



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

June 16, 2010

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

**SUBJECT:     RESPONSE TO THE APRIL 16, 2010, EDO LETTER REGARDING DRAFT  
                  FINAL NUREG-1520, REVISION 1, "STANDARD REVIEW PLAN FOR REVIEW  
                  OF A LICENSE APPLICATION FOR A FUEL CYCLE FACILITY"**

Dear Mr. Borchardt:

In a letter dated February 22, 2010, we provided several recommendations on Draft Final NUREG-1520, Revision 1, "Standard Review Plan for Review of a License Application for a Fuel Cycle Facility." As a follow-on activity for future development and for reporting results of an Integrated Safety Analysis, we recommended that attention be given to fire-induced "hot shorts" and their potential to place systems in conditions other than a fail-safe condition. Your April 16, 2010, response to our letter stated that the "staff will evaluate the potential for fuel cycle events related to hot shorts; if the staff determines that it is a common event or has significant risk for fuel cycle facilities, the staff will develop guidance utilizing the results of ongoing research on the topic."

Our recommendation was founded on the knowledge that the occurrence of "hot shorts" can be an important contributor to the risk from fires at nuclear power plants. It has been established that fires are likely to induce "hot shorts" in AC circuits. Preliminary results show the problem is different but still arises in DC circuits. Over the last four years, we have written several letters on the subject as referenced. Our letter on the CAROLFIRE tests, for example, noted that extensive data from the tests will help analysts identify various cable failure modes and their timing, and inform analysts' judgment when they assess the likelihood of cable failure.

Although fire-induced "hot shorts" are not expected to be "common events" at nuclear fuel cycle facilities, they may be significant contributors to risk. There are no means at the present time for making quantitative estimates of these contributions to risk at fuel cycle facilities. Therefore, it is not evident how the staff will make their determinations prior to the review of a new facility and use "significant risk" as a criterion from which to develop additional guidance. In light of the growing use of digital electronic systems, we would also expect that future nuclear fuel cycle facilities will have rather different susceptibility to fire than facilities previously examined.

We recommend that explicit consideration of fire-induced "hot shorts" be included in the guidance for the review of applications for fuel cycle facilities.

Sincerely,

*/RA/*

Said Abdel-Khalik  
Chairman

References:

- Letter to Gregory B. Jaczko, Draft Final NUREG-1520, Revision 1, "Standard Review Plan for Review of a License Application for a Fuel Cycle Facility," 02/22/2010 (ML100470846)
- Letter to Said Abdel-Khalik, Response to Advisory Committee on Reactor Safeguards Letter dated February 22, 2010, on the Draft Final NUREG-1520, Revision 1, "Standard Review Plan for Review of a License Application for a Fuel Cycle Facility," 04/16/2010 (ML100630556)
- Letter to Luis A. Reyes, Draft Final Generic Letter 2006-XX: Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations, 06/16/2006 (ML061670327)
- Letter to Luis A. Reyes, Cable Response to Live Fire (CAROLFIRE) Testing and Fire Model Improvement Program, 02/28/2008 (ML080420330)
- Letter to Gregory B. Jaczko, Report on the Draft Final Revision 2 to Regulatory Guide 1.189, "Fire Protection for Nuclear Power Plants," 10/20/2009 (ML092880515)

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- Letter to Gregory B. Jaczko, Report on the Draft Final Revision 2 to Regulatory Guide 1.189, "Fire Protection for Nuclear Power Plants," 10/20/2009 (ML092880515)

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