UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

March 15, 2010

MEMORANDUM TO: ACRS Members

FROM: Girija Shukla, Senior Program Manager ***/RA/***
Reactor Safety Branch – B
Advisory Committee on Reactor Safeguards

SUBJECT: CERTIFICATION OF THE MINUTES OF THE FUTURE PLANT DESIGNS SUBCOMMITTEE MEETING ON JULY 7, 2009

The minutes for the subject meeting were certified on March 4, 2010. Along with the transcripts and presentation materials, this is the official record of the proceedings of that meeting. A copy of the certified minutes is attached.

Attachment: As stated

cc w/o Attachment: E. Hackett
C. Santos
A. Dias

cc w/ Attachment: ACRS Members

UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

March 15, 2010

MEMORANDUM TO: Girija Shukla, Senior Program Manager,
Reactor Safety Branch – B
Advisory Committee on Reactor Safeguards

FROM: Dennis C. Bley, Chairman
Subcommittee on Future Plant Designs

SUBJECT: CERTIFICATION OF THE MINUTES OF THE MEETING OF THE SUBCOMMITTEE ON FUTURE PLANT DESIGNS REGARDING REGULATORY GUIDE 1.215 (DG-1204), "GUIDANCE FOR ITAAC CLOSURE UNDER 10 CFR PART 52," ON JULY 7, 2009, IN ROCKVILLE, MARYLAND

I hereby certify, to the best of my knowledge and belief, that the minutes of the subject meeting on July 7, 2009, are an accurate record of the proceedings for that meeting.

/RA/ 3-4-2010
Dennis C. Bley, Chairman Date
Subcommittee on Future Plant Designs

Certified By: Dennis C. Bley Issued: March 15, 2010
Certified on March 4, 2010

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

MINUTES OF THE MINUTES OF THE MEETING OF THE SUBCOMMITTEE ON FUTURE PLANT DESIGNS REGARDING REGULATORY GUIDE 1.215 (DG-1204), "GUIDANCE FOR ITAAC CLOSURE UNDER 10 CFR PART 52," ON JULY 7, 2009, IN ROCKVILLE, MARYLAND

INTRODUCTION

On July 7, 2009, the ACRS Subcommittee on Future Plant Designs held a meeting in Room T-2B3, 11545 Rockville Pike, Rockville, Maryland. The purpose of the meeting was to discuss the draft final Regulatory Guide 1.215 (DG-1204), "Guidance for ITAAC Closure under 10 CFR Part 52." In addition to the NRC staff, representative from NEI made presentations to the Subcommittee. Mr. Girija Shukla was the designated federal official for this meeting. The subcommittee received no request from the public to make oral statements. The subcommittee chairman convened the meeting at 1:30 pm and adjourned at 5:00 pm.

ATTENDEES

ACRS Members
Dennis Bley, Subcommittee Chairman
George Apostolakis, Member
John Stetkar, Member
Said Abdel-Khalik, Member
Michael Corradini, Member
Michael Ryan, Member
Harold Ray, Member
Charles Brown, Member

ACRS Staff
Girija Shukla, Designated Federal Official

Principal NRC Speakers
Mark Kowal, NRO Richard Laura, NRO James Gaslevic, NRO

Industry speaker: Russ Bell (NEI)

Other NRC staff and members of the public attended this meeting. A complete list of attendees is in the ACRS office file and is available upon request. The presentation slides and handouts used during the meeting are attached to the office copy of these minutes. The presentations to the Subcommittee are summarized below.

OPENING REMARKS BY CHAIRMAN BLEY

Dr. Dennis C. Bley, Chairman of the ACRS Subcommittee on Future Plant Designs convened the meeting by introducing the ACRS members present. Chairman Bley stated that the purpose of this meeting is to discuss the draft final Regulatory Guide 1.215 (DG-1204), "Guidance for ITAAC Closure under 10 CFR Part 52;" and NEI document 08-01, Revision 3, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52." The Subcommittee will gather information, analyze relevant issues and

facts, and formulate proposed positions and actions, as appropriate, for deliberation by the full Committee. Mr. Girija Shukla is the Designated Federal Official for this meeting. The rules for participation in today's meeting have been announced as part of the notice of this meeting previously published in the *Federal Register* on June 16, 2009. We have received no written comments or requests for time to make oral statements from members of the public regarding today's meeting. A transcript of the meeting is being kept and will be made available as stated in the Federal Register Notice.

BACKGROUND

RG 1.215 describes a method that the NRC staff considers acceptable for use in satisfying the requirements for documenting the completion of inspections, tests, analyses, and acceptance criteria (ITAAC). In particular, this Guide endorses the methodologies described in the industry guidance document Nuclear Energy Institute (NEI) 08-01, Revision 3, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52," issued in January 2009, for the implementation of 10 CFR 52.99 "Inspection During Construction."

- **Background Summary of Regulatory Guide 1.215, "Guidance for ITAAC Closure under 10 CFR Part 52"**

In accordance with 10 CFR 52.97(b), Combined Licenses (COLs) must contain ITAAC that are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will operate in accordance with the license, and NRC regulations. After issuance of a COL, a licensee completes all the ITAAC contained in the COL during construction and then submits closure notification letters to the NRC pursuant to 10 CFR 52.99.

Two types of ITAAC notifications from licensees are required by 10 CFR 52.99. The first type of ITAAC notification (ITAAC closure letter) is submitted under 10 CFR 52.99(c)(1) and informs the NRC of the basis for the licensee's determination that an ITAAC has been successfully completed. ITAAC closure letters must be submitted for all ITAAC, with the exception of ITAAC resolved at COL issuance under 10 CFR 52.97(a)(2). The second type of ITAAC notification (uncomplete ITAAC notification letter) is submitted under 10 CFR 52.99(c)(2) at least 225 days before scheduled initial fuel load and describes how all uncompleted ITAAC will be successfully completed prior to fuel load. Loading fuel cannot commence until the NRC finds under 10 CFR 52.103(g) that all acceptance criteria in the ITAAC are met. To provide a basis for the NRC's finding and to ensure that ITAAC closure notifications contain sufficient information to satisfy 10 CFR 52.99, the licensee can follow industry guideline NEI 08-01.

NEI 08-01 provides guidance for licensees on major aspects of the ITAAC closure process on complying with the requirements of 10 CFR 52.99. In RG 1.215, the staff endorses NEI 08-01, Revision 3, as an acceptable method of complying with the requirements of 10 CFR 52.99. NEI 08-01 references other documents, but this regulatory guide does not endorse any of the referenced documents.

NEI 08-01 includes examples for ITAAC closure letter submittals and uncomplete notifications for ITAAC. Although these examples are appropriate as general templates, licensees should ensure that an example applies to its particular circumstances before implementing the guidance, or template. For licensees who have site-specific ITAAC in

their COL, the guidance in NEI 08-01 applies to both design certification and site-specific ITAAC closure notification development. Licensees may use methods other than those provided in NEI 08-01 to meet the requirements of 10 CFR 52.99. The NRC staff will review such methods and determine the acceptability of other methods on a case-by-case basis.

- **Background Summary of NEI 08-01, Revision 3, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52"**

The NEI document NEI 08-01 provides guidance to the Combined License (COL) holders to satisfy 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 industry 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.

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, and the NRC's rules and regulations. The licensee must complete all ITAAC, the NRC staff verifies successful ITAAC completion, and the NRC must find that all ITAAC are met before the licensee may load fuel.

The acceptance criteria of the ITAAC are selected during the design certification process to ensure that their completion by the licensee will provide reasonable assurance that the plant will operate safely as designed. Additional, non-ITAAC NRC inspection activities will be performed to verify that operational programs, start-up testing, training, quality assurance, corrective action, and other important aspects of plant construction and operation are in accordance with licensee commitments, license conditions, and applicable regulations for plant construction and operation. NEI 08-01 provides guidance on the major aspects of the ITAAC closure process, including:

- Summary of the Part 52 ITAAC process
- Schedule considerations for ITAAC-related activities
- Licensee process for review and preparation of ITAAC closure letters
- Guidance for ITAAC closure letter content
- Guidance for the 225-day notifications regarding uncompleted ITAAC
- Special Topics, such as the Design Acceptance Criteria (DAC)

ITAAC and Engineering Design Verification Process:

ITA (inspections, tests, and analyses) are used to demonstrate that as-built conditions and performance characteristics of SSCs meet established AC (acceptance criteria). The purpose of engineering design verification (EDV) is to enable the NRC to verify that the NRC-approved design has been properly translated into drawings, specifications, and other design information used to procure materials and equipment and to construct the plant. EDV may be conducted before or after the design certification is granted and continued through the COL phase and into the early stages of construction. EDV is intended to gather necessary information on the licensee's first of a kind engineering for the standard plant, site-specific design, and related design information. EDV conducted post-COL may include the NRC assessment of the licensee's implementation of Design Acceptance Criteria (DAC).

ITAAC and the Quality Assurance Program:

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

The 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 design and performance standards specified in the DCD.

ITAAC Completion by Licensees and Verification by NRC:

A licensee must complete each ITAAC before initial fuel load can begin..

ITAAC require verification of "as-built" SSCs. Because some ITAAC involve measurements and/or testing that can only be conducted at the vendor site due to the configuration of equipment or modules or the nature of the test (e.g., measurements of reactor vessel internals), staff is considering clarifying the meaning of "as built".

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

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

Design Acceptance Criteria (DAC):

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

of rapidly changing technology where it may be inappropriate to prematurely freeze the design, or in areas where the information is dependent on as-built or as-procured information. DAC have been approved in design certifications in four areas: digital instrumentation and control (digital I&C), piping, human factors engineering (main control room and remote shutdown system design), and radiation shielding. Use of DAC in design certifications requires NRC approval. NRC provides regulatory guidance regarding DAC implementation in RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)," Section C.III.5.

DAC Closure Options:

RG 1.215 and NEI 08-01 provide three options to close DAC, all of which involve essentially the same level of design detail.

1. Closure through amendment of design certification rule – Under this option, the design certification applicant would submit an amendment with completed design information and the DAC removed. The NRC would review the amendment request, issue a safety evaluation, and conduct rulemaking to amend the design certification rule.

2. Closure through the COLA review process – Under this option, the COL application contains the additional design information needed to satisfy the DAC. The NRC reviews the design and includes the results of its review in the safety evaluation for the COL. The COL should reflect that the DAC have been completed.

3. Closure after COL issuance – Under this option, the COL is issued with DAC. When the necessary additional design information is available, the licensee's DAC implementation is inspected by the NRC as part of the Engineering Design Verification (EDV) process. Following issuance of the NRC EDV inspection report, and resolution of any findings, close-out of DAC is accomplished.

Actions Following DAC Closure

Following DAC closure by the licensee and NRC, the licensee should assess the extent to which any changes to the licensing basis are necessary.

Subsequent COL (SCOL) Projects

DAC close-out via the design certification amendment process resolves DAC for all COL applications referencing the amended design certification rule.

Closure of DAC via the COL or post-COL processes applies only to a single licensee. However, it is expected that subsequent licensees will implement DAC using the standard design information approved for the licensee who first implemented the DAC with the exception of site-specific parameters.

SUMMARY OF THE MEETING

- **Staff Presentation**

Messrs. Mark Kowal, Richard Laura, and Jim Gaslevic from the Office of New Reactors provided the staff presentations which included introduction and overview of staff efforts to develop RG 1.215, its regulatory basis and ITAAC overview, and public comments on RG 1.215. RG 1.215 is to endorse NEI 08-01.

Mr. Mark Kowal discussed an overview of ITAAC and the ITAAC Closure Working Group which is a multi-disciplinary group and includes members from various NRC offices. The group has had extensive interactions with all stakeholders. Revision 3 of NEI 08-01 reflects numerous public meetings to resolve issues and find realistic answers to complex problems. Public workshops have been conducted on a bi-monthly schedule to identify and resolve implementation issues. Future update of RG 1.215 and NEI 08-01 are expected.

Mr. Richard Laura discussed the purpose of RG 1.215, which was to provide a standardized approach to ITAAC closure. RG 1.215 endorses guidance described in NEI 08-01, which was primarily developed for the implementation of 10 CFR 52.99. RG 1.215 follows the NEI 08-01 outline.

Mr. Laura further explained the definition of ITAAC, which consists of ITA, Inspections, Tests, and Analyses (methodology used to compare the SSC condition to one or more design commitments), and AC, Acceptance Criteria (performance, physical condition, or analysis result for an SSC that demonstrates the design commitment is met). The NRC Region II is responsible for ITAAC related inspections, and the NRC HQ is responsible for ITAAC closure verifications.

Mr. Laura further described the requirements of 10 CFR Part 52.99, ITAAC closure process timeline and flowchart, ITAAC closure letters, and the 225-day notification letter for uncomplete ITAAC.

For closing out the ITAAC, the staff stated that the staff only confirms that ITAAC have been closed out. The licensee in their ITAAC closure letters, specifically identifies by number and letter which ITAAC they are closing. So there is a unique identifier for what ITAAC are being closed out and what the design commitment for that specific ITAAC is, what the ITA for that ITAAC is and what the AC (acceptance criteria) for that ITAAC is.

Mr. Michael Spencer, OGC, added that when the NRC issues a design certification with the ITAAC, and issues the COL with ITAAC, it has made the determination at that time that the ITAAC are necessary and sufficient to demonstrate that the plant was properly constructed and will operate properly.

Mr. Jim Gaslevic provided an overview of RG 1.215 and the public comments on RG 1.215. He further discussed that the outline and discussion format of RG 1.215 follows table of content of NEI 08-01. RG 1.215 also include the 52.99 and 52.103(g) ITAAC closure process flowchart and timeline.

Mr. Gaslevic further explained that the 60-day public comment period ended on May 13, 2009. NEI comments comprised the majority and were mostly editorial in nature.

Comment requiring significant effort involves the definition of "as-built." Inspections, tests, and analyses of ITAAC related SSCs should ordinarily be performed in the final, in-place location. The current definition of "as-built" means the physical properties of the structure, system, or component following the completion of its installation or construction activities at its final location at the plant site. NEI 08-01 modifies "as-built" definition by adding that determination of physical properties of the as-built structure, system, or component may be based on measurements, inspections, or tests that occur prior to installation, provided that subsequent fabrication, handling, installation, and testing do not alter the properties. NRC staff believes that the NEI 08-01 definition of "as-built" could form part of the basis for a DCD definition of "as-built" in future design certifications and design certification amendments.

The members made the following questions and comments on the staff presentation:

- Who will ultimately approve the ITAAC closure, HQ or Region II.
- What type of inspection will be performed to close ITAAC.
-
- What document would have the details of the DAC closure process.
- Would there be another RG on the closure of DAC.
- Would 100% DAC be inspected.
- The ITAAC closure process is not detailed enough.
- Is DAC closure more like an audit type function.
- Is DAC closure based only on inspections.
- Why endorse NEI 08-01 when it is still being revised.

- **<u>NEI Presentation</u>**

Mr. Russ Bell presented the industry guidance document NEI 08-01, Revision 3, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52," which was issued in January 2009, for the implementation of 10 CFR 52.99. Mr. Bell discussed contents of NEI 08-01, templates for required ITAAC notifications, including ITAAC closure letters, the 225-day notification of the status of uncompleted ITAAC, and the industry comments on DG-1204. He also discussed about maintaining validity of ITAAC conclusions, the Design Acceptance Criteria (DAC), and ITAAC closure after COL.

The members made the following questions and comments on NEI presentation:

- How the ITAAC closure process is applied to DAC.
- What prompts the licensee to maintain the validity of ITAAC and DAC closures.
- Whether the ITAAC and DAC closure documents are available to the public.

- The ITAAC closure templates do not have any details or supporting data for closure.

COMMENTS AND OBSERVATIONS FROM THE SUBCOMMITTEE MEMBERS

The following major comments were made by the members on RG 1.215 and today's meeting:

- It is not clear how the DAC closure process will be performed. It appears that the DAC closure process has two steps, one is the design function closure and the other is the ITAAC closure. They should be combined into one step.

- 100% of the DAC should be inspected after COL. This detail should be incorporated into this Reg. Guide.

- The DAC should be resolved before the 225-day notification.

- Why the prioritization process that is used for ITAAC is not used for construction inspections. A more detailed discussion of "as-built" is needed with specific examples.

- Who owns the DAC closure process, the Region or the HQ. The process is not very well defined and a better explanation is required about how this will work.

- Some concrete examples of the closure process should be provided.

- When the ACRS reviews the design certifications, it needs to review the completeness of the ITAAC.

SUBCOMMITTEE DECISIONS AND ACTIONS

Following the staff and applicant presentations and discussions, Chairman Bley asked the members if they had additional issues and concerns that needed to be discussed.

The members recommended that RG 1.215 be presented to the full Committee meeting during July 8-10, 2009.

He then adjourned the meeting by thanking everyone for attending the meeting.

BACKGROUND MATERIALS PROVIDED TO THE SUBCOMMITTEE

1. RG 1.215 (DG-1204), "Guidance for ITAAC Closure Under 10 CFR Part 52."

2. NEI 08-01, Revision 3, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52"

3. 10 CFR Part 52.99, "Inspection during construction."

4. Final Rule for 10 CFR Part 52 "Licenses, Certifications, and Approvals for Nuclear Power Plants," August 28, 2007, 72 FR 49352

5. 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,” Enclosure 3, “Flowchart and Description of Implementation under 10 CFR

****

NOTE:
Additional details of this meeting can be obtained from a transcript of this meeting available in the NRC Public Document Room, One White Flint North, 11555 Rockville Pike, Rockville, MD, (301) 415-7000, downloading or view on the Internet at http://www.nrc.gov/reading-rm/doc-collections/acrs/ or it can be purchased from Neal R. Gross and Co., 1323 Rhode Island Avenue, NW, Washington, D.C. 20005, (202) 234-4433 (voice), (202) 387-7330 (fax), nrgross@nealgross.com (e-mail).

****