

CSSG TASKING 2016-05
Date Issued: November 2, 2016

Task Title: *Regulatory Impediments to Effective Operational Nuclear Criticality Safety*

Background:

The Criticality Safety Support Group (CSSG) of the DOE Nuclear Criticality Safety Program (NCSP) has supported the development and review of regulatory and implementation documents related to criticality safety since its inception. Regulatory documents that the CSSG has been involved with include DOE-STD-3007, DOE-STD-3009, DOE-STD-1020, and DOE O 420.1. Historically, the CSSG has had several taskings to address cross-cutting issues such as the integration of criticality safety with nuclear facility requirements for addressing natural phenomenon hazards, fire-fighting water, seismic effects and facility hazard categorization. A partial list of relevant taskings is given in Attachment 1.

Task Statement:

The CSSG is tasked with evaluating the impediments to effective, cost-efficient, criticality safety implementation based on the current regulatory environment. The CSSG Task team will apply their experienced professional judgment to identify real examples of regulatory expectations and interpretations that have, and will, generally cause excessive DOE program costs and have little impact on, or potentially diminish, applied criticality safety. This evaluation should provide a cogent picture of regulatory impediments and interpretations that impact the implementation of criticality safety from the perspective of implementing the ANSI/ANS-8 Standards in a cost-effective manner. The target audience for this evaluation includes the NNSA CTA/CSO/CDNS (i.e., higher level management) and potentially similar DOE management. Previous CSSG taskings and discussions have identified concerns with certain requirements in DOE-STD-1020, DOE-STD-1066, DOE-STD-1027, NFPA regulations, 10 CFR 830 and other regulatory and implementation documents. The primary concern of the CSSG is that if these regulatory impediments are not addressed, the combined effect of individual requirements will impose a significant burden on nuclear facilities to the point that nuclear criticality safety principles are compromised rather than implemented as they should be, or operations may be so constrained as to be cost-prohibitive. These conflicts are usually resolved at the lowest levels of engineering staff work with a strong bias towards the path of least resistance from an over-conservative regulatory perspective regardless of cost. Concerns about meeting every regulation may cause some sites to go to extremes in trying to comply with a set of requirements that have no impact on overall criticality safety or where full compliance may not be achievable without compromising time-tested principles and drastically impacting cost-efficiency. Ultimately, this could result in an inability to maintain the nation's stockpile as facilities become too expensive to build or operate, all in the name of the cost of doing nuclear work.

The intent of this tasking is to provide an evaluation of current regulatory impediments that include but are not limited to overlap and interference among fire protection requirements, NPH regulations, and facility hazard categorization. The expectation is that this tasking will result in a report that provides the CSSG's expert judgement of the current state of regulatory impediments to effective operational nuclear criticality safety and will:

- Cite specific examples,
- Describe potential impacts, and
- Propose potential path(s) for resolution.

The CSSG Task team should identify trends in the interpretation of regulatory requirements on the basis that NCS is treated as a “special hazard” in some cases and subject to the concept of unmitigated dose consequences in other cases. The path(s) for resolution may involve clarification of requirements via a combination of rulemaking revisions, revisions to DOE directives, and exemptions from DOE Orders, Rules, Standards and Handbooks, and National Standards invoked by DOE requirements.

Resources:

CSSG Task 2016-05 Team Members:


Fitz Trumble (Team Leader)
Kevin Kimball
Jerry Hicks
Michael (Mikey) Brady Raap

Contractor CSSG members of the team will use their NCSP CSSG support funding as appropriate; DOE CSSG members of the team will utilize support from their site offices.

Task Deliverables:

1. CSSG Subgroup to hold task kickoff telecom/meeting by November 11, 2016.
2. CSSG Subgroup to provide draft letter report to full CSSG for review: December 21, 2016
3. Full CSSG to provide review comments to Task Team Leader: January 15, 2017
4. CSSG to provide a formal briefing package to the NCSP Manager on the pre-decisional final report by January 22, 2017.
5. CSSG Subgroup to provide briefing to NNSA CDNS (Dan Sigg), CSO (Pat Cahalane) and CTA (Jim McConnell) by January 31, 2017.
6. CSSG team to issue final report to NCSP Manager: February 14, 2017

Task Completion Date: February 14, 2017

Signed: 
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EXAMPLES OF RELEVANT CSSG TASKINGS

(<http://ncsp.llnl.gov/cssgMain.html>)

2016-04, Position of the CSSG on Natural Phenomena and Other Extreme Events vis-a-vis ANSI/ANS-8 Standards, June 22, 2016,

2015-04, DOE-STD-1020 Nexus to Criticality Safety, February 13, 2015, March 30, 2015

2015-02, Revision of DOE-STD-3007-2007, *Guidelines for Preparing Criticality Safety Evaluations at Department of Energy Nonreactor Nuclear Facilities*, Rev 1, August 16, 2016

2015-01, Support CTA Interpretation regarding the UPF SDS, April 01, 2015, April 28, 2015

2013-03-01, CSSG SME Document Review of DOE-STD-3009a-YR, February 06, 2013, March 19, 2013, RevCom-1-31084-DOE-STD-3009a-YR

2013-03, Standing Request by the NCSP Manager for CSSG SME Document Review, January 24, 2013,

2013-01, CSSG Position on Use of Water for Firefighting in Light of Criticality Constraints for DOE Facilities, December 18, 2012, February 28, 2014

2011-04, CSSG Review of the UPF Facility Position on Criticality Safety in Regards to Seismic Design, April 26, 2011, May 20, 2011

2011-03, CSSG Response to DNFSB Staff Member on CSSG Position in Regards to Seismic Design, April 26, 2011, May 15, 2011

2011-02, CSSG Participation in Drafting and Review of the Final DOE HS-21 Revision to DOE-STD-3009, February 11, 2011, October 3, 2011

2011-01, CSSG Review of Draft DOE O 420.1C, January 18, 2011, January 31, 2011

2010-02, Role of Criticality Safety in Facility Hazard Categorization, September 21, 2010, October 16, 2010

2010-01, Balanced Technical Approaches for Addressing Potential Seismically Induced Criticality Accidents in New Facility Design, April 23, 2010, November 19, 2010, December 5, 2011 Rev1 final

2009-05 Development of a training guide for DOE-STD-1173-2009, Criticality Safety Functional Area Qualification Standard, DOE Nuclear Facilities Technical Personnel, October 12, 2009, October 04, 2010

2009-04, Review of the 2009 Revision to DOE-STD-1158, Self-Assessment Standard for DOE Contractor Criticality Safety Programs, September 30, 2009, October 18, 2009

2007-05, Review of RevCom Draft DOE-STD-1189, April 24, 2007, May 30, 2007