

October 10, 2014

MEMORANDUM TO: Brian Anderson, Chief
ITAAC and Generic Communication Branch
Division of Construction Inspection
and Operational Programs
Office of New Reactors

FROM: Ian Cozens, Reactor Operations Engineer /RA/
ITAAC and Generic Communication Branch
Division of Construction Inspection
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Office of New Reactors

SUBJECT: SEPTEMBER 18-19, 2014; SMR TIER 1 TOPICS PUBLIC
MEETING SUMMARY

On September 18th and 19th, 2014, the 6th category 3 public meeting between the Nuclear Regulatory Commission (NRC) staff and stakeholders was held with regard to improvements and standardization of inspections, tests, analyses, and acceptance criteria (ITAAC) for Small Modular Reactors (SMRs). The first topic covered the ITAAC for the Design Reliability Assurance Program (D-RAP). Clarification of the ITAAC's purpose and why analysis is required was given and a new acceptance criterion was suggested requiring the initial revision of each procurement and construction document of SSCs within the D-RAP be issued. This ITAAC remains under discussion by NRC staff. The ITAAC for Human Factors Engineering (HFE) were discussed next. Staff identified that the use of a design acceptance criteria or DAC-ITAAC was not appropriate for the main control room design ITAAC. The ITA for this ITAAC is a test that is meant to demonstrate the adequacy of the proposed design. It is not a set of design requirements. Edits captured the purpose of incorporating HFE into the design, to minimize the potential for operator error. The as-built main control room ITAAC was also modified to reference the integrated system validation test.

Discussion then focused on ITAAC related to ASME Code Section III including pipe break hazard analysis for high and moderate energy line breaks, leak before break ITAAC, and a new ITAAC for reactor pressure vessel fracture toughness requirements. The proposed ITAAC refer only to safety-related SSCs, however; it is the NRC's position the proposed standard ITAAC should address both the structures, systems, and components classified as safety-related and for the passive plant designs those SSCs captured under the regulatory treatment of non-safety systems (RTNSS). Therefore, the ITAAC's reference to RTNSS items has been incorporated by the use of brackets as shown in the list of proposed standard ITAAC. The list is available in ADAMS and a link is provided at the end of this summary.

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The ITAAC for fire protection barriers were discussed along with the Commission's policy for new reactor designs outlined in SECY-89-013. The proposed ITAAC were expanded in accordance with the policy to include an ITAAC which will cover smoke barriers in addition to fire barriers. ITAAC for fire protection system water storage tank capacity was expanded to allow for an alternative water source. Additional ITAAC were proposed with respect to the fire protection system standpipe's survivability in a safe shutdown earthquake, an as-built fire hazards analysis, and an as-built safe shutdown analysis.

The discussion on equipment qualification ITAAC led to NRC staff revisions for functional qualification of pumps and valves, and a new ITAAC to cover environmental qualification for mechanical equipment. Also included with each of these ITAAC was a Tier 2 Section 14.3 discussion. Staff also identified that part ii of the seismic and EQ ITAAC was not acceptable because the change failed to ensure the SSC was installed in a manner bounded by the qualification process. The first day concluded with a discussion and feedback from the staff on the proposed instrumentation and control (I&C) ITAAC.

The first discussion on the second day of the meeting covered the electrical ITAAC. Deletion of the non-Class 1E standby diesel generators or station blackout diesel generators from the standard ITAAC was discussed due site specific nature of these components. Staff identified additional topics that may require an ITAAC, including ITAAC for detection and alarm of open phase conditions, for degraded and under voltage protection, for testing of the transfer from normal to alternate offsite circuits, and for the existence of surge arrestors/lightning protection/grounding. Staff will continue to review these items.

The standard ITAAC proposed for mechanical SSCs contain ITAAC which fall under the responsibility of many different NRC technical reviewers. The safety-related vs. RTNSS issue was again discussed in this section and several edits were made. The ITAAC for the main control room habitability system automatic alignment test was modified to require the system to automatically align to its designated position upon receipt of an actual or simulated signal. It was agreed that the turbine missile strike zone ITAAC needs to capture alternative criteria dependent on whether SSCs are or are not within a turbine missile strike zone. Staff noted ITAAC criteria to ensure that cranes are ASME Type I, however the regulatory requirement allows them to meet the ASME NOG-1 code, or other equivalent codes. Staff proposed that these ITAAC be changed to ensure that cranes are single failure proof, not simply designated as meeting ASME Type I requirements. Proposed edits were made to the tier 2 discussion section for the RCS pressure boundary leakage detection test ITAAC to clarify what is required in the analysis of the tests.

B. Anderson

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The next public meeting will be scheduled for December 3-4, 2014. A public meeting notice will be released with the details for that meeting.

Proposed changes to the draft standard ITAAC can be viewed at [ML14274A167](#).
A list of attendees is attached.

Please direct any inquiries to Ian Cozens at 301-415-6203, or via e-mail to ian.Cozens@nrc.gov.

Enclosure:
List of Attendees

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Enclosure:
List of Attendees

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NRC-001

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|---------------|---------------|-------------------|
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| NAME | ICozens | BAnderson |
| DATE | 10/9/14 | 10/10/14 |

OFFICIAL RECORD COPY

List of Attendees

Category 3 Public Meeting on Tier 1 ITAAC Related SMR Topics

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|--------------------|---------------|
| Afshar, Cyrus | NuScale Power |
| Bell, Russ | NEI |
| Bousquet, Earl | NRC |
| Cozens, Ian | NRC |
| Cranston, Greg | NRC |
| Davis, Robert* | NRC |
| Dumsday, Carl | NuScale |
| Gaillard, Pete | TVA |
| Hansing, Nicholas | NRC |
| Kline, Steven W. | Bechtel |
| Jackson, Terry | NRC |
| Jaworsky, Mari* | Duke Energy |
| LaVera, Ron | NRC |
| Lentz, Tony | NuScale |
| Li, Chang-Yang | NRC |
| Libby, Earl | NRC |
| Mirsky, Steven | NuScale Power |
| Nichol, Marc | NEI |
| Patterson, Malcolm | NRC |
| Robillard, David* | PSEG |
| Strnisha, James* | NRC |
| Tabatabai, Omid* | NRC |
| Walker, Jacqwan | NRC |
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* Indicates remote participation via teleconference or Webinar.

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