



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

November 9, 2010

Mr. R.W. Borchardt  
Executive Director for Operations  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**SUBJECT:     RESPONSE TO THE OCTOBER 7, 2010, EDO LETTER REGARDING  
                  CLOSURE OF DESIGN ACCEPTANCE CRITERIA FOR NEW REACTORS**

Dear Mr. Borchardt:

Thank you for the October 7, 2010, staff response to our report of August 9, 2010, on the closure of Design Acceptance Criteria (DAC) for new reactors. The evolving strategies and plans of the DAC Task Working Group reported in your letter are resolving substantial sources of uncertainty in the DAC closure process. We are pleased with the level of agreement between the staff and ourselves on several aspects of our recommendations:

- DAC closure requires expert judgment
- Subject matter experts with experience in the area covered by the DAC should perform the inspection of activities for verification of DAC closure
- It is preferable to close DAC as early as possible
- Consistent scope and depth of evaluation<sup>1</sup>

The final aspect of our recommendations, that there should be an independent assessment by the ACRS of the DAC closure, remains a point of disagreement. Staff proposed that we review only the trial/pilot of the DAC inspection program. While we certainly want to follow that process and plan to report on it, we believe that independent ACRS assessment should be continued through at least the first few applications. The first application will be a pilot project, which will likely involve many changes and adaptations, as the process is fully developed. The second application will actually be the initial trial of the fully developed process and guidance. We would prepare a report on each observed application, commenting on the process and the efficacy of digital instrumentation and control (DI&C) DAC closure and inspection, as well as evaluating the need for any further ACRS involvement.

DAC closure has never been done before. It is the process to confirm that the implemented design actually meets the expectations of the design specification, and is functionally equivalent to the final review of a complete design under Part 50, before the Operating License is issued. It is not the equivalent of the post Operating License inspection to accept the as-built hardware

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<sup>1</sup> Although the EDO response uses somewhat different language, the staff presentation to the Commission on November 5, 2010, adopted this language that matches Recommendation 2 in our August 9, 2010, report.

and software, although it includes that aspect. We do not propose to be involved in those Inspections, Tests, Analyses, and Acceptance Criteria that confirm the as-built delivered system.

Your letter emphasized several concepts relevant to DAC and the DAC closure process, two of which are of particular interest to us.

#### **DAC do not stand in isolation**

- Concept: “When viewed in isolation, especially in DI&C systems, DAC as written may appear insufficient to make the required safety finding. When viewed in the broader context of all the information used by the staff in making its safety finding (e.g., the design control document, reference technical reports, and approved topical reports), the approach used for DAC is sufficient.”
- ACRS comment: The ability to track those links between DAC and specific supporting information on which the safety finding was based is essential to ensure that the implemented design, at the time of DAC closure, actually meets the design specification and licensing requirements. Demonstrating this ability is necessary.

#### **Complex systems**

- Concept: “[Highly interconnected designs that] rely on software to protect redundant components would require a more complete design to make the safety finding. In these cases, DAC may not be necessary since the designs would need to be complete in order to resolve all safety issues.”
- ACRS comment: This concept deals directly with our concern about highly integrated and pervasive systems. Systematic application of this concept would alleviate one of our major concerns with some systems.

We look forward to continuing interaction with the staff, as the DAC Task Working Group continues to develop its strategy and specific procedures for inspecting DI&C DAC activities.

Sincerely,

*/RA/*

Said Abdel-Khalik  
Chairman

#### References:

1. Letter to Said Abdel-Khalik, “Response to the Advisory Committee on Reactor Safeguards Letter on Closure of Design Acceptance Criteria for New Reactors,” 10/07/2010 (ML102650565)

2. Letter to Gregory B. Jaczko, "Closure of Design Acceptance Criteria for New Reactors," 08/09/2010 (ML102000425)
3. NRC Staff Presentation to the Commission, Meeting with the Advisory Committee on Reactor Safeguards and Briefing on Design Acceptance Criteria, November 5, 2010 (<http://www.nrc.gov/reading-rm/doc-collections/commission/slides/2010/20101105/staff-20101105.pdf>)

2. Letter to Gregory B. Jaczko, "Closure of Design Acceptance Criteria for New Reactors," 08/09/2010 (ML102000425)
  
3. NRC Staff Presentation to the Commission, Meeting with the Advisory Committee on Reactor Safeguards and Briefing on Design Acceptance Criteria, November 5, 2010 (<http://www.nrc.gov/reading-rm/doc-collections/commission/slides/2010/201011105/staff-201011105.pdf>)

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