

## **CSSG TASKING 2010-01**

Date Issued: April 23, 2010

### **Task Title:**

Balanced Technical Approaches for Addressing Potential Seismically Induced Criticality Accidents in New Facility Design

### **Task Statement:**

The CSSG is directed to develop a white paper on the use of balanced technical approaches for addressing the potential consequences of seismically-induced criticality accidents within the context of regulatory seismic design requirements for non-reactor nuclear facilities. The objective of the white paper is to provide guidance for technical approaches during new facility design phases to assessing criticality accident risk relative to seismic initiated events that balances the need to prevent potential criticality accidents with cost, regulatory compliance, and relative impact of a criticality accident in light of the overall consequence of the initiating event. The approach should include an evaluation of the extent to which seismic design criteria specified by DOE should be applied to facilities based solely on criticality safety risk. The CSSG is encouraged to indicate how the criticality safety philosophy inherent in the ANSI/ANS-8 Nuclear Criticality Safety Standards should influence the development of criticality controls in design of new facilities and how such an approach fits into the overall regulatory framework for new facility design. Hazards and risks that are to be addressed include:

- Potential process and operations equipment distortion that could lead to the potential for a criticality accident
- Loss of material separation and/or containment to the facility and/or environment resulting in the potential for a criticality accident
- Presence of employees during the seismic event, evacuation, and mustering
- Anticipated radiation exposures to employees, public, and the environment in the event of a seismically induced criticality accident
- Generalized cost-benefit evaluation on the use of seismically-qualified SSCs only to meet regulatory requirements without any significant risk reduction

### **Resources:**

The CSSG Deputy Chair will form writing and review teams composed of CSSG members. Contractor CSSG members of the teams will use their FY10 NCSP CSSG support funding; DOE CSSG members of the teams will provide funding from their site offices. CSSG emeritus members may be included in the teams on a voluntary basis. In addition, staff members from the office of the NNSA Chief of Defense Nuclear Safety (CDNS), Brad Embrey, and the NNSA Engineering and Analysis Division, Andrew (Andy) F. Delapaz, shall participate on the team as ad hoc CSSG members on the writing team.

**Task Deliverables:**

CSSG Chair briefs the NCSP Manager on the proposed technical approaches and also highlights any emergent issues requiring disposition by the NCSP Manager on or before May 28, 2010.

Draft white paper issued to the entire CSSG for comments by June 25, 2010.

CSSG members submit comments on the draft white paper to the writing team lead by July 9, 2010.

Writing team addresses all comments from the CSSG and incorporates any comments that are accepted by August 6.

CSSG chair briefs the NCSP Manager on the comment resolution and the major recommendations of the writing team by August 20.

The writing team lead will submit the white paper to the CSSG Chair for transmittal to the NCSP Manager.

**Task Due Date:** August 27, 2010