

**POLICY ISSUE
(Information)**

August 5, 2010

SECY-10-0100

FOR: The Commissioners

FROM: Michael R. Johnson, Director
Office of New Reactors

SUBJECT: STAFF PROGRESS IN RESOLVING ISSUES ASSOCIATED WITH
INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA

PURPOSE:

The purpose of this paper is to inform the Commission of progress made by the staff in resolving issues associated with inspections, tests, analyses, and acceptance criteria (ITAAC), including the progress that has been made on developing a process to ensure that the validity of conclusions regarding acceptability of completed ITAAC is maintained.

This paper does not address any new commitments or resource implications.

SUMMARY:

The staff is making good progress on its efforts to develop a proposed rule and guidance to address ITAAC maintenance during the period between a licensee's submittal of an ITAAC completion letter and the Commission's Title 10 of the *Code of Federal Regulations*, Part 52, Section 103(g) (10 CFR 52.103(g)) finding. The staff plans to provide a proposed rule to the Commission in August 2010, and issue the associated draft guidance for public comment shortly after publication of the proposed rule. The staff also completed an evaluation of when changes to structures, systems, and components (SSCs) or emergency preparedness (EP)

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program elements related to closed ITAAC would necessitate license amendments and is developing guidance to provide additional clarity. The staff has been developing an ITAAC Closure Verification Process (ICVP) and associated implementing documents to ensure staff readiness for verification of closed ITAAC. The U.S. Nuclear Regulatory Commission (NRC) staff, the U.S. Department of Energy (DOE), Southern Nuclear Company, and Westinghouse are planning to conduct a demonstration project to exercise the ICVP through a number of simulated ITAAC closure activities. The staff will use insights gained from the exercise to enhance the ICVP, as necessary. The staff is also updating Regulatory Issue Summary (RIS) 2008-05, "Lessons Learned to Improve Inspections, Tests, Analyses, and Acceptance Criteria Submittal," dated February 27, 2008, to include additional lessons learned from recent and ongoing reviews of applications. The Office of New Reactors (NRO) has developed and is providing training to the technical review staff on these lessons learned in this area and is communicating these insights to industry and stakeholders.

BACKGROUND:

In SECY-08-0117, "Staff Approach To Verify Closure of Inspections, Tests, Analyses, and Acceptance Criteria and To Implement Title 10 CFR 52.99, 'Inspection during Construction,' and Related Portion of 10 CFR 52.103(g) on the Commission Finding," dated August 7, 2008, (Agencywide Documents Access and Management System (ADAMS) Accession No.(ML081220237), the staff provided an update on plans to inspect and perform the closure verification of licensee-completed ITAAC. The staff also described how it intends to implement 10 CFR 52.99, "Inspection during construction," and the related provision of 10 CFR 52.103(g) regarding the Commission finding on whether all ITAAC acceptance criteria are met. The staff requirements memorandum related to SECY-08-0117, dated January 14, 2009, (ADAMS Accession No. ML090140136), directed the staff to keep the Commission informed of progress in resolving issues associated with ITAAC, including instances where successfully completed ITAAC are no longer satisfied.

In SECY-09-0119, "Staff Progress in Resolving Issues Associated with Inspections, Tests, Analyses, and Acceptance Criteria," dated August 26, 2009, (ADAMS Accession No. ML091980327), the staff discussed progress toward resolving issues concerning ITAAC maintenance¹ and reporting, including the notification thresholds for events that may invalidate a previous determination that an ITAAC has been successfully completed. The staff also provided an update on its approach for making its recommendation to the Commission regarding the finding under 10 CFR 52.103(g) on whether all ITAAC in the combined license (COL) are met.

The staff hosted nine public workshops in the last 12 months to solicit input and exchange views on issues related to ITAAC closure and maintenance associated with previously successfully completed ITAAC. The agency held a Category II public meeting on July 29, 2010, to discuss the ITAAC closure and verification demonstration exercise. Members of the public, the Nuclear Energy Institute (NEI), industry representatives, and other external stakeholders participated in these public workshops.

¹ ITAAC Maintenance applies after ITAAC has been completed and provides confidence that the ITAAC continue to be met and that no activity has invalidated the basis for determining that the ITAAC are met.

DISCUSSION:ITAAC Maintenance Regulatory Guidance and Rulemaking Progress

In SECY-09-0119, the staff informed the Commission of its progress in resolving issues concerning ITAAC maintenance and reporting, including the notification thresholds for events that may invalidate a previous determination that an ITAAC has been successfully completed. The staff, through public workshops, has made significant progress in developing and refining the notifications for completion of all ITAACs and notification of ITAAC maintenance issues.

The staff has prepared a proposed rule and will soon seek the Commission's approval of its proposal to amend the regulations in 10 CFR 52.99. Specifically, the staff will propose new provisions that apply after a licensee has completed an ITAAC and has submitted an ITAAC closure letter (ICL) to the NRC. The new provisions would require the licensee to (1) report new information that materially alters the basis for determining that a prescribed inspection, test, or analysis was performed as required or finding that a prescribed acceptance criterion is met, (2) document the basis for all ITAAC notifications, and (3) notify the NRC of completion of all ITAAC activities. The staff plans to submit this proposed rule for Commission review in August 2010 and, if approved by the Commission, would issue the proposed rule for public comment following the incorporation of any Commission comments.

The staff is also preparing Revision 1 to Regulatory Guide 1.215, "Guidance for ITAAC Closure under 10 CFR Part 52," issued October 2009, to incorporate guidance associated with ITAAC maintenance. The staff plans to issue the proposed guidance to address ITAAC maintenance and supplemental reporting for public comment concurrent with or shortly following the proposed rule publication.

License Amendments Necessitated by Changes to ITAAC

To address Commission comments from the staff's last briefing on ITAAC maintenance issues on September 22, 2009, the staff has evaluated when changes to SSCs or EP program elements related to closed ITAAC result in the ITAAC not being met such that a license amendment would be necessary. License amendments related to ITAAC performance are not unique to ITAAC maintenance. A license amendment would be necessary, even in the performance of the original ITAAC, if the licensee cannot perform the "prescribed" inspections, tests, or analyses or show that the acceptance criteria have been met.

The regulation at 10 CFR 52.98(f) states, "Any modification to, addition to, or deletion from the terms and conditions of a combined license, including any modification to, addition to, or deletion from the inspections, tests, analyses, or related acceptance criteria contained in the license is a proposed amendment to the license. There must be an opportunity for a hearing on the amendment." For amendment of an ITAAC originating from the referenced certified design, the licensee would also request an exemption from the standard design certification (DC) rule pursuant to 10 CFR 52.99(d)(1).

Enclosure 1 to SECY 09-0119 presented four reporting thresholds to identify whether activities would materially alter the ITAAC determination bases during the ITAAC maintenance period. The staff used these reporting thresholds as a basis for considering whether a license amendment would be necessary during the ITAAC maintenance period.

During a public workshop held on December 17, 2009, the staff presented and discussed with stakeholders events or activities associated with the ITAAC maintenance thresholds that would call for a license amendment. Enclosure 1 to this paper presents the updated and refined ITAAC maintenance thresholds and scenarios when license amendments would be necessary for each threshold.

ITAAC Closure Verification Process

The staff has been developing an ICVP that it will use to determine whether ITAAC are properly completed based on a licensee's declarations in an ICL. The staff will apply the ICVP to verify that the requirements of 10 CFR 52.99 are correctly implemented. The staff has developed draft office instructions that delineate the ICVP and has initiated efforts to develop an information technology system that will facilitate implementation. The three major segments of the ICVP are (1) the ICL acceptance review, (2) the verification of ITAAC closure, and (3) the reevaluation and opening of a closed ITAAC. Enclosure 2 to this paper includes the current version of the ICVP flowchart.

During the acceptance review, the staff will determine whether an ICL has the correct format and references in accordance with the ICL templates provided in NEI 08-01, "Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52," issued January 2009, and endorsed by the staff in Regulatory Guide 1.215. The templates were discussed in a series of public meetings that included NEI, industry, and other stakeholders.

The staff will verify that ITAAC are met based on a review of the information included in ICLs and the applicable inspection results documented in the Construction Inspection Program Information Management System (CIPIMS). NRO will lead this review, and will involve other offices such as the Office of Nuclear Security and Incident Response (NSIR) and Regional Offices, as needed. The ICVP will function similarly for the closure of ITAAC targeted for NRC inspection and nontargeted ITAAC.

The staff expects that closed ITAAC, which were maintained by licensee programs, will be reopened if the staff makes of an ITAAC finding² or if one of the four thresholds developed for ITAAC maintenance reporting requirements is exceeded. Enclosure 1 to this paper presents these thresholds.

The staff also issued Inspection Procedure 40600, "Licensee Program for ITAAC Management," which provides guidance to verify that licensees have established programmatic controls to govern the ITAAC closure process, including the process for preparing and approving closure letters. The guidance also verifies that the licensee has implemented an ITAAC maintenance program to ensure that SSCs continue to meet the acceptance criteria described in the ICLs until the Commission finding described in 10 CFR 52.103(g) is made.

The ICVP has received substantial review by stakeholders within the agency over the past year. Additionally, the NRO technical staff and Region II inspection staff evaluated the effectiveness of the process during a counterpart meeting in March 2010. During the meeting, the staff

² An ITAAC finding is a greater-than-minor inspection finding that occurs after the NRC receives the original ICL and directly affects the closure of an ITAAC.

evaluated six ITAAC closure scenarios and their expected outcomes. The staff confirmed that the ICVP incorporates the key elements to be considered in the process. The staff also plans to further test the ICVP during an ITAAC closure demonstration project with DOE and industry (described below). The ICVP is an essential NRC process that supports the Commission's finding in accordance with 10 CFR 52.103(g).

Simulated ITAAC Closure and Verification Demonstration Exercise

The staff is participating in a simulated ITAAC closure demonstration exercise with industry and DOE, the project sponsor. The purpose of the pilot exercise is to verify that both industry closure processes and NRC verification processes are reliable and efficient to support ITAAC closure. During this simulated exercise, Southern Nuclear Company and Westinghouse will prepare ITAAC closure packages and submit simulated 10 CFR 52.99(c)(1) notifications (ICL) to the NRC. The staff will have the opportunity to review these closure packages and completion letter submittals. The pilot exercise is expected to provide insights on the process and the expected level of detail and information contained in the closure packages and completion letters. Initially, the exercise will be limited to five ITAAC of varying complexity selected from the Westinghouse AP1000 design.

The exercise will be conducted under the assumptions that a COL has been issued with ITAAC and the plant is being constructed. Actual ITAAC performance by the licensee and inspections by Region II staff will not occur, but will be informed by elements of the inspection program. ITAAC performance and inspection data will be simulated to test the process.

The staff will facilitate the exercise through ITAAC public workshops, which should provide for an open and interactive series of discussions. Two meetings are currently planned to start the project, discuss observations on the exercise, identify issues with the processes, and provide solutions. Should the staff determine that there is value, DOE may expand the pilot to engage other new reactor vendors and applicants in similar demonstrations based on available resources, schedule implications, and anticipated benefits.

NRC Headquarters and Region II staff will participate by developing an inspection plan, documenting simulated inspection results in CIPIMS, evaluating the significance of inspection findings, exercising various aspects of the construction oversight process, and implementing the ICVP. One key objective for the exercise is to gain insights into communications among NRC Headquarters staff, Region II staff, and licensees if any issues are identified.

The exercise will also include an action to evaluate the surge in ITAAC closure submittals expected during the last year of a new nuclear power plant (NPP) construction project. Results from this evaluation may provide insights into how the NRC can better prepare for the expected impact of the surge on staff resources. At the completion of the exercise, the NRC staff will draft a lessons-learned report to highlight successes in the ICVP and to identify areas in need of continued refinement. The exercise is scheduled for completion by the end of February 2011. Enclosure 3 to this paper provides an abstract for this exercise.

RIS 2008-05 Update and Staff Training for the “Best Practices” in ITAAC Development

The NRC issued RIS 2008-05 in February 2008, (ADAMS Accession No. ML073190162) to communicate the best practices associated with the quality, clarity, and inspectability of ITAAC submitted as part of the applications for early site permits, standard DCs, or COLs. The NRC expects to issue Revision 1 to RIS 2008-05 in 2010, to expand discussion on the lessons learned and additional issues identified with respect to ITAAC inspectability.

Revision 1 to RIS 2008-05 will include a new “ITAAC scope” section. This section addresses issues identified during the staff’s ongoing reviews of applications. The staff is resolving these issues with applicants through requests for additional information. The issues include considerations for additional ITAAC in design areas if needed, as well as wording which enhances the objectivity and clarity of ITAAC. The staff has also identified cases in which the inspections, tests, or analyses (ITA) and the acceptance criteria (AC) are inconsistent with each other and cases in which the ITA or AC do not align with the associated design commitment. RIS 2008-05, Revision 1 will also address the proper consideration of ITAAC revisions and the need for “extent-of-condition” evaluations for consistency and applicability issues of generic concerns.

The NRC has presented the issues included in Revision 1 to RIS 2008-05 during public workshops attended by industry and stakeholders. Workshop attendees mutually agreed that a need exists for an increased understanding by the NRC, industry, and the public on the meaning of certified ITAAC and on those ITAAC specific to a COL. The revision also reinforces the “best practices” for ITAAC approval and acceptance and the importance of submitting ITAAC suitable for inspection.

To complement the guidance provided in both RIS 2008-05 and its revision, training sessions were conducted for NRO technical reviewers and inspection program staff on April 20, 2010, and July 13, 2010. These training sessions summarized the lessons learned and discussed specific examples. The revision of RIS 2008-05 and the internal staff training sessions are helping to inform all stakeholders and to minimize recurrence of these types of issues.

Planned ITAAC Work

The staff plans continued interaction with industry and the public to further refine key elements of ITAAC closure and ITAAC maintenance. In addition, the staff has worked with other offices, such as NSIR, and has proactively incorporated specialized areas, such as security and EP into ITAAC maintenance guidance. On July 16, 2010, NEI submitted Revision 4 of NEI 08-01 (ML102010076) requesting NRC review and endorsement. The staff is reviewing this revision of NEI 08-01 and expects to issue a revision to Regulatory Guide 1.215 incorporating elements of ITAAC closure and ITAAC maintenance, as well as endorsing NEI 08-01 with any necessary clarifications.

The staff continues to work on issues involving Design Acceptance Criteria (DAC). The staff established a DAC working group in November 2009 to focus on issues associated with DAC resolution. The working group initiated and is currently participating in a DAC inspection to better develop the closure verification oversight process and details associated with digital instrumentation and controls DAC. Additionally, the working group continues to hold public

The Commissioners

- 7 -

meetings with stakeholders, as well as briefings to the Advisory Committee on Reactor Safeguards.

COORDINATION:

This paper has been coordinated with the Office of General Counsel (OGC). OGC has no legal objection to this paper.

/RA/

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Enclosures:

1. ITAAC Maintenance Thresholds
and Associated License Amendments
2. ITAAC Closure Verification Process Flowchart
3. Simulated ITAAC Closure Demonstration Proposal

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