to the Commission that all ITAAC are met and the process leading to the Section 52.103(g) finding, the licensee will submit the ~~"~~All ITAAC Complete~~"~~ letter ~~required by Section 52.99(TBD~~as discussed in Section 8.1.4~~)~~. The purpose of this letter is to affirm that all ITAAC have been met and that ITAAC conclusions stated in individual ITAAC Closure Letters are being maintained. A template for the ~~"~~All ITAAC Complete~~"~~ letter is provided in Appendix F.

Although the rules do not require completion of all ITAAC by a certain time prior to the licensee's scheduled fuel load date, the NRC noted in the 2007 rulemaking that licensees should "structure their construction schedules" to take into account: (1) the time needed to complete NRC review once the licensee submits its ITAAC completion notification; and (2) the time needed for the Commission to review the Staff's conclusions regarding the ITAAC and Staff recommendations concerning the finding under Section 52.103(g). See 72 Fed. Reg. at 49,367 and 49,450. Because these final steps of the ITAAC process are likely to occur in a short period just prior to fuel load, effective communication and coordination will be necessary to assure these steps can be completed to support the scheduled fuel load date.

3.2.3 ITAAC May be Closed at Time of COL Issuance Under 10 CFR 52.97(a)(2)

The NRC may find, at the time it issues the COL, that certain acceptance criteria in one or more ITAAC in a referenced early site permit (ESP) or standard design certification have been met. See 10 CFR 52.97(a)(2). Such a finding means that those acceptance criteria will be deemed to be excluded from the COL and findings under 10 CFR 52.103(g). For these ITAAC, the licensee should include a statement in its ITAAC tracking matrix that these ITAAC were closed through the issuance of the COL.

For example, a Design Acceptance Criteria (DAC) found in the applicable design certification rules could be closed at the time of COL issuance. DAC set forth processes and criteria for completing certain design information, such as information about the digital instrumentation and control system. 10 CFR 52.97(a)(2) would allow the Commission to make a finding of successful completion of DAC when a combined license is issued, if the combined license applicant demonstrates that the DAC have been successfully completed.

3.2.4 Certain ITAAC-Related Changes Require a License Amendment

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10 CFR 52.98(f), "Finality of Combined Licenses; Information Requests," states that any modification to, addition to, or deletion from the inspections, tests, analyses, and acceptance criteria (ITAAC) contained in the license is a proposed amendment to the license. In the event that these types of changes occur or are proposed, the licensee must submit an application for a license amendment, in accordance with 10 CFR 50.90. In addition to a license amendment request, the licensee must also request an exemption from the applicable standard design certification rule before making any changes to ITAAC contained in the license that are within the scope of the referenced design certification rule. [10 CFR 52.63(b)(1).]

These requirements are applicable from the time the license is issued until the ~~Commission~~ NRC makes ~~a~~ the Section 52.103(g) finding that the acceptance criteria in the combined license are met ~~(i.e., 10 CFR 52.103(g) finding)~~. During this period, the licensee must evaluate ITAAC-related facility changes to ensure the changes are consistent with the associated ~~inspections, tests, analyses, or acceptance criteria~~ITAAC.

In particular, the following conditions would require the Licensee to submit an amendment request in accordance with 10 CFR 52.98(f) which would serve to notify the NRC of a change in the ~~Tier 1~~ ITAAC requirements. As stated above, an exemption request would also be necessary for any changes to design certification ITAAC contained in the license.

a. If following a significant event or unplanned activity, SSCs are not restored to their pre-work, as-designed condition, consistent with ~~Tier 1/~~ITAAC requirements, a license amendment request ~~may~~ would be

necessary (e.g., no reasonable alternate post-work approach is available to demonstrate the ITAAC acceptance criteria continue to be met).

b. If a proposed design change would cause original Tier 1/ITAAC requirements to no longer be met, a license amendment request may would be necessary (e.g., an engineering change results in the need to identifyfor newdifferent acceptance criteria, an engineering change increases the population of SSCs within the scope of an ITAAC).).

c. If a proposed design change requires additional ITAAC, a license amendment request would be necessary. [10 CFR 52.98(f)]

If new Tier 1/ITAAC requirements are approved in connection with the design changesuch license amendments, the licensee would submit a new ITAAC Closure Letter in accordance with Section 52.99.

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3.3 General Description of Public Hearing Opportunity

In addition to the public meetings that the NRC conducts throughout its review of COL applications, the public potentially impacted by an action is afforded certain specific opportunities for involvement in the Part 52 processes. For example, for a standard design certification rule, a public comment period is provided. For an ESP or COL application, there will be an opportunity for the affected public to petition to intervene in the hearing and file proposed contentions. If any contentions are admitted by the presiding officer, a contested licensing hearing on those contentions will be held and NRC Atomic Safety and Licensing Board or other presiding officer will issue a decision ruling on the contentions litigated.

The Atomic Energy Act and NRC regulations also provide for public involvement at the end of construction, when not later than 180 days before scheduled fuel load, the NRC will publish a notice of intended operation of the facility providing that any person whose interest may be affected by operation of the plant may, within 60 days of the notice, request a hearing on whether the facility, as-constructed, complies, or will comply, with the acceptance criteria in the COL. 10 CFR 52.103(a).

Congress limited this pre-operation public hearing opportunity (the so-called "ITAAC hearing") by setting a high standard for the admission of contentions. Specifically, for admission of a contention the petitioner must show, *prima facie*, that (1) one or more acceptance criteria of the ITAAC in the combined license have not been met or will not be met; and (2) "the specific operational consequences of nonconformance that would be contrary to providing reasonable assurance of adequate protection of public health and safety." 10 CFR 52.103(b). These provisions are designed to accord finality to the Commission's earlier decisions regarding design of the facility and to ensure that any proceeding is focused on ITAAC completion.

Acting as the presiding officer, the Commission itself will determine whether to grant or deny requests for an ITAAC hearing, in accordance with existing NRC requirements in 10 CFR 2.309. Those provisions require petitioners to support their proposed contentions with reasonable specificity and basis. A proposed contention asserting that an acceptance criterion is not met or will not be met must identify the specific portions of the Section 52.99(c) report that are "inaccurate, incorrect, or incomplete." 72 Fed. Reg. 49,413.

If it grants the hearing request, the Commission, acting as the presiding officer, "shall determine whether during a period of interim operation there will be reasonable assurance of adequate protection to the public health and safety. The Commission's determination must consider the petitioner's *prima facie* showing and any answers thereto. If the Commission determines there is such reasonable assurance, it shall allow operation during an interim period under the combined license." 10 CFR 52.103(c). See 72 Fed. Reg. 49, 451.

The hearing opportunity described in the NRC notice of intended operation issued under 10 CFR 52.103(a) will include the ITAAC that have been completed or are still being completed. (See Appendix A for the text of 10 CFR 52.103). Thus, a petitioner has an opportunity to address in an ITAAC hearing both the Section 52.99(c)(1) notifications and the Section 52.99(c)(2) notification(s).

3.3.1 Opportunity for Late Filed Contentions

The NRC expects requests for ITAAC hearings to be filed within the allowed 60-day period provided by the notice under 10 CFR 52.103(a). The Part 52 rule does not explicitly address the applicability of the standards for admissibility of late-filed contentions submitted subsequently. On this point, Section 52.103(c) does state, inter alia, that the Commission, acting as the presiding officer, will determine whether to grant or deny the request for hearing "in accordance with the applicable requirements of 10 CFR 2.309." The 2007 final rule amending Part 52 did not revise or otherwise limit the applicability of 10 CFR 2.309(c) or (f)(2)(i)-(iii), which address the standard for admissibility of late-filed contentions.

To minimize the potential for late-filed ITAAC contentions being admitted, it is important that the Section 52.99(c) notifications provide sufficient information as discussed in Section 3.2.1.

3.3.2 Opportunity to Request Action

10 CFR 52.103(f) provides that NRC will process any petition to modify the terms and conditions of the COL (including the content of the ITAAC) as a request for action under 10 CFR 2.206. (Section 2.206 allows any person to file a request to institute a proceeding under 10 CFR 2.202, "Orders," to "modify, suspend, or revoke a license, or for any other action as may be proper.") Note that a Section 2.206 petition is a separate and independent request for action that

is not related to the opportunity to request an ITAAC hearing under 10 CFR 52.103.

Section 52.103(f) further provides that if a Section 2.206 petition is filed, "the Commission shall determine whether any immediate action is required" before the licensed activity allegedly affected by the petition (fuel loading, low power testing, etc.) commences. If the NRC grants the Section 2.206 petition, then an appropriate order will be issued concerning the need for any immediate action. Importantly, fuel loading and operation under the combined license will not be affected by the granting of the petition unless the Commission issues an order and makes it immediately effective. See 72 Fed. Reg. 49,452.

3.4 SUMMARY DESCRIPTION OF SECTION 52.103 PROCESS AND FUEL LOAD AUTHORIZATION PROCESS

The Atomic Energy Act and NRC regulations require a timely Commission decision on issues raised in any hearing requests under 10 CFR 52.103. See 10 CFR 52.103(e). In addition to deciding whether to grant or deny a request for an ITAAC hearing, the Commission will determine the appropriate hearing procedures, whether informal or formal, to be applied in any ITAAC hearing held. While the procedures to be used for any ITAAC hearing have not yet been established, the Commission has clear authority under the Atomic Energy Act and NRC regulations to use less formal procedures. See 72 Fed. Reg. 49,451.

In terms of schedule, the Commission will, to the maximum possible extent, render a decision on issues raised by the hearing request within 180 days of the publication of the 10 CFR 52.103(a) notice or by the anticipated date for initial loading of fuel into the reactor, whichever is later. 10 CFR 52.103(e).

The Commission's decision to grant or deny a hearing, and its decision regarding procedures, may not be the subject of an appeal under 10 CFR 2.311. 10 CFR 2.309(i).

If it grants a hearing request under Section 52.103, the Commission also will determine whether to allow interim operation during the hearing, on the basis that there will be reasonable assurance of adequate protection to the public health and safety notwithstanding the pending hearing. This provision authorizes interim operation during resolution of contested hearing issues and issuance of NRC findings under Section 52.103(g). See Section 52.103(c).

The NRC staff, informed by the licensee's "All ITAAC Complete" letter, has said it will make a recommendation to the Commission regarding the Section 52.103(g) finding that all ITAAC are met. The staff will consider two criteria when making its recommendation: first, that all ITAAC were verified to be met at one time, and second, that the staff has confidence that the ITAAC determination bases have been maintained and that the ITAAC continue to be met. These criteria will be considered to be met provided conditions do not exist that would cross one of the thresholds discussed in Section 8.1.2 requiring a Supplemental ITAAC Closure Letter. As indicated by these considerations, the state of SSCs being out-of-service does not necessarily invalidate

prior ITAAC conclusions; ITAAC continue to be met and are being maintained. Thus, SSCs may be out-of service for maintenance or other reason at the time of the Section 52.103(g) finding.

For ITAAC that are the subject of an ITAAC hearing, the presiding officer will issue an initial decision under 10 CFR 52.103(g) with respect to whether acceptance criteria have been or will be met. 10 CFR 2.340(c). This initial decision is immediately effective upon issuance, unless there is good cause that it should not be immediately effective. See 10 CFR 2.340(f). For the final finding under 10 CFR 2.340(j), the Commission or its delegate will make a finding within 10 days from the date of issuance of the initial decision, if the acceptance criteria not within the scope of the initial decision have been, or will be, met and notwithstanding the pendency of a petition for reconsideration or review, or motion for stay, or filing of a petition for action to modify, suspend, or revoke a license. Provided the licensee has satisfied other applicable license conditions and technical specifications, this means that the licensee may begin operation/initial fuel loading.

4 SCHEDULE CONSIDERATIONS FOR ITAAC-RELATED ACTIVITIES AND COORDINATION TO SUPPORT NRC INSPECTION PLANNING

The NRC Construction Inspection Program (NRC/CIP) performs its regulatory functions with respect to construction inspection oversight activities through careful planning and scheduling of NRC inspection activities. To accomplish this, NRC/CIP needs access to construction scheduling information maintained by COL applicants and licensees for inspection planning and scheduling purposes. This section provides guidance for communicating schedule related information for ITAAC activities, including DAC, from the project to the NRC.

10 CFR 52.99 "Inspection during construction" requires that:

> *(a) The licensee shall submit to the NRC, no later than 1 year after issuance of the combined license or at the start of construction as defined in 10 CFR 50.10(a), whichever is later, its schedule for completing the inspections, tests, or analyses in the ITAAC. The licensee shall submit updates to the ITAAC schedules every 6 months thereafter and, within 1 year of its scheduled date for initial loading of fuel, the licensee shall submit updates to the ITAAC schedule every 30 days until the final notification is provided to the NRC under paragraph (c)(1) of this section.*

4.1 PROPRIETARY CONSTRUCTION SCHEDULE INFORMATION

In the discussion accompanying the Part 52 amendments, NRC recognized that licensees may consider construction schedule information to be proprietary and request that such information be protected from public disclosure under 10 CFR 2.390. On this point, the NRC states: "If an applicant claims that its construction schedule information submitted to the NRC is proprietary, and requests that the NRC withhold that information under the Freedom of Information Act (FOIA), the NRC will consider that request under the existing rules governing FOIA disclosure in 10 CFR 2.309(a)(4)." See 72 Fed. Reg. 49,352, 49,366. Consistent with this NRC statement, COL holders may assume that

ITAAC completion schedules marked by the licensee as "Proprietary" and submitted to NRC in accordance with 10 CFR 2.390 will be handled by the NRC in accordance with the regulation. This applies to schedule information provided in accordance with Section 52.99(a) or otherwise shared to support early inspection.

As described in SECY 06-0114, "Description of the Construction Inspection Program for Plants Licensed under Part 52", licensees may submit a single affidavit to request that schedule information be held as proprietary under 10 CFR 2.390. SECY 06-0114 states, "[B]ecause the nature of the information would not change from initial submittal to update, no additional proprietary determinations would be needed and routine schedule updates from the licensee would be considered proprietary and would be withheld from the public without further evaluation. This approach would allow for a single proprietary determination, limited to the schedule and its updates, that would apply to an entire construction project."

4.2 LICENSEE SCHEDULE COORDINATION

There will be a licensee project scheduler that provides NRC with a Level 3 schedule for ITAAC-related activities on site and off site (in vendor shops). A Level 3 schedule is considered an intermediate project schedule that establishes a project plan that (1) integrates and relates activities performed by participants in support of project milestones and deliverables, (2) embodies a critical path, resource loaded network that defines activity interfaces and dependencies, and (3) provides the basis for activities and logic in detailed execution schedules. This Applicant/Licensee Project Scheduling Point of Contact may be a Senior Scheduling Manager, a Licensing Manager, or Project Management Representative, or other individual as best fits each project organization. Additional information will be made available as the NRC Scheduler determines a need and makes a request through the Project Scheduling Point of Contact. As schedules are updated, the licensee scheduler will assure that updated schedules are made available to the NRC.

Schedule information provided to NRC related to DAC should include the schedule for completing the additional design information necessary to implement design ITAAC, and subsequent DAC close-out following issuance of the applicable NRC~~'s EDV~~ inspection report.

Prior to the time Level 3 schedule information is made available to the NRC, applicants and licensees should inform their NRC Project Manager on an ad hoc basis regarding long lead procurement of SSCs and other early activities subject to ITAAC. Vendor manufacturing or fabrication of long lead components may commence well before the issuance of the COL; therefore, schedule coordination for inspection activities will likely be required significantly in advance of license receipt.

As early as practicable, licensees should discuss specific technical justifications with the NRC for "as-built" inspections, tests or analyses to be performed at other than the final installed location of SSCs that are not covered by the generic technical justifications discussed in Sections 8.5.1 – 8.5.6. This communication is important to allow the NRC to identify any questions or concerns with the licensee's plans.

5 LICENSEE PROCESS FOR REVIEW AND PREPARATION OF ITAAC CLOSURE LETTERS

ITAAC closure letters notify the NRC that specific ITAAC have been completed. (The role of these letters in the regulatory process is discussed in Section 3, above.) The licensee's process for demonstrating, documenting, and notifying the NRC that ITAAC have been met is described in this section. Additional information describing common ITAAC acceptance criteria categories is provided in Appendix C to this document.

5.1 GUIDANCE FOR OVERSIGHT OF ITAAC COMPLETION ACTIVITIES AND MAINTENANCE OF RECORDS

The documentation required to establish completion of an ITAAC should be maintained available on-site to enable the licensee to confirm that the inspections, tests, and analyses were properly performed and the acceptance criteria met, and to facilitate NRC ITAAC verifications. Documentation includes the references identified in ITAAC closure letters as well as key documents supporting the licensee conclusions that ITAAC are met. Some supporting vendor information may not be available on-site, such as detailed data packages that are summarized in reports for the licensee that would be used as the basis for ITAAC completion. Records will be available to NRC inspectors at the plant site upon request.

5.1.1 ITAAC Completion Team

The licensee should establish an ITAAC completion team for the site. This team ensures that sufficient resources are available for:

- Establishing, compiling, and maintaining the documentation required to complete each ITAAC;
- Developing an ITAAC completion package for each ITAAC;
- Developing the ITAAC closure letter for each ITAAC; and
- Developing the 225-day notification letter(s), where applicable.

The licensee may delegate the responsibility for establishing and compiling the ITAAC completion documentation.

5.1.2 ITAAC Completion Documentation Establishment, Compilation, and Maintenance

The licensee and its vendors (e.g., reactor vendor, constructor, balance of plant designer, etc.) should establish a method for closing each ITAAC. For each ITAAC, the completion method should define:

- The activities to be conducted to perform the required inspections, tests, and analyses, and demonstrate that acceptance criteria are met; and
- The documentation required to establish that the activities were performed and the acceptance criteria satisfied.

Documentation necessary to support the conclusion that ITAAC are met, including the results of evaluations to determine if conditions warrant a Supplemental ITAAC Closure Letter should be available on-site as part of the ITAAC Completion Package to permit the ~~COL~~ licensee to develop the ~~ITAAC completion package and~~ ITAAC closure letter, and to facilitate NRC ITAAC inspection. Documents may be stored electronically.~~-~~ While documentation necessary to verify completion should be available on site, supporting information (such as vendor calculations or analyses, vendor type testing documentation, or fabrication records) may be available at locations other than the site. ITAAC Completion Packages containing records related to ITAAC closure and maintenance should be maintained in accordance with the licensee's QAP.

The licensee should establish a mechanism to permit the required documentation to be captured into the ITAAC Completion Package as those documents become available. This is important to avoid significant delays in schedule. If an electronic ITAAC Completion Package is to be developed, the vendors should strive to provide the documentation to the licensee in a format that is consistent with the latest NRC standards for electronic documents. The construction schedule may identify ITAAC-related activities to ensure that ITAAC-related information is flagged and sent to the ITAAC completion team.

5.1.3 ITAAC Completion Package Development

The ITAAC Completion Package provides the technical basis for the licensee's submittals under Section 52.99(c). As such, it can be viewed as a "roadmap" documenting how the licensee has established that the activities related to the ITAAC acceptance criteria were accomplished. Documents reviewed and referenced in the ITAAC Closure Letter and key supporting documents should be listed in the ITAAC Completion Package and should be readily retrievable for ease of later verification by other team members or the NRC during inspections. If certain supporting information is not available on-site, the ITAAC Completion Package should indicate where that information may be inspected or audited, if necessary. For example, vendor personnel training records would not be available at the licensee site.

The ITAAC completion package should also provide a list of Corrective Action Program (CAP) items that were identified as material to the specific ITAAC acceptance criteria, including their status (which should be complete/closed). This list would be added to the package upon completion of the ITAAC, to document that there were no outstanding items in the CAP ~~program~~ that are material to the ITAAC conclusion on the date the licensee completed the ITAAC. ITAAC completion is not affected by outstanding CAP items that are not material to the ITAAC conclusion. In addition, the ITAAC completion package should contain references for the documentation associated with each NRC-identified ITAAC-related construction finding, including the final resolution of these findings.

The documents listed in the ITAAC Completion Package should be carefully reviewed to ~~ensure~~ assure completeness and accuracy of the technical information. The documents should also be reviewed administratively to ensure, for example, that the documentation is appropriately signed, all of the pages provided, and appropriate revisions provided.

The ITAAC Completion Package may be compiled in an electronic or hard-copy format. If an electronic format is utilized, the documentation would be most useful in a format that is consistent with the latest NRC standards for electronic documents.

The ITAAC Completion Package should not constitute the "official" copy of the documentation contained therein. Rather, the official copy of the documentation in the ITAAC completion package should be maintained by the licensee's records organization.

A determination report should be provided in the ITAAC Completion Package to document how the licensee determined that the acceptance criteria have been met. The Determination Report provides the basis for the ITAAC closure letter. If a Technical Justification is necessary per Section 8.5.7 for an ITAAC inspection, test or analysis (ITA) ~~was~~ performed ~~at a location~~ for an ~~structure, system or component (~~SSC~~)~~ at other than ~~the SSC~~its final installed location ~~and Section 8.6 guidance indicates that Technical Justification is necessary, then~~, the Technical Justification should be provided in the Determination Report~~determination basis~~. ~~The Technical Justification should consist of the reasons that the ITA was performed offsite and the results of the offsite ITA.~~

5.2 STANDARD F~~f~~ORMAT FOR ITAAC COMPLETION P~~p~~ACKAGES

1. Cover page, including ITAAC #, title, and approval signatures.
2. If applicable, ITAAC Process Review Checklist(s).
3. Determination Report, including ITAAC Statement, ITAAC Determination Basis, Technical Justification (if necessary per Section 8.5.7) ~~if~~for ~~any~~ ITA performed at other that than final installed location ~~(and if necessary based on Section 8.6~~8.5~~)~~, ITAAC-Related Construction Finding Review, and ITAAC Completion statement to be included in the ITAAC closure letter.
4. List of ITAAC-Related Construction Findings, including information regarding the resolution of the findings.
5. List of Licensee CAP items related to the ITAAC acceptance criteria, including an indication of the status (which should be complete/closed if the item is material to satisfaction of the ITAAC).
6. List of principal completion documents (Engineering Reports, ASME Code Reports, Completed Procedures, Completed Inspection Reports, etc.).
7. List of Supporting References as required.
8. ITAAC Closure Letter.
~~8.~~9. Supplemental ITAAC Closure Letter (if any) and associated documentation.

5.3 LICENSEE CORRECTIVE ACTION PROCESSES

The purpose of the licensee's Corrective Action Processes is to identify, correct, and prevent recurrence of deficiencies related to the performance of ITAAC and other quality related construction activities. For more information, see NEI 08-02, "Corrective Action Processes for New Nuclear Power Plants During Construction."

6 GUIDANCE ON SUFFICIENT INFORMATION FOR ITAAC CLOSURE LETTERS

The information contained in the ITAAC closure letters plays an important role in the NRC ITAAC hearing process. The closure letters mandated by 10 CFR 52.99(c)(1) must include sufficient information so that interested persons will have access to information on completed ITAAC at a level of detail sufficient to address the Atomic Energy Act of 1954, Section 189.a(1)(B), threshold for requesting a hearing on whether the acceptance criteria have been, or will be, met. Through a series of public workshops with the NRC Staff, the industry has developed a template for a standard ITAAC closure letter format that should be used by all applicants. The template is provided in Appendix D-1 to this document.

The Section 52.99 letters should be written for an individual with knowledge, education and/or experience concerning technical/engineering concepts underlying nuclear power, including the inspections, tests, or analyses used to demonstrate that acceptance criteria have been met. The letter should also be written with the expectation that the reader is someone who is appropriately informed about and familiar with applicable NRC regulations, licensing requirements and technical and/or engineering concepts related to ITAAC. The expectation that this informed reader understand the bases for the licensee's representation that certain inspections, tests, and analyses have been successfully completed and the acceptance criteria have been met does not mean that the reader would have necessarily reached the same conclusion as the COL holder. Rather, it means that an informed reader understands the underlying bases for the conclusion.

The template approach ensures general consistency for all ITAAC closure letters, which will benefit all stakeholders as well as the NRC Staff. To illustrate the information outlined in the template, a set of examples was developed by industry and reviewed by an NRC panel representing the Staff stakeholders in the ITAAC process. Feedback from the NRC panel on the specific ITAAC examples was provided to the industry in a series of public workshops and incorporated into the examples. These examples are set forth in Appendix D to this document.

The template provides for including the following in the ITAAC closure letters:

- ITAAC statement – restates the ITAAC (including the design or COL commitment, inspection, test or analysis, and acceptance criteria)
- ITAAC determination basis – explains how the ITAAC was met
- ITAAC-related construction findings – NRC IRCFs related to this specific ITAAC with an indication of closure of the findings

- ITAAC completion statement – confirmation that the ITAAC has been closed
- List of references – primary references that will be available for NRC review at the site

The ITAAC closure letter provides the basis for the licensee's conclusion that ITAAC acceptance criteria have been met as of a given date. Since plant construction will take place over a period of years, it is likely that an ITAAC that was closed early in the process will require a corrective action or preventive maintenance at a future point in time prior to fuel load. Significantly, these activities should not invalidate the licensee's ITAAC completion determination. (See Section 8.1, "Maintaining the Validity of ITAAC Conclusions Post-ITAAC Completion.")

7 GUIDANCE ON SUFFICIENT INFORMATION FOR 225-DAY NOTIFICATION OF UNCOMPLETED ITAAC

As explained in Section 3.2.1 of this document, the licensee is required under 10 CFR 52.99(c)(2) to notify the NRC no later than 225-days prior to scheduled fuel load regarding the status of any uncompleted ITAAC. The notification must indicate that the inspections, tests or analyses for all uncompleted ITAAC will be performed and that the acceptance criteria will be met prior to plant operation. These notifications are similar to the ITAAC closure letter submitted under 10 CFR 52.99(c)(1) in terms of the level of technical detail required to describe the ITAAC completion process. However, because these notifications concern ITAAC that have yet to be completed, they should also provide some basis for the expectation that the ITAAC will be successfully completed before fuel load. The 225-day notification mandated by 10 CFR 52.99(c)(2) must include sufficient information so that interested persons will have access to information on uncompleted ITAAC at a level of detail sufficient to address the Atomic Energy Act of 1954, Section 189.a(1)(B), threshold for requesting a hearing on whether the accepted criteria have been, or will be, met. See 72 *Fed. Reg.* 49,366 and 72 *Fed. Reg.* 49,450. The target reader for the 225-day notification is the same as described in Section 6 of this document.

The 225-day notification will describe the status for multiple ITAAC. Therefore, the licensee will provide a signed cover letter explaining the purpose of the notification that will include attachments for individual ITAAC status. To ease administrative burden for all stakeholders, a licensee may choose to provide the 225-day notification in two or more parts, each covering a portion of the uncompleted ITAAC. For example, partial 225-day notifications may be organized by system, by type of ITAAC (e.g., system hydro testing), or by the expected timing of ITAAC completion. Use of a phased approach to send a portion of the notifications to the NRC in advance of the due date could ease the burden of processing.

Similar to the approach for the ITAAC closure letters, the industry has developed templates for the cover letter and the ITAAC-specific attachments as shown in Appendices E-1 and E-2. To illustrate the use of the template, examples of 225-day notifications for specific ITAAC are provided in Appendix E. The templates and the examples were developed by industry and reviewed during public workshops by an NRC

panel representing the staff stakeholders in the ITAAC process, similar to the ITAAC closure letter review discussed in Section 6.

The template for the ITAAC-specific attachments to the 225-day notification(s) provides for the following items:

- ITAAC statement – restates the ITAAC, including the design or COL commitment, inspection, test or analysis; and acceptance criteria.
- Actions achieved toward ITAAC completion – describes actions that are already underway or completed.
- Actions remaining to attain ITAAC completion – describes actions remaining to complete the ITAAC.
- ITAAC completion schedule – provides planned schedule to complete the ITAAC.
- List of references – primary references that will be available for NRC review at the site.

8 SPECIAL TOPICS

8.1 MAINTAINING THE VALIDITY OF ITAAC CONCLUSIONS POST-ITAAC COMPLETION

The licensee will complete ITAAC over a prolonged period. ITAAC closure letters will be submitted by the licensee to establish closure in accordance with 10 CFR 52.99(c)(1), as discussed in SECY-06-0114, *Description of the Construction Inspection Program for Plants Licensed Under 10 CFR Part 52*, May 13, 2006. Following licensee submittal of an ITAAC closure letter, significant time may elapse before the finding is made that the ITAAC acceptance criteria are met in accordance with 10 CFR 52.103(g).

Until the time all ITAAC are met and the Commission makes its 10 CFR 52.103(g) ITAAC finding licensees will use established programs (e.g., quality assurance, problem identification and resolution, design/configuration control, and construction/maintenance programs) to maintain the validity of prior ITAAC conclusions. This is known as ITAAC maintenance or maintaining ITAAC. The licensee should ensure that the following activities do not invalidate the ITAAC determinations:

- Normal maintenance and repairs on SSCs associated with ITAAC.
- Incidents or findings (e.g., damage from other nearby construction work) that create or identify potential non-compliances or non-conformances with SSCs that may be corrected under the licensee's Corrective Action Processes.
- Changes to SSCs or programs associated with ITAAC that may be permitted to be made by the licensee without prior NRC approval in accordance with applicable change control requirements.

While it is incumbent upon the licensee to maintain the validity of ITAAC conclusions as described above, the licensee should notify the NRC of the occurrence of certain post-ITAAC closure activities to affirm that the basis for determining that the ITAAC are met remains valid. Such notifications may also facilitate the Staff's ITAAC inspection

activities and enhance the transparency of the ITAAC closure process. The thresholds for making these notifications are established in Section 8.1.2.

In addition to notifications described below, routine interactions such as daily meetings ~~would~~ are important to facilitate ~~the~~ communication with NRC Resident Inspectors regarding activities affecting closed ITAAC. For example, licensees should [use the template provided in Appendix G – FUTURE – to] identify to NRC Resident Inspectors conditions that exceed notification thresholds identified in Section 8.1.2 upon determining that such conditions exist.

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~~The licensee should notify the NRC resident inspector of:~~

- ~~Corrective maintenance on SSCs related to closed ITAAC~~
- ~~Submittal of a Supplemental ITAAC Closure Letter~~
- ~~Submittal of a ITAAC Component Replacement Summary Letter~~

8.1.1 Attributes of Licensee Programs for Maintaining ITAAC

The licensee should maintain the validity of ITAAC determinations through proper implementation of its Quality Assurance, Corrective Action~~Problem Identification and Resolution~~, Design/Configuration Control, and Construction/Maintenance Programs. During the ITAAC maintenance period, these ~~Quality Assurance, Problem Identification and Resolution, Design/Configuration Control, and Construction/Maintenance P~~programs should include the following attributes to ensure the validity of ITAAC determinations is maintained.

- Quality Assurance Program (QAP)

  QAP requirements governing licensee procurement, fabrication, construction, inspection and test activities for SSCs covered by ITAAC are specified in accordance with the safety classification and/or safety significance of the SSCs involved. ITAAC encompass SSCs of varying safety significance and safety classification, including safety-related and non-safety-related SSCs. Because ITAAC have special regulatory significance under Part 52, licensees should document ITAAC closure and ITAAC Maintenance under their Quality Assurance Program.

- Construction Corrective Action Processes

  Construction Corrective Action Processes should be used to ensure that any identified ITAAC related deficiencies are processed and resolved and that the ITAAC acceptance criteria continue to be met

  Attributes will be included to maintain ITAAC closure:
  - Conditions will be screened for impact on ITAAC.
  - Conditions material to ITAAC will be specifically flagged in the Correction Action Program (CAP).

- Conditions will be corrected, documented, etc., in accordance with NEI 08-02
- The licensee will determine whether NRC needs to be notified in accordance with the guidance in Section 8.1.2.
- ITAAC Closure Package will be supplemented as appropriate.

- Design/Configuration Control Program

  The Design/Configuration Control Program should ensure that changes to SSCs or programs will not ~~alter~~ affect compliance with ITAAC requirements and ensure that ITAAC acceptance criteria continue to be met. Note: the license cannot alter the wording of an ITAAC without obtaining NRC review and approval in accordance with 10 CFR 52.98(f)~~various provisions of 10 CFR Part 52~~.

  Attributes will be included to maintain ITAAC closure:
  - Design Changes will be screened for impact on ITAAC.
  - The licensee will determine whether NRC needs to be notified in accordance with NEI 08-01, Section 8.1.2 ~~supplemental guidance~~.
  - ITAAC Closure Package will be supplemented as appropriate.

- Construction/Maintenance Programs

  The Construction/Maintenance Program should ensure that the ~~ITAAC~~ acceptance criteria of closed ITAAC continue to be met after ~~the~~ maintenance or repairs are ~~is~~ complete.

  Attributes will be included to maintain ITAAC closure:
  - Construction/Maintenance activities will be screened for impact on ITAAC.
  - Post Work ~~Testing~~ Verification will be performed as appropriate to maintain the validity of ITAAC conclusion~~s of the ITAAC~~.
  - The licensee will determine whether NRC needs to be notified in accordance with NEI 08-01, Section 8.1.2 ~~supplemental guidance~~.
  - ITAAC Closure Package will be supplemented as appropriate.

  Each of these programs is subject to NRC inspection, and the NRC staff may assess the licensee's maintenance of ITAAC conclusions as one element of these inspections. NRC inspectors may also assess the licensee's maintenance of ITAAC conclusions as part of inspections under IP ~~XXXXX~~40600, *Licensee Program for ITAAC ~~Closure~~Management*. Provided licensee programs restore SSCs to their ITAAC compliant condition following maintenance, prior ITAAC conclusions remain valid. Licensees will use these same or similar programs to maintain plant SSCs for the life of the plant after the 10 CFR 52.103(g) ITAAC finding is made.

  These program attributes should be implemented as needed to support~~appropriate prior to the utilization of these programs to support~~ ITAAC closure and maintenance.

  The licensee is responsible for ensuring that these programs, and others as applicable, maintain the validity of prior ITAAC conclusions before, during and after systems and buildings are turned over to the operations staff.

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8.1.2 Post-ITAAC Closure Notifications to NRC ~~Under 10 CFR 52.99(TDB)~~

Material errors or omissions

~~[Relocated from 8.2]~~If a material error or omission is discovered in an original ITAAC Closure Letter and the ITAAC is considered to remain completed/closed, a ~~revised~~ Supplemental ITAAC Closure Letter should be submitted that will replace/supersede the original ITAAC closure letter.

In most cases, it is not necessary to submit a separate letter to withdraw an inaccurate or incomplete ITAAC Closure Letter; submittal of a ~~revised/replacement~~Supplemental ITAAC Closure Letter that explains the~~n~~ reasons for the new letter is sufficient. A licensee should submit a separate letter to withdraw an original ITAAC Closure Letter if it is determined that the ITAAC cannot be completed without ~~an exemption~~relief from the terms of the original ITAAC. In such cases, the request to withdraw the ITAAC Closure Letter may be included in the License Amendment Request associated with changing the terms of the ITAAC. In addition, in the event an error or omission is discovered soon after an ITAAC Closure Letter is submitted, a licensee should consider requesting withdrawal of the original letter prior to the next NRC *Federal Register* Notice of completed ITAAC.

Upon determining the need to withdraw or correct an ITAAC Closure Letter, the licensee should notify the NRC resident staff verbally. Supplemental ~~Revised/replacement~~ ITAAC Closure Letters should be prepared and submitted in a timely manner upon determination that the subject ITAAC is or continues to be met. ~~A~~ The ~~revised~~ Supplemental ITAAC Closure letter should explain why the letter is being submitted and how the underlying issue(s) or inaccuracies in the original letter have been resolved. ~~The NRC staff will review and process revised/replacement ITAAC Closure Letters in accordance with 10 CFR 52.99(e)(1) requirements.~~

The NRC has indicated that it plans ~~is expected~~ to include information regarding the withdrawal or correction of any ITAAC in its periodic *Federal Register* Notices of completed ITAAC.

Material alterations of ITAAC Determination Basis

If subsequent licensee activities materially alter statements made in the ITAAC Determination Basis summarized in the original ITAAC Closure Letter, licensees should submit a Supplemental ITAAC Closure Letter ~~in accordance with Section 52.99(TBD)~~to notify the NRC of the new information or conditions. Conditions that exceed the one or more of the following notification thresholds require a Supplemental ITAAC Closure Letter:

- Threshold 1: Will the Post Work Verification (PWV) use a significantly different approach than the original performance of the ITA as described in the original ITAAC letter? Example: The AC states that 300 gpm flow passes through an MOV. The MOV is replaced and water cannot be flowed through the valve (due to plant configuration/conditions) as part of the PWV to verify the AC continues to be met. Instead, the valve is stroked and an engineering analysis is performed to validate the AC. This condition requires a Supplemental ITAAC Closure Letter because an engineering analysis was created to verify that stroke timing of the

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replacement valve is sufficient to validate the same requirements as the original ITAAC testing.

- Threshold 2: Is an engineering change necessary that materially alters the determination that the acceptance criteria are met? Example: A design change is required to add pipe snubbers to ASME piping to address water hammer damage to a support that occurred during pre-op testing. This condition requires a Supplemental ITAAC Closure Letter because an engineering design change is required to address the issue of water hammer, and the design change is material to the determination that the acceptance criterion is met, i.e., that ASME piping can withstand combined normal and seismic loads.

- Threshold 3: Will there be additional items that need to be verified through the ITAAC? Example: ASME piping is damaged and base metal repairs are made. The ASME Code Report is revised to add more welds from the base metal repair information. This condition requires a Supplemental ITAAC Closure Letter because the scope of the ITAAC determination basis was increased with the addition of more welds that are reviewed as part of the updated ASME Code Report.

- Threshold 4: Will any licensee activities materially alter the ITAAC determination basis? Example: An addition or correction is made to a seismic report that was cited in the ITAAC Closure Letter. This condition requires a Supplemental ITAAC Closure Letter to update the ITAAC determination basis to reflect the corrected or supplemented seismic report.

- ~~Threshold 1: The Post Work Verification (PWV) uses a significantly different approach than the original performance of the ITA as described in the original ITAAC letter.~~

- ~~Threshold 2: An engineering change has been implemented that materially alters the determination that the acceptance criteria are met.~~

- ~~Threshold 3: The population of SSC's and related subcomponents been increased after closure notification, which results in more items being subject to the prescribed verification.~~

- ~~Threshold 4: Other Licensee activities that materially alter the statements made in the ITAAC determination basis.~~

Additional e~~E~~xamples of conditions that would meet each of these thresholds are provided in Appendix H.

The Supplemental ITAAC Closure Letter should be submitted ~~in a timely manner~~within 30 days of completion of work to resolve the issue, and should identify what changed, why the change occurred and the basis for concluding that closure of the ITAAC remains valid. A template for and examples of Supplemental ITAAC Closure Letters are provided in Appendix I.

Licensees should supplement their ITAAC Closure Packages to reflect:

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- A new or supplemental ITAAC Closure Letter submitted to the NRC
- Replacement of ITAAC-verified components identified to the NRC
- Updates to documents referenced in the ITAAC Closure Letter.
- Supplemental information regarding post work verification (PWV) — If PWV differs from the original ITAAC, the ITAAC Closure Package should be supplemented with an engineering justification that provides the basis for the conclusion that ITAAC acceptance criteria continue to be met.

The information in ITAAC Closure Packages will be available for NRC inspection at the plant site.

~~If a condition is identified near the time of the expected 52.103(g) finding (e.g., after submittal of the ITAAC All Complete Letter), the NRC staff may proceed with the Section 52.103(g) finding recommendation to the Commission on condition that the affected SSCs must be restored and verified to their ITAAC compliant condition before the Commission makes the Section 52.103(g) finding that all ITAAC are met, and provided the following conditions are met: 1) the ITAAC was verified to be met at one time, and 2) the staff has reviewed and found acceptable the licensee's corrective action plan, including any engineering justification necessary for post work verification that significantly differs from the original ITAAC, and 3) the staff has confidence that all other ITAAC determination bases have been maintained and that the ITAAC continue to be met. Such a conditioned recommendation to the Commission allows the Section 52.103(g) finding process to proceed in parallel with maintenance to restore SSCs while assuring that all ITAAC are met prior to the Commission finding~~

~~8.1.3 ITAAC Component Replacement Letter~~

~~Like-for-like replacement of components specifically identified and verified as part of a closed ITAAC acceptance criterion in accordance with approved procedures does not change the validity of the original ITAAC closure letter. As such, a Supplemental ITAAC Closure Letter is not submitted in the case of like-for-like replacement of ITAAC-specified components. However, for process transparency, licensees should notify the NRC by letter when such ITAAC-specified components are replaced. Note that specific components within the scope of an ITAAC may be identified in the ITAAC itself or in tables or drawings referenced in the ITAAC. An ITAAC Component Replacement Letter regarding whether any ITAAC components had previously been replaced should be provided to the NRC one year prior to fuel load. Thereafter, an ITAAC Component Replacement Letter should be provided every 30 days identifying any components replaced during the prior 30-day period, up to 120 days prior to fuel load. The timing of these letters is based on the expected schedule for ITAAC completion and submission of ITAAC Closure Letters to the NRC. It is important to recognize that a single component replacement may affect multiple ITAAC.~~

~~The information provided in the ITAAC Component Replacement Letters provides the basis for concluding that prior conclusions and ITAAC Determination Bases in the referenced ITAAC Closure Letters remain valid. For example, a licensee may need to replace a damaged motor operated valve that was identified and verified as part of a seismic qualification, closure time or other ITAAC. The specified valve would be considered an ITAAC component, and an ITAAC Component Replacement Letter should be sent to the NRC. Note that if only the motor was~~

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damaged and replaced, the corrective action is considered a repair and not an ITAAC component replacement. A template for the ITAAC Component Replacement Letter is provided in Appendix G.

Following component replacement or other maintenance activity, PWV is performed in accordance with approved plant procedures, manufacturer recommendations and applicable codes and standards. Licensees should ensure that PWV demonstrates the work was performed properly and applicable ITAAC acceptance criteria continue to be met. The PWV should be the same as, or as similar to, the original ITAAC as practical. PWVPWVWhen PWV is significantly different than the ITA, an engineering justification will be required to demonstrate that the specified PWV is sufficient and appropriate. This engineering justification should be documented in the ITAAC Closure Package that provides the basis for the conclusion that ITAAC acceptance criteria continue to be met following an ITAAC component replacement. Furthermore, in some cases it may not be practical to duplicate every aspect of the original ITAAC (e.g., inability to configure system line-up, PWV based on the original ITAAC may conflict with the ASME Code or other applicable Code or Standard). If PWV differs significantly from the original ITAAC, a Supplemental ITAAC Closure Letter may be required; see Section 8.1.2.

Some ITAAC do not identify specific components to be verified. Such ITAAC include electrical separation, containment integrated leak rate, existence of fire barriers, flooding protection, min/max room volumes, human factors, functional arrangement, and other design issues. Closure of these ITAAC is maintained through approved licensee design, configuration, and other programs that are subject to NRC inspection. Conformance with such Tier 1 design requirements is typically not subject to change; in any event, plant changes affecting these design attributes would be identified to NRC in accordance with the Part 52 change process. Prior NRC approval is required for any change that does not meet Tier 1/ITAAC requirements. [10 CFR 52.98(c),(f)]

Except for the replacement of components specifically identified and verified as part of closed ITAAC acceptance criteria, NRC would not be notified by letter of preventive and corrective maintenance where components are restored to their as-designed, ITAAC compliant condition such that statements and conclusions in the ITAAC Closure Letter remain valid.

8.1.48.1.3 "All ITAAC Complete Letter" to Support the 10 CFR 52.103(g) ITAAC Finding

Prior to the Commission's 10 CFR 52.103(g) ITAAC finding that the ITAAC acceptance criteria in the COL are met, licensees must have completed all ITAAC, submitted all required 10 CFR 52.99(c)(1) notifications, and must be maintaining all ITAAC conclusions.

Following completion of the last ITAAC, licensees should provide an "All ITAAC Complete" letter to the NRC. The purpose of this letter is to confirm that all ITAAC have been performed, all acceptance criteria have been met, and all ITAAC conclusions are being maintained. The letter is also intended to facilitate the Staff's recommendation to the Commission concerning the completed status of all ITAAC in support of the 10 CFR 52.103(g) ITAAC finding.

Licensees may consider all ITAAC complete and submit its "All ITAAC Complete" letter to the NRC even if maintenance activities are in progress on ITAAC components provided the activities do not exceed the notification thresholds identified in Section 8.1.2. The state of

being out-of-service pending restoration in accordance with licensee programs and procedures does not necessarily invalidate prior ITAAC conclusions; these ITAAC continue to be met. Components out of service for corrective maintenance will be tracked via construction corrective action processes.

Following submittal of the "All ITAAC Complete" letter, if the licensee determines that a condition exceeds one of the thresholds discussed in Section 8.1.2 for a Supplemental ITAAC Closure Letter, the licensee should notify the NRC Resident Inspector within 24 hours of such a determination. Licensees should use Appendix G [FUTURE] to notify NRC of such conditions. The Supplemental ITAAC Closure Letter should be submitted to NRC after work to resolve the issue is complete. The licensee may request the NRC staff to proceed with the Section 52.103(g) finding recommendation to the Commission; however, NRC may not make the Section 52.103(g) finding until conditions exceeding the Section 8.1.2 notification thresholds are corrected and any associated Supplemental ITAAC Closure Letters are received.

~~If one or more conditions that were the subject of a Supplemental ITAAC Closure Letter (see Section 8.1.2), have not been completely resolved, the licensee's "All ITAAC Complete" letter should include a schedule for completion and a summary of the corrective action plan, including an engineering justification for any PWV that significantly differs from the original ITAAC. Resolution of all conditions that were the subject of a Supplemental ITAAC Closure Letter must be complete before the 10 CFR 52.103(g) ITAAC finding is made.~~

~~8.2 OLD 8.2 CONTENT OF THIS SECTION RELOCATED TO 8.1.2~~

~~-~~

~~8.3~~8.2 DESIGN ACCEPTANCE CRITERIA

Design Acceptance Criteria (DAC) are a special type of ITAAC that may be included in design certifications. DAC set forth the processes and acceptance criteria for completing portions of a certified design, e.g. portions of the digital instrumentation and control system design. Verification of completed DAC is accomplished through as-built ITAAC.

DAC are established in areas of rapidly changing technology where it may be inappropriate to prematurely freeze the design, or in areas where the information is dependent on as-built or as-procured information. To date, DAC have been approved in design certifications in four areas: digital instrumentation and control (digital I&C), piping, human factors engineering (main control room and remote shutdown system design), and radiation shielding. Use of DAC in design certifications requires Commission approval.

NRC provides regulatory guidance regarding DAC implementation in RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)", Section C.III.5. Licensees may refer to this guidance regarding NRC expectations on the level of detail and design elements for DAC closure.

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~~8.3.1~~8.2.1 DAC Closure Options

There are three options to close DAC, all of which involve essentially the same level of design detail. The design information necessary to close DAC should be that level which would have been provided during design certification review if DAC had not been used. Regardless of the option used to close DAC, NRC closure of DAC embodies a determination that the design has been completed in accordance with the design certification. The three options for DAC closure are:

- *Closure through amendment of design certification rule* – Under this option, the design certification applicant would submit an amendment with design information that implements the DAC. Completed DAC would be deleted from the set of design certification ITAAC; however, the ITAAC on the as-built SSCs would remain (or be modified, as necessary) to demonstrate that the as-built facility conforms to the completed DAC. The NRC would review the amendment request, issue a safety evaluation, and conduct rulemaking to amend the design certification rule.
- *Closure through the COLA review process* – Under this option, the COL application contains the additional design information needed to implement the DAC. The NRC reviews the design and includes the results of its review in the safety evaluation for the COL. The COL should reflect that the DAC have been completed. The as-built ITAAC would remain (or be modified as part of the NRC review of the COLA, as necessary) to demonstrate that the as-built facility conforms to the completed DAC.
- *Closure after COL issuance* – Under this option, the COL is issued with DAC. When the necessary additional design information is available, the licensee's DAC implementation is inspected by the NRC as part of the ~~Engineering Design Verification (EDV)~~construction inspection process. Following issuance of the applicable NRC ~~EDV~~ inspection report, and resolution of any findings that would otherwise preclude DAC closure, close-out of DAC is accomplished via the ITAAC closure process described in this document (e.g., close-out is initiated by a licensee's ITAAC closure letter to NRC). A ~~s~~Sample ITAAC closure letter for digital I&C DAC is provided in Appendix D-22.

~~8.3.2~~8.2.2 Actions Following DAC Closure

Following DAC closure by the licensee and NRC, the licensee should assess the extent to which any changes to the licensing basis are necessary. For example, if actual DAC implementation is inconsistent with the FSAR, the FSAR should be updated to conform to the actual DAC implementation. Also, the FSAR will need to be updated, in accordance with 10 CFR 50.71(e), to appropriately reflect the design information generated in closing out the DAC. If the licensee determines that FSAR, technical specification or other changes are necessary or appropriate to reflect actual DAC implementation, changes should be evaluated and implemented via the design certification or other applicable change process, and a license amendment requested, if required.

~~8.3.3~~8.2.3 Subsequent COL Projects

DAC closure via the design certification amendment process resolves DAC with finality for all COL applications referencing that certified design.

Closure of DAC via the COL or post-COL processes applies only to a single licensee. However, it is expected that subsequent licensees will implement DAC using the standard design information approved for the licensee who first implemented the DAC with the exception of site-specific parameters. As discussed in Section C.III.5 of RG 1.206, the staff is expected, in turn, to use the NRC's design-centered review approach, i.e., perform a confirmatory review only, to approve DAC implementation for licensees that reference standard design DAC information approved previously by the staff. The licensee and NRC would similarly use the design-centered review approach to document closure of the DAC.

Use of the design centered review approach supports the goal of standardization for at least a cohort of plants before technology advances to a point where a different approach may be employed. If DAC implementation is modified for subsequent licensees, e.g., to reflect evolving technology, the NRC may inspect the modified DAC implementation as it did for the first licensee to implement the DAC.

~~8.4~~8.3 SUBSEQUENT COL ITAAC CLOSURE

The NRC has adopted a design-centered review approach for COL and DCD reviews that is described in detail in SECY 06-0019. This process allows the staff to use a "one issue-one review-one position" strategy as practical for items that are identical in the DCD and COLA or identical in the reference COLA and subsequent COLAs. This design-centered approach may also be appropriate for ITAAC verification associated with common design reports or other data that is not site-specific.

For ITAAC that are common to each licensee of a particular design, closure letters may reference identical information, for example the same type test or reactor vendor design report. ITAAC completion by subsequent licensees based on identical information will facilitate the use of the design-centered approach by the NRC for their review and confirmation that the ITAAC is closed. Similar to what is described for the review of DAC in Section 8.3.3 of this document, this approach will enable the staff to close ITAAC via a confirmatory review. This approach would not apply to those portions of ITAAC acceptance criteria that require field activities.

In addition to the examples in Appendices D and E, licensees may use plant-specific ITAAC closure letters previously submitted to and accepted by the NRC for another licensee as a guide for developing their own closure letters on corresponding ITAAC.

Some ITAAC are identified as applicable to the "First Plant Only" or First Three Plants Only." Each COL applicant must address all ITAAC in a referenced design certification; however, for ITAAC applicable only to the first, or first three, plants of a given design, subsequent applicants may reference the ITAAC closure(s) from the previous project(s) and request those ITAAC be considered resolved for purposes of additional COL proceedings.

8.58.4 NON-ITAAC SYSTEMS

The ITAAC for existing design certifications cover all of the structures and systems within the scope of each design certification. The level-of-detail (amount of design description) for a particular ITAAC is commensurate with the safety significance of that structure or system. Some systems with very little or no safety significance only contain the system title and the statement "no entry for this system." These systems do not have any design commitments to be verified. Two examples of such systems are the AP1000 Potable Water System and Waste Water System. Such systems are known as non-ITAAC systems. Design certifications may employ various conventions for identifying non-ITAAC systems in Tier 1.

In some cases, a system identified as a non-ITAAC system refers to design commitments in another ITAAC. Two examples of such systems are the AP1000 Main Steam System and the Steam Generator Blowdown System.

The NRC may inspect any construction-related activities it chooses as part of its Construction Inspection Program, including SSCs that are part of a non-ITAAC system. However, the notification requirements in 10 CFR 52.99 apply only to ITAAC that have, or refer to, design commitments to be verified.

8.5 GUIDANCE FOR INSPECTIONS, TESTS OR ANALYSES PERFORMED AT OTHER THAN FINAL INSTALLED LOCATION

Some ITAAC specify that inspections, tests or analyses (ITA) are to be performed on "as-built" systems, structures, or components. Such ITAAC are known as "as-built ITAAC." ~~This section provides guidance for situations when ITAAC inspections or tests are performed on a structure, system, or component (SSC) at other than the SSCs final installed location, as well as when the Inspection, Test or Analysis (ITA) must be performed at the final installed location.~~ From Section 2, ~~The guidance is based on~~ the definition of "~~As~~as-built" ~~identified in~~is as follows ~~Section 2~~:

> **As-built** means the physical properties of a structure, system, or component following completion of its installation or construction activities at its final location at the plant site. In cases where it is technically justifiable, determination of physical properties of the as-built structure, system, or component may be based on measurements, inspections, or tests that occur prior to installation, provided that subsequent fabrication, handling, installation, and testing do not alter the properties.

Sections 8.5.1-8.5.6, below, provide guidance on as-built ITAAC for which it is technically justified to perform ITA on a structure, system, or component (SSC) at other than its final installed location. As discussed in these subsections, a range of inspections and tests of engineered components are performed at the manufacturing, fabrication or testing facility. Typically customer purchase orders require supplier certification documentation that specified inspection and/or test requirements were met before shipment. Many of these inspections/tests correspond to those required by as-built ITAAC and include, but are not limited to dimensional inspections, non-destructive examination, hydrostatic testing, type testing, seismic testing, and

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functional testing. For these ITAAC, the term "as-built" refers to the physical properties of the completed engineered component as it is shipped from the manufacturing facility. After installation or construction in the final location, ITAAC associated with verifying the installed configuration and system or integrated system inspection/testing may be performed.

Licensees may identify and perform other types of tests/inspections/analyses at other than the final installed location, that are not discussed in Sections 8.5.1—8.5.6 below. Section 8.5.7 provides guidance for these situations.

When inspections or tests are to be performed at other than the final installed location, a determination should be made regarding whether additional measures for shipping, handling and installation should be implemented to ensure that installed SSCs are intact and that inspection/test results obtained at other than the final installed location facility remain valid. If ~~special~~ additional measures are to be implemented to ensure installed SSCs are intact after transportation/placement, the information should be included in procurement or other documentation that is referenced in the ITAAC ~~Closure~~ Completion Package.

ITAAC Closure Letters include a reference to NEI 08-01 ~~which contains~~as a source of guidance and generic technical justifications for ~~on testing/inspection~~ITA performed at other than the final installed location. As discussed in Section 5.1.3, t~~T~~he ITAAC Completion Package ~~should reference~~ documents ~~ation of tests/inspections~~ITA~~,~~ performed in accordance with NEI 08-01, including those performed at other than the final installed location.

As indicated in Section 4.2, "Licensee Schedule Coordination", the licensee will provide NRC with a schedule for ITAAC-related activities performed both on site and off site (in vendor shops). Prior to the initial sharing of ITAAC schedule information, applicants and licensees should inform their NRC Project Manager ~~on an ad hoc basis~~ regarding long lead procurement of SSCs and other early activities subject to ITAAC.

The following subsections address the various ~~ways the term~~types of "as-built" ~~may be used in within~~ ITAAC and provide guidance on when ITA may be performed at other than the final installed location.

~~See~~ Appendix D-1 ~~for~~ provides a template for ITAAC Closure Letters ~~Template Guidance~~. Appendices D-16 and D-17 are example ITAAC Closure Letters with ITA performed on SSCs at other than their final location at the plant site.

8.5.1 Testing ~~or Inspection~~ of "As-built" Systems

When an ITAAC specifies testing ~~or inspection~~ of an as-built system, the ~~ITA~~inspection/test is typically ~~meant~~ intended to be ~~applied~~ performed at the completion of construction activities and system installation at its final location at the plant site.

ITAAC for s~~S~~ome plant designs~~/ITAAC~~ may call for systems to be tested at a module fabrication or other manufacturing facility. In these cases, the ITAAC should specify that system tests will be performed at other than the final installed location.

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8.5.2 "As-built" Structure or Component Testing

When the ~~ITA specifies testing of as-built SSCs and the~~ location of as-built ITAAC testing is not prescribed, ~~it is assumed~~ such tests should generally be performed with the structure or component ~~SSC~~ installed in its final location at the plant site. However, testing of structures or components may be performed at other than the final installed location provided that doing so is in accordance with standard industry practice and specified in procurement specifications, or in accordance with NRC regulatory guidance. ~~However, for components procured to an ASME, IEEE or other industry Code/Standard, or in accordance with NRC regulatory guidance, that calls for testing at other than the final installed location, then the ITA may be performed at other than the final installed location in accordance with the applicable Code, Standard or Regulatory Guide.~~ Examples include hydrostatic testing; seismic or harsh environment type testing; active safety component testing specified in the procurement documents; or functional tests specified in the procurement documents. System testing and integrated system testing should follow the Section ~~8.6~~8.5.1 guidance for completed as-built systems.

8.5.3 ~~"As-built" Inspection of Type-Tested Components~~~~"As-built" Bounding~~

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When the ITAAC uses terminology indicating that the as-built construction should be bounded by ITA performed at other than the final installed location (e.g., Type Testing, such as seismic, harsh environment, or active safety component testing), then completion of such ITAAC should include or be supplemented by other ITAAC requiring verification of ~~any affected~~the installed component configuration ~~SSC~~ in its final location at the plant site.

8.5.4 "As-built" Code Requirements

If ITA are performed at locations separate from the plant site in accordance with the provisions of the ~~any~~ ASME, IEEE or other Code, ~~provisions specify conduct of the ITA requirements at locations separate from the plant site,~~ it is "technically justifiable" not to repeat the ITA at the final in-plant location as long as the ITAAC a~~A~~cceptance c~~C~~riteria were met in the manufacturing, fabrication or other facility~~have been previously met in the application of the "as-built" definition~~. An example of this would be non-destruction examination of ASME Code components.

8.5.5 "As-built" Inspections

In cases where it is ~~objectively understood~~clear that an inspection can only be performed on an as-built component at a location other than the plant site, it is "technically justifiable" to document that inspection as the record of the related ITAAC completion in the ITAAC Completion Package. An example of this would be inspection of an internal component dimension that is not accessible for measurement after installation.

In addition, inspections of structures or components may be performed at other than the final installed location provided that doing so is standard industry practice and specified in procurement specifications, or in accordance with NRC regulatory guidance. The record of the

inspection performed at the manufacturing, fabrication or other facility may serve as the record of the related ITAAC completion in the ITAAC Completion Package. if an ITA inspection is performed at a location, other than the final installed location, because it is standard industry practice and the basis has been documented in engineering or procurement documents that support performance of the ITAAC, then Tthe licensee need not document a separate Technical Justification in the ITAAC Closure Completion Package. An example of this would be non-destruction examination of ASME Code components.

In such cases, the following considerations are examples of bases typically used to determine the appropriateness of performing inspections at other than the final installed location.
Inspecting structures or components in manufacturing, fabrication or similar facilities prior to final installation has become standard industry practice in order to ensure that the components have been verified to meet specified requirements prior to shipping. due to the aAdvantages of performing inspections in a manufacturing environment versus field construction conditions include . For example, specialized inspection equipment may be available only in the manufacturing facility, or access to components may be difficult after installation such that inspection in the manufacturing facility is consistent with principles of industrial safety.

- Industrial Safety
- Accessibility
- Inspection Equipment Precision
- Manufacturing Environment versus Field Construction Conditions
- Technical Familiarity/Specialization with the SSC

If an as-built ITAAC ITA inspection performed at other than the final installed location deviates from standard industry practice or is not performed in accordance with applicable engineering and procurement documents and plan, then, a technical justification should be provided by the licensee in the ITAAC Closure Completion Package. This document should provide the basis for not performing the inspection at the final installed locationin a manner different than normal industry practice. Also see Section 8.5.7, below.

8.5.6 "As-built" Analysis

Where the as-built ITAACITA prescribes analyses of as-built construction, it is "technically justifiable" for such analyses to be performed prior to construction completion, as long as there is supporting evidence (e.g., design change reconciliation, installation inspections, post-installation inspections/tests) that the final construction was not in variance with analytical assumptions or conclusions.

8.5.7 Technical Justifications for Other Tests/Inspections at O~~o~~ther than the F~~f~~inal I~~i~~nstalled L~~l~~ocation

Licensees may identify and perform other types of ~~testing/~~inspection/tests/analyses for as-built ITAAC at other than the final installed location, that are not discussed in Sections ~~8.6~~8.5.1—~~8.6~~8.5.6, above. Technical justification for performing ~~testing/inspection~~ITA of SSCs~~,~~ at other than their final installed location~~,~~ (other than that described above)~~,~~ should be documented in the ITAAC Completion Package and ~~identified~~ summarized in the ITAAC Closure Letter. The Technical Justification should consist of the basis for concluding that it is appropriate to perform ITA at other than the final installed location and the basis for concluding that acceptance criteria continue to be met after SSCs are installed in the plant.

To assure coordination with NRC inspectors, the licensee should identify plans to perform tests or inspections~~,~~ at other than the final installed location, other than those described above, to NRC resident/regional inspectors as early as practical. One means of identifying such ~~,~~ plans and technical justifications is ~~e.g.,~~ in connection with regular licensee interactions related to ITAAC completion plans/schedules.

9 ACRONYMS

ASME — American Society of Mechanical Engineers
CAMS – Containment Atmospheric Monitoring System
CIP — Construction Inspection Program
COL — Combined License
COLA — Combined License Application
DAC — Design Acceptance Criteria
DCD – Design Control Document
DCRA — Design-Centered Review Approach
DRAP – Design Reliability Assurance Program
EDV — Engineering Design Verification
ESP — Early Site Permit
FHM – Fuel Handling Machine
FSAR — Final Safety Analysis Report
GDCS – Gravity Driven Cooling System
HFE — Human Factors Engineering
IDB – ITAAC Determination Bases
IRCF — ITAAC-Related Construction Finding
ITA — Inspections, Tests, or Analyses
ITAAC – Inspections, Tests, Analyses and Acceptance Criteria
NDE — Non-Destructive Examinations
NRC — U.S. Nuclear Regulatory Commission
PWV – Post-work verification
QAP — Quality Assurance Program
QAPD — Quality Assurance Program Description
RCIC – Reactor Core Isolation Cooling
SSC — Structure, System or Component

APPENDIX A – EXCERPTS FROM 10 CFR PART 52

10 CFR 52.99, INSPECTION DURING CONSTRUCTION (REVISION DATE AUGUST 28, 2007)

(a) The licensee shall submit to the NRC, no later that 1 year after issuance of the combined license or at the start of construction as defined in 10 CFR 50.10(a), whichever is later, its schedule for completing the inspections, tests, or analyses in the ITAAC. The licensee shall submit updates to the ITAAC schedules every 6 months thereafter and, within 1 year of its scheduled date for initial loading of fuel, the licensee shall submit updates to the ITAAC schedule every 30 days until the final notification is provided to the NRC under paragraph (c)(1) of this section.

(b) With respect to activities subject to an ITAAC, an applicant for a combined license may proceed at its own risk with design and procurement activities, and a licensee may proceed at its own risk with design, procurement, construction, and pre-operational activities, even though the NRC may not have found that any one of the prescribed acceptance criteria have been met.

(c)(1) The licensee shall notify the NRC that the prescribed inspections, tests, and analyses have been performed and that the prescribed acceptance criteria have been met. The notification must contain sufficient information to demonstrate that the prescribed inspections, tests, and analyses have been performed and that the prescribed acceptance criteria have been met.

(2) If the licensee has not provided, by the date 225-days before the scheduled date for initial loading of fuel, the notification required by paragraph (c)(1) of this section for all ITAAC, then the licensee shall notify the NRC that the prescribed inspections, tests, or analyses for all uncompleted ITAAC will be performed and that the prescribed acceptance criteria will be met prior to operation. The notification must be provided no later than the date 225-days before the scheduled date for initial loading of fuel, and must provide sufficient information to demonstrate that the prescribed inspections, tests, or analyses will be performed and the prescribed acceptance criteria for the uncompleted ITAAC will be met, including, but not limited to, a description of the specific procedures and analytical methods to be used for performing the prescribed inspections, tests, and analyses and determining that the prescribed acceptance criteria have been met.

(d)(1) In the event that an activity is subject to an ITAAC derived from a referenced standard design certification and the licensee has not demonstrated that the ITAAC has been met, the licensee may take corrective actions to successfully complete that ITAAC or request an exemption from the standard design certification ITAAC, as applicable. A request for an exemption must also be accompanied by a request for a license amendment under § 52.98(f).

(2) In the event that an activity is subject to an ITAAC not derived from a referenced standard design certification and the licensee has not demonstrated that the ITAAC has

been met, the licensee may take corrective actions to successfully complete that ITAAC or request a license amendment under § 52.98(f).

(e) The NRC shall ensure that the prescribed inspections, tests, and analyses in the ITAAC are performed.

(1) At appropriate intervals until the last date for submission of requests for hearing under § 52.103(a), the NRC shall publish notices in the ***Federal Register*** *of the NRC Staff's determination of the successful completion of inspections, tests, and analyses.*

(2) The NRC shall make publicly available the licensee notifications under paragraph (c)(1), and, no later than the date of publication of the notice of intended operation required by § 52.103(a), make available all licensee notifications under paragraphs (c)(1) and (c)(2) of this section.

10 CFR 52.103, OPERATION UNDER A COMBINED LICENSE

(a) The licensee shall notify the NRC of its scheduled date for initial loading of fuel no later than 270 days before the scheduled date and shall notify the NRC of updates to its schedule every 30 days thereafter. Not less than 180 days before the date scheduled for initial loading of fuel into a plant by a licensee that has been issued a combined license under this part, the Commission shall publish notice of intended operation in the Federal Register. The notice must provide that any person whose interest may be affected by operation of the plant may, within 60 days, request that the Commission hold a hearing on whether the facility as constructed complies, or on completion will comply, with the acceptance criteria in the combined license, except that a hearing shall not be granted for those ITAAC which the Commission found were met under § 52.97(a)(2).

(b) A request for hearing under paragraph (a) of this section must show, prima facie, that—

(1) One or more of the acceptance criteria of the ITAAC in the combined license have not been, or will not be, met; and

(2) The specific operational consequences of nonconformance that would be contrary to providing reasonable assurance of adequate protection of the public health and safety.

(c) The Commission, acting as the presiding officer, shall determine whether to grant or deny the request for hearing in accordance with the applicable requirements of 10 CFR 2.309. If the Commission grants the request, the Commission, acting as the presiding officer, shall determine whether during a period of interim operation there will be reasonable assurance of adequate protection to the public health and safety. The Commission's determination must consider the petitioner's prima facie *showing and any answers thereto. If the Commission determines there is such reasonable assurance, it shall allow operation during an interim period under the combined license.*

(d) The Commission, in its discretion, shall determine appropriate hearing procedures, whether informal or formal adjudicatory, for any hearing under paragraph (a) of this section, and shall state its reasons therefore.

(e) The Commission shall, to the maximum possible extent, render a decision on issues raised by the hearing request within 180 days of the publication of the notice provided by paragraph (a) of this section or by the anticipated date for initial loading of fuel into the reactor, whichever is later.

(f) A petition to modify the terms and conditions of the combined license will be processed as a request for action in accordance with 10 CFR 2.206. The petitioner shall file the petition with the Secretary of the Commission. Before the licensed activity allegedly affected by the petition (fuel loading, low power testing, etc.) commences, the Commission shall determine whether any immediate action is required. If the petition is granted, then an appropriate order will be issued. Fuel loading and operation under the combined license will not be affected by the granting of the petition unless the order is made immediately effective.

(g) The licensee shall not operate the facility until the Commission makes a finding that the acceptance criteria in the combined license are met, except for those acceptance criteria that the Commission found were met under § 52.97(a)(2). If the combined license is for a modular design, each reactor module may require a separate finding as construction proceeds.

(h) After the Commission has made the finding in paragraph (g) of this section, the ITAAC do not, by virtue of their inclusion in the combined license, constitute regulatory requirements either for licensees or for renewal of the license; except for the specific ITAAC for which the Commission has granted a hearing under paragraph (a) of this section, all ITAAC expire upon final Commission action in the proceeding. However, subsequent changes to the facility or procedures described in the final safety analysis report (as updated) must comply with the requirements in §§ 52.98(e) or (f), as applicable.

APPENDIX B – RESERVED

This Appendix is reserved for future use.

APPENDIX C - GENERAL DESCRIPTION OF COMMON ITAAC ACCEPTANCE CRITERIA CATEGORIES

This information is provided as a supplement to information in the ITAAC closure letters to describe common processes that are related to ITAAC. Licensees will have specific procedures and programs to conduct the activities described in this section. Each licensee will also have a Quality Assurance Program (QAP) that will govern quality-related activities. The descriptions provided below are not intended to reflect fully the licensee's implementation of 10 CFR Part 50, Appendix B, requirements. They instead provide general information regarding the rigorous processes used by the nuclear industry for activities related to ITAAC completion. For a discussion of the application of the QAP to ITAAC completion and underlying SSCs, refer to Section 3.1.2, Role of the Quality Assurance Program.

1.1 CALCULATIONS AND ANALYSES

Calculations and analyses to support completion of ITAAC requirements should be controlled consistent with approved procedures developed in accordance with engineering program controls and QA program requirements as applicable. Procedures should specify the requirements for the preparation, review, approval, revision and administration of design analyses and calculations involving SSCs, including those that have associated ITAAC.

A calculation is a document that records the details and results of analytical or computational processes. These processes translate inputs, assumptions, constraints, standards, and methods into outputs that may be used in specifying or authorizing design requirements or operating parameters for SSCs. The calculation may include analysis of alternate, past or future configurations in addition to the current configuration.

Each calculation should have a unique numbering system and associated revision level assigned to it. Design verification should be required for safety-related ITAAC calculations and analyses and is recommended for non-safety-related ITAAC calculations and analyses. Calculations should be prepared in accordance with a specified format as designated by each licensee for consistency. The results of the calculation should be summarized and correlated to the calculation's purpose and objective.

Review and approval of calculations, either those calculations prepared by the licensee or prepared by an approved vendor, should be defined in procedures.

Use of computers to perform calculations should be controlled by procedures.

Records sufficient to provide evidence that the calculation was properly accomplished should be maintained.

1.2 TEST PROCEDURES

Measures and governing procedures should be established to ensure that activities affecting quality are prescribed by and performed in accordance with instructions, procedures or drawings of a type appropriate to the circumstances and which, where applicable, include quantitative or qualitative acceptance criteria to implement the test procedures. Provisions should be included for reviewing, updating, and canceling such procedures.

1.3 SPECIAL PROCESSES

Measures and governing procedures should be established to assure that special processes that require interim process controls to assure quality, such as welding, heat treating, and NDE, are controlled. These provisions include assuring that special processes are accomplished by qualified personnel using qualified procedures and equipment. Personnel should be qualified and special processes should be performed in accordance with applicable codes, standards, specifications, criteria or other specially established requirements. Special processes are those where the results are highly dependent on the control of the process or the skill of the operator, or both, and for which the specified quality cannot be fully and readily determined by inspection or test of the final product.

1.4 INSPECTION PROGRAM

The inspection program establishes inspections (including surveillance of processes), as necessary to verify quality: (1) at the source of supplied items or services, (2) in-process during fabrication at a supplier's facility or at a company facility, (3) for final acceptance of fabricated and/or installed items during construction, (4) upon receipt of items for a facility and (5) during functional testing, maintenance, and modifications.

Inspection program documents establish requirements for performing the planned inspections for and documenting required inspection information such as the person(s) performing the inspection and rejection, acceptance, and re-inspection results.

Inspection results should be documented by the inspector, reviewed by authorized personnel qualified to evaluate the technical adequacy of the inspection results, and controlled by instructions, procedures, and drawings.

Inspector Qualification

Qualification programs for personnel performing inspections should be established. The qualification program requirements should be described. These qualification programs are applied to individuals performing inspections regardless of the functional group where they are assigned.

1.5 ASME CODE DESIGN REPORTS

American Society of Mechanical Engineers (ASME) Code Section III as-built design reports should be prepared and certified by a Registered Professional Engineer consistent

with ASME Code requirements. Supporting documentation for these design reports should include certified ASME Code Section III Data Report forms, construction records (including construction drawings, deviations, repairs, etc.), records of walkdowns of each piping segment to identify differences between as-designed and as-built critical functions (pipe supports, welds, component and pipe locations, weights, orientation/moments, etc.), procurement documentation, fabrication records, receipt inspection records, and other documentation as applicable.

1.6 REPORTS THAT EXIST AND CONCLUDE THAT ACCEPTANCE CRITERIA ARE MET

A number of ITAAC have acceptance criteria that will be met by preparing a report that documents the results of specified inspections, tests, and/or analyses that demonstrate that acceptance criteria are met. These reports may summarize large volumes of information contained in inspection documents such as ASME code reports, may summarize multiple analyses needed to confirm the acceptance criteria, or otherwise document conclusions derived from type tests, analyses, inspections, vendor shop tests and inspections, or other sources that support the conclusion that the acceptance criteria have been met.

1.7 PROCUREMENT

Measures and governing procedures should be established to control the procurement of items and services to assure conformance with specified requirements. Such control should provide for the following, as appropriate: source evaluation and selection, evaluation of objective evidence of quality furnished by the supplier, source inspection, audit, and examination of items or services.

Measures should be established and implemented to assess the quality of purchased items and services, whether purchased directly or through contractors, at intervals and to a depth consistent with the item's or service's importance to safety, complexity, quantity and the frequency of procurement. Verification actions include testing, as appropriate, during design, fabrication and construction activities. Verifications occur at the appropriate phases of the procurement process, including, as necessary, verification of activities of suppliers below the primary contractor/supplier.

Measures to assure the quality of purchased items and services should be established in the Quality Assurance Program Description (QAPD).

1.8 MATERIAL CONTROL

Measures and governing procedures should be established to identify and control items to prevent the use of incorrect or defective items. This includes controls for consumable materials and items with limited shelf life. The identification of items is maintained throughout fabrication, erection, installation and use so that the item can be traced to its documentation, consistent with the item's effect on safety. Identification locations and methods should be selected so as not to affect the function or quality of the item.

1.9 TRAINING AND QUALIFICATIONS

Personnel assigned to implement elements of the ITAAC should be capable of performing their assigned tasks. Formal indoctrination and training programs should be established and maintained for personnel performing, verifying, or managing activities within the scope of the ITAAC to assure that proficiency is achieved and maintained. Minimum qualification requirements should be as delineated in supporting training programs. When required by code, regulation, or standard, specific qualification and selection of personnel is conducted in accordance with those requirements. Indoctrination includes the administrative and technical objectives, requirements of the applicable codes and standards for the ITAAC elements to be employed. Records of personnel training and qualification should be maintained.

1.10 MODULAR CONSTRUCTION AND TESTING

To reduce construction time, achieve high quality, enhance productivity and levelize site manpower, new nuclear plants are expected to make greater use of modular construction. Modular construction, used widely overseas and in other industries, involves offsite assembly of plant components into transportable sections that are shipped to the site and connected to other modules at their final installed plant location. In addition to assembling components, certain required inspections and tests are more efficiently and effectively performed in a module fabrication facility. Companies implement, as appropriate, measures for shipping, handling and installation of modules in their final plant location to ensure that installed modules are intact and that any inspection/test results obtained in an offsite facility remain valid. Inspection and testing commonly performed in module fabrication facilities and measures typically implemented to preserve module test/inspection results during shipping, handling and installation are described in EPRI Report 1021178~~XXXX~~.

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Appendix D – List of ITAAC Closure Letter Examples

Appendix	Technology	Description
D-1	All	Example ITAAC Closure Letter Template
D-2	AP1000	3.3-6, Item 7.d (Cable separation)
D-3	ABWR	2.15.12 Item 5 (Control building)
D-4	ABWR	2.3.3 Item 3 (CAMS)
D-5	ABWR	3.3 Item 1 (ASME piping)
D-6	AP1000*	2.1.1, Item 4 (FHM gripper)
D-7	AP1000*	2.1.2-4, Item 3.b (Pressure boundary welds prove-out)
D-8	AP1000*	2.5.2-8, Item 10 (Setpoints)
D-9	AP1000*	3.3-6, Items 2.a.i and ii (Seismic Cat I structures)
D-10	AP1000 *	3.7.3, Item 1 (D-RAP)
D-11	ESBWR**	2.1.2-3 Item 8 (Nuclear boiler I&C)
D-12	ESBWR**	2.3-1, Item 5.1 (Emergency facilities and equipment)
D-13	ESBWR**	2.4.2-3 Item 12 (GDCS squib valves)
D-14	ESBWR**	2.13.1-2, Item 6.c (On-site AC power)
D-15	AP1000*	2.2.3.4, Item 8a (Passive Core Cooling System)
D-16	ESBWR**	2.1.1-3 Item 2 (Reactor pressure vessel)
D-17	ESBWR**	2.1.2-3 Item 12 (Nuclear boiler system)
D-18	ABWR	2.4.4 Item 1 (RCIC system basic configuration)
D-19	AP1000*	2.19-1 Item 12 (Secondary security power supply system)
D-20	US-APWR	ITAAC 2.9-8c (Human Factors Engineering)
D-21	US-APWR	ITAAC 2.2-1 (Reactor Building and Power Supply Building
D-22	US-EPR	ITAAC 2.4.1 Items 4.14 c & d (Protection System - DAC)
D-23	N/A	Security ITAAC on access to Vital Areas

* AP1000 examples are based on Revision 15 to the AP1000 DCD. Although the wording of the ITAAC may be subject to change, the examples provide useful guidance for future ITAAC closure letters.

**ESBWR examples are based on Revision 5 to the ESBWR DCD. Although the wording of the ITAAC may be subject to change, the examples provide useful guidance for future ITAAC closure letters.

US-APWR examples are based on Revision 2 to the US-APWR DCD. Although the wording of the ITAAC may be subject to change, the examples provide useful guidance for future ITAAC closure letters.

US-EPR examples are based on Revision 1 to the US-EPR DCD. Although the wording of the ITAAC may be subject to change, the examples provide useful guidance for future ITAAC closure letters.

Security examples are based on NUREG-0800 Standard Review Plan Section 14.3.2, Physical Security Hardware – ITAAC, January 2010

APPENDIX D-1 – EXAMPLE ITAAC CLOSURE LETTER TEMPLATE

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of (designate technology or COL reference) ITAAC Item X.X.X

The purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspection, Test, Analysis and Acceptance Criteria (ITAAC) Item X.X.X {include basic description of the ITAAC} in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01 (Reference 1), which was endorsed by the NRC in Regulatory Guide 1.215.

ITAAC Statement
Identify the ITAAC as stated in the combined license:

Design Commitment

{The design commitment for the applicable ITAAC should be quoted directly from the source. Do not paraphrase the Design Commitment.}

Inspection/Test/Analysis

{The inspection/test/analysis (ITA) for the applicable ITAAC should be quoted directly from the source. Do not paraphrase the inspection/test/analysis.}

Acceptance Criteria

{The acceptance criteria for the ITAAC should be quoted directly from the source letter. Do not paraphrase the acceptance criteria.}

Tables and figures referenced in the ITAAC should be provided.

ITAAC Determination Basis

The ITAAC determination basis (IDB) summarizes the methodology for conducting the ITA, and the results that demonstrate that the acceptance criteria were met. Begin this section by inverting/restating the ITAAC Design Commitment, i.e., "A test, inspection or analysis was performed to demonstrate that …."

When an ~~ITAAC~~ inspection or test or analysis (ITA) for an as-built ITAAC is performed on a structure, system, or component (SSC) at other than the SSC's final installed location, ~~either~~ the IDB should identify that the ITA was performed in the manufacturing/fabrication/test facility in accordance with NEI 08-01. NEI 08-01, Section 8.5 provides generic technical justifications for performing certain as-built ITA at other than the SSC's final installed location~~Section 8.6~~. If the as-built ITA was performed at other than the final installed location, and none of the generic technical justifications provided in NEI 08-01 Section 8.5 apply, the technical justification for performing testing/inspection at other than the final installed location should be documented in the ITAAC Completion Package and summarized in the IDB.

~~For offsite testing and inspection discussed in Section 8.6 as technically justifiable consistent with the definition of "as-built", reference to NEI 08-01 is sufficient, and no additional technical justification is needed in either the ITAAC Closure Letter or ITAAC Closure Package.~~

~~It~~ The IDB should be written in an active voice, and consist of sufficient information to enable a person familiar with technical/engineering concepts to understand the bases underlying the conclusion established by the licensee regarding the ITAAC determination basis and successful ITAAC completion. In the event that the ITAAC offers more than one method to meet the acceptance criteria, clearly state which method was selected.

In addition, the records (Tests, Reports, Completed Procedures, Completed Analyses, etc.) that form the ITAAC determination basis should be referenced and available for NRC review. A closing statement confirming the ITAAC was met should be included.

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC completion, the licensee will perform a review of all ITAAC-related construction findings pertaining to the subject ITAAC to determine that associated corrective actions were completed. The ITAAC closure letter will list all relevant ITAAC-related construction findings and state that they have been closed and all corrective actions have been completed. Alternatively, the letter will provide a justification for why the NRC may issue its Section 52.99 determination of successful ITAAC completion despite the existence of unresolved ITAAC-related construction findings or uncompleted corrective actions. ITAAC completion reviews will be documented in ITAAC Completion packages and available for NRC inspection.

Example:

In accordance with plant procedures for ITAAC completion, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that X associated findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}
2. {ITAAC-related construction finding #2}
3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding is closed. This review is documented in the completion package for ITAAC x.x.x, (Reference 4), which is available for NRC review. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

{Alternatively, the text above can be changed to indicate that "This review determined that there are no NRC findings related to this ITAAC".}

ITAAC Completion statement

Based on the above information, {Licensee Name} hereby notifies the NRC that ITAAC X.X.X was performed for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under
2. 10 CFR Part 52
3. Test/inspection record(s), report, completed procedure, analysis, etc., that form the ITAAC determination basis
4. Relevant plant inspection or test procedure
5. ITAAC Completion package retained on site

APPENDIX D-2 – EXAMPLE ITAAC CLOSURE LETTER AP1000 ITAAC 3.3.6 ITEM 7D

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ITAAC 3.3.6 item 7d

The purpose of this letter is to notify the NRC of the completion of EFG Nuclear Plant Inspection, Test, Analysis and Acceptance Criteria (ITAAC) 3.3.6 item 7d for Cable Separation in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01(Reference 1).

ITAAC Statement

Design Commitment

ITAAC Table 3.3.6 (7d) Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables

Inspection/Test/Analysis

Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following:

- *Within the main control room and remote shutdown room, the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.*
- *Within other plant areas (limited hazard areas), the minimum separation is defined by one of the following:*
  1. *The minimum vertical separation is 5 feet and the minimum horizontal separation is 3 feet.*
  2. *The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables <2/0 AWG.*
  3. *For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.*

4. *For configurations involving an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.*
5. *For configuration involving enclosed raceways, the minimum separation is 1 inch in both horizontal and vertical directions.*

- *Where minimum separation distances are not maintained, the circuits are run in enclosed raceways or barriers are provided.*
- *Separation distances less than those specified above and not run in enclosed raceways or provided with barriers are based on analysis*
- *Non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is considered as associated circuits and subject to Class 1E requirements.*

Acceptance Criteria

Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the followings:

- *Within the main control room and remote shutdown room, the vertical separation is 3 inches or more and the horizontal separation is 1 inch or more.*
- *Within other plant areas (limited hazard areas), the separation meets one of the following:*
  1. *The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more except.*
  2. *The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables <2/0 AWG.*
  3. *For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.*
  4. *For configurations that involve an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the raceway.*
  5. *For configurations that involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.*

- *Where minimum separation distances are not met, the circuits are run in enclosed raceways or barriers are provided.*
- *A report exists and concludes that separation distances less than those specified above and not provided with enclosed raceways or barriers have been analyzed.*
- *Non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is treated as Class 1E wiring.*

ITAAC Determination Basis

Inspections and analysis of plant components has been performed to ensure that "Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables".

The cable raceway system layout was designed using a three dimensional computer model. The raceways were routed through the model plant within an appropriate space reservation envelope to ensure that no violations of the separation requirements would occur. Construction drawings and Installation Specifications provided to the installer identified separation criteria, consistent with the ITAAC commitment, that were required to be met during erection activities.

The constructor installed the cable raceway in accordance with the "Released For Construction" drawings and the Installation Specifications. These components were presented for inspection by Quality Control as appropriate portions of the work completed. Independent verification of the Class 1E raceway installation by the Quality Control Group included inspection of the separation criteria attributes identified in "Released For Construction" drawings and the Installation Specifications and was recorded in the inspection report. The completed raceway tickets for the satisfactorily installed and inspected raceways were turned in and recorded in the site's Electrical Raceway and Cable Tracking System.

Raceway completion and cable route was validated by Quality Control walk-down of the designated raceways prior to pulling Class 1E cables. Any deviations were documented and resolved prior to cable pull. The completed cable pull tickets for the satisfactorily installed and inspected cables were turned in and recorded in the site's Electrical Raceway and Cable Tracking System.

Cable training within cabinets was independently verified by Quality Control for separation attributes through a series of documented inspections as cables were installed and terminated. The completed termination tickets for the satisfactorily installed and inspected cables were turned in and recorded in the site's Electrical Raceway and Cable Tracking System.

Prior to final acceptance of the overall Class 1E raceway and cable system Engineering and Quality Control performed a walk-down of the plant Class 1E electrical components to identify any potential violations of the required cable separation criteria. Any deviations were identified, recorded, dispositioned and resolved prior to issuing the Final Report. The walk-down was performed in accordance with the site Cable Separation Final Walk-down Procedure (Reference 2).

Review of the inspection reports, the site's Electrical Raceway and Cable Tracking System, Design Change documents, Nonconformance Reports, and the Final Report concludes that the cable installed in the plant has been inspected and reviewed to ensure that the required physical separation between cables from different Class 1E divisions and between Class 1E cables and non-Class 1E cables has been achieved. All exceptions to the separation criteria identified in the installation specification and the project drawings have been identified by Design Change

documents or Nonconformance Reports. These exceptions whether identified during installation or by final walk down of the as built configuration have been evaluated and either corrected, mitigated or accepted as is.

The Cable Separation Final Report concludes that separation distances are satisfactory. Those separation distances less than specified by the ITAAC criteria and not provided with enclosed raceways or barriers have been analyzed and determined to be satisfactory. The Cable Separation Final Report (Reference 3) is available for NRC inspection at the EFG plant site.

ITAAC Related Construction Finding Review

In accordance with plant procedures for ITAAC completion, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that three such findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}

2. {ITAAC-related construction finding #2}

3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC 3.3.6 item 7d (Reference 4), which is available for NRC review. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, EFG Nuclear Plant hereby notifies the NRC that ITAAC 3.3.6 item 7d has been reviewed and the installation achieves the prescribed acceptance criteria.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. Cable Separation Final Walk-down Procedure
3. ITAAC 3.3.6 item 7d Cable Separation Final Report –EFG xyz
4. ITAAC 3.3.6 item 7d Completion package

APPENDIX D-3 – EXAMPLE ITAAC CLOSURE LETTER ABWR ITAAC 2.15.12 ITEM 5

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ABWR ITAAC 2.15.12 Item 5

The purpose of this letter is to notify the NRC of the completion of {Site Name and Unit #(s)} Inspection, Test, Analysis, and Acceptance Criteria (ITAAC) Item 2.15.12 Item 5 for the Control Building (C/B) Main Control Room system, in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01 (Reference 1).

ITAAC Statement

Design Commitment

The main control area envelope is separated from the rest of the C/B by walls, floors, doors and penetrations which have a three-hour fire rating.

Inspection/Test/Analysis

Inspections of the as-built structure will be conducted.

Acceptance Criteria

The as-built C/B has a main control area envelope separated from the rest of the C/B by walls, floors, doors and penetrations which have a three-hour fire rating.

ITAAC Determination Basis

The constructor installed the C/B main control room envelope walls, floors, fire doors and penetrations as shown in Tier 1 Figures 2.15.12a, b, f and g, ensuring the boundary maintains a three-hour fire resistance rating. All passive fire protection features are of proven designs and have been tested in accordance with ASTM E119 (Reference 2) and listed by a nationally recognized testing laboratory (NRTL) to meet the three-hour fire resistance rating requirements.

During installation, the constructor performed inspections and surveys for conformance to NRTL listed design and installation requirements, including wall and floor-ceiling materials, dimensions, locations, and joints.

After construction, the Licensee performed a final inspection in accordance with the C/B CRE As-built Walk-down/Inspection Procedure (Reference 3), containing a detailed listing of boundary components, to verify separation from the rest of the C/B by passive fire protection features having a three-hour fire resistance rating, and also verified the proper operation of all passive fire protection components

These inspections confirmed that the as-built configuration meets ITAAC 2.15.12 Item 5 Acceptance Criteria.

ITAAC Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that three such findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}
2. {ITAAC-related construction finding #2}
3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC 2.15.12 Item 5 (Reference 3), which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, {Licensee} hereby notifies the NRC that ITAAC 2.15.12 Item 5 was performed for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI-08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. C/B CRE as-built walk-down/inspection Procedure, C/B-CRE-WD-XXXX
3. ITAAC 2.15.12 Item 5 Completion package

APPENDIX D-4 – EXAMPLE ITAAC CLOSURE LETTER ABWR ITAAC 2.3.3 ITEM 3

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ABWR ITAAC 2.3.3 Item 3

The purpose of this letter is to notify the NRC of the completion of {Site Name and Unit #(s)} Inspection, Test, Analysis, and Acceptance Criteria (ITAAC) Item 2.3.3 Item 3a and 3b for the Containment Atmospheric Monitoring System (CAMS), in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01 (Reference 1).

ITAAC Statement

The ITAAC stated below represents an NRC approved departure from the ABWR DCD.

Design Commitment

Each CAMS division of radiation channels is powered from its respective divisional Class 1E power source. In the CAMS, independence is provided between Class1E divisions, and between Class 1E divisions and non-Class 1E equipment.

Inspection/Test/Analysis

Item 3a - Tests will be performed on each of the CAMS radiation channels by providing a test signal to only one Class 1E division at a time.

Item 3b - Inspection of the as-built Class 1E radiation channels will be performed.

Acceptance Criteria

Item 3a – The test signal exists only in the Class 1E division under test in the CAMS.

Item 3b – In the CAMS, physical separation or electrical isolation exists between Class 1E divisions. Physical separation or electrical isolation exists between these Class 1E divisions and non-Class 1E equipment.

ITAAC Determination Basis

Item 3a – Testing consisted of independent test signal introduction into each radiation channel to confirm division and channel independence and separation. Testing was performed in accordance with Pre-Operational Test Procedure ABWR PTP-CAMS-0001 (Reference 3). Testing has been performed on both CAMS radiation channels to confirm test signal introduction into each division and channel does **not** result in a signal being detected in the other division and channels of CAMS. Test results indicate Acceptance Criteria contained in ITAAC 2.3.3 Item 3a has been satisfied.

Item 3b – Inspections have been performed during the construction and installation process to ensure that physical separation exists between Class 1E CAMS radiation channels and between Class 1E CAMS divisions and non-Class 1E equipment. The design and installation of CAMS related equipment was in accordance with Regulatory Guide 1.75 (Reference 4) as identified in section 8.3 of the ABWR DCD. A review of construction in-process installation and Quality Control records was conducted, where separation requirements were built into the process used for raceway and cable design and routing. These inspections and reviews confirmed that physical separation was maintained between Class 1E CAMS radiation channels and between Class 1E CAMS divisions and non-Class 1E equipment during installation.

Construction drawings and Installation Specifications provide the installer/contractor with identified separation criteria, consistent with the ITAAC commitment and were met during construction activities.

Raceway completion and cable route were validated by Quality Control walk-down of the designated raceways prior to pulling Class 1E cables.

Cable routing within cabinets was independently verified by Quality Control for separation attributes through a series of documented inspections as cables were installed and terminated.

A final walkdown was performed of the Class 1E CAMS installed equipment using Walkdown Procedure XXX to verify that there is no interference from non-Class 1equipment installed in the area.

Based on a review of construction installation and independent Quality Control records, the Licensee has determined the Acceptance Criteria contained in ITAAC 2.3.3 Item 3b were met.

ITAAC Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that three such findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}
2. {ITAAC-related construction finding #2}
3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC 2.3.3 Item 3a and 3b (Reference 2), which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, {Licensee} hereby notifies the NRC that ITAAC 2.3.3 Item 3a and 3b were performed for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI-08-01, Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52
2. ITAAC 2.3.3 Item 3a and 3b Completion package
3. ABWR PTP-CAMS-0001, ABWR CAMS Pre-Operational Test Procedure
4. Regulatory Guide 1.75, Criteria For Independence Of Electrical Safety Systems
5. Walkdown Procedure XXX, Walkdown of Class 1E Equipment Installation

APPENDIX D-5 – EXAMPLE ITAAC CLOSURE LETTER ABWR ITAAC 3.3 ITEM 1

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ABWR ITAAC 3.3 Item 1

The purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspection, Test, Analysis and Acceptance Criteria (ITAAC) 3.3 Item 1, ASME Piping Design Criteria, in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01 (Reference 1).

ITAAC Statement

Design Commitment

The piping system shall be designed to meet its ASME Code Class and Seismic Category I requirements.

The ASME Code Class 1, 2, and 3 piping system shall be designed to retain its pressure integrity and functional capability under internal design and operating pressures and design basis loads. Piping and piping components shall be designed to show compliance with the requirements of ASME Code Section III.

Inspection/Test/Analysis

Inspections of ASME Code required documents will be conducted.

Acceptance Criteria

An ASME Code Certified Stress Report exists for the piping system and concludes that the design complies with the requirements of ASME Code, Section III.

ITAAC Determination Basis

The ASME Code classifications of ABWR piping systems are defined in Section 3.2 of the Tier 2 material of the ABWR DCD. The piping systems and their ASME Code Certified Stress Reports are listed in Table 1 (attached). All Stress Reports are identified in the ITAAC completion package (Reference 2).

Inspection Procedure XYZ (Reference 3) documents the scope of review for each of the ASME Code Certified Stress Reports. The scope of review includes the following areas:

- The piping system Design Specification in accordance with ASME Code Section III, Subsection NCA-3252, including loading definitions and load combinations.
- Thermal Analysis, in accordance with ASME Code Section III, Appendix C-1200, and applicable Subsection NB, NC or ND.
- Structural Analysis, in accordance with ASME Code Section III, Appendix C-1300, and applicable Subsection NB, NC or ND.
- Fatigue Analysis for the Class 1 piping and for the Class 3 SRV discharge piping in the wetwell and the SRV quenchers, in accordance with ASME Code Section III, Appendix C-1400, and applicable Subsection NB, NC or ND.

Inspections of the ASME Code Certified Stress Reports listed in attached Table 1 verify that the design of each piping system complies with the requirements of ASME Code, Section III, 1989 Edition, in accordance with the certified design.

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that X associated findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}
2. {ITAAC-related construction finding #2}
3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC 3.3 Item 1, (Reference 2), which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, {Licensee Name} hereby notifies the NRC that ITAAC 3.3 Item 1 was performed for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52
2. ITAAC Completion package for ITAAC 3.3 Item 1
3. Inspection Procedure XYZ, "Review of ASME Code Certified Stress Reports"

Table 1. ABWR Piping System ASME Code Design Summary

Piping System[Note 1]	ASME Code Class(es)[Note 2]	ASME Code Subsection(s)[Note 3]	Certified Stress Report(s)
Nuclear Boiler (includes MSL and FW systems, RPV head vent and main steam drains)	1, 2 and 3	NB, NC and ND	Stress Report A Stress Report B Stress Report C Stress Report D Stress Report E Stress Report F Stress Report G
Reactor Recirculation	2	NC	Stress Report H
Control Rod Drive (insert line)	2	NC	Stress Report I
Standby Liquid Control	1 and 2	NB and NC	Stress Report J Stress Report K
Residual Heat Removal	1 and 2	NB and NC	Stress Report L Stress Report M
High Pressure Core Flooder	1 and 2	NB and NC	Stress Report N Stress Report O
Leak Detection and Isolation (sample lines and isolation valves)	2	NC	Stress Report P
Reactor Core Isolation Cooling	1, 2 and 3	NB, NC and ND	Stress Report Q Stress Report R Stress Report S
Reactor Water Cleanup	1 and 3	NB and ND	Stress Report T Stress Report U
Fuel Pool Cooling and Cleanup (RHR piping for safety-related make-up and supplemental cooling)	3	ND	Stress Report V
Suppression Pool Cleanup	2	NC	Stress Report W
Radwaste (portions forming part of containment boundary)	2	NC	Stress Report X
Makeup Water (Purified) (portions forming part of containment boundary)	2	NC	Stress Report Y
Makeup Water (Condensate) (condensate header piping)	2	NC	Stress Report Z
Reactor Building Cooling Water	2 and 3	NC and ND	Stress Report AA Stress Report BB
HVAC Normal Cooling Water (portions forming part of containment boundary)	2	NC	Stress Report CC
HVAC Emergency Cooling Water	3	ND	Stress Report DD
Reactor Service Water (safety-related portions)	3	ND	Stress Report EE
Station Service Air (containment isolation)	2	NC	Stress Report FF
Instrument Air Service (containment isolation)	2	NC	Stress Report GG
High Pressure Nitrogen Gas Supply	2 and 3	NC and ND	Stress Report HH Stress Report II

Piping System[Note 1]	ASME Code Class(es)[Note 2]	ASME Code Subsection(s)[Note 3]	Certified Stress Report(s)
Emergency Diesel Generator (including fuel oil, cooling water and lube oil piping)	3	ND	Stress Report JJ
Primary Containment (suppression chamber/drywell vacuum breakers)	2	NC	Stress Report KK
Atmospheric Control	2 and 3	NC and ND	Stress Report LL Stress Report MM
Diesel Generator Fuel Oil Storage and Transfer System	3	ND	Stress Report NN

Notes:

1. See Table 3.2-1 in the Tier 2 material in the DCD for Safety Class designations of specific portions of each system. Most systems also include Class N (non-safety, non-ASME Code) portions, which are not identified in this table.
2. Per Tables 3.2-2 and 3.2-3 in the Tier 2 material in the DCD, Safety Classes 1, 2 and 3 correspond to ASME Code Classes 1, 2 and 3. All three Safety Classes are Seismic Category 1.
3. Supports for all listed piping systems are designed in accordance with Subsection NF. The Subsection NCA requirements for Design Specifications and Design Reports Subsection NCA apply to all three ASME Classes.

APPENDIX D-6 – EXAMPLE ITAAC CLOSURE LETTER AP1000 ITAAC 2.1.1 ITEM 4

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ITAAC 2.1.1 item 4

The purpose of this letter is to notify the NRC of the completion of EFG Nuclear Plant Inspection, Test, Analysis and Acceptance Criteria (ITAAC) 2.1.1 item 4 for Refueling Machine (RM) and Fuel Handling Machine (FHM) gripper assemblies in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01(Reference 1).

ITAAC Statement

Design Commitment

The RM and FHM/spent fuel handling tool (SFHT) gripper assemblies are designed to prevent opening while the weight of the fuel assembly is suspended from the gripper.

Inspection/Test/Analysis

The RM and FHM/SFHT gripper assemblies will be tested by operating the open controls of the gripper while suspending a dummy fuel assembly.

Acceptance Criteria

The RM and FHM/SFHT gripper assemblies gripper will not open while suspending a dummy test assembly.

ITAAC Determination Basis

Tests were performed to demonstrate that the as-built RM and FHM/SFHT gripper assemblies prevent opening while the full weight of the fuel assembly is suspended from the gripper as designed.

A dummy fuel assembly was lifted by the Fuel Handling Machine using test procedure APP-XX-YYY-## (Reference 2) to a sufficient height to be fully suspended. At this height the open controls for the FHM/SFHT grippers were exercised per operating procedures for releasing the

fuel assembly. The grippers did not open. Thus, the FHM grippers met the acceptance criteria in that they did not open while suspending a fuel assembly.

A dummy fuel assembly was lifted by the Refueling Machine using test procedure APP-XX-YYY-## (Reference 2) to a sufficient height to be fully suspended. At this height the open controls for the RM grippers were exercised per operating procedures for releasing the fuel assembly. The grippers did not open. Thus, the RM grippers met the acceptance criteria in that they did not open while suspending a fuel assembly.

Reference 3 documents the test results and analysis and is available for NRC inspection.

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, the {licensee} performed a review of all ITAAC-related construction findings pertaining to the subject ITAAC and associated corrective actions. This review found that there were no relevant ITAAC-related construction findings associated with this ITAAC. The ITAAC close-out review is documented in ITAAC Completion package for ITAAC 2.1.1 item 4 (Reference 4) and available for NRC inspection.

ITAAC Completion statement

Based on the above information, EFG Nuclear Plant hereby notifies the NRC that ITAAC 2.1.1 item 4 was performed and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. APP-XX-YYY-###, ITAAC 2.1.1 item 4 Refueling Machine and Fuel Handling Machine Grippers Test Procedure

3. ITAAC 2.1.1 item 4 Refueling Machine and Fuel Handling Machine/Spent Fuel Handling Tool Grippers Test Record
4. ITAAC 2.1.1 item 4 Completion package

APPENDIX D-7 – EXAMPLE ITAAC CLOSURE LETTER AP1000 ITAAC 2.1.2-4 ITEM 3B

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ITAAC 2.1.2-4 Item 3b

The purpose of this letter is to notify Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.1.2- item 3b for the Reactor Coolant System (RCS), in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC Item is based on the guidance described in Nuclear Energy Institute (NEI) Guidance Document NEI 08-01 (Reference 1).

ITAAC Statement

Design Commitment

Pressure boundary welds in piping identified in Table 2.1.2-2 as American Society of Mechanical Engineers (ASME) Code Section III meet ASME Code Section III requirements.

Inspections/Tests/Analyses

Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.

Acceptance Criteria

A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.

ITAAC Determination Basis

{Licensee} performed inspections in accordance with the ASME Code Section III {cite applicable edition and addenda} of the as-built pressure boundary welds in piping identified in Table 2.1.2-2 as ASME Code Section III. The non-destructive examinations (e.g., visual inspection, liquid penetrant, magnetic particle, radiographic, and ultrasonic testing) of pressure boundary welds are documented in traveler packages which support completion of the N-5 Code Data Report(s) certified by the Authorized Nuclear Inspector, as listed in Reference Table XX. Per ASME Code Section III, Subarticle NCA-8300, "Code Symbol Stamps," the N-5 Code Data Report indicates the satisfactory completion of the required examination and testing of the item,

which include the required non-destructive examination of pressure boundary welds. Satisfactory completion of the non-destructive examination of pressure boundary welds ensures that the pressure boundary welds in piping identified in Table 2.1.2-2 as ASME Code Section III meet ASME Code Section III requirements.

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, {Licensee} performed a review of all ITAAC-related construction findings and associated corrective actions. This review determined that the following findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}

2. {ITAAC-related construction finding #2}

3. {ITAAC-related construction finding #3}

The corrective actions for each finding are complete and each finding is closed. This review is documented in the completion package (Reference 1) for ITAAC 2.1.2-4(3b), which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, {Licensee} hereby notifies the NRC that ITAAC 2.1.2-4(3b) was performed for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

{Licensee} requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. ITAAC 2.1.2-4(3b) Close Out Package

3. NEI Guidance Document NEI-08-XX
4. NDE Testing & Inspection Procedures
5. Reference Table XX

Reference Table 2.1.2-2

Table 2.1.2-2				
Line Name	**Line Number**	**ASME Code Section III**	**Leak Before Break**	**Functional Capability Required**
Hot Legs	RCS-L001A RCS-L001B	Yes	Yes	Yes
Cold Legs	RCS-L002A RCS-L002B RCS-L002C RCS-L002D	Yes	Yes	Yes
Pressurizer Surge Line	RCS-L003	Yes	Yes	Yes
ADS Inlet Headers	RCS-L004A/B RCS-L006A/B RCS-L030A/B RCS-L020A/B	Yes	Yes	Yes
Safety Valve Inlet Piping	RCS-L005A RCS-L005B	Yes	Yes	Yes
Safety Valve Discharge Piping	RCS-L050A/B RCS-L051A/B	Yes	No	Yes
ADS First-stage Valve Inlet Piping	RCS-L010A/B RCS-L011A/B	Yes	No	Yes
ADS Second-stage Valve Inlet Piping	RCS-L021A/B RCS-L022A/B	Yes	Yes No	Yes
ADS Third-stage Valve Inlet Piping	RCS-L131 RCS-L031A/B RCS-L032A/B	Yes	Yes Yes No	Yes
ADS Outlet Piping	RCS-L012A/B RCS-L023A/B RCS-L033A/B RCS-L061A/B RCS-L063A/B RCS-L064A/B RCS-L200 RCS-L069A/B RCS-L240A/B PXS-L130A/B	Yes	No	Yes
ADS Fourth-stage Inlet Piping	RCS-L133A/B RCS-L135A/B RCS-L136A/B RCS-L137A/B	Yes	Yes	Yes

Table 2.1.2-2				
Line Name	**Line Number**	**ASME Code Section III**	**Leak Before Break**	**Functional Capability Required**
Hot Legs	RCS-L001A RCS-L001B	Yes	Yes	Yes
Cold Legs	RCS-L002A RCS-L002B RCS-L002C RCS-L002D	Yes	Yes	Yes
Pressurizer Surge Line	RCS-L003	Yes	Yes	Yes
ADS Inlet Headers	RCS-L004A/B RCS-L006A/B RCS-L030A/B RCS-L020A/B	Yes	Yes	Yes
Safety Valve Inlet Piping	RCS-L005A RCS-L005B	Yes	Yes	Yes
Safety Valve Discharge Piping	RCS-L050A/B RCS-L051A/B	Yes	No	Yes
ADS First-stage Valve Inlet Piping	RCS-L010A/B RCS-L011A/B	Yes	No	Yes
ADS Second-stage Valve Inlet Piping	RCS-L021A/B RCS-L022A/B	Yes	Yes No	Yes
ADS Third-stage Valve Inlet Piping	RCS-L131 RCS-L031A/B RCS-L032A/B	Yes	Yes Yes No	Yes
ADS Outlet Piping	RCS-L012A/B RCS-L023A/B RCS-L033A/B RCS-L061A/B RCS-L063A/B RCS-L064A/B RCS-L200 RCS-L069A/B RCS-L240A/B PXS-L130A/B	Yes	No	Yes
ADS Fourth-stage Inlet Piping	RCS-L133A/B RCS-L135A/B RCS-L136A/B RCS-L137A/B	Yes	Yes	Yes

Table 2.1.2-2 (cont.)				
Line Name	**Line Number**	**ASME Code Section III**	**Leak Before Break**	**Functional Capability Required**
Pressurizer Spray Piping	RCS-L106 RCS-L110A/B RCS-L212A/B RCS-L213 RCS-L215	Yes	No	No
RNS Suction Piping	RCS-L139 RCS-L140	Yes	Yes	No
CVS Purification Piping	RCS-L111 RCS-L112	Yes	No	No

APPENDIX D-8 – EXAMPLE ITAAC CLOSURE LETTER AP1000 ITAAC 2.5.2-8 ITEM 10

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ITAAC 2.5.2-8 Item10

The purpose of this letter is to notify Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.5.2-8 item 10 for the Protection and Safety Monitoring System (PMS), in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01(Reference 1).

ITAAC Statement

Design Commitment

Setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.

Inspection/Test/Analysis

Inspection will be performed for a document that describes the methodology and input parameters used to determine the PMS setpoints.

Acceptance Criteria

A report exists and concludes that the PMS setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.

ITAAC Determination Basis

Instrument setpoints for permanently installed instrumentation are determined using methodology specified in Procedure XXX, *Instrument Uncertainty and Setpoint Calculation Guidelines* (Reference 2). This methodology accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.

{Licensee} performed an inspection of Engineering Report YYY, *Setpoint Determination for the Protection and Safety Monitoring System* (Reference 3), which established the setpoints for the PMS system. The purpose of the inspection was to confirm that the PMS setpoints were

determined using Reference 1 and that the procedure specifies a methodology that takes into account instrument loop uncertainties and inaccuracies, response testing results, and maintenance or replacement activities. This inspection is documented in Inspection Report ZZZ, *Closure of ITAAC 2.5.2-8, #10* (Reference 4).

The inspection determined that References 1 and 2 were used for the PMS setpoints and that Reference 1 provides specific instructions for calculating instrument and loop uncertainty setpoints. The input parameters for the calculation include instrument and loop uncertainties and inaccuracies, response testing results, and maintenance or replacement activities.

Therefore, Inspection Report ZZZ (Reference 4) exists and concludes that the PMS setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that three associated findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}

2. {ITAAC-related construction finding #2}

3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC 2.5.2-8, #10 (Reference 5), which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, {Licensee} hereby notifies the NRC that {Licensee} has performed ITAAC 2.5.2-8 item 10 for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

{Licensee} requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {name of contact person for Licensee} at {telephone # for contact person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

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References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. Procedure XXX, Instrument Uncertainty and Setpoint Calculation Guidelines
3. Engineering Report YYY, Setpoint Determination for the Protection and Safety Monitoring System
4. Inspection Report ZZZ, Closure of ITAAC 2.5.2-8 item10
5. ITAAC 2.5.2-8 item 10 Completion package

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APPENDIX D-9 – EXAMPLE ITAAC CLOSURE LETTER AP1000 ITAAC 3.3-6 ITEMS 2.A.I AND II

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of AP1000 ITAAC 3.3-6 Items 2a) i.a) & ii.a)

The purpose of this letter is to notify Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 3.3-6 Items 2a) i) & ii) for the Nuclear Island Critical Structure Sections, in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01(Reference 1).

ITAAC Statement

Design Commitment

2.a) The nuclear island structures, including the critical sections listed in Table 3.3-7, are seismic Category I and are designed and constructed to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.

The Inspections, Tests, and Analyses

i) An inspection of the nuclear island structures will be performed. Deviations from the design due to as-built conditions will be analyzed for the design basis loads.
ii) An inspection of the as-built concrete thickness will be performed.

Acceptance Criteria

i.a) A report exists which reconciles deviations during construction and concludes that the as-built nuclear island structures, including the critical sections, conform to the approved design and will withstand the design basis loads specified in the Design Description without loss of structural integrity or the safety-related functions.
ii.a) A report exists that conclude that the as-built concrete thicknesses conform with the building sections defined on Table 3.3-1.

ITAAC Determination Basis

The design bases loads as defined in the AP1000 Design Control Document are those loads associated with:

- Normal plant operation (including dead loads, live loads, lateral earth pressure loads, and equipment loads, including hydrodynamic loads, temperature and equipment vibration);
- External events (including rain, snow, flood, tornado, tornado generated missiles and earthquake); and
- Internal events (including flood, pipe rupture, equipment failure, and equipment failure generated missiles).

AP1000 DCD Section 3.7 "Seismic Analysis", Section 3.8 "Design of Category I Structures" and Appendix 3H "Auxiliary Building Critical Sections" describe the analyses for the design basis loads for the NI Structures. Section 3.8 specifies the applicable codes and standards governing the design, materials, fabrication, construction inspection and testing for the NI structures. Section 3.8 also describes the as-built design summary reports which document that the seismic Category I structures meet the specified acceptance criteria.

The as-built nuclear island (NI) structures including the critical sections listed in Table 3.3-7, were constructed as designed and specified in the AP1000 DCD to withstand design basis loads as specified in the Design Description, without loss of structural integrity and the safety-related functions.

i.a) NI structures were inspected during construction to verify the as-built structures conform to the specified design, codes and standards. Identified structural deviations were documented in Non-conformance reports and entered into the site corrective action program. Each NI structural deviation was evaluated by engineering individually and collectively to determine their impact to the structures' ability to withstand design basis loads. As-built Design Summary Report XXX (Reference 4) documents the reconciliation of NI structural deviations identified during construction and concludes that the as-built NI structures will withstand the design basis loads specified in the Design Description without loss of structural integrity or safety-related functions. An ITAAC closure evaluation was performed on As-built Design Summary Report XXX to verify that the deviation reconciliation report has been completed and addresses the construction identified structural deviations.

ii.a) As-built Nuclear Island wall dimensional surveys were performed in accordance with the Construction Field Survey Procedure (Reference 2) for the critical section identified in Table 3.3-7 (Enclosure 1*)* to verify the wall thicknesses specified in Table 3.3-1 (Enclosure 2). These surveys were conducted on the concrete forms prior to placement and on the as-built walls subsequent to removal of the forms. As-built Design Summary Report XYZ (Reference 5) documents the evaluation performed to determine if as-built wall thickness specified meet the acceptance criteria in Table 3.3-1 or reconciles any dimensional deviations. The As-built Design Summary Report XYZ documents and concludes the as-built concrete thicknesses conform to the wall dimensions defined in Table 3.3-1 and all deviations were appropriately evaluated and dispositioned. An ITAAC closure evaluation was performed on As-built Design Summary Report to verify that the report addresses the critical sections and dimensions and appropriately resolves any deviations.

The EFP Plant ITAAC closure evaluation, survey records, As-built Design Summary Report XXX and XYZ are retained in the EFG Plant ITAAC 3.3-6 Items 2a) ii.a) Completion package (Reference 3) and are available for NRC inspection at the EFG Plant site.

ITAAC Related Construction finding Review

In accordance with plant procedures for ITAAC close-out, **EFG** Nuclear Plant performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that three associated findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}

2. {ITAAC-related construction finding #2}

3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC 3.3-6 Items 2 a) i.a) and ii.a) (Reference 3), which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, New Reactor Licensee hereby notifies the NRC that ITAAC 3.3-6 Items 2 a) i.a) and ii.a) were performed for **EFG** Nuclear Plant and Units 1 & 2, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

Enclosures:

1. Table 3.3-7
2. Table 3.3-1

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. Construction Field Survey Procedure EFG-XXX-XXX
3. EFG Plant, ITAAC 3.3-6 Items 2a) i.a) and ii.a) Completion packages
4. As-built Design Summary Report XXX
5. As-built Design Summary Report XYZ

Enclosure 1
Table 3.3-7
Nuclear Island Critical Structural Sections

Table 3.3-7 **Nuclear Island Critical Structural Sections**
Containment Internal Structures
South west wall of the refueling cavity
South wall of the west steam generator cavity
North east wall of the in-containment refueling water storage tank
In-containment refueling water storage tank steel wall
Column supporting the operating floor
Auxiliary and Shield Building
South wall of auxiliary building (column line 1), elevation 66'-6" to elevation 180'-0"
Interior wall of auxiliary building (column line 7.3), elevation 66'-6" to elevation 160'-6"
West wall of main control room in auxiliary building (column line L), elevation 117'-6" to elevation 153'-0"
North wall of MSIV east compartment (column line 11 between lines P and Q), elevation 117'-6" to elevation 153'-0"
Shield building cylinder, elevation 160'-6" to elevation 200"-0"
Roof slab at elevation 180'-0" adjacent to shield building cylinder
Floor slab on metal decking at elevation 135'-3"
2'-0" slab in auxiliary building (tagging room ceiling) at elevation 135'-3"
Finned floor in the main control room at elevation 135'-3"
Shield building roof, exterior wall of the PCS water storage tank
Shield building roof, tension ring and columns between air inlets
Divider wall between the spent fuel pool and the fuel transfer canal
Nuclear Island Basemat Below Auxiliary Building
Bay between reference column lines 9.1 and 11, and K and L
Bay between reference column lines 1 and 2 and K-2 and N

Enclosure 2

Table 3.3-1
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building[1]

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness[2][3][4][5]	Applicable Radiation Shielding Wall (Yes/No)
Containment Building Internal Structure				
Shield Wall between Reactor Vessel Cavity and RCDT Room	E-W wall parallel with column line 7	From 71'-6" to 83'-0"	3'-0"	Yes
West Reactor Vessel Cavity Wall	N-S wall parallel with column line N	From 83'-0" to 98'-0"	7'-6"	Yes
North Reactor Vessel Cavity Wall	E-W wall parallel with column line 7	From 83'-0" to 98'-0"	9'-0"	Yes
East Reactor Vessel Cavity Wall	N-S wall parallel with column line N	From 83'-0" to 98'-0"	7'-6"	Yes
West Refueling Cavity Wall	N-S wall parallel with column line N	From 98'-0" to 135'-3"	4'-0"	Yes
North Refueling Cavity Wall	E-W wall parallel with column line 7	From 98'-0" to 135'-3"	4'-0"	Yes
East Refueling Cavity Wall	N-S wall parallel with column line N	From 98'-0" to 135'-3"	4'-0"	Yes
South Refueling Cavity Wall	E-W wall parallel with column line 7	From 98'-0" to 135'-3"	4'-0"	Yes
South wall of west steam generator compartment	Not Applicable	From 103'-0" to 153'-0"	2'-6"	Yes
West wall of west steam generator compartment	Not Applicable	From 103'-0" to 153'-0"	2'-6"	Yes
North wall of west steam generator compartment	Not Applicable	From 103'-0" to 153'-0"	2'-6"	Yes
South wall of pressurizer compartment	Not Applicable	From 103'-0" to 153'-6"	2'-6"	Yes
West wall of pressurizer compartment	Not Applicable	From 107'-2" to 160'-0"	2'-6"	Yes
North wall of pressurizer compartment	Not Applicable	From 107'-2" to 160'-0"	2'-6"	Yes
East wall of pressurizer compartment	Not Applicable	From 118'-6" to 160'-0"	2'-6"	Yes
North-east wall of in-containment refueling water storage tank	Parallel to column line N	From 103'-0" to 135'-3"	2'-6"	No
West wall of in-containment refueling water storage tank	Not applicable	From 103'-0" to 135'-3"	5/8" steel plate with stiffeners	No
South wall of east steam generator compartment	Not Applicable	From 87'-6" to 153'-0"	2'-6"	Yes

Table 3.3-1 (cont.)
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building[1]

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness[2][3]	Applicable Radiation Shielding Wall (Yes/No)
East wall of east steam generator compartment	Not Applicable	From 94'-0" to 153'-0"	2'-6"	Yes
North wall of east steam generator compartment	Not Applicable	From 87'-6" to 153'-0"	2'-6"	Yes
Shield Building				
Shield Building Cylinder	Not Applicable	From 100'-0" to 251'-6" From 256'-9" to 266'-6"	3'-0" 4'-6"	Yes Yes
Tension Ring	Not Applicable	From 266'-6" to 271'	3'-0"	Yes
Conical Roof	Not Applicable	From 271'-0" to 293'-9"	3'-0" (including 1/2 inch thick steel plate liner on each face)	Yes
PCS Tank External Cylindrical Wall	Not Applicable	From 293'-9" to 328'-9"	2'-0"	Yes
PCS Tank Internal Cylindrical Wall	Not Applicable	From 309'-4" to 329'-0"	1'-6"	Yes
PCS Tank Roof	Not Applicable	328'-9" (Lowest) 329'-0" (Highest)	1'-3"	No
Nuclear Island Basemat	Below shield building	From 60'-6" to containment vessel or 82'-6"	6'-0" to 22'-0" (varies)	No
Auxiliary Building Walls/Floors Radiologically Controlled				
Column Line 1 wall	From I to N	From 66'-6" to 100'-0"	3'-0"	No
Column Line 1 wall	From I to 5'-6" east of L-2	From 100'-0" to 180'-0"	2'-3"	Yes
Column Line 1 wall	From 5'-6" east of L-2 to N	From 100'-0" to 125'-0"	3'-0"	Yes
Column Line 1 wall	From 5'-6" east of L-2 to N	From 125'-0" to 180'-0"	2'-3"	Yes
Column Line 2 wall	From I to K-2	From 66'-6" to 135'-3"	2'-6"	Yes
Column Line 2 wall	From K-2 to L-2	From 66'-6" to 135'-3"	5'-0"	Yes
Column Line 2 wall	From L-2 to N	From 98'-1" to 135'-3"	2'-6"	Yes
Column Line 2 wall	From I to J-1	From 135'-3" to 153'-0"	2'-0"	Yes
Column Line 3 wall	From J-1 to J-2	From 66'-6" to 82'-6"	2'-6"	Yes
Column Line 3 wall	From J-1 to J-2	From 100'-0" to 135'-3"	2'-6"	Yes
Column Line 3 wall	From J-2 to K-2	From 66'-6" to 135'-3"	2'-6"	Yes

Table 3.3-1 (cont.)
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building[1]

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness[2][3]	Applicable Radiation Shielding Wall (Yes/No)
Column Line 3 wall	From K-2 to L-2	From 66'-6" to 92'-8 1/2"	2'-6"	Yes
Column Line 4 wall	From I to J-1	From 66'-6" to 153'-0"	2'-6"	Yes
Column Line 4 wall	From J-1 to J-2	From 66'-6" to 92'-6"	2'-6"	Yes
Column Line 4 wall	From J-1 to J-2	From 107'-2" to 135'-3"	2'-6"	Yes
Column Line 4 wall	From J-2 to K-2	From 66'-6" to 135'-3"	2'-6"	Yes
Column Line 4 wall	From I to intersection with shield building wall	From 135'-3" to 180'-0"	2'-0"	Yes
Column Line 5 wall	From I to shield building; with opening east of J-1 (below 107'-2" floor).	From 66'-6" to 160'-6"	2'-0"	Yes
Column Line 7.1 wall	From I to 8' east of J-1	From 66'-6" to 82'-6"	2'-0"	Yes
Column Line 7.2 wall	From I to 5'-6"east of J-1	From 66'-6" to 100'-0"	2'-0"	Yes
Column Line I wall	From 1 to 7.3	From 66'-6" to 100'-0"	3'-0"	No
Column Line I wall	From 1 to 4	From 100'-0" to 180'-0"	2'-0"	Yes
Column Line I wall	From 4 to 5	From 100'-0" to 160'-6"	2'-0"	No
Column Line J-1 wall	From 1 to 2	From 82'-6" to 100'-0"	2'-0"	Yes
Column Line J-1 wall	From 2 to 4	From 66'-6" to 135'-3"	2'-6"	Yes
Column Line J-1 wall	From 2 to 4	From 135'-3" to 153'-0"	2'-0"	Yes
Column Line J-1 wall	From 4 to shield building	From 66'-6" to 107'-2"	2'-0"	Yes
Column Line J-2 wall	From 2 to 4	From 66'-6" to 135'-3"	2'-6"	Yes
Column Line J-2 wall	From 4 to intersection with shield building wall	From 66'-6" to 135'-3"	2'-0"	Yes
Column Line K-2 wall	From 2 to 4	From 66'-6" to 135'-3"	4'-9"	Yes
Column Line L-2 wall	From 2 to 4	From 66'-6" to 135'-3"	4'-0"	Yes
Column Line N wall	From 1 to 2	From 66'-6" to 100'-0"	3'-0"	No
Column Line N wall	From 1 to 12'-9" north of 1	From 100'-0" to 125'-0"	3'-9"	No
Column Line N wall	From 1 to 12'-9" north of 1	From 125'-0" to 135'-0"	2'-0"	No
Column Line N wall	From 12'-9" north of 1 to 2	From 100'-0" to 118'-2 1/2"	3'-0"	No
Column Line N wall	From 12'-9" north of 1 to 2	From 118'-2 1/2" to 135'-3"	2'-0"	No

Table 3.3-1 (cont.)
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building[1]

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness[2][3]	Applicable Radiation Shielding Wall (Yes/No)
Column Line N wall	From 1 to 2	From 118'-2 1/2" to 135'-3"	2'-0"	Yes
Column Line N wall	From 2 to 4	From 66'-6" to 98'-1"	3'-0"	No
Column Line N wall	From 2 to 4	From 98'-1" to 135'-3"	5'-6"	Yes
Column Line N wall	From 1 to 4	From 135'-3" to 180'-0"	2'-0"	Yes
Labyrinth Wall between Col. Line 3 and 4 and J-1 to 7'-3" from J-2	Not Applicable	From 82'-6" to 92'-6"	2'-6"	Yes
N-S Shield Wall (low wall)	Between K-2 and L-2 extending from column line 1 north	From 100'-0" to 107'-2"	2'-6"	Yes
N-S Shield Wall	Between K-2 and L-2 extending from column line 1 north	From 100'-0" to 125'-0"	2'-3"	Yes
E-W Shield Wall	Between 1 and 2 extending from column line N east	From 100'-0" to 125'-0"	2'-9"	Yes
Auxiliary Area Basemat	From 1-7.3 and I-N, excluding shield building	From 60'-6" to 66'-6"	6'-0"	No
Floor	From 1 to 2 and I to N	82'-6"	2'-0"	Yes
Floor	From 2 to 4 and J-1 to J-2	82'-6"	2'-0"	Yes
Floor	From 4 to 5 and J-1 to J-2	82'-6"	0'-9"	Yes
Pipe Chase Floor	From 2 to 5 and J-1 to J-2	92'-6"	2'-0"	Yes
Floor	From 2 to 3 and J-2 to K-2	90'-3"	3'-0"	Yes
Floor	From 3 to 4 and J-2 to K-2	92'-6"	2'-0"	Yes
Floor	From 4 to 7.3 and I to J-1	82'-6"	2'-0"	Yes
Floor	From 1 to 2 and I to N	100'-0"	3'-0"	Yes
Floor	From 2 to 4 and K-2 to L-2	92'-8 1/2"	3'-2 1/2"	Yes
Floor	From I to J-2 and 4 to intersecting vertical wall before column line 5	107'-2"	2'-0"	Yes
Floor	From I to shield building wall and from intersecting vertical wall before column line 5 to column line 5	105'-0"	0'-9"	Yes
Floor	From 1 to 10'-0" north of 1 and L-2 to N	125'-0"	3'-0"	Yes
Floor	From 10'-0" north of 1 to 2 and L-2 to N	118'-2 1/2"	2'-0"	Yes

Table 3.3-1 (cont.)
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building[1]

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness[2][3]	Applicable Radiation Shielding Wall (Yes/No)
Floor	From 3 to 4 and J-2 to K-2	117'-6"	2'-0"	Yes
Floor	From 2 to 4 and I to J-1	153'-0"	0'-9"	Yes
Roof	From 1 to 4 and I to N	180'-0"	1'-3"	Yes
Floor	From 4 to short of column line 5 and from I to intersection with shield building wall	135'-5"	0'-9"	Yes
Floor	From short of column line 5 to column line 5 and from I to intersection with shield building wall	133'-0"	0'-9"	Yes
Auxiliary Building Walls/Floors Non-Radiologically Controlled				
Column Line 11 wall	From I to Q	From 66'-6" to 100'-0"	3'-0"	No
Column Line 11 wall	From I to Q	From 100'-0" to 117'-6"	2'-0"	Yes
Column Line 11 wall	From I to L	From 117'-6" to 153'-0"	2'-0"	Yes
Column Line 11 wall	From L to M	From 117'-6" to 135'-3"	4'-0"	Yes
Column Line 11 wall	From M to P	From 117'-6" to 135'-3"	2'-0"	Yes
Column Line 11 wall	From P to Q	From 117'-6" to 135'-3"	4'-0"	Yes
Column Line 11 wall	From L to Q	From 135'-3" to 153'-0"	2'-0"	Yes
Column Line 7.3 wall	From I to shield building	From 66'-6" to 100'-0"	3'-0"	Yes
Column Line 7.3 wall	From I to shield building	From 100'-0" to 160'-6"	2'-0"	No
Column Line I wall	From 7.3 to 11	From 66'-6" to 100'-0"	3'-0"	No
Column Line I wall	From 7.3 to 11	From 100'-0" to 153'-0"	2'-0"	No
Column Line I wall	From 5 to 7.3	From 100'-0" to 160'-6"	2'-0"	No
Column Line J wall	From 7.3 to 11	From 66'-6" to 117'-6"	2'-0"	No
Column Line K wall	From 7.3 to 11	From 60'-6" to 135'-3"	2'-0"	Yes
Column Line L wall	From shield building wall to 11	From 60'-6" to 153'-0"	2'-0"	Yes
Column Line M wall	From shield building wall to 11	From 66'-6" to 153'-0"	2'-0"	Yes
Column Line P wall	From shield building wall to 11	From 66'-6" to 153'-0"	2'-0"	Yes
Column Line Q wall	From shield building wall to 11	From 66'-6" to 100'-0"	3'-0"	No
Column Line Q wall	From shield building wall to 11	From 100'-0" to 153'-0"	2'-0"	Yes

Table 3.3-1 (cont.)
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building[1]

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness[2][3]	Applicable Radiation Shielding Wall (Yes/No)
Column Line 9.2 wall	From I to J and K to L	From 117'-6" to 135'-3"	2'-0"	Yes
Labyrinth Wall between Column Line 7.3 and 9.2 and J to K	J to K	From 117'-6" to 135'-3"	2'-0"	Yes
Auxiliary Area Basemat	From 7.3-11 and I-Q, excluding shield building	From 60'-6" to 66'-6"	6'-0"	No
Floor	From 5 to 7.3 and I to shield building wall	100'-0"	2'-0"	Yes
Floor	From K to L and shield building wall to column line 10	100'-0"	0'-9"	Yes
Main Control Room Floor	From 9.2 to 11 and I to L	117'-6"	2'-0"	Yes
Floor	Bounded by shield bldg, 7.3, J, 9.2 and L	117'-6"	2'-0"	Yes
Floor	From 9.2 to 11 and L to Q	117'-6"	2'-0"	Yes
Floor	From 5 to 7.3 and from I to intersection with shield building wall	135'-3"	0'-9"	Yes
Annex Building				
Column line 2 wall	From E to H	From 107'-2" to 135'-3"	19 3/4"	Yes
Column line 4 wall	From E to H	From 107'-2" to 162'-6" & 166'-0"	2'-0"	Yes
N-S Shield Wall between E and F	From 2 to 4	From 107'-2" to 135'-3"	1'-0"	Yes
Column line 4.1 wall	From E to H	From 107'-2" to 135'-3"	2'-0"	Yes
E-W Labyrinth Wall between column line 7.1 and 7.8 and G to H	Not Applicable	From 100'-0" to 112'-0"	2'-0"	
N-S Labyrinth Wall between column line 7.8 and 9 and G to H	Not Applicable	From 100'-0" to 112'-0"	2'-0"	
E-W Labyrinth Wall between column line 7.1 and 7.8 and G to H	Not Applicable	From 100'-0" to 112'-0"	2'-0"	Yes
N-S Shield Wall on Column line. F	From 4.1 North	From 100'-0" to 117'-6"	1'-0"	Yes
Column Line 9 wall	From E to connecting wall between G and H	From 107'-2" to 117'-6"	2'-0"	Yes
Column Line E wall	From 9 to 13	From 100'-0" to 135'-3"	2'-0"	Yes
Column Line 13 wall	From E to I.1	From 100'-0" to 135'-3"	2'-0"	Yes

Table 3.3-1 (cont.)
Definition of Wall Thicknesses for Nuclear Island Buildings and Annex Building[1]

Wall or Section Description	Column Lines	Floor Elevation or Elevation Range	Concrete Thickness[2][3]	Applicable Radiation Shielding Wall (Yes/No)
Column Line I.1 wall	From 11.09 to 13	From 100'-0" to 135'-3"	2'-0"	Yes
Corridor Wall between G and H	From 9 to 13	From 100'-0" to 135'-3"	1'-6"	Yes
Column Line 9 wall	From I to H	From 117'-6" to 158'-0"	2'-0"	Yes
Floor	2 to 4 from shield wall between E and F to column line H	135'-3"	0'-6"	Yes
Floor	From 4 to 4.1 and E to H	135'-3"	1'-0"	Yes
Floor	From 9 to 13 and E to I.1	117'-6"	0'-6"	Yes
Floor	From 9 to 13 and E to I.1	135'-3"	0'-8"	Yes
Containment Filtration Rm A (North Wall)	Between column line E to H	From 135'-3" to 158'-0"	1'-0"	Yes
Containment Filtration Rm A (East wall)	Between column line E to F	From 135'-3" to 158'-0"	1'-0"	Yes
Containment Filtration Rm A (West wall)	Between column line G to H	From 135'-3" to 158'-0"	1'-0"	Yes
Containment Filtration Rm A (Floor)	Between column line E to H	135'-3"	1'-0"	Yes
Containment Filtration Rm B (Floor)	Between column line E to H	146'-3"	0'-6"	Yes
Containment Filtration Rm B (West wall)	Between column line G to H	From 146'-3" to 158'-0"	1'-0"	Yes
Turbine Building				
Wall between I.2 and I.1	From 11.05 to 11.2	From 100'-0" to 161'-0"	2'-0"	No
Column Line 11.2 Wall	From 1'-2" off I.1 to 2'-4" Past R	From 100'-0" to 161'-0"	2'-0"	No
Wall 2'-4" Past R	From 11 to 11.2	From 100'-0" to 161'-0"	2'-0"	No
Wall 11	From 11'-0" off Q to 2'-4" Past R	From 100'-0" to 161'-0"	2'-0"	No

APPENDIX D-10 – EXAMPLE ITAAC CLOSURE LETTER AP1000 ITAAC 3.7-3 ITEM 1

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of AP1000 ITAAC 3.7-3 Item 1

The purpose of this letter is to notify Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 3.7-3 Item 1 for the Design Reliability Assurance Program (D-RAP) in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01(Reference 1).

ITAAC Statement

Design Commitment

The D-RAP provides reasonable assurance that the design of risk-significant SSCs is consistent with their risk analysis assumptions.

Inspection/Test/Analysis

Inspection will be performed for the existence of a report which establishes the estimated reliability of as-built risk-significant SSCs.

Acceptance Criteria

A report exists and concludes that the estimated reliability of each as-built component identified in Table 3.7-1 [of the Tier 1 Material of the AP1000 Design Certification Document] is at least equal to the assumed reliability and that industry experience including operations, maintenance, and monitoring activities were assessed in estimating the reliability of these SSCs. For an as-built component with reliability less than the assumed reliability, an evaluation shall show that the net effect of as-built component reliabilities does not reduce the overall reliability. Or, an evaluation shall show that there is not a significant adverse effect on the core melt frequency or the large release frequency in the PRA applicable to the plant.

ITAAC Determination Basis

Risk-significant SSCs identified for the AP1000 standard design are listed in Table 3.7-1 of the Tier 1 Material of the AP1000 Design Control Document (DCD). Table 3.7-1 is provided in the enclosure.

Engineering Report ZZZ, *Validation of Design Reliability Assurance Program,* (Reference 2) documents the estimated reliability of each as-built component identified in Table 3.7-1 and compares them to the reliability value assumed in the certified design. Engineering Report ZZZ was developed utilizing the method delineated in Procedure YYY, *Validation of Design Reliability Assurance Program*, (Reference 3).

Procedure YYY defines the methodology for establishing the as-built reliability for the components identified in Table 3.7-1 of Tier 1 Material of the AP1000 DCD. It considers the procurement, fabrication, construction, and preoperation test activities and programs, and industry experience including operations, maintenance, and monitoring activities. Procedure YYY also defines the methodology for comparing the as-built reliability data and the reliability data that was utilized for the AP1000 design certification.

An inspection/assessment of the Engineering Report (Reference 2) was conducted by a team of individuals who were independent of the team that developed Engineering Report ZZZ to confirm that: 1) the estimated as-built reliability for each SSC listed in Table 3.7-1 of the AP1000 DCD is at least equal to the assumed reliability utilized for the AP1000 design certification; and 2) industry experience including operations, maintenance, and monitoring activities was assessed in estimating the reliability of the SSCs, This inspection/assessment is documented as Inspection XXX, *Closure of ITAAC Table 3.7-3, Item 1* (Reference 4).

The inspection/assessment concluded that for each component identified in Table 3.7-1 of the AP1000 DCD, the estimated reliability of the as-built component is at least equal to the reliability value assumed in the AP1000 design certification, and that industry experience including operations, maintenance, and monitoring activities was assessed in estimating the reliability of the components.

ITAAC Close-out Review

In accordance with plant procedures for ITAAC close-out, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that three associated findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}

2. {ITAAC-related construction finding #2}

3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC Table 3.7-3 Item 1 (Reference 5), which is available for NRC inspection at the {Site Name} site. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the

NRC website for this docket may be located by referencing the NRC finding number provided above.

ITAAC Completion statement

Based on the above information, {Licensee} hereby notifies the NRC that ITAAC Table 3.7-3 Item 1 was performed for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

{Licensee} requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. Engineering Report ZZZ, Validation of Design Reliability Assurance Program
3. Procedure YYY, Validation of Design Reliability Assurance Program
4. Inspection Report XXX, Closure of ITAAC Table 3.7-3, Item 1
5. ITAAC Table 3.7-3, Item 1 Completion package

Table 3.7-1
Risk-Significant Components

Equipment Name	Tag No.
Component Cooling Water System (CCS)	
Component Cooling Water Pumps	CCS-MP-01A/B
Containment System (CNS)	
Containment Vessel	CNS-MV-01
Hydrogen Igniters	VLS-EH-1 through -64
Chemical and Volume Control System (CVS)	
Makeup Pumps	CVS-MP-01A/B
Makeup Pump Suction and Discharge Check Valves	CVS-PL-V113 CVS-PL-V160A/B
Diverse Actuation System (DAS)	
DAS Processor Cabinets and Control Panel (used to provide automatic and manual actuation)	DAS-JD-001 DAS-JD-002 DAS-JD-004 OCS-JC-020
Annex Building UPS Distribution Panels (provide power to DAS)	EDS1-EA-1, EDS1-EA-14, EDS2-EA-1, EDS2-EA-14

Table 3.7-1 (cont.) Risk-Significant Components	
Equipment Name	**Tag No.**
Rod Drive MG Sets (Field Breakers)	PLS-MG-01A/B
Containment Isolation Valves Controlled by DAS	Refer to Table 2.2.1-1
Main ac Power System (ECS)	
Reactor Coolant Pump Switchgear	ECS-ES-31, -32, -41, -42, -51, -52, -61, -62
Ancillary Diesel Generators	ECS-MS-01, -02
6900 Vac Buses	ECS-ES-1, -2
Main and Startup Feedwater System (FWS)	
Startup Feedwater Pumps	FWS-MP-03A/B
General I&C	
IRWST Level Sensors	PXS-045, -046, -047, -048
RCS Hot Leg Level Sensors	RCS-160A/B
Pressurizer Pressure Sensors	RCS-191A/B/C/D
Pressurizer Level Sensors	RCS-195A/B/C/D
Steam Generator Narrow-Range Level Sensors	SGS-001, -002, -003, -004, -005, -006, -007, -008
Steam Generator Wide-Range Level Sensors	SGS-011, -012, -013, -014, -015, -016, -017, -018
Main Steam Line Pressure Sensors	SGS-030, -031, -032, -033, -034, -035, -036, -037
Main Feedwater Wide-Range Flow Sensors	SGS-050A/C/E, -051A/C/E
Startup Feedwater Flow Sensors	SGS-055A/B, -056A/B
CMT Level Sensors	PXS-011A/B/C/D, -012A/B/C/D, -013A/B/C/D, -014A/B/C/D
Class 1E dc Power and Uninterruptible Power System (IDS)	
125 Vdc 24-Hour Batteries	IDSA-DB-1A/B, IDSB-DB-1A/B, IDSC-DB-1A/B, IDSD-DB-1A/B
250 Vdc 24-Hour Battery Chargers	IDSA-DC-1, IDSB-DC-1, IDSC-DC-1, IDSD-DC-1

Table 3.7-1 (cont.) Risk-Significant Components	
Equipment Name	**Tag No.**
250 Vdc and 120 Vac Distribution Panels	IDSA-DD-1, IDSA-EA-1/-2, IDSB-DD-1, IDSB-EA-1/-2/-3, IDSC-DD-1, IDSC-EA-1/-2/-3, IDSD-DD-1, IDSD-EA-1/-2
Fused Transfer Switch Boxes	IDSA-DF-1, IDSB-DF-1/-2, IDSC-DF-1/-2, IDSD-DF-1
250 Vdc Motor Control Centers	IDSA-DK-1, IDSB-DK-1, IDSC-DK-1, IDSD-DK-1
250 Vdc 24-Hour Inverters	IDSA-DU-1, IDSB-DU-1, IDSC-DU-1, IDSD-DU-1
Passive Containment Cooling System (PCS)	
Recirculation Pumps	PCS-MP-01A/B
PCCWST Drain Isolation Valves	PCS-PL-V001A/B/C
Plant Control System (PLS)	
PLS Actuation Software and Hardware (used to provide control functions)	Refer to Table 3.7-2
Protection and Monitoring System (PMS)	
PMS Actuation Software (used to provide automatic control functions)	Refer to Tables 2.5.2-2 and 2.5.2-3
PMS Actuation Hardware (used to provide automatic control functions)	Refer to Tables 2.5.2-2 and 2.5.2-3
MCR 1E Displays and System Level Controls	OCS-JC-010, -011
Reactor Trip Switchgear	PMS-JD-RTS A01/02, B01/02, C01/02, D01/02
Passive Core Cooling System (PXS)	
IRWST Vents	PXS-MT-03
IRWST Screens	PXS-MY-Y01A/B
Containment Recirculation Screens	PXS-MY-Y02A/B
CMT Discharge Isolation Valves	PXS-PL-V014A/B, -V015A/B
CMT Discharge Check Valves	PXS-PL-V016A/B, -V017A/B
Accumulator Discharge Check Valves	PXS-PL-V028A/B, -V029A/B
PRHR HX Control Valves	PXS-PL-V108A/B
Containment Recirculation Squib Valves	PXS-PL-V118A/B, -V120A/B

Table 3.7-1 (cont.) Risk-Significant Components	
Equipment Name	**Tag No.**
IRWST Injection Check Valves	PXS-PL-V122A/B, -V124A/B
IRWST Injection Squib Valves	PXS-PL-V123A/B, -V125A/B
IRWST Gutter Bypass Isolation Valves	PXS-PL-V130A/B
Reactor Coolant System (RCS)	
ADS Stage 1/2/3 Valves (MOVs)	RCS-PL-V001A/B, -V011A/B RCS-PL-V002A/B, -V012A/B RCS-PL-V003A/B, -V013A/B
ADS Stage 4 Valves (Squibs)	RCS-PL-V004A/B/C/D
Pressurizer Safety Valves	RCS-PL-V005A/B
Reactor Vessel Insulation Water Inlet and Steam Vent Devices	RCS-MN-01
Reactor Cavity Doorway Damper	–
Fuel Assemblies	157 assemblies with tag numbers beginning with RXS-FA
Normal Residual Heat Removal System (RNS)	
Residual Heat Removal Pumps	RNS-MP-01A/B
RNS Motor-Operated Valves	RNS-PL-V011, -V022, -V023, -V055
RNS Stop Check Valves RNS Check Valves	RNS-PL-V015A/B RNS-PL-V017A/B
RNS Check Valves	RNS-PL-V007A/B, -V013, -V056
Spent Fuel Cooling System (SFS)	
Spent Fuel Cooling Pumps	SFS-MP-01A/B
Steam Generator System (SGS)	
Main Steam Safety Valves	SGS-PL-V030A/B, -V031A/B, -V032A/B, -V033A/B, -V034A/B, -V035A/B
Main Steam Line Isolation Valves	SGS-PL-V040A/B
Main Feedwater Isolation Valves	SGS-PL-V057A/B
Service Water System (SWS)	
Service Water Cooling Tower Fans	SWS-MA-01A/B
Service Water Pumps	SWS-MP-01A/B

Table 3.7-1 (cont.) Risk-Significant Components	
Equipment Name	**Tag No.**
Nuclear Island Nonradioactive Ventilation System (VBS)	
MCR Ancillary Fans	VBS-MA-10A/B
I&C Room B/C Ancillary Fans	VBS-MA-11, -12
Chilled Water System (VWS)	
Air Cooled Chiller Pumps	VWS-MP-02, -03
Air Cooled Chillers	VWS-MS-02, -03
Onsite Standby Power System (ZOS)	
Engine Room Exhaust Fans	VZS-MY-V01A/B, -V02A/B
Onsite Diesel Generators	ZOS-MS-05A/B

Note: Dash (-) indicates not applicable.

APPENDIX D-11 – EXAMPLE ITAAC CLOSURE LETTER ESBWR ITAAC 2.1.2-3 ITEM 8

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ESBWR ITAAC 2.1.2-3 Item 8

The purpose of this letter is to notify Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.1.2-3 Item 8, *Instrumentation and Control*, for the Nuclear Boiler System in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01(Reference 1).

ITAAC Statement

Design Commitment

8. Instrumentation and Control

a) Control Room alarms, displays, and/or controls provided for the NBS System are defined in Table 2.1.2-2. (A copy of ESBWR DCD Table 2.1.2-2 is provided in the attachment to this letter.)

b) The MSIVs close upon any of the following conditions:

- *Main Condenser Vacuum Low (Run mode)*
- *Turbine Area Ambient Temperature High*
- *MSL Tunnel Ambient Temperature High*
- *MSL Flow Rate High*
- *Turbine Inlet Pressure Low*
- *Reactor Water Level Low*

Inspection/Test/Analysis

a) Inspections will be performed on the as-built Control Room alarms, displays, and/or controls for the NBS System.

b) Valve closure tests will be performed on the as-built MSIVs using simulated signals.

Acceptance Criteria

a) Report(s) document that alarms, displays, and/or controls exist or can be retrieved in the Control Room as defined in Table 2.1.2-2.

b) Report(s) document that the MSIVs close upon generation of any of the following simulated signals:

- *Main Condenser Vacuum Low (Run mode)*
- *Turbine Area Ambient Temperature High*
- *MSL Tunnel Ambient Temperature High*
- *MSL Flow Rate High*
- *Turbine Inlet Pressure Low*
- *Reactor Water Level Low*

ITAAC Determination Basis

Preoperational Test Procedure XXX, *Nuclear Boiler System Preoperational Test*, (Reference 2) governs testing of the Nuclear Boiler System. This procedure includes sections that:

- Confirm alarms, displays, and/or controls exist or can be retrieved in the Control Room as defined in ESBWR Design Control Document (DCD) Table 2.1.2-2 (ITAAC Item 8a); and
- Document the Main Steam Isolation Valves (MSIVs) close upon generation of any of simulated signals specified in the ITAAC acceptance criteria (see above) (ITAAC Item 8b).

{Licensee} performed a review of Procedure XXX to confirm that it contains the appropriate steps needed to meet each ITAAC acceptance criterion and that the procedure has been successfully completed. This review is documented in Inspection Report YYY, *Closure of ITAAC 2.1.2-3 #8, Instrumentation and Control* (Reference 3), the results of which are summarized below.

1) ITAAC Item 8a)

Section X of Procedure XXX contains steps in which signals simulating various equipment parameters are entered at the sensor input of the instrumentation loop to confirm that alarms, displays, and/or controls exist or can be retrieved in the Control Room as defined in ESBWR DCD Table 2.1.2-2. {Licensee} successfully completed Section X, a signed copy of which is contained in ITAAC Completion package for ITAAC 2.1.2-3 #8*, Instrumentation and Control*, (Reference 4).

2) ITAAC Item 8b)

Section Y of Procedure XXX demonstrates MSIV closure under various plant conditions, including those identified in the ITAAC, by inputting signals simulating those conditions at the sensor input of the closure logic instrumentation. {Licensee} successfully completed Section Y,

a signed copy of which is contained in ITAAC Completion package for ITAAC 2.1.2-3 item 8, *Instrumentation and Control*, (Reference 4).

Conclusion

Therefore, as required by ITAAC Items 8a) and b), Inspection Report YYY, *Closure of ITAAC 2.1.2-3 Item 8, Instrumentation and Control* (Reference 3) documents that:

a) Alarms, displays, and/or controls exist or can be retrieved in the Control Room as defined in ESBWR DCD Table 2.1.2-2; and

b) The MSIVs close upon generation of any of the following simulated signals:

- Main Condenser Vacuum Low (Run mode)
- Turbine Area Ambient Temperature High
- MSL Tunnel Ambient Temperature High
- MSL Flow Rate High
- Turbine Inlet Pressure Low
- Reactor Water Level Low

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that three associated findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}
2. {ITAAC-related construction finding #2}
3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in ITAAC Completion package for ITAAC 2.1.2-3 Item 8, *Instrumentation and Control*, which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, {Licensee} hereby notifies the NRC that {Licensee} has performed ITAAC 2.1.2-3 Item 8 for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

{Licensee} requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {name of contact person for Licensee} at {telephone # for contact person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

Attachment: ESBWR DCD Table 2.1.2-2, *Nuclear Boiler System Electrical Equipment*, Rev. 4

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. Preoperational Test Procedure XXX, Nuclear Boiler System Preoperational Test
3. Inspection Report YYY, Closure of ITAAC 2.1.2-3 #8, Instrumentation and Control
4. ITAAC Completion package for ITAAC 2.1.2-3 #8, Instrumentation and Control

ATTACHMENT

ESBWR DCD TABLE 2.1.2-2
NUCLEAR BOILER SYSTEM ELECTRICAL EQUIPMENT

ESBWR DCD Table 2.1.2-2
Nuclear Boiler System Electrical Equipment

Equipment Name	Equipment ID on Figure 2.1.2-2	Control Q-DCIS/DPS[3]	Safety-Related Electrical Equipment	Safety-Related Display	Active Function	Seismic Category I	Remotely Operated	Containment Isolation Valve Actuator
Inboard Main Steam Isolation Valves	V8 (Typ. of 4)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Outboard Main Steam Isolation Valves	V9 (Typ. of 4)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Safety Relief Valves (SRV)	V6 (Typ. of 10)	Yes (ADS – See Section 2.2.16)	Yes	Yes	Yes	Yes	Yes	Yes
Safety Valves (SV)	V7 (Typ. of 8)	No	Yes – Position Indicator Only	Yes	No	Yes	No	No
Depressurization Valves	V5 (Typ. of 8 total)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Feedwater Isolation Valves	V14, V17	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Feedwater Outboard Isolation Check Valves	V13, V16	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reactor Pressure Transmitters (1 each in 4 divisions)	--	Yes	Yes	Yes	Yes	Yes	--	--

[3] See Section 2.2.7.

Equipment Name	Equipment ID on Figure 2.1.2-2	Control Q-DCIS/DPS[3]	Safety-Related Electrical Equipment	Safety-Related Display	Active Function	Seismic Category I	Remotely Operated	Containment Isolation Valve Actuator
Reactor Water Level Transmitters (1 each in 4 divisions)	--	Yes	Yes	Yes	Yes	Yes	--	--
MSIV Isolation Logic	--	Yes	Yes	Yes	Yes	Yes	--	--
Leak Detection and Isolation System Logic	--	Yes	Yes	Yes	Yes	Yes	--	--

APPENDIX D-12 – EXAMPLE ITAAC CLOSURE LETTER ESBWR ITAAC 2.3-1 ITEM 5.1

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ESBWR ITAAC 2.3-1 Item 5.1

The purpose of this letter is to notify Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.3-1 Item 5.1, Emergency Facilities and Equipment, in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01(Reference 1).

ITAAC Statement

Planning Standard

10 CFR 50.47(b)(8) – Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

EP Program Elements

5.1 The licensee has established a technical support center (TSC) and onsite operations support center (OSC). [H.1] ITAAC element addressed in: COL EP II.H.1

Inspection/Test/Analysis

5.1 An inspection of the as-built TSC and OSC will be performed.

Acceptance Criteria

5.1.1 A report exists that confirms the TSC has at least 174 square meters (1875 square feet) of floor space.

5.1.2 A report exists that confirms the following communications equipment has been provided in the TSC and voice transmission and reception have been accomplished:

a. NRC systems:

(1) Emergency Notification System (ENS)
(2) Health Physics Network (HPN)
(3) Reactor Safety Counterpart Link (RSCL)

(4) Protective Measures Counterpart Link (PMCL)
(5) Management Counterpart Link (MCL)
b. Dedicated telephone to EOF
c. Dedicated telephone to control room
d. Dedicated telephone to OSC

5.1.3 A report exists that confirms the TSC has been located in the Electrical Building.

5.1.4 A report exists that confirms the TSC includes radiation monitors and a ventilation system with a high efficiency particulate air (HEPA) and charcoal filter.

5.1.5 A report exists that confirms back-up electrical power supply is available for the TSC.

5.1.6 A report exists that confirms the OSC is in a location separate from the control room.

5.1.7 A report exists that confirms the following communications equipment has been provided in the OSC and voice transmission and reception have been accomplished:
· Dedicated telephone to control room
· Dedicated telephone to TSC
· Plant page system (voice transmission only)

ITAAC Determination Basis

Personnel from the Emergency Planning and Testing organizations have completed station procedure NN3-xx-123, Emergency Response Facilities Test (Reference 2). This procedure addresses the tasks necessary to determine that adequate emergency facilities and equipment to support the emergency response are provided and maintained in accordance with 10 CFR 50.47(b)(8). Results of these inspections are reported in the Emergency Facilities and Equipment Test Report (Reference 3). Results of the tests and inspections are provided below:

ITAAC Item	Result
2.3-1.5.1.1	The TSC has xxxx square feet of floor space, which exceeds the required minimum 174 square meters (1875 square feet) of floor space.
2.3-1.5.1.2	Voice communications have been transmitted and received to and from the TSC and the following: a. NRC systems: (1) Emergency Notification System (ENS) (2) Health Physics Network (HPN) (3) Reactor Safety Counterpart Link (RSCL) (4) Protective Measures Counterpart Link (PMCL) (5) Management Counterpart Link (MCL) b. Dedicated telephone to EOF c. Dedicated telephone to control room d. Dedicated telephone to OSC

2.3-1.5.1.3	The TSC is located in the Electrical Building.
2.3-1.5.1.4	TSC includes radiation monitors and a ventilation system with a high efficiency particulate air (HEPA) and charcoal filter. The radiation monitors responded appropriately to test sources, and provided alarms as designed.
2.3-1.5.1.5	Back-up electrical power supply is available for the TSC. When tested by removing the normal power source, the backup power supply automatically started and accepted the TSC electrical load. In accordance with the test procedure, the TSC was powered by the backup power supply for greater than one hour.
2.3-1.5.1.6	The OSC is in the _____, which is a location separate from the control room.
2.3-1.5.1.7	Voice communications have been transmitted and received to and from the OSC and the following: a. Dedicated telephone to control room c. Dedicated telephone to TSC d. Plant page system (voice transmission only)

The results presented in the test report fully satisfy ITAAC 2.3-1, Item 5.1.

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, New ESBWR Reactor Plant Unit 3 performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that X associated findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}

2. {ITAAC-related construction finding #2}

3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC 2.3-1 Item 5.1, (Reference 4) which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, {Licensee Name} hereby notifies the NRC that ITAAC 2.3-1 Item 5.1 was performed for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for ITAAC Closure Process Under 10 CFR Part 52
2. NN3-xx-123, Emergency Response Facilities Test
3. Emergency Facilities and Equipment Test Report
4. ITAAC 2.3-1, Item 5.1, Emergency Response Facilities ITAAC Completion package.

APPENDIX D-13 – EXAMPLE ITAAC CLOSURE LETTER ESBWR ITAAC 2.4.2-3 ITEM 12

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ESBWR ITAAC Item 2.4.2-3 Item 12

The purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspection, Test, Analysis and Acceptance Criteria (ITAAC) Item 2.4.2-3 Item 12 in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI-08-01 (Reference 1).

ITAAC Statement

Design Commitment

GDCS squib valves maintain RPV backflow leak tightness and maintain reactor coolant pressure boundary integrity during normal plant operation.

Inspection/Test/Analysis

A test will be performed to demonstrate the squib valves are leak tight during normal plant conditions.

Acceptance Criteria

Testing concludes GDCS squib valves have zero leakage at normal plant operation pressure

ITAAC Determination Basis

New ESBWR Reactor Plant Unit 3 Pre-operational test NN3-XX-123 (Reference 2), Gravity Driven Cooling System (GDCS) Pre-Operational Test, was completed with the results reviewed and accepted on 1/1/XX. Section 1.2.3.1.1 tested the leak tightness of the 3-E50-1XX, 3-E50-2XX, 3-E50-3XX, and 3-E50-4XX valves.

Performance of this section of the test required the RPV to be at normal operating pressure with the GDCS system aligned such that the squib valves were closed with the drain valves (3-E50-1YYA and B) located upstream of the squib valves open. The system was maintained in this condition for X hours in accordance with the procedure.

There was no leakage from any of the squib valves.

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, New ESBWR Reactor Plant Unit 3 performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that X associated findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}
2. {ITAAC-related construction finding #2}
3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC 2.4.2-3 Item 12, (Reference 3) which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, New ESBWR Reactor Plant Unit 3 hereby notifies the NRC that ITAAC 2.4.2-3 Item 12 was performed for New ESBWR Reactor Plant Unit 3, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of licensing Representative} at {Contact Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. NN3-XX-123, Gravity Driven Cooling System Test Procedure.
3. ITAAC 2.4.2-3 Item12 Gravity Driven Cooling System Completion package

APPENDIX D-14 – EXAMPLE ITAAC CLOSURE LETTER ESBWR ITAAC 2.13.1-2 ITEM 6.C

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ESBWR ITAAC 2.13.1-2 Item 6.c

The purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspection, Test, Analysis and Acceptance Criteria (ITAAC) 2.13.1-2 Item 6.c, On-Site AC Power, in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI-08-01 (Reference 1).

ITAAC Statement

Design Commitment

The standby power supply breaker closes when the standby diesel generator is ready to load.

Inspection/Test/Analysis

Testing will be performed using real or simulated signals.

Acceptance Criteria

Test report(s) demonstrate that the as-built standby power supply breaker closes after receiving a real or simulated ready to load signal from the standby AC power system.

ITAAC Determination Basis

New ESBWR Reactor Plant Unit 3 Pre-operational test NN3-XX-123 (Reference 2), The Onsite AC Power System was completed with the results reviewed and accepted. Section x.x.x.x tested the ability of the standby power supply breaker to close when the associated diesel generator was at rated speed and voltage.

Performance of this section of the test required generation of a standby power supply breaker closure signal when the AC standby diesel generator ready logic is satisfied. The AC standby diesel generator ready logic consists of five inputs: normal supply breakers open on the

associated 13.8 kV busses; AC standby diesel generator output voltage >95%; associated 13.8 kV bus residual voltage <25%; electrical lockout relay not energized on the AC standby diesel generator; and mechanical emergency stop signals not satisfied.

Initial conditions for the test are that the AC standby diesel generator is ready to start and the associated 13.8 kV bus is energized with its standby diesel generator breaker open. Alternate AC supplies from other busses are verified open and racked out. This test is performed by manually starting the AC emergency diesel generator and verifying it reaches operating speed and voltage. At steady state operations, the associated 13.8 kV bus normal supply breaker is de-energized and the AC standby diesel generator output breaker is verified to close.

During the actual test, the breaker closed as required.

The test report for the Onsite AC Power System (Reference 3) documents the results for closure of this ITAAC.

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, New ESBWR Reactor Plant Unit 3 performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that X associated findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}
2. {ITAAC-related construction finding #2}
3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC 2.13.1-2, Item 6.c, (Reference 4) which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, New ESBWR Reactor Plant Unit 3 hereby notifies the NRC that ITAAC 2.13.1-2.6.c was performed for New ESBWR Reactor Plant Unit 3, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of licensing Representative} at {Contact Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for ITAAC Closure Process Under 10 CFR Part 52
2. NN3-XX-123, Standby Diesel Generator System Test Procedure
3. On Site AC Power System Test Report.
4. ITAAC 2.13.1-2, Item 6.c, Standby Diesel Generator System Completion package.

APPENDIX D-15 – EXAMPLE ITAAC CLOSURE LETTER AP1000 ITAAC 2.2.3.4 ITEM 8A

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of AP1000 ITAAC Item 2.2.3-4 Item 8. a)

The purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspection, Test, Analysis and Acceptance Criteria (ITAAC) Item 2.2.3-4 Item 8. a), "Containment isolation of the Passive Core Cooling System (PXS) lines," in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI-08-01 (Reference 1).

ITAAC Statement
The following information is taken directly from the design control document.

Design Commitment

The PXS provides containment isolation of the PXS lines penetrating the containment.

Inspection/Test/Analysis

See Tier 1 Material, Table 2.2.1-3, items 1 and 7.

Acceptance Criteria

See Tier 1 Material, Table 2.2.1-3, items 1 and 7

ITAAC Determination Basis

This ITAAC Design Commitment is shown to be met by reference to ITAAC for the Containment System in Tier 1, Table 2.2.1-3. The references are to Item 1 of Table 2.2.1-3 which demonstrates the functional arrangement of the containment system and to Item 7 of Table 2.2.1-3 which demonstrates the containment isolation function.

The closure letters (References 2 and 3) for Item 1 and Item 7 of Table 2.2.1-3 summarize the methodology for conducting the ITA, and the results that demonstrate that the acceptance criteria

were met. These closure letters have been submitted to the NRC and the supporting ITAAC closure activities are complete.

The records (Tests, Reports, Completed Procedures, Completed Analyses, etc.) that form the ITAAC determination basis are referenced in the closure letters for Item 1 of Table 2.2.1-3 and Item 7 of Table 2.2.1-3.

ITAAC-Related Construction Finding Review

Any relevant ITAAC-related construction findings are addressed in the closure letters for Item 1 of Table 2.2.1-3 and Item 7 of Table 2.2.1-3.

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion packages for ITAAC 2.2.1-3 Item 1 and ITAAC 2.2.1-3 Item 7, (References 4 and 5), which are available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding number provided below.

ITAAC Completion statement

Based on the above information, {Licensee Name} hereby notifies the NRC that ITAAC 2.2.3-4 Item 8. a) was performed for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. Closure Letter for Item 1 of Table 2.2.1-3, Dated XXXX YY, 20ZZ
3. Closure Letter for Item 7 of Table 2.2.1-3, Dated XXXX YY, 20ZZ

4. ITAAC Completion package for Item 1 of Table 2.2.1-3 retained on site
5. ITAAC Completion package for Item 7 of Table 2.2.1-3 retained on site

APPENDIX D16 – EXAMPLE ITAAC ENCLOSURE LETTER COMPLETION OF ESBWR ITAAC 2.1.1-3 ITEM 2

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ESBWR ITAAC 2.1.1-3 Item #2

The purpose of this letter is to notify the NRC of the completion of {Site Name and Unit #(s)} ESBWR Inspection, Test, Analysis, and Acceptance Criteria (ITAAC) 2.1.1-3 Item #2 for the Reactor Pressure Vessel (RPV) System in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01, *Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52* (Reference 1).

ITAAC Statement

Design Commitment

The key dimensions (and acceptable variations) of the as-built RPV are as described in Table 2.1.1-2. [A copy of ESBWR Design Control Document (DCD) Table 2.1.1-2 is provided in Attachment 1. Table 2.1.1-2 references DCD Figure 2.1.1-1, a copy of which is provided in Attachment 2.]

Inspection/Test/Analysis

Inspection of the as-built RPV key dimensions (and acceptable variations thereof) will be conducted.

Acceptance Criteria

Report(s) document that the RPV conforms to the key dimensions (and acceptable variations) described in Table 2.1.1-2.

ITAAC Determination Basis

Table 2.1.1-2 of the ESBWR DCD lists the key dimensions of RPV components along with acceptable variations. Following RPV fabrication, personnel performed inspections to ensure these key dimensions were met. These inspections, performed in accordance with the supplier's Quality Assurance Program (QAP), are documented in Inspection Report XXX (Reference 2), which was supplied with the RPV module to {Licensee}.

Pursuant to the {Licensee}'s QAP, delegated responsibilities may be performed under a supplier's or principal contractor's QAP, provided that the supplier or principle

contractor has been approved as a supplier in accordance with the {Licensee}'s QAP. {Licensee} has performed periodic audits and assessments of the supplier's QA programs to assure compliance with the supplier's QAP and implementing procedures.

{Licensee} Procedure XYZ, *Material Receipt*, (Reference 3), establishes and governs the process used for performing and documenting receipt and quality control (QC) inspections of quality-related components delivered to the site. The procedure requires inspection activities be performed by qualified personnel. These inspections include, but are not limited to:

- Checks for physical damage (fire, excessive exposure to weather, rough handling, etc.
- Quantity
- Technical and quality requirements

Upon arrival at {Site Name}, qualified {Licensee} personnel performed receipt and QC inspections of the RPV module in accordance with Procedure XYZ. Included in these activities was a review of the quality documentation accompanying the RPV. This activity, documented on Receiving Inspection Report #YYY (Reference 4), confirmed that Inspection Report XXX documented that the key dimensions denoted in DCD Table 2.1.1-2 are within the measurements specified in the table. Receiving Inspection Report #YYY is contained in Inspection Report ZZZ, *Closure of ITAAC 2.1.1-3 #2* (Reference 5).

{Licensee} has reviewed installation records pertaining to the RPV; these are identified and contained in Inspection Report ZZZ. There is no evidence to indicate that the key dimensions identified in DCD Table 2.1.1-2 and validated by the inspections described above were adversely impacted during installation of the RPV.

Conclusion

As required by ITAAC 2.1.1-3 #2, Inspection Report ZZZ, *Closure of ITAAC 2.1.1-3 Item #2*, documents that a report exists that documents that the RPV conforms to the key dimensions (and acceptable variations) described in DCD Table 2.1.1-2.

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC closure, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that three associated findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}
2. {ITAAC-related construction finding #2}
3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in ITAAC Completion package for ITAAC 2.1.1-3 Item #2 (Reference 6), which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding number provided above.

ITAAC Completion statement

Based on the above information, {Licensee} hereby notifies the NRC that {Licensee} has performed ITAAC 2.1.1-3 Item #2 for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

{Licensee} requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {name of contact person for Licensee} at {telephone # for contact person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

Attachments:
1. ESBWR DCD Table 2.1.1-2, *Key Dimensions of RPV Components and Acceptable Variations*, Rev. 4
2. ESBWR DCD Figure 2.1.1-1, *Reactor Pressure Vessel System Key Features Layout*

References (available for NRC inspection)

1. NEI 08-01, *Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52*
2. Inspection Report XXX
3. Procedure XYZ, *Material Receipt*
4. Receiving Inspection Report #YYY
5. Inspection Report ZZZ, *Closure of ITAAC 2.1.1-3 #2*
6. ITAAC Completion package for ITAAC 2.1.1-3 #2

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ATTACHMENT 1

ESBWR DCD Table 2.1.1-2

Key Dimensions of RPV Components and Acceptable Variations

Description	Dimension / Elevation (Figure 2.1.1-1)	Nominal Value (mm, in.)	Acceptable Variation(s) (mm, in.)
RPV bottom head inside invert elevation	A	0	Reference 0
Top of core plate elevation	B	[4178, 164.5]	[± 16, 0.63]
Bottom of top guide elevation	C	[7718, 303.9]	[± 16, 0.63]
RPV top head inside invert election	D	[27560, 1085]	[± 100, 3.94]
RPV inside diameter (inside cladding)	E	[7112, 280.0]	[± 51, 2.01]
RPV wall thickness in beltline (including cladding)	F	[182, 7.17]	[190.5 max, 7.50 max]

ATTACHMENT 2

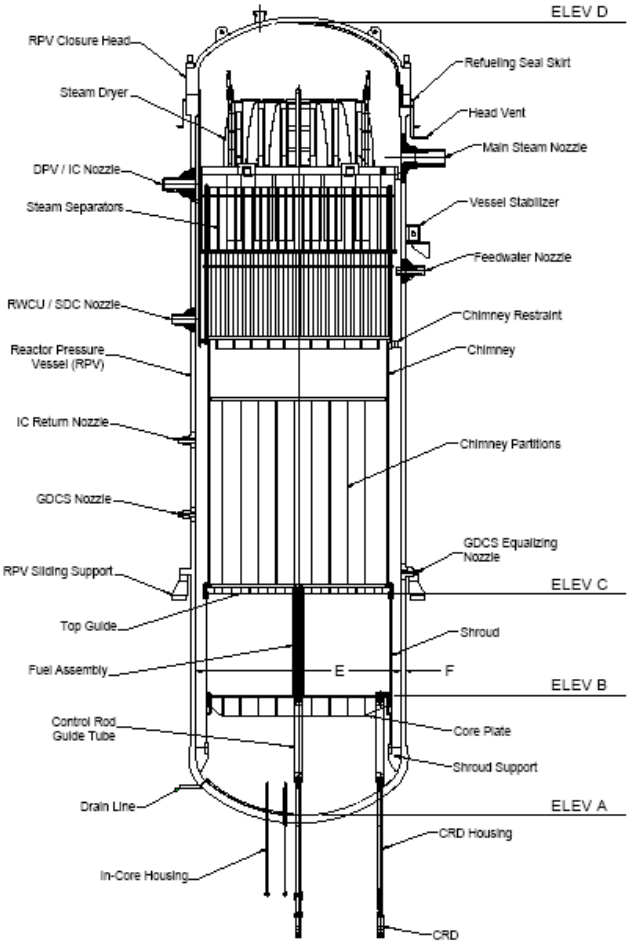

Figure 2.1.1-1. Reactor Pressure Vessel System Key Features Layout

APPENDIX D17 – EXAMPLE ITAAC ENCLOSURE LETTER COMPLETION OF ESBWR ITAAC 2.1.2-3 ITEM 12

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ESBWR ITAAC 2.1.2-3 Item #12

The purpose of this letter is to notify the NRC of the completion of {Site Name and Unit #(s)} ESBWR Inspection, Test, Analysis, and Acceptance Criteria (ITAAC) 2.1.2-3 Item #12 for the Nuclear Boiler System in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01, *Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52* (Reference 1).

ITAAC Statement

Design Commitment

The throat diameter of each MSL [main steam line] *flow restrictor is sized for design choke flow requirements.*

Inspection/Test/Analysis

Inspection of the as-built MSL flow restrictor will be performed and measurements taken.

Acceptance Criteria

Report(s) document that the throat diameter of each MSL flow restrictor is less than or equal to 355 mm (14 in.).

ITAAC Determination Basis

As described in Sections 5.1 and 5.4 of the ESBWR design control document (DCD), each MSL flow restrictor is an integral part of the main steam nozzle on the reactor pressure vessel (RPV). The restrictor is machined into the nozzle itself during fabrication; therefore, they are supplied by General Electric – Hitachi (GEH) as part of the RPV integral module.

Following fabrication, personnel performed several inspections to ensure the RPV was fabricated in accordance with design specifications. These inspections, performed in accordance with the supplier's Quality Assurance Program (QAP), included confirming the dimensions of the MSL flow restrictors; specifically, the throat diameter of each restrictor is less than or equal to 355 mm (14 in.). The inspection of the flow restrictors is documented in Inspection Report XXX, Section AAA (Reference 2), which was supplied with the RPV module to {Licensee}.

Pursuant to the {Licensee}'s QAP, delegated responsibilities may be performed under a supplier's or principal contractor's QAP, provided that the supplier or principle contractor has been approved as a supplier in accordance with the {Licensee}'s QAP. {Licensee} has performed periodic audits and assessments of the supplier's QA programs to assure compliance with the supplier's QAP and implementing procedures.

{Licensee} Procedure XYZ, *Material Receipt*, (Reference 3), establishes and governs the process used for performing and documenting receipt and quality control (QC) inspections of quality-related components delivered to the site. The procedure requires inspection activities be performed by qualified personnel. These inspections include, but are not limited to:

- Checks for physical damage (fire, excessive exposure to weather, rough handling, etc.
- Quantity
- Technical and quality requirements

Upon arrival at {Site Name}, qualified {Licensee} personnel performed receipt and QC inspections of the RPV module in accordance with Procedure XYZ. Included in these activities was a review of the quality documentation accompanying the RPV. This activity, documented on Receiving Inspection Report #YYY (Reference 4), confirmed that GEH Inspection Report XXX, Section AAA documented the throat diameter of each MSL flow restrictor to be less than or equal to 355 mm (14 in.). Receiving Inspection Report #YYY is contained in Inspection Report ZZZ, *Closure of ITAAC 2.1.2-3 #12* (Reference 5).

{Licensee} has reviewed installation records pertaining to the RPV; these are identified and contained in Inspection Report ZZZ. There is no evidence to indicate that the dimensions of the MSL flow restrictors were adversely impacted during installation of the RPV.

Conclusion

As required by ITAAC 2.1.2-3 #12, Inspection Report ZZZ, *Closure of ITAAC 2.1.2-3 Item #12*, documents that a report exists that documents the throat diameter of each MSL flow restrictor to be less than or equal to 355 mm (14 in.).

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC closure, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that three associated findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}
2. {ITAAC-related construction finding #2}
3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in ITAAC Completion package for ITAAC 2.1.2-3 Item #12 (Reference

6), which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding number provided above.

ITAAC Completion statement

Based on the above information, {Licensee} hereby notifies the NRC that {Licensee} has performed ITAAC 2.1.2-3 Item #12 for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

{Licensee} requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {name of contact person for Licensee} at {telephone # for contact person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, *Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52*
2. Inspection Report XXX, Section AAA
3. Procedure XYZ, *Material Receipt*
4. Receiving Inspection Report #YYY
5. Inspection Report ZZZ, *Closure of ITAAC 2.1.2-3 #12*
6. ITAAC Completion package for ITAAC 2.1.2-3 #12

APPENDIX D18 – EXAMPLE ITAAC CLOSURE LETTER: ABWR ITAAC 2.4.4 ITEM 1 (RCIC SYSTEM BASIC CONFIGURATION)

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ABWR ITAAC 2.4.4 Item 1

The purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspection, Test, Analysis and Acceptance Criterion (ITAAC) 2.4.4 Item 1, Reactor Core Isolation Cooling (RCIC) System Basic Configuration, in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01 (Reference 1).

ITAAC Statement

Design Commitment

The basic configuration of the RCIC System is as shown on Figures 2.4.4a and 2.4.4b.

Inspection/Test/Analysis

Inspections of the as-built system will be conducted.

Acceptance Criteria

The as-built RCIC System conforms with the basic configuration shown on Figures 2.4.4a and 2.4.4b.

Note: Figure 2.4.4a reflects a standard departure from the RCIC Turbine/Pump design in the ABWR Design Control Document that was approved in the license for [Plant Name].

ITAAC Determination Basis

In accordance with Tier 1, Sections 1.1 and 1.2 of the ABWR Design Control Document, verification of system basic configuration includes inspections, tests, and analyses in five areas, summarized as follows:

1. **Functional Arrangement:** Inspections confirming that the functional arrangement of structures, systems and components specified in the Design Description are consistent with the Tier 1 figures.

2. **ASME Code Welds**: Inspections, including non-destructive examination (NDE), of the as-built, pressure boundary welds for ASME Code Class 1, 2, or 3 components identified in the Design Description to demonstrate that the requirements of ASME Code Section III for the quality of pressure boundary welds are met.
3. **Seismic Qualification**: Type tests, analyses, or a combination of type tests and analyses of the Seismic Category I mechanical and electrical equipment (including connected instrumentation and controls) identified in the Design Description to demonstrate that the as-built equipment, including associated anchorage, is qualified to withstand design basis dynamic loads without loss of its safety function.
4. **Environmental Qualification**: Type tests, or type tests and analyses, of the Class 1E electrical equipment identified in the Design Description (or on accompanying figures) to demonstrate that it is qualified to withstand the environmental conditions that would exist during and following a design basis accident without loss of its safety function for the time needed to be functional.
5. **Motor-Operated Valves (MOVs):** Tests or type tests of active safety-related motor-operated valves (MOVs) identified in the Design Description to demonstrate that the MOVs are qualified to perform their safety functions under design basis differential pressure, system pressure, fluid temperature, ambient temperature, minimum voltage, and minimum and/or maximum stroke times.

The five areas comprising basic configuration were inspected as described in the following sections.

Functional Arrangement
Walkdown inspections were conducted of the as-built RCIC System to confirm that the functional arrangement of the system is as shown in Figures 2.4.4a and 2.4.4b. Procedure XYZ (Reference 3) governed the preparation, performance, and documentation of the basic configuration functional arrangement inspections by trained personnel, and includes:

1. Preparing a detailed checklist covering the system components specified in the Design Description.

2. Performing visual observations that compare the system components to the verification criteria.

3. Documenting visual observations.

The walkdown inspections confirmed that each RCIC system component identified in the Design Description was present in its proper functional or logical (for I&C) relation to the system, as shown in Figures 2.4.4a and 2.4.4b. The completed ITAAC functional arrangement checklists are included in the ITAAC Completion package (Reference 4).

ASME Code Welds
The ASME Boiler and Pressure Vessel Code, Section III class boundaries for the RCIC system are shown in Figure 2.4.4a. The inspection requirements for the pressure boundary welds for the

RCIC system Class 1 and Class 2 piping and components are specified in the ASME Code Section III, Subsections NB-5000 and NC-5000, respectively. The Code-required inspections (e.g., radiographic, ultrasonic, magnetic particle, liquid penetrant) were performed in accordance with applicable Code requirements, and the site Quality Assurance Program.

For closure of this ITAAC, the quality assurance inspection records for the RCIC system ASME Class 1 and Class 2 pressure boundary welds were reviewed and confirmed to have met ASME Code requirements. The ITAAC review was documented on checklists (see Procedure XYZ (Reference 2)), which included the weld identification, weld location, type of weld (e.g., butt weld, partial penetration weld), type(s) of inspection, inspection record identification, and results from the inspection record. The completed ITAAC weld inspection checklists are included in the ITAAC Completion package (Reference 3).

Seismic Qualification

The Seismic Category I RCIC system components described in the Design Description and shown in Figures 2.4.4a and 2.4.4b include the RCIC turbine, pump, valves, and operators (including connected instrumentation and controls). These components were procured in accordance with specifications that required seismic qualification in accordance with ABWR Design Control Document Sections 3.9 and 3.10, and with the site Quality Assurance Program. RCIC system piping was seismically qualified by analyses performed in accordance with the site Quality Assurance Program. Equipment anchorage or installations were inspected to ensure that they were consistent with the tested configuration, or were confirmed to meet seismic design criteria by analysis.

For closure of this ITAAC, the seismic qualification records (e.g., test reports, analyses) were reviewed for each Seismic Category I component and the piping. The ITAAC review was documented on checklists (see Procedure XYZ (Reference 3)), which included the component identification, component type, seismic qualification record type (e.g., test report, analysis), seismic qualification record identification, and results from the seismic qualification record. Additionally, in accordance with Procedure XYZ, a walkdown inspection was conducted to confirm that equipment anchorages/installations met the seismic testing configuration or design criteria in applicable analyses. The seismic anchorage/installation walkdown inspection was documented on checklists, in accordance with Procedure XYZ. The completed ITAAC seismic qualification checklists are included in the ITAAC Completion package (Reference 3).

Environmental Qualification

The Class 1E RCIC system electrical components are described in the Design Description and shown in Figure 2.4.4a. These components were procured in accordance with specifications that required environmental qualification in accordance with ABWR Design Control Document Section 3.11, and with the site Quality Assurance Program.

For closure of this ITAAC, the environmental qualification records (e.g., test reports, operating experience analyses, or both) were reviewed for each Class 1E component. The ITAAC review was documented on a checklist (see Procedure XYZ (Reference 2)), which included the component identification, component type, environmental qualification record type, environmental qualification record identification, and results from the environmental

qualification record. Additionally, in accordance with Procedure XYZ, a walkdown inspection was conducted to confirm the satisfactory installation of the Class 1E RCIC system components. The completed ITAAC environmental qualification checklists are included in the ITAAC Completion package (Reference 3).

Motor-Operated Valves

The RCIC system includes ten (10) motor-operated valves (MOVs) shown in Figure 2.4.4a which have active safety-related functions to open, close, or both open and close, and which perform these functions under design basis differential pressure, system pressure, fluid and ambient temperature conditions, minimum voltage, and minimum and/or maximum stroke times applicable to the RCIC system. The design, qualification and testing for all safety-related MOVs is performed in accordance with the requirements of ABWR Design Control Document Section 3.9.6.2.2, and in accordance with the site Quality Assurance Program.

For closure of this ITAAC, the MOV Program documentation for the ten safety-related RCIC valves was reviewed to confirm that each valve meets its functional requirements under design basis conditions, including minimum voltage conditions. The ITAAC review was documented on a checklist (see Procedure XYZ (Reference 3)), which included the valve identification, valve type/manufacturer/size, valve operator manufacturer/size, design conditions, required thrust, available thrust, and calculation/analysis identifications. Additionally, in accordance with Procedure XYZ, a walkdown inspection was conducted to confirm the satisfactory installation of the ten (10) RCIC motor-operated valves (MOVs). The completed ITAAC MOV checklists are included in the ITAAC Completion package (Reference 3).

Summary

Based on these inspections of the five elements of the RCIC System basic configuration, it is concluded that the as-built RCIC System conforms with the basic configuration shown on Figures 2.4.4a and 2.4.4b.

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that three such findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}
2. {ITAAC-related construction finding #2}
3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC 2.4.4 Item 1 (Reference 3), which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, {Licensee Name} hereby notifies the NRC that ITAAC 2.4.4 Item 1, was performed for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

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We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52

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2. Inspection Procedure XYZ, “Inspections of As-Built System Basic Configurations for ITAAC Closure”
3. ITAAC Completion package for ITAAC 2.4.4 Item 1

APPENDIX D19 – EXAMPLE ITAAC CLOSURE LETTER: COMPLETION OF AP1000 ITAAC 2.19-1 ITEM 12

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of AP1000 ITAAC 2.19-1 Item 12

The purpose of this letter is to notify the NRC of the completion of {Site Name and Unit #(s)} Inspection, Test, Analysis, and Acceptance Criterion (ITAAC) 2.19-1 Item 12 for Security, in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI-08-01 (Reference 1).

ITAAC Statement

Design Commitment

Secondary security power supply system for alarm annunciator equipment and non-portable communications equipment is located within a vital area.

Inspection/Test/Analysis

An inspection will be performed to ensure that the location of the secondary security power supply system for alarm annunciator equipment and non-portable communications equipment is within a vital area.

Acceptance Criteria

A report exists and concludes that the secondary security power system for alarm annunciator equipment and non-portable communications equipment is located within a vital area.

ITAAC Determination Basis

The constructor installed the secondary security power supply equipment and non portable communications equipment in accordance with approved drawings and specifications released by engineering for construction.

During installation, the constructor performed inspections for conformance to the design and specifications.

After construction, the Licensee performed a final inspection in accordance with the Security ITAAC Closure Procedure, which includes a Vital Area As-built Walk-down/Inspection (Reference 2).

Therefore, Inspection Report ZZZ (Reference 3) exists and concludes that

inspections confirmed that the secondary security power supply system for alarm annunciator equipment and non-portable communications equipment is located within a vital area.

ITAAC Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that {number of findings} such findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}
2. {ITAAC-related construction finding #2}
3. {ITAAC-related construction finding #…}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC 2.19-1 Item 12 (Reference 4), which is available for NRC inspection. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, {Licensee} hereby notifies the NRC that ITAAC 2.19-1Item 12 was performed for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI-08-01, Industry Guideline for ITAAC Closure Process Under 10 CFR Part 52
2. Security ITAAC Closure Procedure, SE-XX-XXXX
3. Inspection Report ZZZ, Closure of ITAAC 2.19-1Item 12
4. ITAAC 2.19-1 Item 12 Close-out Documentation Package

APPENDIX D20 – EXAMPLE ITAAC CLOSURE LETTER: COMPLETION OF US-APWR ITAAC 2.2-1

XX/YY/ZZZZ (Date)
To: NRC
From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of US-APWR ITAAC 2.2-1

The purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspection, Test, Analysis and Acceptance Criteria (ITAAC) 2.2-1 for the inspection of the structural configurations of the Reactor Building (R/B) and the Power Supply Buildings (PS/B) in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01 (Reference 1).

ITAAC Statement

Design Commitment

The structural configurations of the R/B and the PS/B are as shown in Figures 2.2-1 through 2.2-13 and Table 2.2-2.

Inspection/Test/Analysis

Inspections of the as-built structural configurations of the R/B and the PS/B will be performed.

Acceptance Criteria

The as-build design configurations of the R/B and the PS/B are reconciled with descriptions in Figures 2.2-1 through 2.2-13 and Table 2.2-2.

ITAAC Determination Basis

Inspections were performed of the installed R/B and PS/B walls and floors as shown in Tier 1 Figures 2.2-1 through 2.2-13, and Table 2.2-2.

During installation, the constructor performed inspections, measurements and surveys for conformance to the listed design and installation requirements, including wall and floor-ceiling materials, dimensions, locations, and joints.

After construction, the Licensee performed a final inspection in accordance with the {Site procedure number} As-Built Walk-Down/Inspection Procedure (Reference 2), containing a detailed listing of building dimensions, location and materials. These inspections (Reference 3) confirmed that the as-built configuration meets ITAAC 2.2-1 Acceptance Criteria.

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review identified X associated findings, listed below.

1. {ITAAC-related construction finding #1}

2. {ITAAC-related construction finding #2}

3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC 2.2-1, (Reference 4), which is available for NRC inspection. NRC closure of these findings is documented on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

ITAAC Completion Statement

Based on the above information, {Licensee Name} hereby notifies the NRC that ITAAC 2.21 was performed for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

_____
{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

Attachments:
1. US-APWR DCD Table 2.2-2 "Definition of Wall Thicknesses for Safety-Related Structures: Pre-stressed Concrete Containment Vessel, Containment Internal Structure, Reactor Building, and Power Source Building"
2. US-APWR DCD Figures 2.2-1 through 2.2-13

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under
2. As-Built Walkdown/Inspection Inspection Procedure
3. Test/inspection record(s), report, completed procedure, analysis, etc., that form the ITAAC determination basis
4. ITAAC Completion package for ITAAC 2.2 Item 1(retained on site)

Attachment 1
Note – Only page 1 of 14 included here for illustration purposes

Tier 1

2.2-11

Revision 2

Table 2.2-2 Definition of Wall Thicknesses for Safety-Related Structures: Pre-stressed Concrete Containment Vessel, Containment Internal Structure, Reactor Building, and Power Source Building (Sheet 1 of 15)

Wall or Section Description	Column Lines[1]	Floor Elevation or Elevation Range[1]	Concrete Thickness[2][3]	Applicable Radiation Shielding Wall (Yes/No)
Prestressed Concrete Containment Vessel				
Cylindrical wall of PCCV	Not Applicable	From 3'-7" to 153'-9"	4'-4"	Yes
Hemispherical wall of PCCV	Not Applicable	From 153'-9" to 232'-0"	3'-8"	Yes
Basemat of PCCV	Disk –shaped portion within a 74'-7" radius from the center of the PCCV	From -36'-3" to 1'-11"	38'-2"	No
Basemat of PCCV	Portion outside a 74'-7" radius from the center of the PCCV	From -36'-3" to 3'-7"	39'-10"	No
Containment Internal Structure (Primary Shield Wall, Secondary Shield Wall, Steam Generator Compartments, Pressurizer Compartment, Refueling Water Storage Pit, Refueling Cavity, etc)				
Primary Shield Wall	Not Applicable	From -12'-6" to 35'-11"	9'-2"	Yes
Secondary Shield Wall	Not Applicable	From 3'-7" to 97'-9"	4'-0"	Yes
Secondary Shield Wall	Not Applicable	From 97'-9" to 112'-0"	4'-0"	Yes
Pressurizer Compartment	Not Applicable	From 58'-5" to 112'-4"	4'-0"	Yes
Pressurizer Compartment	Not Applicable	From 112'-4" to 139'-6"	3'-0"	Yes
Refueling Cavity	Not Applicable	From 34'-5" to 76'-5"	4'-8"	Yes
North side of Refueling Cavity	Not Applicable	From 34'-5" to 76'-5"	5'-7"	Yes

Attachment 2

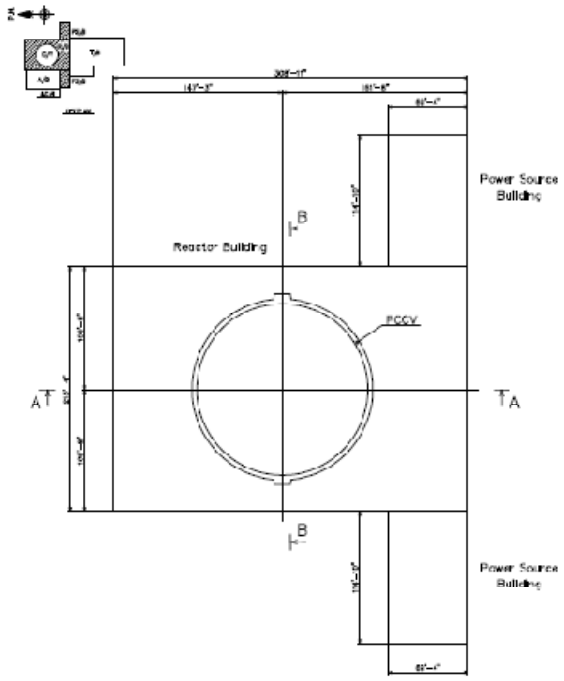

Figure 2.2-1 Critical Building Dimensions of US-APWR (Plan View)

Attachment 2

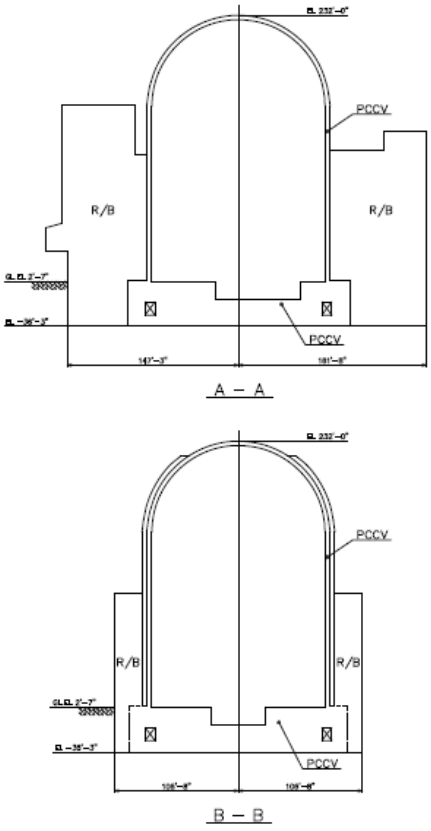

Figure 2.2-2 Critical Building Dimensions of US-APWR (Section Views)

Attachment 2

Figures 2.2-3 through 2.2-13 are withheld from this example under 10CFR2.390.

APPENDIX D21 – EXAMPLE ITAAC CLOSURE LETTER: COMPLETION OF US-APWR ITAAC 2.9-8.C

XX/YY/ZZZZ (Date)
To: NRC
From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of US-APWR ITAAC Item 2.9-10.c

The purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspection, Test, Analysis and Acceptance Criteria (ITAAC) 2.9-8.c for the execution of tasks by operators to establish and maintain cold shutdown in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI 08-01 (Reference 1).

ITAAC Statement

Design Commitment

HSI at the RSC permits execution of tasks by operators to establish and maintain cold shutdown.

Inspection/Test/Analysis

Tests will be performed on the execution of tasks for the as-built RSC.

Acceptance Criteria

Test results demonstrate that actual operators can establish and maintain cold shutdown from the as-built RSC.

ITAAC Determination Basis

A test was performed using approved plant procedures to demonstrate that the tasks required to be performed by operations personnel to establish and maintain cold shutdown were able to be performed. The procedures used for this test were:

1. {Site procedure number} Transfer of System Control from the Main Control Room to the Remote Shutdown Console, (Reference 2)

2. {Site procedure number} Operation of the Main Steam Supply System from the Remote Shutdown Console, (Reference 3)

3. {Site procedure number} Operation of the RHR System from the Remote Shutdown Console, (Reference 4)

4. {Site procedure number} Operation of the Component Cooling Water System from the Remote Shutdown Console, (Reference 5)

5. {Site procedure number} Operation of the Essential Cooling Water System from the Remote Shutdown Console, (Reference 6)

The primary system temperature and pressure were increased to normal operating temperature and pressure using the four installed reactor coolant pumps. Control of plant systems was transferred to the Remote Shutdown Console (RSC) and a functional verification check of the instrumentation, controls, alarms, and interlocks was performed. A heat transfer path was established to the environment via the emergency feedwater system, the steam generators and the main steam depressurization valves or the main steam relief valves. After the Residual Heat Removal (RHR) operation setpoint was reached, the plant systems were aligned to transfer heat via the residual heat removal system, the component cooling water system, the essential service water system and the ultimate heat sink system.

The plant was remotely cooled down from the RSC to the point of establishing RHR system operation, and then to cold shutdown at a rate that did not exceed Technical Specification limits.

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC close-out, {Licensee} performed a review of ITAAC-related construction findings and associated corrective actions. This review identified that X associated findings, listed below.

1. {ITAAC-related construction finding #1}
2. {ITAAC-related construction finding #2}
3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the completion package for ITAAC 2.9-8.c, (Reference 7), which is available for NRC inspection. NRC closure of these findings is documented on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

ITAAC Completion Statement

Based on the above information, {Licensee Name} hereby notifies the NRC that ITAAC 2.9-10.c was performed for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

_____
{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under
2. {Site procedure number} Transfer of System Control from the Main Control Room to the Remote Shutdown Console.
3. {Site procedure number} Operation of the Main Steam System from the Remote Shutdown Console.
4. {Site procedure number} Operation of the RHR System from the Remote Shutdown Console.
5. {Site procedure number} Operation of the Component Cooling Water System from the Remote Shutdown Console.
6. {Site procedure number} Operation of the Essential Cooling Water System from the Remote Shutdown Console.
7. ITAAC Completion package retained on site

APPENDIX D22 – EXAMPLE ITAAC CLOSURE LETTER: COMPLETION OF US-EPR ITAAC 2.4.1 ITEMS 4.14 C AND D

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of ITAAC 2.4.1 Items 4.14 c and d.

The purpose of this letter is to notify Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 2.4.1 items 4.14 c and d for the Protection System (PS), in accordance with 10CFR 52.99(c)(1). This ITAAC is designated as DAC ITAAC and the closure process is based on the guidance described in NEI 08-01 (Reference 1) for close out of DAC.

ITAAC Statement

Design Commitment

The PS hardware and software are developed using a design process composed of five life cycle phases with each phase having design outputs which must conform to the requirements of that phase. The five life cycle phases are the following:

1) Basic design phase.
2) Detailed design phase.
3) Manufacturing phase.
4) Testing phase.
5) Installation and commissioning phase.

Inspection/Test/Analysis

c. *Inspections will be performed to verify that the PS detailed design phase process has design outputs.*

d. *Analyses will be performed to verify that the design outputs for the PS detailed design phase conform to the requirements of that phase.*

Acceptance Criteria

c. A report exists and provides the design outputs for the detailed design phase of the PS hardware and software design process.

d. A verification and validation report exists and concludes that the design outputs conform to the requirements of the PS detailed design phase.

ITAAC Determination Basis

The Software Program Manual for TELEPERM XS Safety Systems Topical Report (Reference 2) describes the lifecycle processes for application software development used in safety–related applications of the TXS platform for the U.S. EPR, as well as software verification and validation processes.

Closure of ITAAC 2.4.1 items 4.14 a and b (Reference 3) on the basic design phase of the PS hardware and software design process was submitted to the NRC on XX/YY/ZZZZ (date). This document confirms that the acceptance criteria for the basic design phase of PS hardware and software design process have been met. The basic design phase provides the requirements to which the subsequent phases of the design process must conform.

{Licensee} performed an inspection of engineering report, Design Outputs for the Detailed Design Phase of the PS Hardware and Software Design Process (Reference 4). The purpose of the inspection was to confirm the existence of a report that provides the design outputs for the detailed design phase of the PS hardware and software design process.

{Licensee} performed analyses of the design outputs for the PS detailed design phase to verify that the design outputs of this phase conform to the requirements of this phase. Protection System Detailed Design Phase Verification and Validation Report (Reference 5) provides the results of the analyses. This report concludes that the detailed design phase outputs conform to the requirements of the PS detailed design phase.

Closure of ITAAC 2.4.1 items 4.14 c and d (Reference 6) concludes that Reference 4 and Reference 5 provide documentation demonstrating that the acceptance criteria for the detailed design phase of the PS hardware and software design process has been met.

ITAAC-Related Audit Results

In accordance with plant procedures for ITAAC close-out, {Licensee} performed a review of ITAAC-related audit findings and associated corrective actions. This review determined that the three associated findings, listed below, have been identified.

1. {ITAAC-related audit finding #1}

2. {ITAAC-related audit finding #2}

3. {ITAAC-related audit finding #3}

The corrective actions for each finding have been completed and each finding closed. This review is documented in the close-out package for ITAAC 2.4.1 item 4.14 c and d (Reference 7), which is available for NRC review. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

ITAAC Closure Statement

Based on the above information, {Licensee} hereby notifies the NRC that {Licensee} has performed ITAAC 2.4.1 item 4.14 c and d for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

{Licensee} requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {name of contact person for Licensee} at {telephone # for contact person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC review)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. Software Program Manual for TELEPERM XS Safety Systems Topical Report (ANP-10272).
3. Closure of ITAAC 2.4.1 items 4.14 a and b.
4. Design Outputs for the Detailed Design Phase of the Protection System Hardware and Software Design Process.
5. Protection System Detailed Design Phase Verification and Validation Report.
6. Closure of ITAAC 2.4.1 items 4.14 c and d.
7. ITAAC 2.4.1 item 4.14 c and d Close-Out Package.

APPENDIX D-23 – EXAMPLE SECURITY ITAAC CLOSURE LETTER

ITAAC TABLE 2.2-1 ITEM 1.1

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of {Site Name and Unit #(s)} ITAAC Table 2.2-1 Item 1.1)

The purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of {Site Name and Unit #(s)} Inspection, Test, Analysis and Acceptance Criteria (ITAAC) Table 2.2-1 Item 1.1 in accordance with 10 CFR 52.99(c)(1). The closure process for this ITAAC is based on the guidance described in NEI-08-01 (Reference 1).

ITAAC Statement

Design Commitment

1.1 Access to vital equipment will require passage through at least two physical barriers.

Inspection/Test/Analysis

1.1 All vital equipment physical barriers will be inspected.

Acceptance Criteria

1.1 Vital equipment is located within a protected area such that access to the vital equipment requires passage through at least two physical barriers.

ITAAC Determination Basis

Personnel from the Security organization have completed station procedure NN3-xx-123, Vital Equipment Facilities Security Inspection (Reference 2). This procedure addresses tasks necessary to determine that adequate security facilities and equipment to support the Security Plan are provided accordance with 10 CFR 73.55(e)(9)(i), 10 CFR 73.55(e)(9)(iv) and 10 CFR 73.55(e)(9)(v)(D). The Vital Equipment Facilities Security Inspection Results (Reference 3) conclude that all vital equipment is located within a protected area such that access to the vital equipment requires passage through at least two physical barriers.

ITAAC-Related Construction Finding Review

In accordance with plant procedures for ITAAC completion, {Site Name and Unit #(s)} performed a review of ITAAC-related construction findings and associated corrective actions. This review determined that X associated findings, listed below, have been identified.

1. {ITAAC-related construction finding #1}
2. {ITAAC-related construction finding #2}
3. {ITAAC-related construction finding #3}

The corrective actions for each finding have been completed and each finding is closed. This review is documented in the completion package for {Site Name and Unit #(s)} ITAAC Table 2.2-1 Item 1.1, (Reference 4), which is available for NRC review. NRC closure of these findings is available on the Construction Inspection Program Management System (CIPMS) portion of the NRC website for this docket and may be located by referencing the NRC finding numbers provided above.

ITAAC Completion statement

Based on the above information, {Licensee Name} hereby notifies the NRC that ITAAC Table 2.2-1 Item 1 was performed for {Site Name and Unit #(s)}, and that the prescribed acceptance criteria were met.

Systems, structures and components verified as part this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

We request NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References (available for NRC inspection)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. NN3-xx-123, Vital Equipment Facilities Security Inspection

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3. Vital Equipment Facilities Security Inspection Results
4. {Site Name and Unit #(s)} ITAAC Table 2.2-1 Item 1.1

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APPENDIX E – LIST OF 225-DAY NOTIFICATION EXAMPLES

Appendix	Technology	Description
E-1	All	Example 225-day Notification Cover Letter
E-2	All	Example 225-day Notification Attachment
E-3	AP1000	3.3-6, Item 7.d (Cable separation)
E-4	ABWR	2.1.1d, Item 3 (RPV hydro)
E-5	ABWR	2.14.4a, Item 4a (SGTS)
E-6	AP1000	2.5.2-8, Item 10 (Setpoints)
E-7	AP1000	2.2.2-3, Item 7bi (Passive Containment System)

APPENDIX E-1 – EXAMPLE 225-DAY NOTIFICATION COVER LETTER TEMPLATE

XX/YY/ZZZZ (Date)

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Notification of Uncompleted ITAAC 225-days Prior to Initial Fuel Load

Pursuant to 10 CFR 52.99(c)(2), {Licensee} hereby notifies the NRC that {Site Name and Unit #(s)} Inspection, Test, Analysis, and Acceptance Criteria (ITAAC) Items listed in Enclosure 1 will not be completed 225-days prior to initial fuel load currently scheduled for {month, day, year}. Enclosures 2 through XX provide the completion plan and status for each ITAAC listed in Enclosure 1. This notification is consistent with the guidance described in NEI-08-01 (Reference 1). All ITAAC will be completed to support the Commission finding that all acceptance criteria have been met prior to plant operation, as required by 10 CFR 52.103(g).

If the NRC has any questions regarding this letter or the Attachments, please contact {name of contact person for Licensee} at {telephone # for contact person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52

Enclosures

1. List of Uncompleted ITAAC Items as of XX/XX/XX
2 Completion Plan and Status for Uncompleted ITAAC Items Listed in Enclosure 1

APPENDIX E-2 – EXAMPLE 225-DAY NOTIFICATION

ITAAC-Specific Attachment Template

XX/YY/ZZZZ (Date)

{Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Notification of Status of (designate technology) ITAAC Item X.X.X

ITAAC Statement

Design Commitment

{The design commitment for the applicable ITAAC should be quoted directly from the source. Do not paraphrase the Design Commitment.}

Inspection/Test/Analysis

{The inspection/test/analysis (ITA) for the applicable ITAAC should be quoted directly from the source. Do not paraphrase the inspection/test/analysis.}

Acceptance Criteria

{The acceptance criteria for the ITAAC should be quoted directly from the source letter. Do not paraphrase the acceptance criteria.}

Tables and figures referenced in the ITAAC should be provided.

Actions Achieved Toward ITAAC Completion

This section should provide a status of activities related to ITAAC completion. Examples include providing a rough percentage of completed work on the ITAAC, an indication that certain activities listed in the ITAAC are already complete, or an indication that procedures or other supporting items that will be used to perform completion activities have been approved and are ready. There may be cases where this section has little or no information depending on the nature of the ITAAC, but this would likely be rare. For completed ~~-~~actions, summarize the methodology for conducting the ITA, and the results that demonstrate that the acceptance criteria were met.

It should be written in an active voice, and consist of sufficient information to enable a person familiar with technical/engineering concepts to understand the underlying bases provided by the licensee to demonstrate the partial completion of ITAAC activities. In the event that the ITAAC

offers more than one method to meet the acceptance criteria, clearly state which method was selected.

Actions Remaining to Attain ITAAC Completion

This section should provide a high level discussion of the remaining activities related to ITAAC completion that will be done after 225-days prior to initial fuel load. Summarize the methodology for conducting the ITA, and the results that demonstrate that the acceptance criteria were met.

It should be written in an active voice, and consist of sufficient information to enable a person familiar with technical/engineering concepts to understand the bases underlying the conclusion established by the licensee regarding the activities remaining to complete the ITAAC.

ITAAC Closure Schedule

{ITAAC x.x.x is being tracked in the ITAAC database. ITAAC x.x.x Completion package (and specific reports, procedures, or other references as necessary) are planned to be issued by _____. The Closure Letter for ITAAC x.x.x will follow our review and acceptance of these documents.}

Provide some forward looking statements to instill confidence that these actions will be achieved. Examples include a statement that this test or similar activity has been performed on an ITAAC that is already closed, similar activities are routinely done in the operating fleet of plants, the procedures for this activity have been written and approved, testing and analysis of this nature are routine in the nuclear industry, etc. {[brief description of forward looking statements] provide confidence that [Licensee] will be able to successfully complete this ITAAC.

References (available for NRC inspection)

1. Procedure, report, or other

APPENDIX E-3 – DRAFT 225-DAY NOTIFICATION ITAAC 3.3-6 ITEM (7D)

Example ITAAC-Specific Attachment

XX/YY/ZZZZ (Date)

{Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Notification of Status of AP1000 ITAAC 3.3-6 Item (7d)

ITAAC Statement

Design Commitment

ITAAC Table 3.3-6 (7d) *Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables*

Inspection/Test/Analysis

Inspections of the as-built Class 1E raceways will be performed to confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the following:

- Within the main control room and remote shutdown room, the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.
- Within other plant areas (limited hazard areas), the minimum separation is defined by one of the following:

    1) *The minimum vertical separation is 5 feet and the minimum horizontal separation is 3 feet.*
    2) *The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables <2/0 AWG.*
    3) *For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.*
    4) *For configurations involving an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the open raceway.*
    5) *For configuration involving enclosed raceways, the minimum separation is 1 inch in both horizontal and vertical directions.*

- Where minimum separation distances are not maintained, the circuits are run in enclosed raceways or barriers are provided.
- Separation distances less than those specified above and not run in enclosed raceways or provided with barriers are based on analysis
- Non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is considered as associated circuits and subject to Class 1E requirements.

Acceptance Criteria

Results of the inspection will confirm that the separation between Class 1E raceways of different divisions and between Class 1E raceways and non-Class 1E raceways is consistent with the followings:

- Within the main control room and remote shutdown room, the vertical separation is 3 inches or more and the horizontal separation is 1 inch or more.
- Within other plant areas (limited hazard areas), the separation meets one of the following:

    1) *The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more except.*
    2) *The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables <2/0 AWG.*
    3) *For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.*
    4) *For configurations that involve an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the raceway.*
    5) *For configurations that involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.*

- Where minimum separation distances are not met, the circuits are run in enclosed raceways or barriers are provided.
- A report exists and concludes that separation distances less than those specified above and not provided with enclosed raceways or barriers have been analyzed.
- Non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is treated as Class 1E wiring.

Actions Achieved toward ITAAC Closure

Significant progress has been achieved as of (Month, Day, Year) toward completing this ITAAC, 99% of the installation and associated inspection activities are complete. Inspections and analysis of plant components have been performed to ensure that "Physical separation is

maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables".

The cable raceway system layout was designed using a three dimensional computer model. The raceways were routed through the model plant within an appropriate space reservation envelope to ensure that no violations of the separation requirements would occur. Construction drawings and Installation Specifications provided to the installer identified separation criteria, consistent with the ITAAC commitment, that were required to be met during erection activities.

The constructor has installed the cable raceway in accordance with the "Released For Construction" drawings and the Installation Specifications. These components were presented for inspection by Quality Control as appropriate portions of the work were completed. The Independent verification of the Class 1E raceway installation by the Quality Control Group included inspection of the separation criteria attributes identified in "Released For Construction" drawings as well as the Installation Specifications, and was recorded in the inspection report. The completed raceway tickets for the satisfactorily installed and inspected raceways were turned in and recorded in the site's Electrical Raceway and Cable Tracking System.

Raceway completion and cable route was validated by Quality Control walk-down of the designated raceways prior to pulling Class 1E cables. Any deviations were documented and resolved prior to cable pull. The completed cable pull tickets for the satisfactorily installed and inspected cables were turned in and recorded in the site's Electrical Raceway and Cable Tracking System.

Cable training within cabinets was independently verified by Quality Control for separation attributes through a series of documented inspections as cables were installed and terminated. The completed termination tickets for the satisfactorily installed and inspected cables were turned in and recorded in the site's Electrical Raceway and Cable Tracking System.

Actions Remaining to Attain ITAAC Closure

Prior to final acceptance of the overall Class 1E raceway and cable system Engineering and Quality Control will perform walk-downs of the plant Class 1E electrical components to identify any potential violations of the required cable separation criteria. Any deviations identified will be recorded, dispositioned and resolved prior to issuing the Final Report. The walk-downs will be performed in accordance with the site Cable Separation Final Walk-down Procedure (Reference 1).

Review of the inspection reports, the site's Electrical Raceway and Cable Tracking System, Design Change documents, Nonconformance Reports, and the Final Report will be performed and determined to be satisfactory before the project can conclude that the cable installed in the plant has been inspected and reviewed to ensure that the required physical separation between cables from different Class 1E divisions and between Class 1E cables and non-Class 1E cables has been achieved. All exceptions to the separation criteria identified in the installation specification and the project drawings will have been identified by Design Change documents or Nonconformance Reports. These exceptions whether identified during installation or by final

walk down of the as built configuration will have been evaluated and either corrected, mitigated or accepted as is. These reviews will be documented in the ITAAC 3.3.6 Item (7d) Completion package.

Before issuing the Cable Separation Final Report, Engineering must be able to conclude that separation distances are satisfactory. Those separation distances less than specified by the ITAAC criteria and not provided with enclosed raceways or barriers will have been analyzed and determined to be satisfactory.

ITAAC Closure Schedule

{Licensee} is tracking ITAAC 3.3-6 Item (7d) in its ITAAC database. ITAAC 3.3.6 Item (7d) Completion package and ITAAC 3.3-6 Item (7d) Cable Separation Final Report –EFG xyz, Revision 0 are scheduled to be issued on _____. The Closure Letter for ITAAC 3.3-6 Item (7d) will follow our review and acceptance of these documents.

Cable Separation Programs have been successfully completed for both new nuclear power plants {Site Name and Unit #} and units being restarted after extended shutdowns {Site Name and Unit #}. These successful industry experiences, in combination with the satisfactory results through (Month, Day, Year) of the completion of the majority portions of this ITAAC at our own project provide confidence that {Licensee} will be able to successfully complete this ITAAC.

References (available for NRC inspection)

1. Cable Separation Final Walk-down Procedure

APPENDIX E-4 – DRAFT 225-DAY NOTIFICATION ABWR ITAAC 2.1.1D ITEM 3

Example ITAAC-Specific Attachment

XX/YY/ZZZZ (Date)

{Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Notification of Uncompleted ABWR ITAAC 2.1.1d Item 3

ITAAC Statement

Design Commitment

The ASME Code components of the RPV (Reactor Pressure Vessel) *System retain their pressure boundary integrity under internal pressure that will be experienced during service.*

Inspection/Test/Analysis

A hydrostatic test will be conducted on those code components of the RPV System required to be hydrostatically tested by the ASME Code.

Acceptance Criteria

The results of the hydrostatic test of the ASME Code components of the RPV System conform with the requirements in the ASME Code, Section III.

Actions Achieved Toward ITAAC Closure

Progress as of (Month, Day, Year) toward completing this ITAAC is approximately 75% with the shop fabrication activities complete, the Hydrostatic Test Procedure per XXX.XXX.XXX (Reference 1) and the Hydrostatic Test Package (Reference 2) generated, but the final RPV System hydrostatic test, associated inspection activities, and test analysis results remain open. As described further below, the shop fabrication activities included hydrostatic testing of the RPV System under the ideal conditions provided in a shop environment, and the final RPV System hydrostatic test left to be completed is essentially an as-installed (post appurtenance) hydrostatic test in the field to confirm the pressure boundary integrity of items that were not confirmed in the fabrication shop.

The ASME Code components of the RPV system were installed in a fabrication shop where compliance to Code requirements is inherent in procedures, training, inspections, and documentation. The fabrication shop was approved for ASME Code work. This resulted in the

N – Stamping of the RPV. The fabrication of ASME components for the RPV system complied with design drawings and specifications and was verified by Quality inspections and documentation.

The ASME Code components of the RPV System were identified for both the initial shop test and final RPV System test. These components were within the hydrostatic test boundaries established by the constructor based on plant design drawings and specifications. These design documents provide design and operating temperatures and pressures which allow assembly of the Hydrostatic Test Package per Procedure XXX.XXX.XXX, Hydrostatic Testing. Hydrostatic testing personnel are trained in accordance with the Hydrostatic Testing procedure, and test results are analyzed, documented, and retained. The Hydrostatic Test Package consists of the following:

1. Hydrostatic Test Package Index Sheet
2. ASME Section III Hydrostatic Test Report
3. Drawing showing the system test boundary

Initial hydrostatic testing of ASME Code components for the RPV system was completed in the approved fabrication shop. During fabrication, the EPC constructor performed inspections for material traceability, NDE requirements, welding quality, and compliance to design drawings and specifications.

The final RPV System hydrostatic test (post appurtenance hydro) in the field was not completed in the fabrication shop. It is scheduled to be complete approximately 2 months prior to fuel load in accordance with the construction schedule.

Staff qualified test personnel have experience with such hydrostatic testing procedures, test packages, testing, inspections, and test analysis results. Completion of a successful final RPV System hydrostatic test confirms that ASME Code components of the RPV System retain their pressure boundary integrity under internal pressure that will be experienced during service.

Actions Remaining to Attain ITAAC Closure

The final RPV Hydrostatic System Test Package documentation is prepared by the Hydrostatic Test Engineer, test rig and component set up is by the Hydrostatic Test Crew, inspection for leaks is by the Quality Inspector, and verification of test analysis results is by the ANI (Authorized Nuclear Inspector).

Prior to acceptance of the final hydrostatic test analysis results of the ASME Code components of the RPV System, a test package documentation review will ensure compliance to ASME Code, Section III. Any deviations identified will be resolved prior to system turnover to Start Up. The Hydrostatic Test Package documentation review by Quality Assurance will be per Quality Procedure XXX (Reference 3).

ITAAC Closure Schedule

ITAAC 2.1.1d Item 3 is being tracked in the ITAAC database. ITAAC 2.1.1d Item 3 Completion package (Reference 4) is scheduled to be issued by [month, day, year]. The Closure Letter for ITAAC 2.1.1d Item 3 will follow our review and acceptance of these documents.

References (available for NRC inspection)

1 Procedure XXX.XXX.XXX, Hydrostatic Testing
2 RPV Hydrostatic Test Package
3 Quality Assurance Procedure XXX
4 ABWR ITAAC 2.1.1d Item 3 Completion package

APPENDIX E-5 – DRAFT 225-DAY NOTIFICATION ABWR ITAAC 2.14.4A ITEM 4A

XX/YY/ZZZZ (Date)

{Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Notification of Uncompleted ABWR ITAAC 2.14.4a Item 4a

ITAAC Statement

Design Commitment

The SGTS (Standby Gas Treatment System) *maintains a negative pressure of 6.35 mm water gauge or greater in the secondary containment relative to the outdoor atmosphere within 20 minutes when the secondary containment is isolated.*

Inspection/Test/Analysis

Tests will be conducted on each as-built SGTS division.

Acceptance Criteria

The SGTS maintains a negative pressure of 6.35 mm water gauge or greater in the secondary containment relative to the outdoor atmosphere within 20 minutes when the secondary containment is isolated.

Actions Achieved Toward ITAAC Closure

Progress as of (Month, Day, Year) toward completing this ITAAC was approximately 25% with the SGTS Negative Pressure Test Procedure XXX.XXX.XXX (Reference 1) and Negative Pressure Test Package (Reference 2) generated, but the test, associated inspection activities, and test analysis results remain open.

The as-built divisions of the SGTS System identified within the secondary containment negative pressure test boundaries were established by the constructor based on plant design drawings and specifications. These design documents provide design and operating temperatures and pressures which allow assembly of the SGTS Negative Pressure Test Package per Procedure XXX.XXX.XXX, Negative Pressure Testing. Negative Pressure Testing personnel are trained in accordance with the Negative Pressure Testing Procedure, and test results are analyzed, documented, and retained. The Negative Pressure Test Package (Reference 2) consists of the following:

1. Negative Pressure Test Package Index Sheet

2. Negative Pressure Test Report
3. Drawing showing the SGTS system test boundary
4. Equipment List

Actions Remaining to Attain ITAAC Closure

Prior to final acceptance of the negative pressure test results of the SGTS System, a package documentation review will ensure compliance to 6.35 mm water gauge or greater in the secondary containment relative to the outdoor atmosphere within 20 minutes when the secondary containment is isolated. Any deviations identified will be resolved prior to system turnover to Start Up. The Negative Pressure Test Package documentation review by Quality Assurance is per Quality Procedure XXX (Reference 3).

Staff qualified test personnel have experience with Negative Pressure System test procedures, test packages, testing, inspections, and test analysis results.
Completion of a successful test will confirm that SGTS maintains a negative pressure of 6.35 mm water gauge or greater in the secondary containment relative to the outdoor atmosphere within 20 minutes when the secondary containment is isolated.

ITAAC Closure Schedule

ITAAC 2.14.4 Item 4a is being tracked in the ITAAC database. ITAAC 2.14.4 Item 4a Completion package (Reference 4) is scheduled to be issued by [month, day, year]. The Closure Letter for ITAAC 2.14.4 Item 4a will follow our review and acceptance of these documents.

References (available for NRC inspection)

1 Procedure XXX.XXX.XXX, Negative Pressure Testing
2 SGTS Negative Pressure Test Package (Initial Draft)
3 Quality Assurance Procedure XXX
4 ABWR ITAAC 2.14.4a Item 4a Completion package (Initial Draft)

APPENDIX E-6 – DRAFT 225-DAY NOTIFICATION ITAAC 2.5.2-8 ITEM 10

XX/YY/ZZZZ (Date) (225-days before scheduled fuel load)

{Name of Licensee}
Site Name and Unit #(s)}
{Docket #(s)}

Subject: Notification of Status of AP1000 ITAAC 2.5.2-8 Item 10

ITAAC Statement

Design Commitment

Setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.

Inspection/Test/Analysis

Inspection will be performed for a document that describes the methodology and input parameters used to determine the PMS setpoints.

Acceptance Criteria

A report exists and concludes that the PMS setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.

Actions Achieved Toward ITAAC Closure

{Licensee} determines instrument setpoints for permanently installed instrumentation using methodology specified in Procedure XXX, *Instrument Uncertainty and Setpoint Calculation Guidelines* (Reference 1). This methodology accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation. {Licensee} uses Procedure XXX at {Licensee's operating units} giving additional validity and assurance to the methodology.

The setpoints for Protection and Safety Monitoring System (PMS) have been determined using Procedure XXX and documented in Engineering Report YYY, *Setpoint Determination for the Protection and Safety Monitoring System* (Reference 2).

Actions Remaining to Attain ITAAC Closure

In order to close ITAAC 2.5.2-8 Item #10, {Licensee} will complete an inspection of Engineering Report YYY. The purpose of the inspection is to confirm that the PMS setpoints are determined using Procedure XXX and that the procedure specifies a methodology that takes into account instrument loop uncertainties and inaccuracies, response testing results, and maintenance or replacement activities. To date, {Licensee} has completed approximately XX%

of the inspection. This inspection will be documented in an ITAAC closure inspection report, which will be available for NRC inspection.

ITAAC Closure Schedule

{Licensee} is tracking ITAAC 2.5.2-8 Item #10 in its ITAAC database and is scheduled to perform the inspection of Engineering Report YYY on _____. {Licensee} expects satisfactory results since, as mentioned above, Procedure XXX is successfully used at {Licensee's operating units}.

References (available for NRC inspection)

1. Procedure XXX, Instrument Uncertainty and Setpoint Calculation Guidelines
2. Engineering Report YYY, Setpoint Determination for the Protection and Safety Monitoring System

APPENDIX E-7 – DRAFT 225-DAY NOTIFICATION AP1000 ITAAC 2.2.2-3 ITEM 7.B.I

XX/YY/ZZZZ (Date)

{Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Notification of Status of AP1000 ITAAC 2.2.2-3 Item 7.b.i Passive Containment Cooling System Water Distribution

ITAAC Statement

Design Commitment

7.b) The PCS wets the outside surface of the containment vessel. The inside and the outside of the containment vessel above the operating deck are coated with an inorganic zinc material.

Inspection/Test/Analysis

i) Testing will be performed to measure the outside wetted surface of the containment vessel with one of the three parallel flow paths delivering water to the top of the containment vessel.

Acceptance Criteria

i) A report exists and concludes that when the water in the PCCWST uncovers the standpipes at the following levels, the water delivered by one of the three parallel flow paths to the containment shell provides coverage measured at the spring line that is equal to or greater than the stated coverages. - 24.1 ± 0.2 ft above the tank floor; at least 90% of the perimeter is wetted. - 20.3 ± 0.2 ft above the tank floor; at least 72.9% of the perimeter is wetted. - 16.8 ± 0.2 ft above the tank floor; at least 59.6% of the perimeter is wetted.

Actions Achieved Toward ITAAC Closure

The containment vessel and the elements of the water distribution system on the top dome of the containment vessel are complete. The inorganic zinc coating on the outside surface of the containment is complete. The notification of the completion of ITAAC 2.2.2-3 Items 7.b.ii and 7.b.iii associated with the completion of the application of the inorganic zinc coating to the containment surface included in the design commitment is reported separately. The test procedure for the water distribution testing is prepared and approved.

Actions Remaining to Attain ITAAC Closure

During the filling of the Passive Containment Cooling Water Storage Tank (PCCWST) as each test level is reached water will be released into the distribution system. The water coverage will be determined for each tank water level at the spring line of the containment vessel. The spring line is at the connection between the ellipsoidal head and the top of the cylinder. Observation of the test, as directed by the procedure, will be by personnel directly or by use of cameras located inside the air baffle. Video or photographic means will be used to record the test. Determination of the coverage percentage will be made using measurement of photographs or estimated using markers applied to the containment shell. A report will be prepared to document the test results. This report will be available for NRC inspection.

This observation of water coverage planned is similar to test observations originally done during the Passive Containment Cooling System Water Distribution tests performed to support the development of the passive containment cooling system.

ITAAC Closure Schedule

ITAAC 2.2.2-3 Item 7.b.i is being tracked in the ITAAC database. ITAAC 2.2.2-3 Item 7.b.i Completion package (and specific reports, procedures, or other references as necessary) are scheduled to be issued by [month, day, year]. The Closure Letter for ITAAC 2.2.2-3 Item 7.b.i will follow our review and acceptance of these documents.

References (available for NRC inspection)

1 Passive Containment Cooling System Water Distribution Procedure, report, or other record

APPENDIX F – ALL ITAAC COMPLETE LETTER TEMPLATE

{Date}

To: NRC

From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Completion of All ITAAC

This letter serves to notify the NRC that all of the inspections, tests, and analyses have been performed, all acceptance criteria have been met, and all ITAAC conclusions are being maintained, as prescribed in the combined license for {Site Name and Unit #(s)}.

ITAAC Closure Letters have been submitted to NRC for each ITAAC in accordance with 10 CFR 52.99(c)(1). All of the ITAAC Closure Letters are substantiated by ITAAC Completion packages, which include the documentation (tests, reports, completed procedures, completed analyses, etc.) that support the ITAAC determination bases. The ITAAC Completion packages are available for NRC inspection at the plant site.

~~Include the following if necessary based on the status of ITAAC SSCs:~~

~~The following ITAAC related maintenance activities are in progress and, upon completion, require the submission of a Supplemental ITAAC Closure Letter in accordance with 10 CFR 52.99(x)(x).~~

~~Sample Information Concerning Outstanding Maintenance Activities~~		
~~ITAAC Number~~	~~ITAAC Closure Letter (No./Date/ADAMS Accession No.)~~	~~Description of Maintenance Activity and Schedule for Completion~~
~~Table 2.1.2-3, Item No. 11~~	~~SN-10-XXXX, February 19, 2009; MLxxxxxxxxxx~~	~~Inboard main steam isolation valve V8-xxx was damaged by adjacent construction activities. The damaged valve is being replaced with a like spare. Because of the current configuration of plant systems, the new valve will be tested at a higher pressure than that required by the original ITA. The test results will be analyzed by engineering to ensure the valve continues to meet the acceptance criteria. These activities will be completed by March 1, 2010.~~
~~2.4.5.5.b i~~	~~SN-10-XXXX, June 25, 2009; MLxxxxxxxxxx~~	~~An additional pipe support is being installed to the RHRS main piping to suppress flow-induced vibration of the system. A seismic re-analysis will be performed to confirm the integrity of the affected portion of the system. These activities will be completed by February 28, 2010.~~

{Licensee Name} is not aware of any condition that warrants submittal of a Supplemental ITAAC Closure Notification in accordance with NEI 08-01/RG 1.215, and hereby affirms the completion of all ITAAC prescribed in the combined license for {Site Name and Unit #(s)}. ~~and [, upon completion of the ITAAC related maintenance activities described above,]~~ On this basis, {Licensee Name} requests an NRC staff recommendation to the Commission to make a finding that the acceptance criteria in the combined license are met (10 CFR 52.103(g)).

Please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person} ({Email Address for Contact Person}) if you have any questions.

Sincerely,
{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

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APPENDIX G – ~~RESERVEDITAAC COMPONENT REPLACEMENT LETTER TEMPLATE~~

~~{Date}~~

~~**To:** NRC~~

~~**From:** {Name of Licensee}~~
~~{Site Name and Unit #(s)}~~
~~{Docket #(s)}~~

~~**Subject: ITAAC Component Replacements**~~

~~This letter serves to notify the NRC of the components, specifically delineated in the ITAACs in the combined license for {Site Name and Unit #(s)}, that were replaced [in the last 30 days] after the respective ITAAC Closure Letter was submitted.~~

~~During the period indicated, the ITAAC specified components listed in the attached table (Attachment 1) were replaced as a part of an ITAAC maintenance activity in accordance with approved plant procedures, manufacturer recommendations, and applicable codes and standards. Appropriate post-work verification was performed to assure the ITAAC acceptance criteria continue to be met. Therefore, the ITAAC Determination Bases and conclusions of the ITAAC Closure Letters remain valid.~~

~~The supporting documentation (tests, reports, completed procedures, completed analyses, etc.) associated with these component replacement activities has been incorporated into the respective ITAAC Completion packages, which are available for NRC inspection at the plant site.~~

~~Please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person} ({Email Address for Contact Person}) if you have any questions.~~

~~Sincerely,~~
~~{Signature of Licensee Representative}~~
~~{Typed Name of Licensee Representative}~~
~~{Title of Licensee Representative}~~

~~Attachment 1~~

~~**ITAAC Component Replacements in the most recent period**~~

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~~**Component**~~	~~**Associated ITAAC**~~	~~**ITAAC Closure Letter (No./Date/ADAMS Accession No.)**~~

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APPENDIX H – ITAAC MAINTENANCE EXAMPLES

If licensee activities materially alter statements made in the ITAAC Determination Basis summarized in the original ITAAC Closure Letter, licensees should notify NRC via submittal of a Supplemental ITAAC Closure Letter. The notification process and thresholds are discussed in Section 8.1.2, Post-ITAAC Closure Notifications to NRC Under 10 CFR 52.99, of this document. To illustrate application of the four thresholds, the following ITAAC maintenance examples are discussed in this appendix~~for each are given below~~.

EXAMPLES FOR THRESHOLD #1 – Will the PWV use a significantly different approach than the original performance of the ITA as described in the original ITAAC letter?	
1.1	Replacement of Damaged Feedwater Inboard Isolation Check Valve Requires Different Post Work Verification
1.2	Replacement of Damaged Remote Shutdown System (RSS) Raceway and Cable
1.3	Replacement Of Plug-in Module in the Reactor Trip (RT) System or Engineered Safety Feature (ESF) System (Infant Mortality)
1.4	Repair of CVCS Pipe Crack
1.5	Emergency Power Source (EPS) Fuel Transfer System Valve Repair
1.6	Replacement of High Pressure Core Flooder (HPCF) Pump with Identical Post Work Verification (PMV) as Original Test
1.7	Replacement of Standby Liquid Control (SLC) Pump with Different Post Work Verification (PMV) Because of Plant Conditions
1.8	Replacement of Standby Liquid Control (SLC) Pump Piston With Identical Post Work Verification (PMV) as original Test
1.9	Modification to Backup Electrical Power Supply for Technical Support Center (TSC)
1.10	Replacement of Lighting Units and Light Bulbs for Protected Area (PA) Illumination (Physical Security)
~~1.11~~	~~Replacement of Vital Equipment Within Established Vital Area Relocated to Ex 4.6, Case 1~~
1.11	Replacement of Public Address System Loudspeaker With Like For Like Spare and Identical Post Work Verification
EXAMPLES FOR THRESHOLD # 2 – Is an engineering change necessary that materially alters the determination that the acceptance criteria are met?	
2.1	Damaged Pipe Support Requires Design Change to Correct
2.2	Software Change in Protection and Safety Monitoring System (PSMS)
2.3	Piping Support Modification With No Impact on Seismic Analysis

2.4	Replacement of Diesel Generator Air Start Receiver Tanks With Larger Capacity Tanks
2.5	Thermal Expansion Issue Detected During Pre-core Hot Functional Testing Requires Modification of Snubbers and Spring Cans
2.6	Residual Heat Removal (RHR) Pump Vibration Detected During Surveillance Testing Requires Impeller Replacement
2.7	Replacement of Wind Speed Sensor Mounting Bracket
2.8	Electrical Storm Damages Junction Boxes and Surge Protection System for Protected Area (PA) Illumination (Physical Security)
2.9	Modification To Vital Equipment Within Established Vital Area Requires Modification To Vital Area Boundary (Physical Security)
2.10	Modification to Backup Electrical Power Supply for Technical Support Center (TSC)
2.11	Public Address System Loudspeaker Failure Requires Design Change
EXAMPLES FOR THRESHOLD #3 – Will there be additional items that need to be verified through the ITAAC?	
3.1	Modification of Protected Area (PA) Illumination (Physical Security)
3.2	Addition of Piping Support in the Residual Heat Removal System (RHRS)
3.3	Replacement of Environmentally Qualified (EQ) Cable
3.4	Replacement of Damaged Pipe Requires Additional Welds
3.5	Raceway Reroute for a CAMS Channel Requires a Configuration Change from Electrical Separation to Electrical Isolation (Relay, Breaker, or Optical Isolator)
EXAMPLES FOR THRESHOLD #4 – Will any licensee activities materially alter the ITAAC determination basis?	
4.1	Revision of the Fire Hazards Report for New Postulated Fire Scenario
4.2	Replacement of 3 Hour Fire Rated Door with 6 Hour Fire Rated Door
4.3	Changes to Backup Electrical Power Supply for Technical Support Center (TSC)
4.4	Modification of Protected Area (PA) Illumination (Physical Security)
4.5	High Noise Areas in Plant Require a Change in Method of Notification of Workers (Protective Response)
4.6	Relocation of Vital Equipment To A Different Vital Area (Physical Security)
4.7	Change in the Methodology Used to Determine Setpoints for the Protection and Safety Monitoring System (PMS)

ITAAC MAINTENANCE EXAMPLES

THRESHOLD #1 – Post Work Verification (PWV)

Will the PWV use a significantly different approach than the original performance of the ITA as described in the original ITAAC letter?

Example 1 – Replacement of Damaged Feedwater Inboard Isolation Check Valve Requires Different Post Work Verification

ESBWR ITAAC Table 2.1.2-3 for the Nuclear Boiler System

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
11. Check valves listed in Table 2.1.2-1 open and close under system pressure, fluid flow, and temperature conditions.	Tests of installed valves for opening and closing will be conducted under system preoperational pressure, fluid flow, and temperature conditions.	Based on the direction of the differential pressure across the valve, each check valve listed in Table 2.1.2-1 opens and closes.

Feedwater Inboard Isolation Check Valves

Preoperational testing of the feedwater system has been completed, the ITAAC Closure Letter has been ~~closed~~submitted, and the plant is ready to load fuel, pending the 52.103(g) finding. During the movement of construction materials in the area, one of the subject valves is damaged.

The damaged valve is replaced with a like spare. Due to an inability to achieve preoperational conditions in the current plant configuration, the new valve is tested at a significantly different condition than the preoperational test condition. The valve functions properly and an engineering analysis concludes that the valve meets the ITAAC acceptance criteria.

A Supplemental ITAAC Closure Letter is required because the post-work testing is significantly different than the original ITA (i.e., different test pressure).

~~This valve replacement would also be included in a subsequent ITAAC Component Replacement Letter.~~

Example 2 – Replacement of Damaged Remote Shutdown System (RSS) Raceway and Cable

ABWR ITAAC 2.2.6.5a – Remote Shutdown System (RSS) Electrical Independence

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Each of two RSS divisions is powered from its respective Class 1E division. In the RSS, independence is provided between Class 1E divisions, and between Class 1E divisions and non-Class 1E equipment.	Tests will be performed on the RSS by providing a test signal in only one Class 1E division at a time.	The test signal exists in only the Class 1E division under test in the RSS.

Testing was performed, the acceptance criteria were satisfied and the ITAAC Closure Letter was ~~closed~~submitted. During other construction activities in the area, a portion of the raceway carrying RSS Division II Class 1E cable was damaged.

Power to RSS Division II was removed during the repair work. The section of tray was replaced with the same type tray section. The damaged cable was replaced with the same type of cables. The components were replaced and retested according to the original ITA, and returned to service.

As the post-work verification was the same as the testing method described in the original ITA and closure letter, a Supplemental ITAAC Closure Letter is not required.

Example 3 - Replacement Of Plug-in Module in the Reactor Trip (RT) System or Engineered Safety Feature (ESF) System (Infant Mortality)

US-APWR ITAAC 2.5.1-1 Reactor Trip (RT) System and Engineered Safety Feature (ESF) System

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The functional arrangement of the RPS is as described in the design description and as shown in Figures 2.5.1-1 and 2.5.1-2.	An inspection of the as-built RPS will be performed.	The as-built RPS conforms to the functional arrangement as described in the design description and as shown in Figures 2.5.1-1 and 2.5.1-2.

Plug-in Module replacement in instrumentation and control system

This case also applies to ITAAC on other I&C systems, where inspection of as-built system functional arrangement is conducted.

After ~~closing~~ submitting the ITAAC Closure Letter ~~of the ITAAC 2.5.1-1~~, a module in the Reactor Trip System or ESF System was replaced due to infant mortality during preoperational test. The existing module was replaced by a new module of the same model as the original.

As no additional engineering justification is needed, a supplemental closure letter is not required.

Example 4 - Repair of CVCS Pipe Crack

US-APWR ITAAC 2.4.6-4b – Chemical and Volume Control System (CVCS)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The ASME Code Section III piping, identified in Table 2.4.6-3, retains its pressure boundary integrity at its design pressure.	A hydrostatic test will be performed on the as-built piping required by the ASME Code Section III to be hydrostatically tested.	The results of the hydrostatic test of the as-built piping identified in Table 2.4.6-3 as ASME Code Section III conform with the requirements of the ASME Code, Section III.

CVCS Pipe Repair

After ~~closure~~ submittal of the ~~of the~~ ITAAC Closure Letter, a small crack was found on the outer surface of a pipe during a hydrostatic test of a ASME Code Section III CVCS piping. After grinding to remove the crack, the pipe wall thickness remains above the minimum allowable wall thickness. After the repair, a liquid penetrant test was successfully conducted.

As no additional engineering justification is needed, a supplemental closure letter is not required.

Example 5 - Emergency Power Source (EPS) Fuel Transfer System Valve Repair

US-APWR ITAAC 2.6.4-13 - Emergency Power Source (EPS)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The Class 1E EPS are capable of providing power at the set voltage and frequency to the Class 1E 6.9kV buses within 100 seconds of receiving a start signal.	A test will be performed to verify that the as-built Class 1E EPS power sources can reach set voltage and frequency within 100 seconds of receiving a start signal.	The results of the test conclude that the as-built Class 1E EPS power reaches the set voltage and frequency within 100 seconds of receiving a start signal.

EPS Fuel Transfer System Valve Repair

The ITAAC Closure Letter was ~~closed~~ submitted ~~as~~ after the Class 1E EPS was tested and met the acceptance criteria. Field investigation found that the fuel oil control valve had been damaged and needed to be replaced. The repair was made with identical (like-for-like, same model) parts. Post-repair test was conducted including the test required by ITAAC 2.6.4-13. A supplemental closure letter is not required.

Example 6 – Replacement of High Pressure Core Flooder (HPCF) Pump with Identical Post Work Verification (PMV) as Original Test

ABWR ITAAC 2.4.2.3g – High Pressure Core Flooder (HPCF) System – HPCF Pump Available NPSH

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The HPCF pumps have sufficient NPSH available at the pumps.	Inspections, tests and analyses will be performed upon the as-built system. NPSH tests of the pumps will be performed in a test facility. The analyses will consider the effects of: - Pressure losses for pump inlet piping and components. - Suction from the suppression pool with water level at the minimum value. - 50% minimum blockage of the pump suction strainers. - Design basis fluid temperature (100 °C). - Containment at atmospheric pressure.	The available NPSH exceeds the NPSH required by the pumps.

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The ITAAC Closure Letter has been submitted. The licensee makes a decision to replace a HPCF pump with another pump which has been adequately tested for NPSH in a test facility. No piping or other ~~as-built~~ configuration changes have been implemented. The post work verification (PWV) for the newly installed pump is the same as the testing performed for the original pump in the as-built system to satisfy the ITAAC acceptance criteria.

An ITAAC Supplemental Closure letter is not required.

Example 7 – Replacement of Standby Liquid Control (SLC) Pump with Different Post Work Verification (PMV) Because of Plant Conditions

ABWR ITAAC 2.2.4.3h – Standby Liquid Control (SLC) System – SLC Pump Available NPSH

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The SLC pumps have sufficient NPSH.	Tests will be conducted on the as-built SLC System by	The available NPSH exceeds the NPSH required as

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	injecting demineralized water using both SLC System pumps from the storage tank to the RPV with the storage tank at the low level (pump trip level) and a temperature of greater than or equal to 43 °C.	demonstrated by the SLC System injecting greater than or equal to 378 liters/minute.

The ITAAC Closure Letter has been submitted. The licensee makes a decision to replace a SLC pump with another identical pump which meets all the procurement requirements for the originally installed SLC pump. The current plant configuration will not allow the original test, which pumped water from the SLC tank to the RPV, to be performed. Instead, the PWV will consist of a loop flow test supported by analysis to demonstrate that the replacement SLC pump satisfies the ITAAC acceptance criteria for available NPSH.

A Supplemental ITAAC Closure letter is required.

Example 8 – Replacement of Standby Liquid Control (SLC) Pump Piston With Identical Post Work Verification (PMV) as original Test

ABWR ITAAC 2.2.4.3c – Standby Liquid Control (SLC) System – SLC Reactor Injection Capacity

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The SLC System delivers at least 189 L/min of solution with either pump operating when the reactor pressure is less than or equal to 8.72 MPaA.	Tests will be conducted on the as-built SLC System using installed controls, power supplies and other auxiliaries. Demineralized water will be injected from the storage tank into the reactor with one pump running against a discharge pressure of greater than or equal to 8.72 MPaA.	The SLC System injects greater than or equal to 189 L/min into the reactor with either pump running against a discharge pressure greater than or equal to 8.72 MPaA.

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The ITAAC Closure Letter has been submitted. Subsequently, the licensee determines that the SLC pump piston (positive displacement pump) needs to be replaced. The post-work verification (PWV) will consist of a flow test via the test loop to the test tank to confirm that the ITAAC acceptance remains met. No analysis is required to support this testing.

A Supplemental ITAAC Closure letter is not required.

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Example ~~6~~ 9 – Modification to Backup Electrical Power Supply for Technical Support Center (TSC)

Plant X – ITAAC #8 – Emergency Facilities and Equipment

~~10 CFR 50.47 (B) (8) – Adequate emergency facilities and equipment to support the emergency response are provided and maintained.~~

EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
8. The licensee has established a technical support center (TSC) and an onsite operation support center (OSC). [H.1]	8.1 An inspection of the as-built TSC and OSC will be performed, including a test of the capabilities.	8.1.7 A Reliable and backup electrical power supply is available for the TSC.

Case 1 – The ITAAC Closure Letter has been submitted. The individual backup batteries are to be replaced, due to fair wear and tear. The Post Work Verification (PWV) is the same as the method described in the original ITA and closure letter. The acceptance criteria are satisfied.

A supplemental ITAAC closure letter is not required.

Case 2 – The ITAAC Closure Letter has been submitted. A decision has been made to replace short-term battery power source~~,~~ with a longer-term diesel generator backup power source. The Licensee will use a different post work verification testing procedure ~~,~~(with engineering justification). ~~Because t~~The PWV differs from the performance of the ITA as described in the original ITAAC closure letter and relies on an engineering justification to justify the method for verifying the acceptance criterion continues to be met~~,~~.

~~a.~~ A Supplemental ITAAC Closure Letter is required.

Example 10 – Replacement of Lighting Units and Light Bulbs for Protected Area (PA) Illumination (Physical Security)

ABWR ITAAC 5.0-1.5 – Protected Area (PA) Illumination (Physical Security)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Isolation zones and exterior areas within the protected area are provided with illumination to permit observation of abnormal presence or activity of persons or vehicles.	Inspection of the illumination in the isolation zones and external areas of the protected area will be performed to confirm sufficient illumination to permit observation.	A report exists and concludes that illumination in isolation zones and exterior areas within the protected area is 0.2 foot candles measured horizontally at ground level or, alternatively, sufficient to permit observation.

The ITAAC Closure Letter has been submitted. The licensee has performed general replacement of individual lighting units and light bulbs due to fair wear and tear. The results of post-work verification (PMV) are consistent with the description in the original ITAAC Closure letter.

A Supplemental ITAAC Closure letter is not required.

~~**Example 11 – ABWR ITAAC 5.0-1.1a – Vital Areas & Vital Area Barriers Requirements (Physical Security)**~~

~~Relocated to Case 1, Ex 4.6~~

Example 1~~2~~1 – Replacement of Public Address System Loudspeaker With Like For Like Spare and Identical Post Work Verification

Plant Z – ITAAC #10 – Protective Response

~~10 CFR 50.47 (B) (10) – A range of protective actions has been developed for the plume exposure EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.~~

EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
10. The means exist to warn and advise onsite individuals of an emergency, including those in areas controlled by the operator, including: ~~[J.1]~~ a. employees not having emergency assignments; b. visitors; c. contractor and constructor personnel; and d. others persons who may be in the public access areas, or passing through the site, or within the owner controlled area.	10. A test of the onsite warning and communications capability will be performed during a drill or exercise.	10.1.1 A report exists that confirms that, during a drill or exercise, notification and instructions were provided to onsite workers and visitors, within the Protected Area over the plant public announcement system.

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The ITAAC Closure Letter has been submitted. During a subsequent drill, the licensee noted a loudspeaker had failed in the public announcement system. The licensee removed and replaced the speaker with a like for like unit. The post-work verification (PWV) was the same as the method described in the original ITAAC Closure letter.

A Supplemental ITAAC Closure letter is not required.

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THRESHOLD # 2 – Engineering Changes

Is ~~Has~~ an engineering change necessary ~~been implemented~~ that materially alters the determination that the acceptance criteria are met?

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Example 1 – Damaged Pipe Support Requires Design Change to Correct

AP1000 ITAAC 2.1.~~0~~2.~~0~~5b –

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Each of the lines identified in Table 2.1.2-2 for which functional capability is required is designed to withstand combined normal and seismic design basis loads without a loss of its functional capability.	Inspection will be performed for the existence of a report verifying that the as-built piping meets the requirements for functional capability.	A report exists and concludes that each of the as-built lines identified in Table 2.1.2-2 for which functional capability is required meets the requirements for functional capability.

The ITAAC Closure Letter has been submitted.~~The ITAAC has been completed and the ITAAC closure letter has been submitted.~~ A pipe support is damaged during pre-operational testing of the Reactor Coolant System (RCS) system. An evaluation determines that the pipe support cannot be repaired or replaced within the original location tolerances.

A design change would be required to specify hanger repair/replacement, including an evaluation to ensure the repair will meet the conditions of the closed ITAAC.

A Supplemental ITAAC Closure Letter is required.

Example 2 ~~–~~ Software change in Protection and Safety Monitoring System (PSMS)

US-APWR ITAAC 2.5.1-24 – Reactor Trip (RT) System and Engineered Safety Features (ESF~~–~~ System)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The PSMS hardware and software are developed and managed by a life cycle process that meets the regulatory requirements for Class 1E safety systems, and which encompasses the entire product life cycle including software V&V, configuration management and cyber	Inspections of the as-built hardware and software life cycle documentation of the PSMS will be performed.	The as-built PSMS hardware and software are developed and managed by a life cycle process that meets the regulatory requirements for Class 1E safety systems, and which encompasses the entire product life cycle including software V&V, configuration management and cyber

security.		security.

~~**Software change in Protection and Safety Monitoring System (PSMS)**~~

The ITAAC Closure Letter has been submitted. ~~After closing the ITAAC 2.5.1-24~~Subsequently, a set of application software within the PSMS was replaced to incorporate a minor design change in a plant fluid system. After installation of the new software, V&V of the affected portion of the PSMS system was successfully conducted.

The new software is an engineering change that materially alters the original ITAAC Determination Basis. Since software was changed that potentially affects the function of as-built PSMS and a new V&V was performed, a Supplemental Closure Letter is required.

Example 3 – Piping Support Modification With No Impact on Seismic Analysis

US-APWR ITAAC 2.4.4.5 b ii – Emergency Core Cooling System (ECCS)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Each of the seismic Category I piping, including supports, identified in Table 2.4.4-3 is designed to withstand combined normal and seismic design basis loads without a loss of its safety function.	Inspections will be performed for the existence of a report verifying that the as-built seismic Category I piping, including supports, identified in Table 2.4.4-3 can withstand combined normal and seismic design basis loads without a loss of its safety function.	A report exists and concludes that each of the as-built seismic Category I piping, including supports, identified in Table 2.4.4-3 can withstand combined normal and seismic design basis loads without a loss of its safety function.

Piping Support Modification

The ITAAC Closure Letter has been submitted. ~~After closing the ITAAC 2.4.4.5 b ii on ECCS as-built piping supports~~Subsequently, an additional small support was installed for a vent valve on the main piping to suppress flow-induced vibration of the system. The supports for the vent valve were connected to the main pipe and the original main supports that were modeled in the seismic analysis of the piping system were not modified.

Since the seismic analysis model was not affected, a Supplemental Closure Letter is not required.

Example 4 - Replacement of Diesel Generator Air Start Receiver Tanks With Larger Capacity Tanks

ABWR ITAAC 2.12.13.3 – Tests – As-Built Diesel Generator (DG) System Starts – Air Start Receiver Tank Capacity

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
DG air start receivers have capacity for five DG starts without recharging their tanks.	Tests on the as-built DG Systems will be conducted by starting the DGs five times.	As-built DGs start five times without recharging their start receiver tanks.

The testing has been satisfactorily completed and the ITAAC Closure Letter has been submitted.~~the ITAAC has been closed.~~ The vendor then makes a recommendation that the air receiver tanks need to have 10% larger capacity to provide additional margin. Based on the vendor recommendation, the larger air receiver tanks are procured and installed via an engineering change. Plant documentation is updated to reflect the change.

A Supplemental ITAAC Closure Letter is not required because the larger capacity tank does not materially alter the ITAAC determination.

~~The licensee would send an ITAAC Component Replacement Letter.~~

Example 5 – Thermal Expansion Issue Detected During Pre-core Hot Functional Testing Requires Modification of Snubbers and Spring Cans

AP1000 ITAAC 2.1.2.2b –

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The piping identified in Table 2.1.2-2 as ASME Code Section III is designed and constructed in accordance with ASME Code Section III requirements.	■ Inspection will be conducted of the as-built components as documented in the ASME design reports.	■ The ASME code Section III design reports exist for the as-built piping identified in Table 2.1.2-2 as ASME Code Section III.

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The ITAAC Closure Letter has been submitted. During the pre-core Hot Functional Test, a problem was discovered during plant heatup while monitoring thermal expansion. Resolution of the problem required the modification of certain snubbers and spring cans to correct a potential design flaw. The implementation of this engineering change was required to ensure that the ITAAC acceptance criteria remain met.

A Supplemental ITAAC Closure letter is required.

Example 6 – Residual Heat Removal (RHR) Pump Vibration Detected During Surveillance Testing Requires Impeller Replacement

AP1000 ITAAC 2.3.6.9bii – Residual Heat Removal System (RNS)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria

The RNS provides heat removal from the reactor coolant during shutdown operations.	Testing will be performed to confirm that the RNS can provide flow through the RNS heat exchangers when the pump suction is aligned to the RCS hot leg and the discharge is aligned to both PXS DVI lines with the RCS at atmospheric pressure.	Each RNS pump provides at least 1400 gpm net flow to the RCS when the hot leg water level is at an elevation 15.5 inches ± 2 inches above the bottom of the hot leg.

The ITAAC Closure Letter has been submitted. During subsequent surveillance testing, a RNS pump was found to have high vibration. The source of the high vibration was determined be the pump impeller. The pump impeller was replaced with impeller of the same design but fabricated with a different material. An engineering change was implemented because of the different material but the engineering change was not required to ensure the ITAAC acceptance criteria continue to be met. Post-work verification (PWV) can be performed in the same manner as the original test.

A Supplemental ITAAC Closure letter is not required.

Example ~~5~~ 7– Replacement of Wind Speed Sensor Mounting Bracket

Plant X – ITAAC #9 – Accident Assessment

~~10 CFR 50.47 (b) (9) – Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.~~

EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
9.4 The means exist to evaluate meteorological information. [I.5]	9.4 A test will be performed to verify the ability to assess meteorological information in the TSC and Control Room.	9.4 The following parameters (in-part) are displayed in the TSC and Control Room: Wind Speed (at 10m and 60m).

The ITAAC Closure Letter has been submitted.~~The ITAAC has been completed and the ITAAC closure letter has been submitted.~~ A tornado damaged the 60m wind speed sensor mounting bracket. The bracket is evaluated to determine if it need to be resigned. The bracket will be re-designed to withstand stronger winds, and remounted at the 60m location. Although the bracket was redesigned, ~~an~~ the engineering change was not ~~ne~~necessary~~eded~~ to ensure that the acceptance criteria continue to be met.

A Supplemental ITAAC Closure Letter <u>is not required</u>.

Example 8 – -Electrical Storm Damages Junction Boxes and Surge Protection System for Protected Area (PA) Illumination (Physical Security)

ABWR ITAAC 5.0-1.5 – Protected Area (PA) Illumination (Physical Security)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Isolation zones and exterior areas within the protected area are provided with illumination to permit observation of abnormal presence or activity of persons or vehicles.	Inspection of the illumination in the isolation zones and external areas of the protected area will be performed to confirm sufficient illumination to permit observation.	A report exists and concludes that illumination in isolation zones and exterior areas within the protected area is 0.2 foot candles measured horizontally at ground level or, alternatively, sufficient to permit observation.

Case 1 - The ITAAC Closure Letter has been submitted. During an electrical storm a power surge caused an overload that damaged several electrical junction boxes and surge protection system. A like for like replacement of junction boxes and standard wiring was performed and an upgraded surge protection system was installed. Although an engineering change is required, the surge protection system is not substantially changed and the engineering change was not needed to ensure that the acceptance criteria continued to be met.

A Supplemental ITAAC Closure Letter is not required.

Case 2 – The ITAAC Closure Letter has been submitted. During an electrical storm a power surge caused an overload that damaged several electrical junction boxes and surge protection system. The damaged junction boxes were replaced (like for like replacement) and additional junction boxes were installed. An upgraded surge protection system was installed and the standard wiring package was upgraded to meet the higher standards required for the upgraded surge protection system. Although an engineering change is required, the junction boxes, wiring and surge protection system are not substantially changed and the engineering change was not needed to ensure that the acceptance criteria continued to be met.

A Supplemental ITAAC Closure Letter is not required.

Example 9 – Modification To Vital Equipment Within Established Vital Area Requires Modification To Vital Area Boundary (Physical Security)

ABWR ITAAC 5.0-1.1a – Vital Areas & Vital Area Barriers Requirements (Physical Security)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. Vital Equipment (a) Vital equipment is located only within a vital area.	(a) Inspections will be performed to confirm that vital equipment is located within a vital area.	A report exists and concludes that (a) vital equipment is located only within a vital area

The ITAAC Closure Letter has been submitted. The licensee performs an upgrade of the vital equipment located within the established vital area using the engineering change process. The engineering change requires the vital area doorway to be relocated such that the vital area boundary is changed. Repositioning of the vital area doorway is a material change to the original ITAAC determination basis.

A Supplemental ITAAC Closure letter is required.

Example 10 – Modification to Backup Electrical Power Supply for Technical Support Center (TSC)

Plant X – ITAAC #8 – Emergency Facilities and Equipment

~~10 CFR 50.47 (B) (8) – Adequate emergency facilities and equipment to support the emergency response are provided and maintained.~~

EP Program Elements (From	Inspections, Tests, Analyses	Acceptance Criteria

NUREG-0654/FEMA-REP-1)		
8. The licensee has established a technical support center (TSC) and an onsite operation support center (OSC). [H.1]	8.1 An inspection of the as-built TSC and OSC will be performed, including a test of the capabilities.	8.1.7 A Reliable and backup electrical power supply is available for the TSC.

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Case 1 – The ITAAC Closure Letter has been submitted. Subsequently, the licensee determines that the backup electrical power supply system has been shown to be susceptible to flooding due to site surface water run-off issues. An engineering change is implemented to "waterproof" the backup power supply and to change final site grading in the area. PWV is performed to verify the ITAAC Acceptance Criteria are met. The PMV is the same as that performed for the initial ITAAC closure. However, the engineering change has materially affected the original ITAAC determination basis.

A Supplemental ITAAC Closure letter is required.

Case 2 – The ITAAC Closure Letter has been submitted. The licensee has performed subsequent, periodic load testing of the backup power supply (i.e., batteries) for the TSC. The results of the subsequent load testing indicated that the batteries were being inadequately charged. The licensee performed an engineering evaluation of the batteries and charging system and identified a need for a more robust charging system. An upgraded charging system is procured and an engineering change is implemented to install the new charging system. PWV is performed which is identical to the original testing for the batteries and the ITAAC acceptance criteria are satisfied. The implementation of this engineering change to correct the problem of inadequate charging has materially ~~impacted~~affected the original ITAAC determination basis.

A Supplemental ITAAC Closure letter is required.

Example 1~~2~~1 – Public Address System Loudspeaker Failure Requires Design Change

Plant Z – ITAAC #10 – Protective Response

~~10 CFR 50.47 (B) (10) – A range of protective actions has been developed for the plume exposure EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate, adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.~~

EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria

10. The means exist to warn and advise onsite individuals of an emergency, including those in areas controlled by the operator, including: [J.1] a. employees not having emergency assignments; b. visitors; c. contractor and constructor personnel; and d. others persons who may be in the public access areas, or passing through the site, or within the owner controlled area.	10. A test of the onsite warning and communications capability will be performed during a drill or exercise.	10.1.1 A report exists that confirms that, during a drill or exercise, notification and instructions were provided to onsite workers and visitors, within the Protected Area over the plant public announcement system.

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The ITAAC Closure Letter has been submitted. During a subsequent drill, the licensee noted a loudspeaker had failed in the public announcement system. ~~Using the engineering change process, t~~The vendor who supplied the original loudspeaker replaced the faulty loudspeaker with a loudspeaker made by a different manufacturer. An equivalence evaluation was performed and t~~T~~he new loudspeaker was determined to be equivalent to the original (e.g., has the same decibel level as the originally installed loudspeaker). ~~Although an engineering change was implemented, the loudspeaker system was not substantially changed and the engineering~~ Replacement of the faulty loudspeaker with an equivalent one is considered corrective maintenance. The equivalence evaluation does not constitute an engineering change that materially alters the determination that ~~was not required to ensure that~~ the ITAAC acceptance criteria continued to be met.

A Supplemental ITAAC Closure letter is not required.

THRESHOLD # 3 – Population of SSCs and Subcomponents

Will there be additional items that need to be verified through the ITAAC?

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Example 1 – Modification of Protected Area (PA) Illumination (Physical Security)

ABWR ITAAC 5.0-1.5 – Protected Area (PA) Illumination (~~Site~~ Physical Security)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Isolation zones and exterior areas within the protected area are provided with illumination to permit observation of abnormal presence or activity of persons or vehicles.	Inspection of the illumination in the isolation zones and external areas of the protected area will be performed to confirm sufficient illumination to permit observation.	A report exists and concludes that illumination in isolation zones and exterior areas within the protected area is 0.2 foot candles measured horizontally at ground level or, alternatively, sufficient to permit observation.

Case 1 ~~ITAAC~~ The ITAAC Closure Letter has been submitted. ~~5.0-1.5 has been closed.~~ Subsequently, ~~A~~a new storage facility has been installed within the isolation zone which creates areas with less that 0.2 foot candle illumination. The project must install one new light to eliminate the problem. PWV was performed to verify that illumination of at least 0.2 foot candles is provided in the required areas. There has been an additional SSC added even though the test was performed in the same manner.

A Supplemental ITAAC Closure Letter is required.

Case 2 - The ITAAC Closure Letter has been submitted. Subsequently, the licensee installs a new administration building and several storage trailers within the ~~exterior areas~~Protected Area reducing the illumination in several areas of the isolation zones and exterior areas of the protected area. The licensee repositions several of the established light poles and installs additional lighting units on the existing poles to provide sufficient illumination to the exterior areas. PWV was performed to verify that illumination of at least 0.2 foot candles is provided in the required areas. The relocated light poles and additional lighting ~~is~~ constitute~~s~~ additional items within the scope of this ITAAC and thus materially alter the original ITAAC Determination Basis ~~a change to the original ITAAC closure letter~~.

A Supplemental ITAAC Closure letter is required.

Example 2 – Addition of Piping Support in the Residual Heat Removal System (RHRS)

US-APWR ITAAC 2.4.5.5 b i – Residual Heat Removal System (RHRS)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Each of the seismic Category I	Inspections will be performed	Reports(s) document that each

piping, including supports, identified in Table 2.4.5-3 is designed to withstand combined normal and seismic design basis loads without a loss of its safety function.	to verify that the as-built seismic Category I piping, including supports, identified in Table 2.4.5-3 are supported by a seismic Category I structure(s).	of the as-built seismic Category I piping, including supports, identified in Table 2.4.5-3 is supported by a seismic Category I structure(s).

Addition of Piping Support

The ITAAC Closure Letter has been submitted.~~After closing the ITAAC 2.4.4.5 b i on RHRS as-built piping including supports,~~ Subsequently, an additional pipe support was installed to the RHRS main piping to suppress flow-induced vibration of the system. Although seismic re-analysis confirmed the integrity of the structure after the modification, the list of piping supports of the RHRS was affected.

As the addition of the pipe support affected a list of supports for RHRS piping, a Supplemental Closure Letter is required.

Example 3 – Replacement of Environmentally Qualified (EQ) Cable

AP1000 ITAAC 2.1.2.7aii –

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
7.a) The Class 1E equipment identified in Table 2.1.2-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.	ii) Inspection will be performed of the as-installed Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment.	ii) A report exists and concludes that the as-installed Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.2-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

Case 1 – The ITAAC Closure Letter has been submitted. During subsequent work in the field, the licensee determines that an environmentally qualified (EQ) cable has been damaged. A decision was made to repair the cable by adding a cable splice. The cable splice is a new SSC requiring environmental qualification (EQ) and thus materially alters the original ITAAC Determination Basis.

A Supplemental ITAAC Closure letter is required.

Case 2 – The ITAAC Closure Letter has been submitted. During subsequent work in the field, the licensee determines that an environmentally qualified (EQ) cable has been damaged. A

decision was made to replace the damaged cable with a new cable which was already qualified as replacement for the damaged cable. The number of SSCs remains the same.

A Supplemental ITAAC Closure letter is not required.

Example 4 – Replacement of Damaged Pipe Requires Additional Welds

AP1000 ITAAC 2.1.2.3b –

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
3.b) Pressure boundary welds in piping identified in Table 2.1.2-2 as ASME Code Section III meet ASME Code Section III requirements	Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.

The ITAAC Closure Letter has been submitted. During subsequent walkdowns in the field, the licensee discovers a damaged pipe. The damage to the pipe required the pipe to be replaced and additional welds to be added. The new welds required new non-destructive examinations (NDE). The overall population of pressure boundary welds has changed since some original welds have been deleted and new welds have been added and the new NDE materially alters the original ITAAC Determination Basis.

A Supplemental Closure letter is required.

Example 5 – Raceway Reroute for a CAMS Channel Requires a Configuration Change from Electrical Separation to Electrical Isolation (Relay, Breaker, or Optical Isolator)

ABWR ITAAC 2.3.3.3b – CAMS RAD. Channels – As-built Physical Separation

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
In the CAMS, independence is provided between Class 1E divisions, and between Class 1E divisions and non-Class 1E equipment.	Inspections of the as-built Class 1E radiation channels will be performed.	In the CAMS, physical separation or electrical isolation exists between Class 1E divisions. Physical separation or electrical isolation exists between these Class 1E divisions and non-Class 1E equipment.

The ITAAC Closure Letter has been submitted. During a raceway reroute, it was determined that a configuration change was required to protect a circuit using electrical isolation ~~what was an~~instead of electrical separation ~~to be changed to an electrical isolation~~. The addition of an isolation device (relay, breaker, or optical isolator) changes the number of components associated with the ITAAC and thus materially alters the original ITAAC Determination Basis.

A Supplemental ITAAC Closure letter is required.

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Threshold #4 – Complete and Valid ITAAC Representation ~~of the ITAAC~~

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~~Do~~ Will any licensee activities materially alter the ITAAC determination basis?

Example 1 – Revision of the Fire Hazards Report for New Postulated~~-~~ Fire Scenario

ABWR ITAAC 2.15.6.9 – Fire Hazards Report

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
A plant fire hazards analysis considers potential fire hazards and assesses the effects of postulated fire on the ability to shutdown the reactor and to maintain the reactor in a safe, cold shutdown condition. Each postulated fire is documented in a Fire Hazards Report.	Inspections of the Fire Hazards Report will be conducted.	A Fire Hazards Report exists for the as-built plant and concludes that for each postulated fire, the plant can be shutdown and maintained in a safe, cold shutdown condition.

After completion of the Fire Hazards Report and ~~closure~~ submittal of the ITAAC Closure Letter, it becomes necessary to revise the Fire Hazards Report because of a postulated fire scenario that was not previously considered. Because the new Fire Hazards Report was not referenced in the original ITAAC Closure Letter, the Fire Hazards Report is revised and the ITAAC Determination Basis is also revised so that it is complete and accurate.

A Supplemental ITAAC Closure Letter is required.

Example 2 – Replacement of 3 Hour Fire Rated Door with 6 Hour Fire Rated Door

ABWR ITAAC 2.15.12.3 – As-Built INSP. – Control Building (C/B)– Fire Rating

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Inter-divisional walls, floors, doors and penetrations, and penetrations in the external C/B walls to connecting tunnels, have a three-hour fire rating.	Inspections of the as-installed interdivisional boundaries and external wall penetrations to connecting tunnels will be conducted.	The as-installed walls, floors, doors and penetrations that form the inter-divisional boundaries, and penetrations in the external C/B walls to connecting tunnels, have a three-hour fire rating.

The ITAAC Closure Letter has been submitted~~The ITAAC was closed~~ and the NRC has already approved closure of ITAAC family 15A (which includes ITAAC 2.15.12.3). The door XXX was damaged by surrounding construction activities and must be replaced. The exact door could not

be found and a similar door with a 6 hour fire rating was put in its place using approved design control and construction procedures.

A Supplemental ITAAC Closure Letter is not required since the replacement component exceeds the requirements of the acceptance criteria.

Example 3 –Changes to Backup Electrical Power Supply for Technical Support Center (TSC)

Plant X – ITAAC #8 – Emergency Facilities and Equipment

~~10 CFR 50.47 (B) (8) – Adequate emergency facilities and equipment to support the emergency response are provided and maintained.~~

EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
8. The licensee has established a technical support center (TSC) and an onsite operation support center (OSC). [H.1]	8.1 An inspection of the as-built TSC and OSC will be performed, including a test of the capabilities.	8.1.7 A Reliable and backup electrical power supply is available for the TSC.

Case 1 - The ITAAC Closure Letter has been submitted.~~The ITAAC has been closed.~~ Subsequently, ~~T~~the licensee has changed the vendor who supplies the backup power supply (i.e., batteries) for the TSC. A review is performed to determine the vendor change impacts the prescribed ITAAC acceptance criteria. It is subsequently determined that this change will not result in any other changes in the backup power supply system's critical characteristics. All ITAAC conclusions remain valid.

A Supplemental ITAAC Closure Letter is not required.

Case 2 – The ITAAC Closure Letter has been submitted. Subsequent to closure of the ITAAC, the licensee decides to change the source of the backup power for the TSC. The source of the backup power is not material to this ITAAC~~a regulatory issue~~, only that the back-up power supply is available~~ and is reliable~~.

A Supplemental ITAAC Closure letter is not required.

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Example 4 – Modification of Protected Area (PA) Illumination (Physical Security)

ABWR ITAAC 5.0-1.5 – Protected Area (PA) Illumination (Physical Security)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria

Isolation zones and exterior areas within the protected area are provided with illumination to permit observation of abnormal presence or activity of persons or vehicles.	Inspection of the illumination in the isolation zones and external areas of the protected area will be performed to confirm sufficient illumination to permit observation.	A report exists and concludes that illumination in isolation zones and exterior areas within the protected area is 0.2 foot candles measured horizontally at ground level or, alternatively, sufficient to permit observation.

The ITAAC Closure Letter has been submitted. Subsequently, the licensee removes several established light poles for the installation of a large crane for temporary use. The illumination within the isolation zones and exterior areas of the protected area are still within the ITAAC acceptance criteria as verified by PWV and the licensee has elected not to reinstall the removed light poles. This constitutes a material change to the original ITAAC determination basis.

A Supplemental ITAAC Closure Letter is required.

Example ~~4~~ 5 – High Noise Areas in Plant Require a Change in Method of Notification of Workers (Protective Response)

Plant Z – ITAAC #10 – Protective Response

~~10 CFR 50.47 (b) (10) – A range of protective actions has been developed for the plume exposure EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.~~

EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
10. The means exist to warn and advise onsite individuals of an emergency, including those in areas controlled by the operator, including: [J.1] a. employees not having emergency assignments; b. visitors; c. Contractor and construction personnel; and ~~c.~~d. other persons who	10.1 A test of the onsite warning and communications capability will be performed during a drill or exercise.	10.1.1 A report exists that confirms that, during a drill or exercise, notification and instructions were provided to onsite workers and visitors, within the Protected Area, over the plant announcement system.

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may be in the public access areas, on or passing through the site, or within the owner controlled area.		

A report has been prepared and the ITAAC Closure Letter has been submitted.~~the ITAAC has been closed.~~ During a subsequent drill, and after preoperational testing has been initiated ~~while "hot ops" testing was underway~~, the licensee noted unanticipated high noise levels in certain areas of the plant, and there are questions as to whether the prescribed acceptance criteria remain met. The licensee now anticipates this will reflect normal plant operating conditions. Licensee has implemented the use of electronic notification media (e.g., pagers, PDAs, Blackberries, etc.) for ~~onsite workers~~ personnel entering these high noise areas, within the Protected Area of the plant, vice relying on the plant's public announcement system.

This is a change in the method of notification for onsite workers. The licensee must submit a license amendment request.

Example 6 – Relocation of Vital Equipment To A Different Vital Area (Physical Security)

ABWR ITAAC 5.0-1.1a – Vital Areas & Vital Area Barriers Requirements (Physical Security)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. Vital Equipment (a) Vital equipment is located only within a vital area.	(a) Inspections will be performed to confirm that vital equipment is located within a vital area.	A report exists and concludes that (a) vital equipment is located only within a vital area

Case 1: The ITAAC Closure Letter has been submitted. The licensee upgrades or replaces like for like vital equipment located within the established vital area. The original ITA continues to be met since the vital equipment is still located within the established vital area.

A Supplemental ITAAC Closure letter is not required.

Case 2: The ITAAC Closure Letter has been submitted. Subsequently, the licensee upgraded three components of vital equipment located within the established vital area. Due to the larger size of the new equipment, only two of the new components will fit safely in the established vital area. The third component will be installed in another vital area on a lower level. The relocation of the vital equipment ~~constitutes a~~ materially alter~~sation to~~ the original ITAAC determination basis.

A Supplemental ITAAC Closure letter is required.

Example ~~8~~7 – Change in the Methodology Used to Determine Setpoints for the Protection and Safety Monitoring System (PMS)

AP1000 ITAAC 2.5.2.10 - Protection and Safety Monitoring System (PMS)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.	Inspection will be performed for a document that describes the methodology and input parameters used to determine the PMS setpoints.	A report exists and concludes that the PMS setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.

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The ITAAC Closure Letter has been submitted. Subsequently, the licensee makes a decision to change the methodology for determining the setpoints. Both the original setpoint methodology and the new setpoint methodology are acceptable approaches to the NRC. However, the ITA requires the setpoint methodology to be described.

A Supplemental ITAAC Closure letter is required.

Example ~~8~~7 – AP1000 ITAAC 2.5.2.10 - Protection and Safety Monitoring System (PMS)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.	Inspection will be performed for a document that describes the methodology and input parameters used to determine the PMS setpoints.	A report exists and concludes that the PMS setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.

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The ITAAC Closure Letter has been submitted. Subsequently, the licensee makes a decision to change the methodology for determining the setpoints. Both the original setpoint methodology and the new setpoint methodology are acceptable approaches to the NRC. However, the ITA requires the setpoint methodology to be described.

A Supplemental ITAAC Closure letter is required

APPENDIX I – SAMPLE SUPPLEMENTAL ITAAC CLOSURE LETTERS

Appendix	Technology	ITAAC
I-1	N/A	Template
I-2	ABWR	ABWR ITAAC 5.0-1.5 (PA Illumination)
I-3	ABWR	ABWR ITAAC 2.15.6.9 (Fire Hazards Report)
I-4	AP1000	AP1000 ITAAC 2.1.1, Item 4 (RM & FHM gripper)

APPENDIX I1 - EXAMPLE SUPPLEMENTAL ITAAC CLOSURE LETTER TEMPLATE

XX/YY/ZZZZ (Date)
To: NRC
From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Supplement for (designate technology or COL reference) ITAAC Item X.X.X Completion

The purpose of this letter is to provide the Nuclear Regulatory Commission (NRC) with supplemental information regarding the completion status of {Site Name and Unit #(s)} Inspection, Test, Analysis and Acceptance Criteria (ITAAC) Item X.X.X {include basic description of the ITAAC}. This notification is being provided in accordance with ~~52.99(TBD) and~~ NEI 08-01 (Reference 1).

Reason for Supplement

Additional actions were required to restore/maintain the completed status of ITAAC Item X.X.X following the submittal of ITAAC Closure Letter {number/date and ADAMS accession number} (Reference 4) due to {brief description of activity/event that created condition requiring additional actions such as; corrective maintenance, engineering change implementation, or addition of components associated with ITAAC-related systems.} Include additional discussion specifically stating the reason for the supplement, such as post work verification (PWV) differs significantly from the original ITA performed.

ITAAC Statement

Design Commitment
{The design commitment for the applicable ITAAC should be quoted directly from the source. Do not paraphrase the Design Commitment.}

Inspection/Test/Analysis
{The inspection/test/analysis (ITA) for the applicable ITAAC should be quoted directly from the source. Do not paraphrase the inspection/test/analysis.}

Acceptance Criteria
{The acceptance criteria for the ITAAC should be quoted directly from the source letter. Do not paraphrase the acceptance criteria.}

Supplemental ITAAC Determination Basis

This section should summarize the basis for concluding that the acceptance criteria remain met. For example, 1) briefly summarize the PWV that differed from the original ITA and the basis for concluding that the acceptance criteria remain met, or 2) briefly summarize the ITAAC determination basis for new components or replacement components that differ from the original.

It should be written in an active voice, and consist of sufficient information to enable a person familiar with technical/engineering concepts to understand the bases underlying the conclusion established by the licensee regarding the updated ITAAC determination basis and successful ITAAC completion restoration or maintenance.

In addition, the records (Tests, Reports, Completed Procedures, Completed Analyses, etc.) that form the ITAAC supplemental determination basis must be referenced and available for NRC inspection. A closing statement confirming that ITAAC completion has been maintained should be included.

Associated ITAAC Findings

In accordance with plant procedures for ITAAC completion, the licensee will perform a review of all ITAAC findings pertaining to the subject ITAAC to determine that associated corrective actions were completed. The Supplemental ITAAC Closure Letter will list all relevant ITAAC findings and state that all corrective actions have been completed. ITAAC completion reviews will be documented in ITAAC Completion Packages and available for NRC inspection. Any ITAAC Finding related to the subject ITAAC should be listed as follows:

ITAAC Finding(s) related to this ITAAC Supplemental Closure Letter:

1. {ITAAC finding #1}
2. {ITAAC finding #2}
3. {ITAAC finding #3}

Supplemental ITAAC Closure Letters should state, "The corrective actions for each finding have been completed and thus the completed status of this ITAAC is maintained."

Alternatively, the text above can be changed to indicate that "There are no NRC findings related to this ITAAC".

ITAAC Completion Maintained Statement

Based on the above information, {Licensee Name} hereby notifies the NRC that the completed status of ITAAC X.X.X for {Site Name and Unit #(s)} has been maintained, and that the prescribed acceptance criteria continue to be met.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References
1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52

2. {Test/inspection record(s), report, completed procedure, analysis, etc., that form the supplemental ITAAC determination basis}
3. {ITAAC X.X.X Completion Package}
4. Original ITAAC Closure Letter {number/date and ADAMS accession number}

APPENDIX I2 - EXAMPLE SUPPLEMENTAL ITAAC CLOSURE LETTER ABWR ITAAC 5.0-1.5

XX/YY/ZZZZ (Date)
To: NRC
From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Supplement for ABWR ITAAC 5.0-1.5 Completion

The purpose of this letter is to provide the Nuclear Regulatory Commission (NRC) with supplemental information regarding the completion status of {Site Name and Unit #(s)} Inspection, Test, Analysis and Acceptance Criteria (ITAAC) Item 5.0-1.5 for Protected Area Illumination (Site Security). This notification is being provided in accordance with ~~52.99(TBD) and~~ NEI 08-01 (Reference 1).

Reason for Supplement

Additional actions were required to restore the completed status of ITAAC Item 5.0-1.5 following the submittal of ITAAC Closure Letter {number/date and ADAMS accession number} (Reference 5) due to installation of a new storage facility within the isolation zone which creates areas with less than the minimum required ITAAC acceptance criteria for illumination. One additional light has been added and illumination levels have been verified to meet the ITAAC acceptance criteria.

ITAAC Statement

Design Commitment
Isolation zones and exterior areas within the protected area are provided with illumination to permit observation of abnormal presence or activity of persons or vehicles.

Inspection/Test/Analysis
Inspection of the illumination in the isolation zones and external areas of the protected area will be performed to confirm sufficient illumination to permit observation.

Acceptance Criteria
A report exists and concludes that illumination in isolation zones and exterior areas within the protected area is 0.2 foot candles measured horizontally at ground level or, alternatively, sufficient to permit observation.

Supplemental ITAAC Determination Basis

After the original closure of ITAAC 5.0-1.5, a new storage facility was installed within the isolation zone which created areas with less than the minimum ITAAC acceptance criteria illumination. One additional light has been added to increase illumination in the area shadowed by the new facility which does constitute the addition of an SSC. A partial test {test document number and title} dated XX/YY/ZZ (Reference 2) has been performed for the affected area in the same manner as the original test after installation of the additional light. An additional report, {report document number and title} dated XX/YY/ZZ (Reference 3), has been generated concluding that the acceptance criteria of 0.2 foot candles

measured horizontally at ground level for ITAAC item 5.0-1.5 is met in the affected area. The ITAAC 5.0-1.5 Completion Package (Reference 4) has been updated to include these activities. This maintains the completed status of ITAAC 5.0-1.5.

Associated ITAAC Findings

ITAAC Findings related to this ITAAC Supplemental Closure:

1. {ITAAC finding #1}
2. {ITAAC finding #2}

The corrective actions for each finding have been completed and thus the completed status of this ITAAC is maintained.

ITAAC Completion Maintained Statement

Based on the above information, {Licensee Name} hereby notifies the NRC that the completed status of ITAAC 5.0-1.5 for {Site Name and Unit #(s)} has been maintained, and that the prescribed acceptance criteria continue to be met.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. {Illumination Test document number, title, and completion date}
3. {Illumination Report document number, title, and completion date}
4. ITAAC 5.0-1.5 Completion Package
5. Original ITAAC Closure Letter {number/date and ADAMS accession number}

APPENDIX I3 - EXAMPLE SUPPLEMENTAL ITAAC CLOSURE LETTER ABWR ITAAC 2.15.6.9

XX/YY/ZZZZ (Date)
To: NRC
From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Supplement for ABWR ITAAC 2.15.6.9 Completion

The purpose of this letter is to provide the Nuclear Regulatory Commission (NRC) with supplemental information regarding the completion status of {Site Name and Unit #(s)} Inspection, Test, Analysis and Acceptance Criteria (ITAAC) Item 2.15.6.9 for a Fire Hazards Report. This notification is being provided in accordance with ~~52.99(TBD) and~~ NEI 08-01 (Reference 1).

Reason for Supplement

Additional actions were required to maintain the completed status of ITAAC Item 2.15.6.9 following the submittal of ITAAC Closure Letter {number/date and ADAMS accession number} (Reference 5) due to identification of a postulated fire scenario that was not previously considered in the Fire Hazards Report**.** The Fire Hazards Report has been revised and verified to be complete and accurate.

ITAAC Statement

Design Commitment
A plant fire hazards analysis considers potential fire hazards and assesses the effects of postulated fire on the ability to shutdown the reactor and to maintain the reactor in a safe, cold shutdown condition. Each postulated fire is documented in a Fire Hazards Report.

Inspection/Test/Analysis
Inspections of the Fire Hazards Report will be conducted.

Acceptance Criteria
A Fire Hazards Report exists for the as-built plant and concludes that for each postulated fire, the plant can be shutdown and maintained in a safe, cold shutdown condition.

Supplemental ITAAC Determination Basis

After the original closure of ITAAC 2.15.6.9, a postulated fire scenario was identified that was not previously considered. This additional fire scenario has been analyzed in {analysis document number and title} dated XX/YY/ZZ (Reference 2) in the same manner as the original fire scenarios. A revised Fire Hazards Report, {report document number and title} dated XX/YY/ZZ (Reference 3), has been generated concluding that the acceptance criteria of ITAAC 2.15.6.9 continues to be met. The ITAAC 2.15.6.9 Completion Package (Reference 4) has been updated to include this additional analysis. This maintains ITAAC 2.15.6.9 in a completed status.

Associated ITAAC Findings

ITAAC Findings related to this ITAAC Supplemental Closure Letter:

1. {ITAAC finding #1}
2. {ITAAC finding #2}

The corrective actions for each finding have been completed and thus the completed status of this ITAAC is maintained.

ITAAC Completion Maintained Statement

Based on the above information, {Licensee Name} hereby notifies the NRC that the completed status of ITAAC 2.15.6.9 for {Site Name and Unit #(s)} is maintained, and that the prescribed acceptance criteria continue to be met.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. {Fire scenario analysis document number, title, and completion date}
3. {Fire Hazards Report document number, title, and completion date}
4. ITAAC 2.15.6.9 Completion Package
5. Original ITAAC Closure Letter {number/date and ADAMS accession number}

APPENDIX I4 - EXAMPLE SUPPLEMENTAL ITAAC CLOSURE LETTER AP1000 ITAAC 2.1.1 ITEM 4

XX/YY/ZZZZ (Date)
To: NRC
From: {Name of Licensee}
{Site Name and Unit #(s)}
{Docket #(s)}

Subject: Supplement for AP1000 ITAAC 2.1.1 ITEM 4 Completion

The purpose of this letter is to provide the Nuclear Regulatory Commission (NRC) with supplemental information regarding the completion status of {Site Name and Unit #(s)} Inspection, Test, Analysis and Acceptance Criteria (ITAAC) 2.1.1 item 4 for the Refueling Machine (RM) and Fuel Handling Machine (FHM) gripper assemblies. This notification is being provided in accordance with ~~52.99(TBD) and in~~ NEI 08-01 (Reference 1).

Reason for Supplement

Additional actions were required to restore the completed status of ITAAC 2.1.1 item 4 following the submittal of ITAAC Closure Letter {number/date and ADAMS accession number} (Reference 5) due to a plant modification to the Refueling Machine control circuitry that had the potential to impact the gripper interlock**.** Additional testing has been performed after completion of the modification to verify the ITAAC acceptance criteria remains satisfied for the Refueling Machine gripper.

ITAAC Statement

Design Commitment
The RM and FHM/spent fuel handling tool (SFHT) gripper assemblies are designed to prevent opening while the weight of the fuel assembly is suspended from the gripper.

Inspection/Test/Analysis
The RM and FHM/SFHT gripper assemblies will be tested by operating the open controls of the gripper while suspending a dummy fuel assembly.

Acceptance Criteria
The RM and FHM/SFHT gripper assemblies gripper will not open while suspending a dummy test assembly.

Supplemental ITAAC Determination Basis

After the original closure of ITAAC 2.1.1 item 4, Engineering Change 0123456 (Reference 2) was performed to correct a deficiency with the Refueling Machine (RM) control circuitry. The deficiency with the control circuit was not related to the gripper interlock function but the modification had the potential to impact the gripper interlock. Based on this potential, a partial APP-XX-YYY-## dated XX/YY/ZZ (Reference 3) was completed. During this test a dummy fuel assembly was lifted by the RM to a sufficient height to be fully suspended. At this height the open controls for the RM grippers were

exercised for releasing the fuel assembly. The grippers did not open verifying that ITAAC 2.1.1 item 4 acceptance criteria for the RM remains satisfied. The ITAAC 2.1.1 item 4 Completion Package (Reference 4) has been updated to include this additional testing. This maintains the completed status of ITAAC 2.1.1 Item 4.

Associated ITAAC Findings

ITAAC Findings related to this ITAAC Supplemental Closure Letter:

1. {ITAAC finding #1}
2. {ITAAC finding #2}

The corrective actions for each finding have been completed and thus the completed status of this ITAAC is maintained.

ITAAC Completion Maintained Statement

Based on the above information, {Licensee Name} hereby notifies the NRC that the completed status of ITAAC 2.1.1 item 4 for {Site Name and Unit #(s)} is maintained, and that the prescribed acceptance criteria continue to be met.

If there are any questions, please contact {Name of Contact Person for licensee} at {Telephone Number for Contact Person}.

Sincerely,

{Signature of Licensee Representative}
{Typed Name of Licensee Representative}
{Title of Licensee Representative}

References

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. Engineering Change 0123456, Refueling Machine Control Circuit Modification, completed on XX/YY/ZZ.
3. Partial APP-XX-YYY-###, ITAAC 2.1.1 item 4 Refueling Machine and Fuel Handling Machine Grippers Test Procedure, completed on XX/YY/ZZ
4. ITAAC 2.1.1 item 4 Completion Package
5. Original ITAAC Closure Letter {number/date and ADAMS accession number}

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