

**NEI 08-01 [Revision 0] DRAFT 4/2/08**

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

**April 2008**



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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 0, 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 2007-08 concerning the development of the NRC's construction inspection program for new plants. A main objective of this guideline is to provide all stakeholders a common framework and understanding of the Part 52 ITAAC closure 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. This industry guidance will be endorsed in an NRC Regulatory Guide.

### **1.1 PURPOSE AND SCOPE**

The purpose of this guidance is to provide a logical, consistent, and workable framework for ITAAC closure 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 Federal statute. The Commission’s organic statute, the Atomic Energy Act of 1954, as amended (AEA), provides that:

[T]he 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.

AEA Section 185.b., 42 U.S. C. § 2235.

NRC regulations implement the AEA's provisions. In particular, the Commission findings that must be made in connection with the issuance of a COL are set forth in 10 CFR 52.97. The Commission will identify within the COL the inspections, tests and analyses that the licensee shall perform, and the acceptance criteria that, if met, "are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will be operated in conformity with" the license, the AEA, and NRC regulations. 10 CFR 52.97(a)(2). 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 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 to document the common understanding of the industry and the NRC concerning how the major aspects of the ITAAC closure process should function, including:

- Summary of the Part 52 ITAAC process
- Schedule considerations for ITAAC-related activities
- Licensee process for review and preparation of ITAAC closure letters
- Guidance for ITAAC closure letter content
- Guidance for the 225-day notifications regarding uncompleted ITAAC
- Special Topics

## 2 DEFINITIONS

*225-Day Notification Letter* is the letter the licensee sends to notify the NRC of the ITAAC that will not be completed within 225 days of fuel load. This communication is submitted in accordance with 10 CFR 52.99(c)(2).

*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.

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

*As-built* means the physical properties of the structure, system or component, either: (1) following the completion of its installation or construction activities at its final location at the plant site; or (2) prior to installation, when as-installed verification cannot be performed (e.g., measurement of internal dimensions), or when it is more practical to perform the verification prior to installation (e.g., in the factory), of a structure or component for which physical properties would not be affected by installation or construction at its final location at the plant.

*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).

*Construction activities* are activities associated with the construction, fabrication, or testing of structures, components, subcomponents, systems, or subsystems either at the construction site or at remote fabrication or testing facilities. Specifically, “construction” means the activities in paragraph (a)(1) of 10 CFR 50.10, and does not include the activities in paragraph (a)(2) of 10 CFR 50.10 (text provided in Appendix B).

*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 closure package describing how the licensee determined that the ITAAC acceptance criteria have been met. This report will be summarized in the ITAAC closure letter.

*Inspect or inspection* means visual observations, physical examinations, or reviews of records that compare the SSC condition to one or more design commitments. Examples include walkdowns, configuration checks, measurements of dimensions, or non-destructive examinations (NDEs).

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

*ITAAC Closure Package* refers to the information and records documenting the work performed to verify and close an ITAAC. Once completed, the ITAAC closure package will be available for NRC inspection at the plant site.

*ITAAC-Related Construction Finding (IRCF)* is an NRC inspection finding for a deficiency directly related to activities pertaining to a specific ITAAC acceptance criterion that requires correction before the licensee can complete the ITAAC.

*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.

### **3 GENERAL DESCRIPTION OF 10 CFR PART 52 AND ITAAC PROCESSES**

This section provides an overview of NRC regulations related to ITAAC. Although NRC regulations do not define the term “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)) contains a description of the purpose of ITAAC:

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 must verify 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 Inspection Manual Chapter-2503.

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

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

### **3.1.1 Relationship of ITAAC to Engineering Design Verification Process**

ITAAC are used to demonstrate that as-built conditions and performance characteristics of SSCs meet established acceptance criteria. The purpose of engineering design verification (EDV), on the other hand, is to enable the NRC to verify that the design approved in the license has been properly translated into drawings, specifications, and other design information used to procure materials and equipment and to construct the plant. EDV includes the NRC assessment of the licensee's implementation of Design Acceptance Criteria (DAC). See NRC IMC-2504, "Construction Inspection Program – Non-ITAAC Inspections," Section 8.03.a.

Having verified the proper translation of the approved design via EDV, the NRC staff's ITAAC verification process may focus on assuring SSCs meet ITAAC acceptance criteria, and not on the underlying design of ITAAC SSCs.

The NRC performs EDV inspections under its Construction Inspection Program when the applicant/licensee has sufficient drawings, purchase specifications, or other construction documentation to support inspections. The NRC typically inspects the applicant's design engineering activities before issuance of a COL. EDV is expected to be completed early in the construction phase. The NRC is expected to document EDV, including DAC ITAAC implementation (See Section 8.3), in inspection reports.

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

### **3.1.2 Relationship of ITAAC to Quality Assurance Program**

The role of the Quality Assurance Program (QAP) is the same under 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.

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.

The following statements from the NRC Staff's February 1993 draft Commission paper on COL form and content aptly contrast the QAP and ITAAC and capture the long recognized distinction between ITAAC and normal construction verification activities under the QAP:

- “The QAP will identify, document, and correct deficiencies during construction on an ongoing basis, whereas ITAAC will demonstrate that the end result of the construction process is acceptable.”
- “The ITAAC provide for ‘end-of-process’ determinations, not ‘day-to-day’ evaluation of the construction process that the QAP provides.”
- “The ITAAC would measure the successful end point of the construction process, and QAP documentation could be used to assure the design and construction process had been performed properly.”

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 are expected to perform ITAAC closure activities under their QAP.

### **3.1.3 Sampling Based Construction Inspection Program**

While the scope of NRC's Construction Inspection Program (CIP) is comprehensive, the NRC will 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 more information about the NRC's sampling based CIP for new plants. See SECY-07-0047 and Inspection Manual Chapter-2503.

### **3.1.4 ITAAC Performance by Licensees and Verification by NRC**

A licensee must complete each ITAAC before initial fuel load and plant operation 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 50.103(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.

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

Upon notification, the NRC will conduct a timely review of each ITAAC completion basis for adequacy and accuracy, as described in the ITAAC notification letters.

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

- Direct 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.

NRC ITAAC completion verification is expected to focus primarily on the licensee's ITAAC closure letter and review of NRC inspection records to confirm that any associated IRCFs are satisfactorily resolved. At its discretion (i.e., depending on the nature of the ITAAC and the licensee's performance in completing similar ITAAC), however, the NRC may elect to inspect the licensee's ITAAC closure package or perform specific inspections or technical reviews. Any such re-inspection is expected to be limited and on a case-by-case basis, since the NRC will be documenting its inspections of construction activities underlying the licensee's ITAAC conclusions (including resolution of any IRCFs) throughout construction.

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

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

## 3.2 ITAAC CLOSURE PROCESS

### 3.2.1 Nominal 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.<sup>1</sup>

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

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

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

This provision is self-explanatory.<sup>2</sup>

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

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<sup>1</sup> 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).

<sup>2</sup> See Supplementary Information accompanying issuance of the final rule amending 10 CFR Part 52, 72 Fed. Reg. 49,352, 49,450.

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

Note that Section 52.99(c) specifies two separate but related notification requirements for licensees concerning completion of ITAAC. The overall purpose of each notification is to ensure that the COL holder provides the NRC with sufficient publicly available information to summarize the basis for the conclusion that ITAAC are met and support the Section 52.103 ITAAC hearing opportunity.

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

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

The NRC statement in the Part 52 final rule supplementary information that the licensee’s Section 52.99 ITAAC completion notification should be “sufficiently complete and detailed for a reasonable person to understand the bases for the licensee’s representation” raises a question as to the meaning of “reasonable person.”

In this context, a “reasonable person” means an individual with knowledge, education and/or experience concerning technical/engineering

concepts underlying nuclear power, including the inspections, tests, or analyses used to demonstrate that acceptance criteria have been met. The reasonable person 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 a reasonable person understand the bases for the licensee's representation that certain inspections, tests, and analyses have been successfully completed and the acceptance criteria have been met does not mean that the person would have necessarily reached the same conclusion as the COL holder. Rather, it means that a reasonable person could have reached the same conclusion.

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

Note that the rule language in Section 52.99(c)(2) appears more prescriptive than the language in Section 52.99(c)(1) as to what constitutes "sufficient information" (e.g., "including but not limited to" a description of the specific procedures and analytical methods to be used). In the discussion accompanying the 2007 Part 52 final rule, NRC stated that it expects notifications under Section 52.99(c)(2) "to be sufficiently detailed such that the NRC can determine what activities it will need to undertake to determine if the acceptance criteria for each of the uncompleted ITAAC have been met, once the licensee notifies the NRC that those ITAAC have been successfully completed and their acceptance criteria met." 72 Fed. Reg. 49,536.

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). It is also important that licensees provide the appropriate level of detail for "completeness," without including extraneous information that might create confusion or expand the scope of issues inappropriately. Further, in the case of ITAAC closure notifications, reliance on routine programs to provide assurance that the ITAAC will be completed successfully should be expected, without calling those programs into question for purposes of the Section 52.103 ITAAC hearing opportunity.

In amending Part 52, the NRC explained that it expects that any contentions submitted by prospective parties regarding uncompleted ITAAC would "focus on any inadequacies of the specific procedures and analytical methods described by the licensee under paragraph (c)(2), in the context of the findings called for by 10

CFR 52.103(b)(2).<sup>3</sup> The licensee will continue to submit notification letters under (c)(1) after submitting the (c)(2) notification, as (c)(2) does not relieve the licensee from the requirements of (c)(1) during this late period of construction.

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

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

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

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

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

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

This sub-section imposes requirements on the NRC to ensure, through inspection and audit activities, that the ITAAC are completed. Paragraph (e)(1) requires the

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<sup>3</sup> See 72 Fed. Reg. 49,352, 49,367. The NRC further 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. at 49,367, note 3.

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). When amending the rule, the NRC explained that, in general, it expects to make the Section 52.99(c)(1) notifications available shortly after the NRC has received the notifications and concluded that they are complete and detailed. Paragraph (e)(2) requires that the NRC make the (c)(1) notifications publicly available. In addition, no later than the date of the notice of intended operation required by 10 CFR 52.103(a), the NRC must make all of the notifications received under 52.99(c)(1) and (c)(2) publicly available.

### **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 and closed. The NRC Staff will continue to review a licensee's notifications of completed ITAAC and, as necessary, may continue to conduct audits or inspections of the facility and the licensee's records.

After the final ITAAC is completed by the licensee and verified by the NRC Staff, the NRC will make the 10 CFR 52.103(g) finding. Although the rules do not require completion of all ITAAC by a certain time prior to the licensee's scheduled fuel load date, the NRC noted in the 2007 rulemaking that licensees should "structure their construction schedules" to take into account: (1) the time needed to complete NRC review once the licensee submits its ITAAC completion notification; and (2) the time needed for the Commission to review the Staff's conclusions regarding the ITAAC and Staff recommendations concerning the finding under Section 52.103(g). See 72 Fed. Reg. at 49,367 and 49,450. Because these final steps of the ITAAC process are likely to occur in a short period just prior to fuel load, effective communication and coordination will be necessary to assure these steps can be completed to support the scheduled fuel load date.

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

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

For example, a Design Acceptance Criteria (DAC) ITAAC found in the applicable design certification rules could be closed at the time of COL. DAC ITAAC 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 ITAAC have been successfully completed.

### **3.3 GENERAL DESCRIPTION OF PUBLIC HEARING OPPORTUNITY**

In addition to the public meetings that the NRC will conduct 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 request a hearing and file contentions. If any contentions are admitted by the presiding officer, a contested licensing hearing on those contentions will be held. The NRC Atomic Safety and Licensing Board or other presiding officer will issue a decision ruling on the contentions litigated. See 10 CFR 2.309. Additionally, whether or not a contested licensing hearing is held, the presiding officer will determine in a so-called “mandatory uncontested hearing” under 10 CFR 51.107 whether the NRC Staff’s NEPA review of the application has been adequate and whether the COL should be issued.

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 has been constructed and 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 one or more acceptance criteria of the ITAAC in the combined license have not been met or will not be met. Additionally, the petitioner must show “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. 10 CFR 52.103(c). See 72 Fed. Reg. 49, 451.

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

### **3.3.1 Opportunity for Late Filed Contentions**

The NRC did not modify that paragraph of 10 CFR 2.309 dealing with late-filed contentions when amending other sections to address and clarify the hearing opportunity under 10 CFR 52.103. The NRC expects hearing requests to be filed within the allowed 60-day period provided by the notice under 10 CFR 52.103(a), and it has explained that the standards for late-filed contentions would apply subsequent to that time. Therefore, in the case where previously unavailable information surfaces in a Section 52.99(c)(1) notification letter after this 60-day period and that new information is an essential portion of a petitioner's basis for requesting a hearing, a petitioner may well rely on such circumstances to show good cause as one of the factors that would support a late filing.

To minimize the potential for late-filed ITAAC contentions, 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. 10CFR 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.

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

The NRC Staff will make a recommendation to support the 52.103(g) finding that the acceptance criteria in the COL are met. The Commission or its delegate will make the initial finding under 10 CFR 2.340 or appropriately condition the finding. The finding is immediately effective upon issuance, unless there is good cause that it should not be immediately effective. See 10 CFR 2.340(f). Provided the licensee has satisfied other applicable license conditions and technical specifications, this means that the licensee may begin operation/initial fuel loading. For the final finding (*e.g.*, in the event a hearing continues after the initial finding), 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 have been 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 or revoke a license.

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

The NRC Construction Inspection Program Office (NRC/CIP) intends to enhance its ability to perform its regulatory functions with respect to construction inspection oversight activities by planning and scheduling NRC inspections in a timely, effective, and efficient manner. To accomplish this goal, 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 ITAAC, from the project to the NRC.

### **4.1 REGULATORY REQUIREMENTS**

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.

#### **4.2 PROPRIETARY CONSTRUCTION SCHEDULE INFORMATION**

In the discussion accompanying the Part 52 amendments, NRC recognizes 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 protected from public disclosure to the fullest extent possible. This applies to schedule information provided in accordance with 52.99(a) or otherwise shared to support early inspection.

#### **4.3 LICENSEE SCHEDULE POINT OF CONTACT**

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). This Applicant/Licensee Project Scheduling Point of Contact may be a Senior Scheduling Manager, a Licensing Manager, or Project Management Representative, or other individual as best fits each project organization. Additional information will be made available as the NRC Scheduler determines a need and makes a request through the Project Scheduling Point of Contact. As schedules are updated, the licensee scheduler will assure that updated schedules are made available to the NRC.

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

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

## **5 LICENSEE PROCESS FOR REVIEW AND PREPARATION OF ITAAC CLOSURE LETTERS**

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

### **5.1 GUIDANCE FOR OVERSIGHT OF ITAAC CLOSURE ACTIVITIES AND MAINTENANCE OF RECORDS**

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

#### **5.1.1 ITAAC Closure Team**

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

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

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

#### **5.1.2 ITAAC Closure Documentation Establishment, Compilation, and Maintenance**

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

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

Documentation necessary to support the conclusion that ITAAC are met should be available on-site to permit the COL licensee to develop the ITAAC closure package and ITAAC closure letter, and to facilitate NRC ITAAC verification. Documents may be stored electronically. While documentation necessary to verify closure should be available on site, supporting information (such as vendor calculations or analyses, vendor type testing documentation, or fabrication records) may be available at locations other than the site.

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

### **5.1.3 ITAAC Closure Package Development**

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

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

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

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

The ITAAC closure package should not constitute the “official” copy of the documentation contained therein. Rather, the official copy of the documentation in the ITAAC closure package should be maintained by the licensee’s records organization.

A determination report should be provided in the ITAAC closure package to document how the licensee determined that the acceptance criteria have been met. The determination report provides the basis for the ITAAC closure letter.

## **5.2 STANDARD FORMAT FOR ITAAC CLOSURE 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, ITAAC-Related Construction Finding Review, and ITAAC Closure Statement to be included in the ITAAC closure letter
4. List of ITAAC-Related Construction Findings, including information regarding the resolution of the findings.
5. List of Licensee PI&R items related to the ITAAC closure 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. List of Supporting References as required.
8. ITAAC Closure Letter.

## **5.3 LICENSEE PROBLEM IDENTIFICATION AND RESOLUTION PROGRAM**

The purpose of the licensee’s Problem Identification and Resolution Program 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, “Problem Identification and Resolution for New Nuclear Power Plants during Construction.”

## **6 GUIDANCE ON “SUFFICIENT” INFORMATION FOR ITAAC CLOSURE LETTERS**

The information contained in the ITAAC closure letters plays an important role in the NRC new-plant hearing process. Through a series of public workshops with the NRC staff, the industry has developed a template for a standard ITAAC closure letter format

that should be used by all applicants. The template is provided in Appendix D-1 to this document.

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

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

- ITAAC statement – restates the ITAAC (including the design commitment, inspection, test or analysis, and acceptance criteria)
- ITAAC determination basis – explains how the ITAAC was met
- ITAAC-related construction findings – NRC IRCFs related to this specific ITAAC with an indication of closure of the findings
- ITAAC closure statement – confirmation that the ITAAC has been closed
- List of references – primary references that will be available for NRC review at the site

The ITAAC closure letter provides the basis for the licensee’s conclusion that ITAAC acceptance criteria have been met as of a given date. Since plant construction will take place over a period of years, it is conceivable that an ITAAC that was closed early in the process may require a corrective action or preventive maintenance at a future point in time prior to fuel load. Significantly, these activities do not invalidate the licensee’s ITAAC closure determination. (See Section 8.1, “Maintaining the Validity of ITAAC Conclusions Post-ITAAC Completion.”) Upon NRC verification of licensee closure of an ITAAC, the information provided should be reviewed as of the date of the ITAAC closure letter. Provided that the information was accurate at the time specified by the licensee, maintenance and corrective actions performed in accordance with Section 8.1 would be acceptable to maintain the validity of the ITAAC conclusion.

## **7 GUIDANCE ON “SUFFICIENT” INFORMATION FOR 225 DAY NOTIFICATION OF UNCOMPLETED ITAAC**

As explained in Section 3.2.1 of this document, the licensee is required under 10 CFR 52.99(c)(2) to notify the NRC no later than 225 days prior to scheduled fuel load regarding the status of any uncompleted ITAAC. The notification must indicate that the inspections, tests or analyses for all uncompleted ITAAC will be performed and that the acceptance criteria will be met prior to plant operation. These notifications are similar to the ITAAC closure letter submitted under 10 CFR 52.99(c)(1) in terms of the level of technical detail required to describe the ITAAC closure process. However, as discussed in Section 3.2.1, the regulation provides that for uncompleted ITAAC, the information submitted must include “a description of the specific procedures and analytical methods

to be used for performing the prescribed inspections, tests, and analyses and determining that the acceptance criteria have been met.”

The 225 day notification will describe the status for multiple ITAAC. Therefore, the licensee will provide a signed cover letter explaining the purpose of the notification that will include attachments for individual ITAAC status. To ease administrative burden for all stakeholders, a licensee may choose to provide the 225 day notification in two or more parts, each covering a portion of the uncompleted ITAAC. For example, partial 225 day notifications may be organized by system, by type of ITAAC (e.g., system hydro testing), or by the expected timing of ITAAC completion. A phased approach will allow some of the notifications to be sent to the NRC in advance of the 225 days-before-scheduled-fuel-load, to ease the burden of processing the *Federal Register* notice(s).

Similar to the approach for the ITAAC closure letters, the industry has developed templates for the cover letter and the ITAAC-specific attachments as shown in Appendices E-1 and E-2. To illustrate the use of the template, examples of 225 day notifications for specific ITAAC are provided in Appendix E. The templates and the examples were developed by industry and reviewed during public workshops by an NRC panel representing the staff stakeholders in the ITAAC process, similar to the ITAAC closure letter review discussed in Section 6.

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

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

## **8 SPECIAL ITAAC CLOSURE TOPICS**

### **8.1 MAINTAINING THE VALIDITY OF ITAAC CONCLUSIONS POST-ITAAC COMPLETION**

The licensee will complete ITAAC over a prolonged period, from before COL issuance to sometime prior to fuel load. ITAAC closure letters will be submitted by the licensee to establish closure in accordance with 10 CFR 52.99(c)(1), as discussed in SECY-06-0114, Description of the Construction Inspection Program for Plants Licensed Under 10 CFR Part 52, May 13, 2006. Following licensee submittal of an ITAAC closure letter, significant time may elapse before the:

1. NRC staff makes the determination regarding successful completion of the ITAAC in accordance with 10 CFR 52.99(e)(1); and

2. Commission makes the finding that the ITAAC acceptance criteria are met in accordance with 10 CFR 52.103(g).

During this time period (ITAAC maintenance period), the licensee must maintain the validity of ITAAC determinations. The licensee should ensure that the following activities do not invalidate the ITAAC determinations:

- Normal maintenance and repairs on SSCs associated with ITAAC.
- Incidents or findings (e.g., damage from other nearby construction work) that create or identify potential non-compliances or non-conformances with SSCs that may be corrected under the licensee's PI&R.
- 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.

The licensee should maintain the validity of ITAAC determinations through proper implementation of its QAP, including its Problem Identification and Resolution (PI&R) Program, and Design/Configuration Control Program, as well as its Maintenance Program. During the ITAAC maintenance period, these programs will include provisions to maintain the validity of ITAAC determinations. For example:

- The QAP should ensure that design and construction activities are performed in accordance with the license, NRC regulations and applicable codes and standards, and that safety related and risk significant SSCs will perform their intended functions.
- The Maintenance Program should ensure that the ITAAC acceptance criteria continue to be met after the maintenance or repair is complete.
- The PI&R Program should be used to ensure that any identified ITAAC related deficiencies are processed and resolved under that program.
- The Design/Configuration Control Program should ensure that changes to SSCs or programs will not alter the ITAAC acceptance criteria or the method for meeting the ITAAC. Note: the license cannot alter the wording of an ITAAC without obtaining NRC review and approval in accordance with various provisions of 10 CFR 52.

## **8.2 CRITERIA/PROCESS FOR WITHDRAWAL OR UPDATE OF SECTION 52.99 ITAAC COMPLETION NOTICES**

Industry and NRC officials have discussed the hypothetical situation in which it may become necessary to update an NRC determination of successful completion of inspections, tests and analyses published in the *Federal Register* pursuant to 10 CFR 52.99(e)(1). Such a situation might arise, for example, if a material error or omission relating to a licensee's Section 52.99(c)(1) notification is discovered after that notification is made, and that error or omission is found to affect the validity of the licensee's notification and the NRC's subsequent reliance on that notification in a Section 52.99(e)(1) notice.

In this situation, the licensee should prepare and submit to the NRC an updated Section 52.99(c)(1) notification which explains the need for the update and how the underlying issue(s) or inconsistencies have been resolved. Upon receipt of this information, the NRC Staff will review the licensee's new submittal and, as appropriate, issue a new (updated) *Federal Register* notice in compliance with Section 52.99(e)(1) requirements.

### **8.3 DESIGN ACCEPTANCE CRITERIA ITAAC**

Design Acceptance Criteria (DAC) consist of a set of prescribed limits, parameters, procedures, and attributes upon which the NRC may rely, in a limited number of technical areas, in making a final safety determination to support a design certification. DAC are ITAAC and thus are referred to as DAC ITAAC. DAC ITAAC are implemented to demonstrate that the design is completed in accordance with the design certification. Following completion of the DAC ITAAC, the related SSC is verified through as-built ITAAC which will be performed to demonstrate that the as-built facility conforms to the design as completed through the DAC ITAAC.

DAC ITAAC 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 ITAAC 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. Commission approval is required to include DAC beyond these four in future design certifications.

NRC provides regulatory guidance regarding DAC ITAAC implementation in RG 1.206, Section C.III.5. Licensees may refer to this guidance regarding NRC expectations on the level of detail and design elements for DAC ITAAC closure.

#### **8.3.1 DAC ITAAC Closure Options**

There are three options to close DAC ITAAC, all of which involve essentially the same level of design detail. The design information necessary to close DAC ITAAC should be that level which would have been provided during design certification review if DAC ITAAC had not been used. Regardless of the option used to close DAC ITAAC, NRC closure of DAC ITAAC embodies a determination that the design has been completed in accordance with the design certification. The three options for DAC ITAAC 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 ITAAC. Completed DAC ITAAC 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 ITAAC. 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 ITAAC. 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 ITAAC 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 ITAAC.
- *Closure after COL issuance* – Under this option, the COL is issued with DAC ITAAC. When the necessary additional design information is available, the licensee’s DAC ITAAC implementation is inspected by the NRC as part of the Engineering Design Verification (EDV) process, as described in Inspection Manual Chapter 2504. It is expected that the NRC will involve technical reviewers in the inspection of post-COL DAC ITAAC implementation. Following issuance of the NRC EDV inspection report, and resolution of any findings that would otherwise preclude DAC ITAAC close-out, close-out of DAC ITAAC is accomplished via the ITAAC closure process described in this document (e.g., close-out is initiated by a licensee’s ITAAC close-out letter to NRC). Sample ITAAC close-out letters for DAC ITAAC are included in Appendix D.

### **8.3.2 Actions Following DAC ITAAC Closure**

Following DAC ITAAC closure by the licensee and NRC, the licensee should assess whether any changes to the licensing basis are necessary. For example, if actual DAC ITAAC implementation is inconsistent with the FSAR, the FSAR should be updated to conform to the actual DAC ITAAC implementation. If the licensee determines that FSAR, technical specification or other changes are necessary or appropriate to reflect actual DAC ITAAC implementation, changes should be evaluated and implemented via the design certification or other applicable change process, and a license amendment requested, if required.

### **8.3.3 Subsequent COL Projects**

DAC ITAAC close-out via the design certification amendment process resolves DAC ITAAC with finality for all COL applications referencing that certified design.

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

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 ITAAC implementation is modified for subsequent licensees, e.g., to reflect evolving technology, the NRC will inspect the modified DAC ITAAC implementation as it did for the first licensee to implement the DAC ITAAC.

## **9 ACRONYMS**

CIP — Construction Inspection Program

COL — Combined Operating License

COLA — Combined Operating License Application

DAC — Design Acceptance Criteria

DCRA — Design-Centered Review Approach

EDV — Engineering Design Verification

ESP — Early Site Permit

ASME — American Society of Mechanical Engineers

FSAR — Final Safety Analysis Report

HFE — Human Factors Engineering

IRCF — ITAAC-Related Construction Finding

ITAAC — Inspections, Tests, Analyses and Acceptance Criteria

NDE — Non-Destructive Examinations

NRC — U.S. Nuclear Regulatory Commission

PI&R — Program Identification and Resolution

QAP — Quality Assurance Program

QAPD — Quality Assurance Program Description

SSC — Structure, System or Component





**APPENDIX A – EXCERPTS FROM 10 CFR PART 52****10 CFR 52.99, INSPECTION DURING CONSTRUCTION (REVISION DATE AUGUST 28, 2007)**

(a) The licensee shall submit to the NRC, no later 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.

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

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

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

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

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

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

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

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

#### **10 CFR 52.103, OPERATION UNDER A COMBINED LICENSE**

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

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

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

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

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

answers thereto. If the Commission determines there is such reasonable assurance, it shall allow operation during an interim period under the combined license.

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

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

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

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

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



## **APPENDIX B – 10 CFR 50.10**

§ 50.10 License required; limited work authorization.

(a) *Definitions.* As used in this section, *construction* means the activities in paragraph (a)(1) of this section, and does not mean the activities in paragraph (a)(2) of this section.

(1) Activities constituting construction are the driving of piles, subsurface preparation, placement of backfill, concrete, or permanent retaining walls within an excavation, installation of foundations, or in-place assembly, erection, fabrication, or testing, which are for:

(i) Safety-related structures, systems, or components (SSCs) of a facility, as defined in 10 CFR 50.2;

(ii) SSCs relied upon to mitigate accidents or transients or used in plant emergency operating procedures;

(iii) SSCs whose failure could prevent safety-related SSCs from fulfilling their safety-related function;

(iv) SSCs whose failure could cause a reactor scram or actuation of a safety-related system;

(v) SSCs necessary to comply with 10 CFR part 73;

(vi) SSCs necessary to comply with 10 CFR 50.48 and criterion 3 of 10 CFR part 50, appendix A; and

(vii) Onsite emergency facilities, that is, technical support and operations support centers, necessary to comply with 10 CFR 50.47 and 10 CFR part 50, appendix E.

(2) Construction does not include:

(i) Changes for temporary use of the land for public recreational purposes;

(ii) Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;

(iii) Preparation of a site for construction of a facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;

(iv) Erection of fences and other access control measures;

(v) Excavation;

(vi) Erection of support buildings (such as, construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;

(vii) Building of service facilities, such as paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines;

(viii) Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility;

(ix) Manufacture of a nuclear power reactor under a manufacturing license under subpart F of part 52 of this chapter to be installed at the proposed site and to be part of the proposed facility; or

(x) With respect to production or utilization facilities, other than testing facilities and nuclear power plants, required to be licensed under Section 104.a or Section 104.c of the Act, the erection of buildings which will be used for activities other than operation of a facility and which may also be used to house a facility (e.g., the construction of a college laboratory building with space for installation of a training reactor).

## **APPENDIX C - GENERAL DESCRIPTION OF COMMON ITAAC ACCEPTANCE CRITERIA CATEGORIES**

This information is provided as a supplement to information in the ITAAC closure letters to describe common processes that are related to ITAAC. Licensees will have specific procedures and programs to conduct the activities described in this section. Each licensee will also have a Quality Assurance Program (QAP) that will govern quality-related activities. The descriptions provided below provide general information regarding the rigorous processes used by the nuclear industry.

### **1.1 Calculations and Analyses**

Calculations and analyses to support closure of ITAAC requirements should be controlled consistent with approved procedures developed in accordance with engineering program controls and QA program requirements. 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. An example of a format is provided below:

- Cover Sheet
- List of Effective Pages
- Table of Contents
- Revision Summary
- Purpose
- References
- Body of Calculation (including assumptions, as applicable)
- Conclusions
- Attachments (additional documentation prepared in support of the conclusions)

The results of the calculation should be summarized and correlated to the calculation's purpose and objective.

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

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

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

## **1.2 Test Procedures**

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

## **1.3 Special Processes**

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

## **1.4 Inspection Program**

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

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

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

### **Inspector Qualification**

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

## **1.5 ASME Code Design Reports**

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

## **1.6 Reports that Exist and Conclude that Acceptance Criteria Are Met**

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

A standard format and content for these reports should be established. An example of a format is:

- Cover Sheet
- List of Effective Pages
- Table of Contents
- Revision Summary
- Purpose
- References (including all inspections, tests, analyses, and other documentation relied upon for conclusions)
- Body of Report (specific discussion of and reference to inspections, tests and analyses and how these support the conclusion that the design commitment is met)

- Conclusions
- Attachments (additional documentation prepared in support of the conclusions)

### **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.



## **APPENDIX D – LIST OF ITAAC CLOSURE LETTER EXAMPLES**

<b><u>Appendix</u></b>	<b><u>Technology</u></b>	<b><u>Description</u></b>
D-1	N/A	Example ITAAC Closure Letter Template
D-2	AP1000	3.3-6, Item 7.d (Cable separation)
<i>TO BE ADDED IN A LATER REVISION TO NEI 08-01</i>		
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	2.1.1-1, 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)



## **APPENDIX D-1 – EXAMPLE ITAAC CLOSURE LETTER TEMPLATE**

XX/YY/ZZZZ (Date)

To: NRC

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

**Subject: Completion of (designate technology) ITAAC Item X.X.X**

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

### **ITAAC Statement**

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

### **Design Commitment**

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

### **Inspection/Test/Analysis**

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

### **Acceptance Criteria**

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

Tables and figures referenced in the ITAAC should be provided.

### **ITAAC Determination Basis**

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

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

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

### **ITAAC-Related Construction Finding Review**

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

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

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

The corrective actions for each finding have been completed and each finding closed. This review is documented in the close-out package for ITAAC x.x.x, (Reference 4), which is available for NRC review.

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

### **ITAAC Closure Statement**

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

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

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

Sincerely,

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

**References (available for NRC review)**

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



**APPENDIX D-2 – EXAMPLE ITAAC CLOSURE LETTER ITAAC 3.3.6 ITEM (7D)**

To: NRC

From: New Reactor License MNO-xyz, EFG Nuclear Plant

**Subject: Completion of ITAAC 3.3.6 Item (7d)**

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

**ITAAC Statement****Design Commitment**

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

**Inspection/Test/Analysis**

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

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

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

### Acceptance Criteria

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

- Within the main control room and remote shutdown room, the vertical separation is 3 inches or more and the horizontal separation is 1 inch or more.
- Within other plant areas (limited hazard areas), the separation meets one of the following:
  - 1) The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more except.
  - 2) The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables <2/0 AWG.
  - 3) For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.
  - 4) For configurations that involve an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the raceway.
  - 5) For configurations that involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.
- Where minimum separation distances are not met, the circuits are run in enclosed raceways or barriers are provided.

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

### **ITAAC Determination Basis**

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

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

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

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

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

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

Review of the inspection reports, the site's Electrical Raceway and Cable Tracking System, Design Change documents, Nonconformance Reports, and the Final Report concludes that the cable installed in the plant has been inspected and reviewed to ensure that the required physical separation between cables from different Class 1E divisions and between Class 1E cables and non-Class 1E cables has been achieved. All exceptions to the separation criteria identified in the installation specification and the project drawings have been identified by Design Change documents or Nonconformance Reports. These exceptions whether identified during installation or by final walk down of the as built configuration have been evaluated and either corrected, mitigated or accepted as is.

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

### **ITAAC Related Construction Finding Review**

In accordance with plant procedures for ITAAC close-out, a review of all ITAAC related construction findings was performed. This review determined that all associated findings have been closed and all corrective actions have been completed. The applicable findings and associated status is listed below. This review is documented in the EFG Plant ITAAC 3.3.6 (7d) Closeout Package (Reference 3) and is available for NRC review.

#### **Construction Finding**

10/14/2014 - Separation Violation in Main Control Room

### **ITAAC Closure Statement**

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

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

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

Sincerely,

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

**References** (available for NRC review)

1. NEI 08-01, Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52
2. Cable Separation Final Walk-down Procedure
3. ITAAC 3.3.6 item 7d Cable Separation Final Report –EFG xyz, Revision 0
4. ITAAC 3.3.6 item 7d Closeout Package



## **APPENDIX E – LIST OF 225 DAY NOTIFICATION EXAMPLES**

<b><u>Appendix</u></b>	<b><u>Technology</u></b>	<b><u>Description</u></b>
E-1	N/A	Example 225 Day Notification Cover Letter
E-2	N/A	Example 225 Day Notification Attachment
E-3	AP1000	3.3-6, Item 7.d (Cable separation)

***TO BE ADDED IN A LATER REVISION TO NEI 08-01***

E-4	ABWR	2.1.1d, Item 3 (RPV hydro)
E-5	ABWR	2.14.4°, Item 4a (SGTS)
E-6	AP1000	2.5.2-8, Item 10 (Setpoints)



## **APPENDIX E-1 – EXAMPLE 225 DAY NOTIFICATION COVER LETTER TEMPLATE**

XX/YY/ZZZZ (Date)

To: NRC

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

**Subject: Notification of Uncompleted ITAAC 225 Days Prior to Initial Fuel Load**

Pursuant to 10 CFR 52.99(c)(2), {Licensee} hereby notifies the NRC that {Site Name and Unit #(s)} Inspection, Test, Analysis, and Acceptance Criteria (ITAAC) Items listed in Enclosure 1 will not be completed 225 days prior to initial fuel load currently scheduled for {month, day, year}. Enclosures 2 through XX provide the closure plan and status for each ITAAC listed in Enclosure 1. This notification is consistent with the guidance described in NEI-08-01 (Reference 1). All ITAAC will be completed to support the Commission finding that all acceptance criteria have been met prior to plant operation, as required by 10CFR103(g).

If the NRC has any questions regarding this letter or the Attachments, please contact {name of contact person for Licensee} at {telephone # for contact person}.

Sincerely,

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

### **References**

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

### **Enclosures**

1. List of Uncompleted ITAAC Items as of XX/XX/XX
- 2 through XX. Closure Plan and Status for Uncompleted ITAAC Items Listed in Attachment 1



## **APPENDIX E-2 – EXAMPLE 225 DAY NOTIFICATION**

### **ITAAC-Specific Attachment Template**

XX/YY/ZZZZ (Date)

{Name of Licensee}

{Site Name and Unit #(s)}

{Docket #(s)}

**Subject: Notification of Status of (designate technology) ITAAC Item X.X.X**

#### **ITAAC Statement**

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

#### **Design Commitment**

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

#### **Inspection/Test/Analysis**

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

#### **Acceptance Criteria**

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

Tables and figures referenced in the ITAAC should be provided.

#### **Actions Achieved Toward ITAAC Closure**

This section should provide a status of activities related to ITAAC closure. Examples include providing a rough percentage of completed work on the ITAAC, an indication that certain activities listed in the ITAAC are already complete, or an indication that procedures or other supporting items that will be used to perform closure activities have been approved and are ready. There may be cases where this section has little or no information depending on the nature of the ITAAC, but this would likely be rare. For closed actions, summarize the methodology for conducting the ITA, and the results that demonstrate that the acceptance criteria were met.

It should be written in an active voice, and consist of sufficient information to enable a person familiar with technical/engineering concepts to reach the same conclusion established by the licensee regarding the partial completion of ITAAC activities. In the event that the ITAAC

offers more than one method to meet the acceptance criteria, clearly state which method was selected.

### **Actions Remaining to Attain ITAAC Closure**

This section should provide a high level discussion of the remaining activities related to ITAAC closure that will be done after 225 days prior to initial fuel load. Summarize the methodology for conducting the ITA, and the results that demonstrate that the acceptance criteria were met.

It should be written in an active voice, and consist of sufficient information to enable a person familiar with technical/engineering concepts to reach the same conclusion established by the licensee regarding the activities remaining to complete ITAAC closure.

### **ITAAC Closure Schedule**

{ ITAAC x.x.x is being tracked in the ITAAC database. ITAAC x.x.x Closeout Package (and specific reports, procedures, or other references as necessary) are planned to be issued by \_\_\_\_\_. The Closure Letter for ITAAC x.x.x will follow our review and acceptance of these documents. }

Provide some forward looking statements to instill confidence that these actions will be achieved. Examples include a statement that this test or similar activity has been performed on an ITAAC that is already closed, similar activities are routinely done in the operating fleet of plants, the procedures for this activity have been written and approved, testing and analysis of this nature are routine in the nuclear industry, etc. {[brief description of forward looking statements] provide confidence that [Licensee] will be able to successfully complete this ITAAC.

### **References** (available for NRC review)

1. Procedure, report, or other

## **APPENDIX E-3 – DRAFT 225 DAY NOTIFICATION ITAAC 3.3-6 ITEM (7D)**

### **Example ITAAC-Specific Attachment**

XX/YY/ZZZZ (Date)

{Name of Licensee}

{Site Name and Unit #(s)}

{Docket #(s)}

**Subject: Notification of Status of AP1000 ITAAC 3.3-6 Item (7d)**

#### **ITAAC Statement**

##### Design Commitment

ITAAC Table 3.3-6 (7d) *Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables*

##### Inspection/Test/Analysis

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

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

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

### Acceptance Criteria

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

- *Within the main control room and remote shutdown room, the vertical separation is 3 inches or more and the horizontal separation is 1 inch or more.*
- *Within other plant areas (limited hazard areas), the separation meets one of the following:*
  - 1) *The vertical separation is 5 feet or more and the horizontal separation is 3 feet or more except.*
  - 2) *The minimum vertical separation is 12 inches and the minimum horizontal separation is 6 inches for raceways containing only instrumentation and control and low-voltage power cables <2/0 AWG.*
  - 3) *For configurations that involve exclusively limited energy content cables (instrumentation and control), the minimum vertical separation is 3 inches and the minimum horizontal separation is 1 inch.*
  - 4) *For configurations that involve an enclosed raceway and an open raceway, the minimum vertical separation is 1 inch if the enclosed raceway is below the raceway.*
  - 5) *For configurations that involve enclosed raceways, the minimum vertical and horizontal separation is 1 inch.*
- *Where minimum separation distances are not met, the circuits are run in enclosed raceways or barriers are provided.*
- *A report exists and concludes that separation distances less than those specified above and not provided with enclosed raceways or barriers have been analyzed.*

- *Non-Class 1E wiring that is not separated from Class 1E or associated wiring by the minimum separation distance or by a barrier or analyzed is treated as Class 1E wiring.*

### **Actions Achieved toward ITAAC Closure**

Significant progress has been achieved as of (Month, Day, Year) toward completing this ITAAC, 99% of the installation and associated inspection activities are complete. Inspections and analysis of plant components have been performed to ensure that “Physical separation is maintained between Class 1E divisions and between Class 1E divisions and non-Class 1E cables”.

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

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

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

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

### **Actions Remaining to Attain ITAAC Closure**

Prior to final acceptance of the overall Class 1E raceway and cable system Engineering and Quality Control will perform walk-downs of the plant Class 1E electrical components to identify any potential violations of the required cable separation criteria. Any deviations identified will be recorded, dispositioned and resolved prior to issuing the Final Report. The walk-downs will

be performed in accordance with the site Cable Separation Final Walk-down Procedure (Reference 1).

Review of the inspection reports, the site's Electrical Raceway and Cable Tracking System, Design Change documents, Nonconformance Reports, and the Final Report will be performed and determined to be satisfactory before the project can conclude that the cable installed in the plant has been inspected and reviewed to ensure that the required physical separation between cables from different Class 1E divisions and between Class 1E cables and non-Class 1E cables has been achieved. All exceptions to the separation criteria identified in the installation specification and the project drawings will have been identified by Design Change documents or Nonconformance Reports. These exceptions whether identified during installation or by final walk down of the as built configuration will have been evaluated and either corrected, mitigated or accepted as is. These reviews will be documented in the ITAAC 3.3.6 Item (7d) Closeout Package.

Before issuing the Cable Separation Final Report, Engineering must be able to conclude that separation distances are satisfactory. Those separation distances less than specified by the ITAAC criteria and not provided with enclosed raceways or barriers will have been analyzed and determined to be satisfactory.

### **ITAAC Closure Schedule**

{Licensee} is tracking ITAAC 3.3-6 Item (7d) in its ITAAC database. ITAAC 3.3.6 Item (7d) Closeout Package and ITAAC 3.3-6 Item (7d) Cable Separation Final Report –EFG xyz, Revision 0 are scheduled to be issued on \_\_\_\_\_. The Closure Letter for ITAAC 3.3-6 Item (7d) will follow our review and acceptance of these documents.

Cable Separation Programs have been successfully completed for both new nuclear power plants {Site Name and Unit #} and units being restarted after extended shutdowns {Site Name and Unit #}. These successful industry experiences, in combination with the satisfactory results through (Month, Day, Year) of the completion of the majority portions of this ITAAC at our own project provide confidence that {Licensee} will be able to successfully complete this ITAAC.

### **References** (available for NRC review)

1. Cable Separation Final Walk-down Procedure