The Secretary of Energy
Washington, DC 20585

March 21, 2013

The Honorable Peter S. Winokur
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW, Suite 700
Washington, DC 20004-2901

Dear Mr. Chairman:

The purpose of this letter is to notify you of the completion of all the actions in the Department of Energy (DOE) Implementation Plan (IP) for Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2008-1, *Safety Classification of Fire Protection Systems,* and to close Recommendation 2008-1.

Recommendation 2008-1 identified the need for standards applicable to the design and operation of fire protection systems being relied upon as a primary means of protecting the public and workers from radiological hazards at the Department's defense nuclear facilities. DOE has developed these standards and included them in DOE Standard 1066-2012, *Fire Protection*, and incorporated appropriate changes in DOE Order 420.1C, *Facility Safety.* Both the Standard and the Order were issued in December 2012. We appreciate the DNFSB staff's detailed review and recommendations for technical improvements made during the Standard 1066 development process.

The enclosed report describes actions taken to meet all of the IP actions and commitments. If you have any questions, please contact Dr. James O'Brien, Director, Office of Nuclear Safety, at (301) 903-1408.

Sincerely,

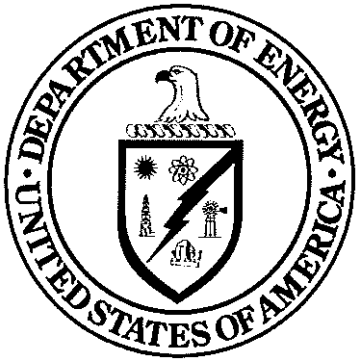
Steven Chu

Enclosure

U. S. Department of Energy

Final Report to the Defense Nuclear Facilities Safety Board for Closure of Recommendation 2008 -1

Safety Classification of Fire Protection Systems



Washington, DC 20585

February 2013

Report to the Defense Nuclear Facilities Safety Board
for Closure of Recommendation 2008 -1

1.0 Background

The Defense Nuclear Facilities Safety Board (DNFSB) issued Recommendation 2008-1, *Safety Classification of Fire Protection Systems,* on January 29, 2008. In that Recommendation, the DNFSB recommended that the Department of Energy (DOE) develop standards applicable to the design and operation of fire protection systems for safety class and safety significant fire protection systems.

The Department accepted DNFSB Recommendation 2008-1 on March 19, 2008, and submitted its Implementation Plan (IP) to the DNFSB on July 23, 2008. The IP defined the following major actions to be taken by the Department to ensure that safety related fire protection systems are adequately described and incorporated within DOE's regulatory framework:

- Identify Fire Protection Systems Commonly Used (or Anticipated to be Used) in Safety Class and Safety-Significant Applications;
- Identification of State of the Practice;
- Develop Additional Specific Design and Operational Criteria for Sprinkler Systems;
- Develop Specific Design and Operational Criteria for Additional Fire Protection Systems;
- Revise DOE Standard 1066, *Fire Protection Design Criteria,* based upon work done under Sections 5.3 and 5.4, incorporate specific design and operational criteria for sprinkler and other selected fire protection systems as appropriate; and
- Incorporate changes to applicable DOE directives.

The DOE began its work under this IP with support from fire protection engineering subject matter experts assembled in task groups that were formed through the Department's Fire Safety Committee. As work progressed, the DOE also pursued development of revised DOE Order (O) 420.1C, *Facility Safety*, and DOE Guide 420.1-1A, *Nonreactor Nuclear Safety Design Guide for use with DOE O 420.1C, Facility Safety*, as part of DOE directives reform effort, to include a specific revision to DOE-STD-1066, which included significant revisions of fire protection requirements. These final actions were completed in December 2012.

2.0 Status of 2008-1 Implementation Plan Commitments

Table 1 provides a status summary of the commitments to the Board made in the IP, all of which are also complete.

Table 1: Actions Taken to Complete Implementation Plan Commitments

Number	Commitment	Actions Taken
5.1.1	Survey Site Offices to identify fire protection systems.	Survey completed 1/20/2009.
5.2.1	Review current design practices for DOE safety class and safety-significant systems and industrial design and operational criteria used for fire protection sprinkler systems in other critical applications	Review completed 1/20/2009.
5.3.1	Draft design and operational Criteria for sprinkler systems.	2/06/2009 – Draft for new wet pipe automatic sprinkler systems completed. 4/12/2009 – Draft for water supply to wet pipe automatic sprinkler systems completed. In December 2009, both drafts were combined into a single product.
5.3.2	Issue Interim Guidance on Design and Operational Criteria for Sprinkler Systems.	2/4/2010 - Interim Guidance issued by the Office of Environmental Management for design and operation of new wet-pipe automatic sprinkler systems and its supporting water supplies. 4/14/2010 - Interim Guidance issued by the National Nuclear Security Administration for design and operation of new wet pipe automatic sprinkler systems and its supporting water supplies.
5.4.1	Identify types of fire protection systems (in addition to sprinkler systems) for which DOE will establish specific Design and Operating criteria.	2/6/2009 - A Departmental survey was completed and a list compiled on the types of fire protection systems, beyond wet-pipe sprinklers/water supply addressed in IP commitment 5.3.2. This survey and report sent to the Board recommended that fire barriers systems be additionally developed.
5.4.2	Draft Design and Operational Criteria for Selected Fire Protection Systems.	1/14/2011 - The Office of Health, Safety and Security forwarded to the DNFSB a draft of design and operational criteria for fire barrier systems with the anticipated inclusion of this draft and IP Commitment No. 5.3.2 into the revision of DOE-STD-1066.

5.5.1	Revise DOE-STD- 1066 to include new Design and Operational criteria.	3/6/2012 - Draft revision of DOE-STD-1066 submitted to the Technical Standards Program's RevCom system. Deliverables from IP Commitment Nos. 5.3.2 and 5.4.2 were added as a separate Appendix to DOE-STD-1066.
5.5.2	Finalized and issue DOE-STD-1066.	12/04/2012 – Deliverables from IP Commitment Nos. 5.3.2 and 5.4.2 are included as a separate Appendix to DOE-STD-1066.
5.6.1	Draft changes to other impacted DOE directives (DOE O 420.1C).	04/2011 - Draft revision of DOE O 420.1C submitted to the Departmental Directives Program's RevCom system.
5.6.2	Finalized and issue directives.	12/04/2012 - DOE O 420.1C published in the Department's Directives Program.
6.3.1	Commitment - DOE will provide Board briefings.	Briefings were conducted to the Board and/or the Board's staff on the following dates: 9/26/2008, 3/9/2009, 1/22/2010, 7/27/2010. Additionally, numerous meetings and discussions were held between DOE and DNFSB staff during the development, review, and finalization of DOE-STD-1066.

3.0 Basis for Closure of Recommendation 2008-1

The concern in Recommendation 2008-1 regarding the need for standards applicable to the design and operation of fire protection systems being relied upon as a primary means of protecting the public and workers from radiological hazards at the Department's defense nuclear facilities has been adequately addressed with the development and issuance of DOE Standard 1066 and DOE Order 420.1C, *Facility Safety*..

DOE will continue to assess the effectiveness of the implementation of the new fire protection standard and will pursue updates of the standard, as appropriate, based upon lessons learned from its implementation and best DOE and industry practices.