

NEI 08-01 [Draft Revision 5]

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

February 2012

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Nuclear Energy Institute

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EXECUTIVE SUMMARY

NEI 08-01, *Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52*, Revision 5, 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 2007-2012 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 Notifications in support of the final ITAAC finding required by 10 CFR 52.103(g) that all ITAAC are met. NRC is expected to publish RG 1.215, Revision 1, endorsing NEI 08-01, Revision 4, in May 2012. Revision 5 reflects pending new requirements related to ITAAC Maintenance, lessons learned from simulated ITAAC implementation, and other enhancements, and is expected to be endorsed in a future revision of RG 1.215.

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. NRC endorsement of ITAAC maintenance guidance contained in NEI 08-01, Revision 4, is pending.

NRC requirements in 10 CFR 52.99 for ITAAC Closure Notifications were promulgated in 2007 (72 FR 49352), and requirements for supplemental post-closure ITAAC notifications were added to Section 52.99 in 2012 (77 FR XXXXX).

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. See 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 Notifications
- Guidance for ITAAC Closure Notification content
- Guidance for the 225-day notifications regarding uncompleted ITAAC
- Guidance for post-closure maintenance of ITAAC conclusions and thresholds for submittal of Supplemental ITAAC Closure Notifications
- Guidance on topics related to ITAAC closure and maintenance

2 DEFINITIONS¹

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 Notification is the letter the licensee sends the NRC in accordance with 10 CFR 52.99(c)(4) to confirm that all inspections, tests, and analyses have been performed; all acceptance criteria are 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 Report is a narrative provided in the ITAAC completion package describing how the licensee determined that the ITAAC acceptance criteria are met. This report will be summarized in the ITAAC Closure Notification.

Inspect or inspection means visual observations, physical examinations, or review of records based on visual observation or physical examination that compare the SSC condition to one or more design commitments. Examples include walkdowns, configuration checks, measurements of dimensions, or non-destructive examinations

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.

(NDEs). The terms, inspect and inspection, also apply to the review of Emergency Planning ITAAC requirements to determine whether ITAAC acceptance criteria are met.

Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) are those inspections, tests, analyses, and acceptance criteria identified in the combined license that if met by the licensee are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will operate in conformity with the license, the provisions of the Atomic Energy Act, as amended, and the Commission's rules and regulations. [IMC-2506]

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

ITAAC Closure Notification (previously known as ITAAC Closure Letter) 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 Completion Plan (also known as ITAAC Closure Plan) refers to the plans that licensees may develop for execution and documentation of each ITAAC, including the methods to be used to perform required inspections, tests and analyses, and the documentation necessary to demonstrate that specified acceptance criteria are met.

ITAAC Determination Basis is the information provided in the ITAAC Closure Notification 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 technical finding (i.e., not a programmatic finding) that is associated with a specific ITAAC and is material to the ITAAC acceptance criteria. [IMC-2506]

ITAAC Post-Closure Notification (also known as Supplemental ITAAC Closure Notification) is the letter the licensee sends in accordance with 10 CFR 52.99(c)(2) to notify the NRC of new information that materially alters the bases for determining that either inspections, tests, or analyses were performed as required, or that acceptance criteria are met. The letter should identify what changed, why the change occurred and the basis for concluding that closure of the ITAAC remains valid.

Principal Closure Documents are documents cited in the ITAAC Determination Basis and directly support the conclusion that acceptance criteria are 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.

Uncompleted ITAAC Notification (also known as 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.

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(a)], 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. 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.

Among the areas expected to be inspected as part of EDV are applicant/licensee design control programs used to ensure that procurement and construction documents reflect risk insights and key assumptions of the plant design. Rather than perform duplicate inspections, the NRC staff is expected to credit applicable portions of EDV inspection results for verification of Design Reliability Assurance Program (D-RAP) ITAAC closure, performing supplemental D-RAP inspection(s) as necessary. The wording of D-RAP ITAAC varies across design centers, as will the EDV inspection plans of NRC. As such, licensees should discuss plans for documenting completion of D-RAP ITAAC with the NRC staff in advance to align expectations concerning D-RAP ITAAC closure and EDV inspection planning.

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. For example, licensees apply QAP requirements in a selected manner to non-safety-related SSCs and related activities that are significant contributors to plant safety. 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. Licensee and vendor processes and planning to support ITAAC execution, such as development of ITAAC Completion Plans as discussed in Section 5.1.2, need not be performed 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 Finding. Based on the resolution of the ITAAC Finding, 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 generally 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, SECY-08-0117, 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 Physical Security ITAAC will be inspected. The decision to inspect all Emergency Planning and Physical Security ITAAC was based on the high relative importance and small number of these ITAAC.

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 Notifications for such ITAAC would not be submitted to the NRC until after the component/module is installed in its final location. A Closure Notification 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. Additional guidance concerning ITAAC performed at other than the final installed location is provided in Section 9.

The licensee is responsible for notifying the NRC when a completed ITAAC is ready for verification by the NRC. Before the licensee submits an ITAAC Closure Notification to NRC under Section 52.99(c)(1), it will have resolved any identified ITAAC Findings that would otherwise preclude NRC Staff from determining that the ITAAC are 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 Notifications 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 Notifications and review NRC inspection records to confirm that any associated ITAAC Findings 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 inspections have 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)(1). These notices are published in the *Federal Register*.

The NRC will make publicly available the licensee notifications submitted under Section 52.99(c). See 10 CFR 52.99(e)(2). If the NRC determines after an ITAAC Closure Notification has been submitted that an ITAAC was, in fact, not met, the licensee would be subject to an ITAAC Finding. In determining the significance of an ITAAC Finding, the NRC should weigh the circumstances that led to the submittal of information later found to be incorrect.

After an ITAAC Closure Notification is submitted, licensees must maintain the validity of ITAAC conclusions in support of the Section 52.103(g) finding that the acceptance criteria in the COL are met. In accordance with Section 52.99(c)(2), supplemental post-closure ITAAC notifications are submitted when the licensee identifies new information that materially alters the bases for determining that ITAAC are met. The process for determining whether such issues require NRC notification is discussed in Section 8.2 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) Licensee schedule for completing inspections, tests, or analyses. 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

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).

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 are 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) Licensee and applicant conduct of activities subject to ITAAC. 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 are met.

(c)(1) Licensee notifications. ITAAC closure notification. The licensee shall notify the NRC that the prescribed inspections, tests, and analyses have been performed and that the prescribed acceptance criteria are 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 are met.

(c)(2) ITAAC post-closure notifications. Following the licensee's ITAAC closure notifications under paragraph (c)(1) of this section until the Commission makes the finding under 10 CFR 52.103(g), the licensee shall notify the NRC, in a timely manner, of new information that materially alters the bases for determining that either inspections, tests, or analyses were performed as required, or that acceptance criteria are met. The notification must contain sufficient information to demonstrate that, notwithstanding the new information, the prescribed inspections, tests, or analyses have been performed as required, and the prescribed acceptance criteria are met.

(c)(3) Uncompleted ITAAC notification. 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 are met.

(c)(4) All ITAAC complete notification. The licensee shall notify the NRC that all ITAAC are complete.

Section 52.99(c) specifies 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 are 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 are 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.

Following submittal of ITAAC Closure Notifications, Section 52.99(c)(2) requires licensees to submit supplemental ITAAC notifications to formally notify NRC when new information is identified that materially alters the ITAAC Determination Basis summarized in the initial ITAAC Closure Notification, and to assure a complete and accurate public record of information pertinent to ITAAC closure.

The notification must contain sufficient information to demonstrate that, notwithstanding the new information, the prescribed inspections, tests, or analyses have been performed as required, and the prescribed acceptance criteria continue to be met. Like ITAAC Closure Notifications, supplemental notifications under Section 52.99(c)(2) will be made publically available in accordance with Section 52.99(e)(2). Thresholds for determining when a Supplemental ITAAC Closure Notification should be submitted to the NRC are discussed in Section 8.2.

Records related to ITAAC closure and maintenance, including the results of evaluations to determine if conditions warrant a Supplemental ITAAC Closure Notification under Section 52.99(c)(2), should be retained in accordance with the licensee's QAP.

Section 52.99(c)(3) 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)(3) differs somewhat from 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)(3) "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 its 2007 amendment of 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)(3)], 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)(3) 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)(3). 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)(3) notification, as 52.99(c)(3) does not relieve the licensee from the requirements of 52.99(c)(1) during this late period of construction.

Section 52.99(c)(4) requires licensees to formally notify the NRC when all ITAAC are complete. The purpose of this letter is to confirm that all ITAAC have been performed, all acceptance criteria are 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. Additional guidance related to the “All ITAAC Complete Notification” is provided in Section 8.3.

(d)(1) Licensee determination of noncompliance with ITAAC. 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) NRC inspection, publication of notices, and availability of licensee notifications. The NRC shall ensure that the prescribed inspections, tests, and analyses in the ITAAC are performed.

(e)(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.

(e)(2) The NRC shall make publicly available the licensee notifications under paragraph (c) of this section. The NRC shall make publicly available the licensee notifications under paragraphs (c)(1), (c)(2) and (3) of this section no later than the date of publication of the notice of intended operation required by 10 CFR 52.103(a).

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). Regarding the latter provision, the 2012 Part 52 final rule Supplementary Information states: "In general, the NRC expects to make the paragraph (c) notifications available shortly after the NRC has received the notifications and concluded that they are complete." 76 Fed. Reg. 27,928. In addition, the rule requires NRC to make publicly available all of the notifications received under 52.99(c)(1-3) no later than the date of the notice of intended operation required by 10 CFR 52.103(a).

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 licensee notifications of completed ITAAC and, as necessary, continue to conduct audits or inspections of the facility and the licensee's records.

As discussed in the previous sections, licensees must maintain the validity of ITAAC conclusions in support of the Section 52.103(g) finding that the acceptance criteria in the COL are met. Section 52.99(c)(2) requires licensees to submit supplemental post-closure ITAAC notifications when new information is identified that materially alters the bases summarized in the Section 52.99(c)(1) notification for determining that ITAAC are met. The process for determining whether such issues require submittal to NRC of a supplemental ITAAC Closure Notification is discussed in Section 8.2 of this document.

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, licensees must submit the All ITAAC Complete Notification required by Section 52.99(c)(4). The purpose of this letter is to affirm that all ITAAC are met and that ITAAC

conclusions stated in individual ITAAC Closure Notifications are being maintained. Additional discussion of the All ITAAC Complete Notification is provided in Section 8.3, and a template for the All ITAAC Complete Notification 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 are 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 example, a Design Acceptance Criteria (DAC) ITAAC 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 ITAAC when a combined license is issued, if the combined license applicant demonstrates that the DAC have been successfully resolved.

3.2.4 Certain ITAAC-Related Changes Require a License Amendment

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

NRC makes the Section 52.103(g) finding that the acceptance criteria in the combined license are met. During this period, the licensee must evaluate ITAAC-related facility changes to ensure the changes are consistent with the associated 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 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 ITAAC requirements, a license amendment request would be necessary.
- b. If a proposed design change would cause original ITAAC requirements to no longer be met, a license amendment request would be necessary (e.g., an engineering change results in the need for different acceptance criteria).
- c. If a proposed design change requires additional ITAAC, a license amendment request would be necessary.

If new ITAAC requirements are approved in connection with such license amendments, the licensee would submit a new ITAAC Closure Notification in accordance with Section 52.99.

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 the 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)(3) 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. See Section 52.103(c). This provision to authorize interim operation during resolution of contested hearing issues and issuance of NRC

findings under Section 52.103(g) is based on Section 189.a.(1)(B)(iii) of the Atomic Energy Act of 1954, as amended.

If the NRC staff agrees with the representation in the licensee's "All ITAAC Complete" letter, it will make a recommendation to the Commission regarding the Section 52.103(g) finding that all ITAAC are met. To facilitate this staff recommendation, the licensee needs to ensure that all ITAAC were verified by the staff to be met at one time, and that the ITAAC determination bases have been maintained and 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 8.2 requiring a Supplemental ITAAC Closure Notification. 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 (assuming that the NRC is ready to make the necessary "are met" finding for all other acceptance criteria). Provided the licensee has satisfied other applicable license conditions and technical specifications, issuance of the required finding that all acceptance criteria are met would allow the licensee to 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.

To facilitate planning, tracking and communication, the schedule information for ITAAC-related activities provided to the NRC should uniquely identify all ITAAC for the project, including design certification and plant-specific ITAAC. 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 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 9.1 – 9.6. 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 NOTIFICATIONS

ITAAC Closure Notifications notify the NRC that specific ITAAC have been completed. (The role of these notifications in the regulatory process is discussed in Section 3, above.) The licensee’s process for executing and documenting that ITAAC are met is described in this section. Additional information describing common processes used by licensees to perform ITAAC activities is provided in Appendix C to this document.

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

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 Completion Plans for each ITAAC;
- Executing the ITAAC Completion Plan;
- Compiling and maintaining the documentation required for each ITAAC completion package;
- Developing the ITAAC Closure Notification for each ITAAC; and
- Developing the 225-day notification letter(s), where applicable.

The licensee may delegate the responsibility for establishing and executing the ITAAC Completion Plan, including compiling and maintaining the documentation required for ITAAC completion packages.

5.1.2 ITAAC Completion Plan

The licensee and its vendors (e.g., reactor vendor, constructor, balance of plant designer, etc.) should establish a Completion Plan for each ITAAC, including:

- The activities to be conducted to perform the required inspections, tests, and analyses, and demonstrate that acceptance criteria are met; and
- The documentation to be compiled into the ITAAC Completion Package including Principal Closure Documents to be referenced in the ITAAC Determination Basis provided in the ITAAC Closure Notification.

Licensees may choose to include other information, e.g., preliminary ITAAC Determination Basis, in ITAAC Completion Plans to facilitate the ITAAC completion process. Licensees may also want to discuss or share the Completion Plan, including the expected content of ITAAC Completion Packages, with the NRC to support effective inspection planning and alignment of expectations concerning ITAAC closure.

5.1.3 ITAAC Completion Package

The ITAAC Completion Plan should specify the expected contents of the ITAAC Completion Package that provide the technical basis for the licensee's submittals under Section 52.99(c). The ITAAC Completion Package documents how the licensee's activities related to the ITAAC acceptance criteria were accomplished.

Documents referenced in the ITAAC Determination Basis of the ITAAC Closure Notification should be listed in the ITAAC Completion Package. A determination report should also be provided in the ITAAC Completion Package to document how the licensee determined that the acceptance criteria are met. The Determination Report provides the basis for the ITAAC Closure Notification. If a Technical Justification is necessary per Section 9.7 of this document for an ITAAC inspection, test or analysis (ITA) performed for an SSC at other than its final installed location, the Technical Justification should be provided in the Determination Report.

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 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 finding, including the final resolution of these findings.

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. The construction schedule may identify ITAAC-related activities to ensure that ITAAC-related information is flagged and sent to the ITAAC Completion Team.

The documents listed in the ITAAC Completion Package should be carefully reviewed to 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.

Documentation necessary to support the conclusion that ITAAC are met, including the results of evaluations that determine that conditions warrant a Supplemental ITAAC Closure Letter under Section 52.99(c)(2), should be available on-site to permit the licensee to develop the ITAAC closure notification, and to facilitate NRC ITAAC inspection. Results of screenings/evaluations that conclude that a Supplemental ITAAC Closure Notification under Section 52.99(c)(2) is *not* required should be documented in accordance with the licensee's QAP. 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, personnel training records or fabrication records) may be available at locations other than the site. The ITAAC Completion Package should indicate where such information may be inspected or audited, if necessary. ITAAC Completion Packages containing records related to ITAAC closure and maintenance should be maintained in accordance with the licensee's QAP.

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. Licensees should ensure that documentation contained in ITAAC Completion Packages is available to support efficient NRC target ITAAC inspections.

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.

5.2 SUGGESTED FORMAT FOR ITAAC COMPLETION PACKAGES

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 9.7) for ITA performed at other than final installed location, ITAAC Finding Review, and ITAAC Completion statement to be included in the ITAAC Closure Notification.
4. List of ITAAC 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 Closure Documents (Engineering Reports, ASME Code Reports, Completed Procedures, Completed Inspection Reports, etc.).
7. ITAAC Closure Notification.
8. Supplemental ITAAC Closure Notification(s), 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 NOTIFICATIONS

The information contained in the ITAAC Closure Notifications plays an important role in the NRC ITAAC hearing process. The Closure Notifications mandated by 10 CFR 52.99(c)(1) must include sufficient information so that interested persons will have 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 generic template for a standard ITAAC Closure Notification format that should be used by all applicants. The template is provided in Appendix D-1 to this document.

The Section 52.99 notifications 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 are 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 are 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 promotes general consistency for all ITAAC Closure Notifications, 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 examples are intended to illustrate use of the generic template and reinforce the guidance of NEI 08-01. In developing a specific ITAAC Closure Notification, licensees should consider the example(s) provided that are most similar or relevant and ensure that plant-specific information is reflected as appropriate. Where none of the examples is similar to the required ITAAC Closure Notification, the examples provide a guide with respect to the level of detail generally expected to be provided.

The Appendix D-1 template provides for including the following in the ITAAC Closure Notifications:

- 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 Findings – NRC findings material to the specific ITAAC with an indication of closure of the findings
- ITAAC Completion Statement – confirmation that the ITAAC has been closed
- List of References – Principal Closure Documents referenced in the ITAAC Determination Basis and available for NRC review at the site

The ITAAC Closure Notification provides the basis for the licensee's conclusion that ITAAC acceptance criteria are 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.").

Licensees may submit multiple ITAAC closure notifications with a single (e.g., periodic) transmittal to NRC.

Licensees should, to the extent possible, exclude from ITAAC closure notifications sensitive or proprietary information that would otherwise be withheld under 10 CFR 2.390. If it is necessary to include such information, both public and non-public versions of the notification should be submitted.

When ITAAC have distinct, individual acceptance criteria for which licensees can demonstrate satisfaction earlier rather than waiting for closure of the entire ITAAC, they may submit those completed portions early. These partial submittals would follow the same format as the 10 CFR 52.99(c)(1) notifications and should identify what has been completed and what has not been completed. The partial submittals will not close the entire ITAAC but instead will lessen the burden of verifying ITAAC that have been completed over a long period of time. Each partial submittal of a complex ITAAC should describe relevant ITAAC completion activities performed to date and reference any previous partial submittals submitted to the NRC. The final closure notification should be a stand-alone 10 CFR 52.99(c)(1) notification that comprises the information previously submitted in the partial closure notifications.

7 GUIDANCE ON SUFFICIENT INFORMATION FOR THE UNCOMPLETED ITAAC NOTIFICATION

As explained in Section 3.2.1 of this document, the licensee is required under 10 CFR 52.99(c)(3) to notify the NRC no later than 225-days prior to scheduled fuel load regarding the status of any uncompleted ITAAC. The 225-day Uncompleted ITAAC Notification(s) 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 Notification submitted under 10 CFR 52.99(c)(1) in terms of the level of technical detail required to describe ITAAC completion activities. The 225-day notification mandated by 10 CFR 52.99(c)(3) must include sufficient information so that interested persons will have 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.* Description of the specific procedures and methods that will be used for performing the inspections, tests, and analyses and determining that the prescribed acceptance criteria are met provides sufficient information, in accordance with Section 52.99(c)(3), to demonstrate that the ITA will be performed and the AC for the uncompleted ITAAC will be met.

Licensees are required to submit Section 52.99(c)(1) ITAAC Closure Notifications for the ITAAC covered by the Section 52.99(c)(3) notification, and the notifications are made publicly available by the NRC. These notifications, together with the “All ITAAC Complete” notification required by Section 52.99(c)(4), provide confirmation that all ITAAC were successfully completed.

The target reader for the 225-day notification is the same as described in Section 6 of this document, i.e., someone who is appropriately informed about and familiar with applicable NRC regulations, licensing requirements and technical and/or engineering concepts related to ITAAC.

The 225-day notification will describe plans for completing multiple ITAAC. Therefore, the licensee may provide a signed cover letter explaining the purpose of the notification that will include one or more attachments covering the uncompleted ITAAC. 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 Notifications, the industry has developed generic 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 for ITAAC-specific attachments, 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 Notification review discussed in Section 6.

The example ITAAC-specific attachments in Appendix E will describe *prospectively* the ITAAC closure activities to be completed and described in ITAAC Closure Notifications. Because both the 225 day letter(s) and ITAAC Closure Notifications require a similar description of ITAAC completion activities (one prospectively, the other after the fact), licensees may refer to the ITAAC Closure Notification examples in Appendix D for guidance on the level of detail to include in 225 day letter(s). As with developing ITAAC Closure Notifications, licensees should consider the example(s) provided that are most similar or relevant and ensure that plant-specific information is reflected as appropriate.

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.
- ITAAC Completion Description – similar to the Determination Basis in an ITAAC Closure Notification; describes the methodology to be used in performing the ITA to obtain results that demonstrate that the Acceptance Criteria are met.
- List of references – primary references that will be available for NRC review at the site.

8 ITAAC MAINTENANCE

The licensee will complete ITAAC over an extended period. ITAAC Closure Notifications 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 Notification, significant time may

elapse before the finding is made that all 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, corrective action, 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 ITAAC determinations:

- Normal maintenance and repairs on SSCs associated with ITAAC.
- Incidents or findings (e.g., damage from other nearby construction work, or a failure to maintain training qualifications of emergency response organization personnel) that create or identify potential non-compliances or non-conformances 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.

In addition to maintaining the validity of ITAAC conclusions as described above, 10 CFR 52.99(c)(2) requires licensees to submit supplemental ITAAC notifications to formally notify NRC when new information is identified that materially alters the ITAAC Determination Bases summarized in the initial ITAAC Closure Notification, and to assure a complete and accurate public record of information pertinent to ITAAC closure. The notification must contain sufficient information to demonstrate that, notwithstanding the new information, the prescribed inspections, tests, or analyses have been performed as required, and the prescribed acceptance criteria continue to be met. 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 discussed in Section 8.2.

In addition to Section 52.99(c)(2) notifications, routine interactions such as daily meetings are important to facilitate communication with NRC Resident Inspectors regarding activities affecting closed ITAAC. As discussed in Section 8.2, licensees should use the template provided in Appendix G to identify to NRC conditions that exceed notification thresholds upon determining that such conditions exist.

8.1 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, Design/Configuration Control, and Construction/Maintenance Programs. During the ITAAC maintenance period, these 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 Corrective 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 Section 52.99(c)(2) and the guidance in Section 8.2.
- 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 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 as discussed in Section 3.2.4.

Attributes will be included to maintain ITAAC closure:

- Design Changes will be screened for impact on ITAAC, including assessment to confirm that affected ITAAC are still valid.
- The licensee will determine whether design changes require a license amendment or if NRC needs to be notified in accordance with Section 52.99(c)(2) and Section 8.2 of this document.
- ITAAC Completion Package will be supplemented as appropriate.

- Construction/Maintenance Programs

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

Attributes will be included to maintain ITAAC closure:

- Construction/Maintenance activities will be screened for impact on ITAAC.
- Post Work Verification will be performed as appropriate to maintain the validity of ITAAC conclusions.
- The licensee will determine whether NRC needs to be notified in accordance with Section 52.99(c)(2) and the guidance in Section 8.2.
- 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-40600, *Licensee Program for ITAAC 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 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.

8.2 ITAAC Post-Closure Notifications to NRC

This section provides guidance for determining when to notify the NRC in accordance with Section 52.99(c)(2) of new information that arises after the submission of an ITAAC Closure Notification.

If subsequent licensee activities materially alter statements made in the ITAAC Determination Basis summarized in the original ITAAC Closure Notification, or if the original notification is determined to contain a material error or omission, licensees should submit a Supplemental ITAAC Closure Notification to notify the NRC of the new/corrected information or conditions. Conditions that exceed the one or more of the notification thresholds below require a Supplemental ITAAC Closure Notification.

Upon determining the need to supplement an ITAAC Closure Notification, the licensee should notify the NRC Operations Center within seven days. Licensees should use Appendix G to notify the NRC of such conditions. Supplemental ITAAC Closure Notifications required by 10 CFR 52.99(c)(2) should be prepared and submitted within 30 days following (1) determination that a submitted ITAAC Closure Notification contains a material error or omission, or (2) completion of work to resolve the issue that prompted the notification. The Supplemental ITAAC Closure Notification should explain why it is being submitted (e.g., correction or new information) and contain sufficient information to demonstrate that, notwithstanding the new or corrected information, prior ITAAC conclusions remain valid and ITAAC continue to be met. A template for and examples of Supplemental ITAAC Closure Notifications are provided in Appendix I.

The term "materially alter" refers to situations in which there is information not contained in the 10 CFR 52.99(c)(1) notification that "has a natural tendency or capability to influence an agency decision maker" in either determining whether the

prescribed inspection, test, or analysis was performed as required, or finding that the prescribed acceptance criterion is met (76 Fed. Reg. 27,931).

In accordance with 10 CFR 52.99(e)(2), the NRC will make publicly available all licensee notifications provided under Section 52.99(c), including supplemental post-closure ITAAC notifications provided under Section 52.99(c)(2).

ITAAC Post-Closure Notification Thresholds:

1. *Does an ITAAC Closure Notification contain a material error or omission?* If a material error or omission is discovered in an ITAAC Closure Notification and the ITAAC continues to be met, a corrected ITAAC Closure Notification should be submitted that will replace/supersede the original ITAAC Closure Notification.

In most cases, it is not necessary to submit a separate notification to withdraw an inaccurate or incomplete ITAAC Closure Notification; submittal of a corrected ITAAC Closure Notification that explains the reasons for the new notification that replaces/supersedes the original ITAAC closure letter is sufficient. A licensee should submit a separate notification to withdraw an original ITAAC Closure Notification if it is determined that the ITAAC cannot be completed without relief from the terms of the original ITAAC. In such cases, the request to withdraw the ITAAC Closure Notification 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 Notification is submitted, a licensee should consider requesting withdrawal of the original letter prior to the next NRC *Federal Register* Notice of completed ITAAC.

2. *Post Work Verification (PWV): Will the PWV performed 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 that verifies 300 gpm flow under required conditions is performed to validate the AC. This would be an acceptable means to meet the AC, after maintenance, if completion of construction activities no longer allows flow to be measured through this valve. However, post maintenance analysis should not be used for testing convenience. This condition requires a Supplemental ITAAC Closure Notification because an engineering analysis was created to verify that stroke timing of the replacement valve is sufficient to validate the same requirements as the original ITAAC testing.
3. *Engineering Change: Will an engineering change be made 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 Notification 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.

4. *Additional Items to be Verified: 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 Notification 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.
5. *Complete and Valid ITAAC Closure Representation: Will any other 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 Notification. If the addition or correction is material to the ITAAC Determination Basis, a Supplemental ITAAC Closure Notification is required to update the ITAAC determination basis to reflect the corrected or supplemented seismic report.

Additional examples of conditions that would meet these thresholds are provided in Appendix H.

Licensees should supplement their ITAAC Closure Packages to reflect:

- A supplemental ITAAC Closure Notification submitted to the NRC
- Replacement of ITAAC-verified components
- Updates to documents referenced in the ITAAC Closure Notification.
- Supplemental information regarding post work verification (PWV) – If PWV is significantly different from the original ITAAC, the ITAAC Closure Package should be supplemented with an engineering justification that explains why the PWV is appropriate to the situation and 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.

8.3 “All ITAAC Complete Notification” 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, 10 CFR 52.99(c)(4) requires licensees to notify NRC that all ITAAC are complete. The purpose of the “All ITAAC Complete” notification is to confirm that all ITAAC have been performed, all acceptance criteria are 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 the "All ITAAC Complete" notification 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 8.2. The state of being out-of-service pending restoration in accordance with licensee programs and procedures does not necessarily invalidate prior ITAAC conclusions. Components out of service for corrective maintenance, including components associated with ITAAC, will be tracked via appropriate 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 8.2 for a Supplemental ITAAC Closure Notification, the licensee should notify the NRC within 24 hours of such a determination. Licensees should evaluate new information or conditions expeditiously to determine if a notification threshold is exceeded. Licensees should use Appendix G to notify NRC of such conditions. As identified in NEI 08-02, conditions determined to be material to a conclusion in an ITAAC Closure Notification previously submitted to the NRC should be entered into the Corrective Action Program.

The Supplemental ITAAC Closure Notification 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 8.2 notification thresholds are corrected and any associated Supplemental ITAAC Closure Notifications are received.

9 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." From Section 2, the definition of "as-built" is as follows:

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 9.1-9.6, 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 is performed at the manufacturing, fabrication or testing facility.

Customer purchase orders typically 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 functional testing. For these ITAAC, “as-built” physical properties of the completed engineered component may be determined via ITA performed in 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 9.1—9.6 below. Section 9.7 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 remain valid. If 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 Completion Package.

ITAAC Closure Notifications include a reference to NEI 08-01 as a source of guidance and generic technical justifications for ITA performed at other than the final installed location. As discussed in Section 5.1.3, the ITAAC Completion Package documents 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 regarding long lead procurement of SSCs and other early activities subject to ITAAC.

The following subsections address the various types of “as-built” ITAAC and provide guidance on when ITA may be performed at other than the final installed location.

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

9.1 Testing of “As-built” Systems

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

ITAAC for some plant designs 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.

9.2 “As-built” Structure or Component Testing

When the location of as-built ITAAC testing is not prescribed, such tests should be performed with the structure or component 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. 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 9.1 guidance for completed as-built systems.

9.3 “As-built” Inspection of Type-Tested Components

Certain ITAAC use 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). Such ITAAC may include a requirement to verify the installed component configuration in its final location at the plant site, or this verification may be accomplished by a separate ITAAC.

9.4 “As-built” Code Requirements

If ITA are performed at locations separate from the plant site in accordance with the provisions of the ASME, IEEE or other Code, it is “technically justifiable” not to repeat the ITA at the final in-plant location as long as the ITAAC acceptance criteria were met in the manufacturing, fabrication or other facility. An example of this would be non-destruction examination of ASME Code components.

9.5 “As-built” Inspections

In cases where it is 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. The licensee need not document a separate Technical Justification in the ITAAC Completion Package.

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. There are many advantages to performing inspections in a manufacturing environment versus under field construction conditions. Examples include availability of specialized inspection equipment in the manufacturing facility and better access to components for inspection, in alignment with industrial safety considerations.

9.6 “As-built” Analysis

Where the as-built ITAAC 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.

9.7 Technical Justifications for Other Tests/Inspections at Other than the Final Installed Location

Licensees may identify and perform other types of inspection/tests/analyses for as-built ITAAC at other than the final installed location, that are not discussed in Sections 9.1–9.6, above. Technical justification for performing ITA of SSCs at other than their final installed location (other than that described above) should be documented in the ITAAC Completion Package and summarized in the ITAAC Closure Notification. 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 in connection with regular licensee interactions related to ITAAC completion plans/schedules.

10 SPECIAL ITAAC CLOSURE TOPICS

10.1 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.

10.1.1 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. Closure 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 Notification to NRC). A sample ITAAC Closure Notification for DAC is provided in Appendix D-20.

10.1.2 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.

10 CFR 52.99(c)(2) ITAAC Maintenance requirements apply to DAC in the same manner as other ITAAC. A Supplemental ITAAC Closure Notification would be required in accordance with 10 CFR 52.99(c)(2) for discovery of a material error or omission in an DAC Closure Notification, just like any other ITAAC. Likewise, a material addition or correction to a Principal Closure Document for the DAC may require a Supplemental ITAAC Closure Notification.

However, post-ITAAC closure activities generally will not affect the basis for determining that the DAC is met such that NRC notification is required. Design changes controlled by the same methodology used in the initial design do not materially alter the determination that the acceptance criteria are met. Therefore, no supplemental notification would be required for such changes. If the licensee departs from the DAC methodology used, a supplemental ITAAC Closure Notification may be required. As-built ITAAC will confirm that the facility was constructed in accordance with the design verified in the DAC.

Major changes to the methodology utilized in the initial design or significant changes in the scope of the design (i.e. a new piping subsystem) would require a License Amendment Request. Submittal of such an LAR would obviate the need to submit a Supplemental ITAAC Closure Notification.

10.1.3 DAC Closure for 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 NRC 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.

10.2 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, ITAAC Closure Notifications 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 10.1.3 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 Notifications previously submitted to and accepted by the NRC for another licensee as a guide for developing their own ITAAC Closure Notifications 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.

10.3 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.

10.4 DESIGN RELIABILITY ASSURANCE PROGRAM ITAAC CLOSURE

The design reliability assurance program (D-RAP) consists of that portion of reliability assurance activities that occur prior to initial fuel load. After initial fuel load, reliability assurance activities are expected to be integrated into operational programs, including the Maintenance Rule and Quality Assurance Programs. The objective of the D-RAP is to ensure that the facility is designed and constructed consistent with the key assumptions (including reliability and availability assumptions in the PRA, when applicable) and risk insights for the SSCs within its scope. Licensees may achieve this objective by:

- (1) Applying the essential elements of D-RAP (i.e., organization, design control, procedures and instructions, records, corrective actions, and audit plans), including assurance that the list of within-scope SSCs is appropriately developed, maintained, and communicated to the appropriate organizations; and
- (2) Implementing the appropriate quality assurance (QA) controls related to design and construction (e.g., design, procurement, fabrication, construction, inspection, and testing activities) to provide control over activities affecting the quality of the within-scope SSCs, including both safety-related and non-safety-related SSCs

10.4.1 ITAAC for D-RAP

COL applications specify an ITAAC for the D-RAP to ensure that appropriate controls are applied to risk-significant SSCs early in the COL design phase. The objective is to ensure that the design bases and other requirements have been correctly translated into the detailed design documents used for procurement and construction of every D-RAP SSC. This is achieved through assurance that appropriate controls were imposed during the development of documents used for procurement and construction. Subsequent activities, including system ITAAC, are predicated on the assumption that those documents are correct.

An acceptable D-RAP ITAAC would include a design commitment that the design of RAP SSCs is consistent with the risk insights and key assumptions from probabilistic, deterministic, and other methods of analysis used to identify and quantify risk (e.g., SSC design, reliability, and availability). An analysis would demonstrate that the initial design of all required SSCs has been completed in accordance with the D-RAP. The NRC staff

considers the initial design to be complete when approved for procurement or for construction by the responsible design organization of the licensee. The acceptance criterion for the D-RAP ITAAC should ensure that the initial design of all D-RAP SSCs identified at the time of the COL issuance has been subject to the applicable reliability assurance activities of the D-RAP.

The scope of the D-RAP ITAAC is fixed when the COL is issued, and the scope of the licensee's D-RAP ITAAC Closure Notification should reflect the original scope of D-RAP as specified in the COL. Licensees may make subsequent changes to the scope of D-RAP SSCs in accordance with its D-RAP processes and should assure that appropriate controls are applied to SSCs that are added to the scope of D-RAP. However, these changes do not affect the scope of the D-RAP ITAAC or closure notification. The D-RAP ITAAC is just one element of D-RAP activities, and other NRC inspections are relied upon to provide ongoing confidence that the licensee is effectively maintaining the scope of D-RAP SSCs and performing other D-RAP activities (e.g., staff inspections to verify implementation of applicable quality controls to D-RAP SSCs). These inspections obviate the need for the D-RAP ITAAC to confirm that other essential elements of D-RAP are accomplished. Moreover, confirmation that the construction is correct and that the as-built configuration is consistent with the approved design documents is accomplished via other ITAAC.

An example D-RAP ITAAC Closure Notification is provided in Appendix D-10.

10.4.2 D-RAP ITAAC Maintenance

10 CFR 52.99(c)(2) ITAAC Maintenance requirements apply to D-RAP ITAAC in the same manner as other ITAAC. A Supplemental ITAAC Closure Notification would be required in accordance with 10 CFR 52.99(c)(2) for discovery of a material error or omission in a D-RAP ITAAC Closure Notification, just like any other ITAAC. Likewise, a material addition or correction to a Principal Closure Document for the D-RAP ITAAC may require a Supplemental ITAAC Closure Notification.

However, changes (additions or subtractions) to the scope of D-RAP SSCs, or changes affecting reliability assurance activities applied to D-RAP SSCs do not affect the D-RAP ITAAC and do not require submittal of a 10 CFR 52.99(c)(2) supplemental ITAAC closure notification. This reflects that the scope of D-RAP ITAAC is fixed at the time of COL issuance and that other NRC inspections are relied upon to provide ongoing confidence that the licensee is effectively performing other D-RAP activities, including activities performed after the D-RAP-ITAAC is closed.

10.5 FUNCTIONAL ARRANGEMENT ITAAC

The ITAAC for a given system typically contain an ITAAC to verify the proper system functional arrangement as described in the Tier 1 Design Description. Tier 1 Design Descriptions may refer to a simplified figure to indicate the functional arrangement of major components and a table that indicates the location of major components. Tier 1 Design Descriptions also identify component design or performance attributes to be

verified by ITAAC, and these Tier 1 components and attributes may be identified in additional Tier 1 tables.

Regulatory Guide 1.206 defines *Functional arrangement (for a system)* as “the physical arrangement of systems and components to provide the service for which the system is intended and that is described in the ITAAC design description and as shown in the figures.” The term is defined similarly in Tier 1 documents of current and pending design certifications. (For the ABWR, verification of system functional arrangement is part of the Basic Configuration ITAAC.)

The purpose of the system Functional Arrangement ITAAC, and the associated ITAAC Closure Notification, is to verify and document that the as-built system components conform to the Tier 1 Design Description, that is, (1) that components are physically arranged as shown in any referenced figure, and located as identified in any referenced table; and (2) that system components identified in the Tier 1 Design Descriptions are installed. The capability to perform required system safety functions described in the Tier 1 Design Description is verified by other ITAAC, which are the subject of separate ITAAC Closure Notifications. It is expected that licensees will use detailed construction drawings during walkdown inspections to verify the functional arrangement of specified as-built components. These inspections may be performed any time after construction is completed to the extent that all Tier 1 components within the scope of the ITAAC are installed.

Some system Functional Arrangement ITAAC do not refer to simplified figures or tables. For these Functional Arrangement ITAAC, it is sufficient for ITAAC Closure Notifications to state that inspections were performed and confirmed that the system is installed consistent with the Tier 1 Design Description. As with other systems, the capability to perform required system safety functions described in the Tier 1 Design Description is verified by other ITAAC.

Tier 1 may also include functional (or physical) arrangement ITAAC for structures. Similar to system Functional Arrangement ITAAC, the purpose of structural Functional/Physical Arrangement ITAAC is to verify the physical arrangement of structures and structural elements as depicted on any referenced figures, and as identified in any referenced tables. In addition to physical arrangement, structural functional/physical arrangement ITAAC may verify other design attributes, such as the dimensions of structural elements (e.g., wall or floor thickness).

An example Functional Arrangement ITAAC Closure Notification is provided in Appendix D-XX for systems, and Appendix D-19 for structures.

10.6 REFERENCE ITAAC

Some design control documents contain “Reference ITAAC,” which are ITAAC that have an entry in the “Design Commitment” column in the DCD, but the “Inspections, Tests, Analyses” and “Acceptance Criteria” fields contain only a reference to another ITAAC. Completion of

these Reference ITAAC is accomplished when the referenced ITAAC are completed. When referenced ITAAC are completed and the Reference ITAAC is ready to be closed, the licensee should submit an ITAAC Closure Notification that briefly describes the referenced ITAAC, and lists their ITAAC Closure Notification(s) as references.

11 ACRONYMS

AC – Acceptance Criteria
ASME — American Society of Mechanical Engineers
CAMS – Containment Atmospheric Monitoring System
CAP – Corrective Action Program
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
GDSCS – Gravity Driven Cooling System
HFE — Human Factors Engineering
IDB – ITAAC Determination Bases
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
RM – Refueling Machine
SSC — Structure, System or Component

APPENDIX A – EXCERPTS FROM 10 CFR PART 52

10 CFR 52.99, INSPECTION DURING CONSTRUCTION (TEXT BELOW REFLECTS PENDING CHANGES EXPECTED TO TAKE EFFECT IN 2012)

(a) Licensee schedule for completing inspections, tests or analyses. 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 at 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) Licensee and applicant conduct of activities subject to ITAAC. 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 preoperational activities, even though the NRC may not have found that any one of the prescribed acceptance criteria are met.

(c) Licensee notifications and documentation.

(1) ITAAC closure notification. The licensee shall notify the NRC that prescribed inspections, tests, and analyses have been performed and that the prescribed acceptance criteria are 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 are met.

(2) ITAAC post-closure notifications. Following the licensee's ITAAC closure notifications under paragraph (c)(1) of this section until the Commission makes the finding under 10 CFR 52.103(g), the licensee shall notify the NRC, in a timely manner, of new information that materially alters the bases for determining that either inspections, tests, or analyses were performed as required, or that acceptance criteria are met. The notification must contain sufficient information to demonstrate that, notwithstanding the new information, the prescribed inspections, test, or analyses have been performed as required, and the prescribed acceptance criteria are met.

(3) Uncompleted ITAAC notification. 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 are met.

(4) All ITAAC Complete Notification. The licensee shall notify the NRC that all ITAAC are complete.

(d) Licensee determination of non-compliance with ITAAC.

(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 prescribed acceptance criteria are 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 10 CFR 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 prescribed acceptance criteria are met, the licensee may take corrective actions to successfully complete that ITAAC or request a license amendment under 10 CFR 52.98(f).

(e) NRC inspection, publication of notices, and availability of licensee notifications. 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 10 CFR 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) of this section. The NRC shall make publicly available the licensee notifications under paragraphs (c)(1), (c)(2), and (c)(3) of this section no later than the date of publication of the notice of intended operation required by 10 CFR 52.103(a).

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 PROCESSES USED IN PERFORMING ITAAC-RELATED ACTIVITIES

This appendix provides supplemental information on common processes used by licensees in performing ITAAC-related activities. The purpose is to describe, in a general way, procedures, training and other processes that are used in performing ITAAC to aid the reader in understanding ITAAC Closure Notifications. Licensees have specific procedures and programs to conduct the activities described in this appendix. 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 are 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.

1.11 REPORT ITAAC -- LATER

As of February 1, 2012, the industry and NRC staff are actively discussing the need for guidance regarding "Report ITAAC." Based on these discussions, guidance will be added here, as appropriate.

APPENDIX D – ITAAC CLOSURE NOTIFICATION TEMPLATE AND EXAMPLES

Draft Revision 5 includes only the ICN template (D-1). ICN examples are being updated to conform to the updated D-1 template and will then be restored to Revision 5.

<u>Appendix</u>	<u>Technology</u>	<u>Description</u>
D-1	All	ITAAC Closure Notification 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	AP1000*	2.19-1 Item 12 (Secondary security power supply system)
D-19	US-APWR	ITAAC 2.2-1 (Reactor Building and Power Supply Building)
D-20	US-EPR	ITAAC 2.4.1 Items 4.14 c & d (Protection System - DAC)
D-21	N/A	Security ITAAC on access to Vital Areas

* AP1000 examples are based on Revision 15 or 17 to the AP1000 DCD. Although the wording of the ITAAC may be subject to change, the examples provide useful guidance for future ITAAC Closure Notifications.

**ESBWR examples are based on Revision 9 to the ESBWR DCD. Although the wording of the ITAAC may be subject to change, the examples provide useful guidance for future ITAAC Closure Notifications.

US-APWR examples are based on Revision 3 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 Notifications.

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 Notifications.

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

REVISED APPENDIX D-1 – EXAMPLE ITAAC CLOSURE NOTIFICATION TEMPLATE

XX/YY/ZZZZ (Date)

To: NRC

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

Subject: Completion of (designate technology or COL reference) ITAAC Item X.X.X
(ITAAC identifier should exactly match the ITAAC number in the COL)

The purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) in accordance with 10 CFR 52.99(c)(1) of the completion of {Site Name and Unit #} Inspection, Test, Analysis and Acceptance Criteria (ITAAC) Item X.X.X {include basic description of the ITAAC}. 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 for reference as attachments.

ITAAC Determination Basis

The ITAAC determination basis (IDB) summarizes the purpose and scope of the ITAAC with respect to demonstrating the Design Commitment, methodology for conducting the ITA, and the results that demonstrate that the acceptance criteria are met. 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 purpose of the ITAAC and the bases underlying the conclusion that acceptance criteria are met. Licensees may begin this section by inverting/restating the ITAAC Design Commitment, i.e., “A test, inspection or analysis was performed to demonstrate that” If there are multiple ITAAC associated with a given Design Commitment, licensees should so state and should identify the specific purpose and scope of the particular ITAAC being closed.

The IDB should describe the methodology and/or key steps used in performing the ITA. In the event that the ITAAC offers more than one method to meet the acceptance criteria, clearly identify which method was selected.

Principal Closure Documents (e.g., test reports, completed procedures, completed analyses, etc.) referred to in the ITAAC Determination Basis should be identified in the list of reference documents include in the ITAAC Closure Notification and available for NRC review as part of the ITAAC Completion Package. A concluding statement confirming the ITAAC was met should be included.

Figures referenced in the subject ITAAC should be attached to the ITAAC Closure Notification for ease of reference. Licensees may also attach a table that identifies plant component numbers, applicable ITAAC closure report or other document, and other information pertinent to the ITAAC closure.

When an 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, 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. The IDB description of ITA performed on SSCs at other than the final installed location should identify the applicable generic technical justification(s) provided in Sections 8.5.1-8.5.6. 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.

ITAAC Finding Review

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 ITAAC Closure Notification will list all relevant ITAAC 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 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 Findings and associated corrective actions. This review determined that X associated findings, listed below, have been identified.

1. {ITAAC Finding #1}
2. {ITAAC Finding #2}
3. {ITAAC 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.

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 #}, and that the prescribed acceptance criteria are met.

Licensees should identify completion of specific corrective actions to address issues that were the subject of a 10 CFR Part 21 or 50.55(e) report. For example, a licensee should directly address an open Part 21 report if the ITAAC Closure Notification concerns SSCs clearly within its scope. This may be appropriate in the case of a licensee that has resolved a Part 21 issue for specific SSCs/ITAAC, although the Part 21 report may still be open and applicable to other licensees and or SSCs.

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(e)(1).

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) – Listed here should be the Principal Closure Documents cited in the ITAAC Determination Basis in support of the conclusion that acceptance criteria are met.

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 ITAAC determination basis
3. Relevant inspection or test procedure
4. ITAAC Completion package retained on site

APPENDIX E – 225-DAY NOTIFICATION TEMPLATES AND EXAMPLES

<u>Appendix</u>	<u>Technology</u>	<u>Description</u>
E-1	All	Template for 225-day Notification Cover Letter
E-2	All	Template for 225-day Notification Enclosure
E-3	AP1000	Example Uncompleted ITAAC 2.1.01.04 (Fuel handling grippers)

APPENDIX E-1 – 225-DAY NOTIFICATION COVER LETTER TEMPLATE

XX/YY/ZZZZ (Date)

To: NRC

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

Subject: Notification of Uncompleted ITAAC 225-days Prior to Initial Fuel Load

Pursuant to 10 CFR 52.99(c)(3), {Licensee} hereby notifies the NRC that {Site Name and Unit #} 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}. Enclosure 2 describes the plans for completing each ITAAC listed in Enclosure 1. This notification is consistent with the guidance described in NEI-08-01, *Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52*. All ITAAC will be completed to support the Commission finding that all acceptance criteria are met prior to plant operation, as required by 10 CFR 52.103(g).

If the NRC has any questions regarding this letter or the Enclosures, 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}

Enclosures

1. List of Uncompleted ITAAC Items as of XX/XX/XX
2. Completion Plans for Uncompleted ITAAC Items Listed in Enclosure 1

APPENDIX E-2 – 225-DAY NOTIFICATION TEMPLATE FOR ITAAC-SPECIFIC ENCLOSURE(S)

XX/YY/ZZZZ (Date)

{Name of Licensee}

{Site name and Unit #}

{Docket #}

Subject: Uncompleted 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 applicable ITAAC should be quoted directly from the source Do not paraphrase the acceptance criteria.}

Tables and figures referenced in the ITAAC should be provided.

ITAAC Completion Description

This section should be very similar to the ITAAC Determination Basis in a Section 52.99(c)(1) ITAAC Closure Notification. The key difference is that it should describe the procedures and/or methods that will be used to conduct the ITA and demonstrate that the Acceptance Criteria are met (future tense versus past tense). Licensees may use future tense throughout this section even if a portion of these activities may have been completed for an ITAAC. An ITAAC is considered uncompleted until all activities within its scope are completed and an ITAAC Closure Notification is submitted to NRC. Licensees may otherwise use and apply the Appendix D-1 template guidance on ITAAC Determination Basis to complete this section for each uncompleted ITAAC.

References (available for NRC inspection)

Provide the list of Principal Completion Documents that are expected to be referenced in the ITAAC Closure Notification for the ITAAC and included in the ITAAC Completion Package. If exact document numbers or titles are not known, the Reference information should be as detailed and descriptive as practical.

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

2. Test procedure/methodology to be used to perform the ITAAC
3. Completed Test Procedure, Report, or other
4. ITAAC Completion Package for ITAAC X.X.X

APPENDIX E-3 – EXAMPLE ENCLOSURE 2 FOR 225-DAY NOTIFICATION

(Based on NEI 08-01 Examples D-6 and Template E-2)

XX/YY/ZZZZ (Date)

{Name of Licensee}

{Site name and Unit #}

{Docket #}

Subject: Uncompleted ITAAC 2.1.01.04

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 will not open while suspending a dummy test assembly.

ITAAC Completion Description

Tests will be 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 will be 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 will be exercised per operating procedures for releasing the fuel assembly. Test personnel will observe to ensure that the grippers do not open, thus, demonstrating that the FHM grippers meet the specified acceptance criterion.

Test results will be documented in Reference 3 and will be available for NRC inspection as part of the ITAAC Completion Package (Reference 4).

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 F – ALL ITAAC COMPLETE NOTIFICATION TEMPLATE

{Date}

To: NRC

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

Subject: Completion of All ITAAC

In accordance with 10 CFR 52.99(c)(4), this letter serves to notify the NRC that all of the inspections, tests, and analyses have been performed, all acceptance criteria are met, and all ITAAC conclusions are being maintained, as prescribed in the combined license for {Site Name and Unit #}.

ITAAC Closure Notifications have been submitted to NRC for each ITAAC in accordance with 10 CFR 52.99(c)(1). All of the ITAAC Closure Notifications 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.

{Licensee Name} is not aware of any condition that warrants submittal of a Supplemental ITAAC Closure Notification under 10 CFR 52.99(c)(2) and hereby affirms the completion of all ITAAC prescribed in the combined license for {Site Name and Unit #}. 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}

APPENDIX G – ITAAC MAINTENANCE PROMPT NOTIFICATION TEMPLATE

Licensees should use the following template to promptly inform the NRC of conditions or activities that adversely and materially affect the validity of conclusions in an ITAAC Closure Notification or the statements made in the “All ITAAC Complete” Notification.

The following information should be provided to the NRC Operations Center by one of the following methods:

- E-mail (**preferred**) to: hoo.hoc@nrc.gov
- Facsimile to 301-816-5151
- Phone to 301-816-5100

Note that prompt notification of NRC by one of these methods does not relieve the licensee from applicable requirements to provide formal written notification in accordance with Section 52.99.

Notifications made to the NRC Operations Center should clearly indicate the reasons for the notification and include, but need not necessarily be limited to, the following information, to the extent known:

- Name and address and telephone number of individual or individuals informing the Commission
- Identification of the facility reporting the situation that materially alters the basis for determining that a prescribed inspection, test or analysis was performed as required or finding that a prescribed acceptance criterion is met.
- The date that the licensee determined that it had information that materially alters the basis for determining that a prescribed inspection, test or analysis was performed as required or finding that a prescribed acceptance criterion is met.
- The specific ITAAC affected and the date of the original ITAAC Closure Notification submitted under Section 52.99(c)(1).
- The systems affected and the nature of the condition that materially alters the basis for determining that a prescribed inspection, test or analysis was performed as required or finding that a prescribed acceptance criterion is met.
- Planned corrective actions and applicable schedules for rework and post work verification, if available.

APPENDIX H – ITAAC MAINTENANCE EXAMPLES

If licensee activities materially alter statements made in the ITAAC Determination Basis summarized in the original ITAAC Closure Notification, licensees should notify NRC via submittal of a Supplemental ITAAC Closure Notification in accordance with 10 CFR 52.99(c)(2). The notification process and thresholds are discussed in Section 8.2, Post-ITAAC Closure Notifications to NRC, of this document. To illustrate application of thresholds 2-5 pertaining to material alterations of the ITAAC Determination Basis, the following ITAAC maintenance examples are discussed in this appendix.

THRESHOLD # 1 – Does the ITAAC Closure Notification contain a material error or omission? This threshold refers to situations in which there is information not contained in the 10 CFR 52.99(c)(1) notification that “has a natural tendency or capability to influence an agency decision maker” in either determining whether the prescribed inspection, test, or analysis was performed as required, or finding that the prescribed acceptance criterion is met (76 Fed. Reg. 27,931).	
EXAMPLES FOR THRESHOLD #2 – Post Work Verification (PWV): Will the PWV performed following work undertaken to resolve an issue reportable under 10 CFR 52.99(c)(2) 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 Public Address System Loudspeaker With Like For Like Spare and Identical Post Work Verification
EXAMPLES FOR THRESHOLD # 3 – Engineering Change: Will an engineering change be made 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 #4 – Additional items to be Verified: 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 #5 – Complete and Valid ITAAC Closure Representation: Will any other 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 – None

THRESHOLD #2 – Post Work Verification (PWV)

Will the PWV performed following work undertaken to resolve an issue reportable under 10 CFR 52.99(c)(2) 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 Notification has been 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 Notification is required because the post-work testing is significantly different than the original ITA (i.e., different test pressure).

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 Notification was 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 Notification, a Supplemental ITAAC Closure Notification 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 2.5.1-6 #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 of Subsection 2.5.1 and in Table 2.5.1-2, and as shown in Figures 2.5.1-1 and 2.5.1-2.	Inspection of the as-built RPS will be performed.	The as-built RPS conforms to the functional arrangement as described in the Design Description of Subsection 2.5.1 and in Table 2.5.1-2, 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 submitting the ITAAC Closure Notification, 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 Notification is not required.

Example 4 - Repair of CVCS Pipe Crack

US-APWR ITAAC 2.4.6-5 #4.b – 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, identified in Table 2.4.6-3, required by the ASME Code Section III to be hydrostatically tested.	ASME Code Data Report(s) exist and conclude that the results of the hydrostatic test of the as-built piping identified in Table 2.4.6-3 as ASME Code Section III conform to the requirements of the ASME Code, Section III.

CVCS Pipe Repair

After submittal of the ITAAC Closure Notification, 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 Notification is not required.

Example 5 - Emergency Power Source (EPS) Fuel Transfer System Valve Repair

US-APWR ITAAC 2.6.4-1 #13 - Emergency Power Source (EPS)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
Each Class 1E EPS are capable of providing power at	A test will be performed to verify that each as-built Class	The as-built Class 1E EPS reaches the set voltage and

the set voltage and frequency to its Class 1E 6.9kV bus within 100 seconds of receiving a start signal.	1E EPS can reach set voltage and frequency within 100 seconds of receiving a start signal.	frequency within 100 seconds of receiving a start signal.
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EPS Fuel Transfer System Valve Repair

The ITAAC Closure Notification was submitted 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 Notification 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.	<p>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:</p> <ul style="list-style-type: none"> - 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.

The ITAAC Closure Notification 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 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 Notification 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 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.	The available NPSH exceeds the NPSH required as demonstrated by the SLC System injecting greater than or equal to 378 liters/minute.

The ITAAC Closure Notification 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. PWV consisting of a loop flow test supported by analysis differs significantly from the original test-only ITAAC methodology.

A Supplemental ITAAC Closure Notification 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	Tests will be conducted on the as-built SLC System using installed controls, power	The SLC System injects greater than or equal to 189 L/min into the reactor with

when the reactor pressure is less than or equal to 8.72 MPaA.	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	either pump running against a discharge pressure greater than or equal to 8.72 MPaA.
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The ITAAC Closure Notification 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 Notification is not required.

Example 9 – Modification to Backup Electrical Power Supply for Technical Support Center (TSC)

Plant X – ITAAC #8 – Emergency Facilities and Equipment

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 Notification 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 Notification. The acceptance criteria are satisfied.

A supplemental ITAAC Closure Notification is not required.

Case 2 – The ITAAC Closure Notification 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). The PWV differs from the performance of the ITA as described in the original ITAAC Closure Notification and relies on an engineering justification to justify the method for verifying the acceptance criterion continues to be met.

A Supplemental ITAAC Closure Notification 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 Notification 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 Notification.

A Supplemental ITAAC Closure Notification is not required.

Example 11 – Replacement of Public Address System Loudspeaker With Like For Like Spare and Identical Post Work Verification

Plant Z – ITAAC #10 – Protective Response

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: a. employees not having emergency assignments; b. visitors; c. contractor and constructor personnel; and d. others persons who may be in the public access	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.

areas, or passing through the site, or within the owner controlled area.		
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The ITAAC Closure Notification 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 Notification.

A Supplemental ITAAC Closure Notification is not required.

THRESHOLD # 3 – Engineering Changes

Will an engineering change be made that materially alters the determination that the acceptance criteria are met?

Example 1 – Damaged Pipe Support Requires Design Change to Correct

AP1000 ITAAC 2.1.2.5b –

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 Notification 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 Notification is required.

Example 2 – Software change in Protection and Safety Monitoring System (PSMS)

US-APWR ITAAC 2.5.1-6 #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 the Basic and Application Software Program Manuals that meet the regulatory requirements for Class 1E safety systems, and which encompasses the entire product life cycle including software V&V and configuration management.	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 by the Basic and Application Software Program Manuals that meet the regulatory requirements for Class 1E safety systems, and which encompasses the entire product life cycle including software V&V and configuration management.

The ITAAC Closure Notification has been submitted. 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 Notification is required.

Example 3 – Piping Support Modification With No Impact on Seismic Analysis

US-APWR ITAAC 2.4.4-5#5.B.ii – Emergency Core Cooling System (ECCS)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The seismic Category I piping, including supports, identified in Table 2.4.4-3 withstand seismic design basis loads without a loss of its safety function.	Inspections and analyses will be performed to verify that the as-built seismic Category I piping, including supports, identified in Table 2.4.4-3 can withstand seismic design basis loads without a loss of its safety function.	A report exists and concludes that the as-built seismic Category I piping, including supports, identified in Table 2.4.4-3 can withstand seismic design basis loads without a loss of its safety function.

Piping Support Modification

The ITAAC Closure Notification has been submitted. 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 Notification 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	Tests on the as-built DG	As-built DGs start five times

capacity for five DG starts without recharging their tanks.	Systems will be conducted by starting the DGs five times.	without recharging their start receiver tanks.
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The testing has been satisfactorily completed and the ITAAC Closure Notification has been submitted. 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 Notification is not required because the larger capacity tank does not materially alter the ITAAC determination.

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.

The ITAAC Closure Notification 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 Notification 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	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 \pm 2 inches above the

	RCS hot leg and the discharge is aligned to both PXS DVI lines with the RCS at atmospheric pressure.	bottom of the hot leg.
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The ITAAC Closure Notification 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 Notification is not required.

Example 7– Replacement of Wind Speed Sensor Mounting Bracket

Plant X – ITAAC #9 – Accident Assessment

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 Notification 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, the engineering change was not necessary to ensure that the acceptance criteria continue to be met.

A Supplemental ITAAC Closure Notification is not required.

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	Inspection of the illumination in the isolation zones and external areas of the protected	A report exists and concludes that illumination in isolation zones and exterior areas

to permit observation of abnormal presence or activity of persons or vehicles.	area will be performed to confirm sufficient illumination to permit observation.	within the protected area is 0.2 foot candles measured horizontally at ground level or, alternatively, sufficient to permit observation.
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Case 1 - The ITAAC Closure Notification 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 Notification is not required.

Case 2 – The ITAAC Closure Notification 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 Notification 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 Notification 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 Notification is required.

Example 10 – Modification to Backup Electrical Power Supply for Technical Support Center (TSC)

Plant X – ITAAC #8 – Emergency Facilities and Equipment

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 Notification 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 Notification is required.

Case 2 – The ITAAC Closure Notification 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 affected the original ITAAC determination basis.

A Supplemental ITAAC Closure Notification is required.

Example 11 – Public Address System Loudspeaker Failure Requires Design Change

Plant Z – ITAAC #10 – Protective Response

EP Program Elements (From NUREG-0654/FEMA-REP-1)	Inspections, Tests, Analyses	Acceptance Criteria
<p>10. The means exist to warn and advise onsite individuals of an emergency, including those in areas controlled by the operator, including:</p> <p>[J.1]</p> <ul style="list-style-type: none"> 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. 	<p>10. A test of the onsite warning and communications capability will be performed during a drill or exercise.</p>	<p>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.</p>

The ITAAC Closure Notification has been submitted. During a subsequent drill, the licensee noted a loudspeaker had failed in the public announcement system. 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 the new loudspeaker was determined to be equivalent to the original (e.g., has the same decibel level as the originally installed loudspeaker). 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 the ITAAC acceptance criteria continued to be met.

A Supplemental ITAAC Closure Notification is not required.

THRESHOLD # 4 – Additional Items to be Verified

Will there be additional items that need to be verified through the ITAAC?

Example 1 – 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.

Case 1 - The ITAAC Closure Notification has been submitted. Subsequently, a new storage facility has been installed within the isolation zone which creates areas with less than 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 Notification is required.

Case 2 - The ITAAC Closure Notification has been submitted. Subsequently, the licensee installs a new administration building and several storage trailers within the 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 constitute additional items within the scope of this ITAAC and thus materially alter the original ITAAC Determination Basis.

A Supplemental ITAAC Closure Notification is required.

Example 2 – Addition of Piping Support in the Residual Heat Removal System (RHRS)

US-APWR ITAAC 2.4.5-5 #5.b.i – Residual Heat Removal System (RHRS)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
The seismic Category I piping, including supports, identified	Inspections will be performed to verify that the as-built	The as-built seismic Category I piping, including supports,

in Table 2.4.5-3 can withstand seismic design basis loads without a loss of its safety function.	seismic Category I piping, including supports, identified in Table 2.4.5-3 is supported by a seismic Category I structure(s).	identified in Table 2.4.5-3 is supported by a seismic Category I structure(s).
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Addition of Piping Support

The ITAAC Closure Notification has been submitted. 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 Notification 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 Notification 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 Notification is required.

Case 2 – The ITAAC Closure Notification 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 Notification 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 Notification 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 Notification 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.	<u>Inspections of the as-built Class 1E radiation channels will be performed.</u>	<u>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.</u>

The ITAAC Closure Notification has been submitted. During a raceway reroute, it was determined that a configuration change was required to protect a circuit using electrical isolation instead of electrical separation. 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 Notification is required.

Threshold #5 – Complete and Valid ITAAC Closure Representation

Will any other 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 submittal of the ITAAC Closure Notification, 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 Notification, 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 Notification 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 Notification has been submitted 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 Notification 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

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 Notification has been submitted. Subsequently, 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 Notification is not required.

Case 2 – The ITAAC Closure Notification 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, only that the back-up power supply is available.

A Supplemental ITAAC Closure Notification is not required.

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	Inspection of the illumination in the isolation zones and external areas of the protected	A report exists and concludes that illumination in isolation zones and exterior areas

to permit observation of abnormal presence or activity of persons or vehicles.	area will be performed to confirm sufficient illumination to permit observation.	within the protected area is 0.2 foot candles measured horizontally at ground level or, alternatively, sufficient to permit observation.
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The ITAAC Closure Notification 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 Notification is required.

Example 5 – High Noise Areas in Plant Require a Change in Method of Notification of Workers (Protective Response)

Plant Z – ITAAC #10 – Protective Response

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 d. other persons who may be in the public access areas, on or passing through the site, or within the owner controlled area.	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.

A report has been prepared and the ITAAC Closure Notification has been submitted. During a subsequent drill, and after preoperational testing has been initiated, 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 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 personnel. 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 Notification 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 Notification is not required.

Case 2: The ITAAC Closure Notification 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 materially alters the original ITAAC determination basis.

A Supplemental ITAAC Closure Notification is required.

Example 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,	Inspection will be performed for a document that describes the methodology and input	A report exists and concludes that the PMS setpoints are determined using a

response testing, and maintenance or replacement of instrumentation.	parameters used to determine the PMS setpoints.	methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.
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The ITAAC Closure Notification 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 Notification is required.

Example 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.

The ITAAC Closure Notification 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 Notification is required

APPENDIX I – ITAAC POST-CLOSURE NOTIFICATION TEMPLATE AND EXAMPLES

<u>Appendix</u>	<u>Technology</u>	<u>ITAAC</u>
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 I-1 – SUPPLEMENTAL ITAAC CLOSURE NOTIFICATION TEMPLATE

XX/YY/ZZZZ (Date)

To: NRC
From: {Name of Licensee}
{Site Name and Unit #}
{Docket #}

**Subject: Supplement for (designate technology or COL reference) ITAAC Item X.X.X
Completion**

In accordance with 10 CFR 52.99(c)(2), the purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of supplemental information regarding the completion status of {Site Name and Unit #} 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 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 Notification {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 Notification 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 Notification:

1. {ITAAC finding #1}
2. {ITAAC finding #2}
3. {ITAAC finding #3}

Supplemental ITAAC Closure Notifications 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 #} 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 Notification {number/date and ADAMS accession number}

APPENDIX I-2 - EXAMPLE SUPPLEMENTAL ITAAC CLOSURE NOTIFICATION ABWR ITAAC 5.0-1.5

XX/YY/ZZZZ (Date)

To: NRC

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

Subject: Supplement for ABWR ITAAC 5.0-1.5 Completion

In accordance with 10 CFR 52.99(c)(2), the purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of supplemental information regarding the completion status of {Site Name and Unit #} 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 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 Notification {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 #} 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 Notification {number/date and ADAMS accession number}

APPENDIX I-3 - EXAMPLE SUPPLEMENTAL ITAAC CLOSURE NOTIFICATION ABWR ITAAC 2.15.6.9

XX/YY/ZZZZ (Date)

To: NRC
From: {Name of Licensee}
{Site Name and Unit #}
{Docket #}

Subject: Supplement for ABWR ITAAC 2.15.6.9 Completion

In accordance with 10 CFR 52.99(c)(2), the purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of supplemental information regarding the completion status of {Site Name and Unit #} 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 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 Notification {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 Notification:

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 #} 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 Notification {number/date and ADAMS accession number}

APPENDIX I-4 - EXAMPLE SUPPLEMENTAL ITAAC CLOSURE NOTIFICATION AP1000 ITAAC 2.1.1 ITEM 4

XX/YY/ZZZZ (Date)

To: NRC
From: {Name of Licensee}
{Site Name and Unit #}
{Docket #}

Subject: Supplement for AP1000 ITAAC 2.1.1 ITEM 4 Completion

In accordance with 10 CFR 52.99(c)(2), the purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of supplemental information regarding the completion status of {Site Name and Unit #} 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 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 Notification {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 Notification:

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 #} 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 Notification {number/date and ADAMS accession number}

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