



The Deputy Secretary of Energy RECEIVED

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September 20, 2013

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DNF SAFETY BOARD

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

Dear Mr. Chairman:

As requested in your July 24 letter, enclosed is a report on the actions the Department of Energy (DOE) is taking to meet the commitments of DOE's Implementation Plan for Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2010-1, *Safety Analysis Requirements for Defining Adequate Protection for the Public and the Workers*, with an updated Implementation Plan schedule.

Dr. James O'Brien, the Department's responsible manager for the DNFSB 2010-1 Implementation Plan, will be briefing you on this report. If you have any questions, he can be reached at (301) 903-1408.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Daniel B. Poneman", with a long horizontal flourish extending to the right.

Daniel B. Poneman

Enclosure



**Report on Status of  
2010-1 Implementation Plan Milestones/Commitments  
September 2013**

**1. PURPOSE**

The purpose of this report is to:

- Document actions the Department of Energy (DOE) is taking to meet the commitments of DOE's Implementation Plan (IP) for Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2010-1, *Safety Analysis Requirements for Defining Adequate Protection for the Public and the Workers*.
- Provide an updated IP schedule for completion of the remaining IP commitments.
- Describe how the revisions being made to DOE Standard 3009, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*, meet commitments made (for its revision) in the Recommendation 2010-1 IP.

**2. BACKGROUND**

In a letter dated July 24, 2013, the DNFSB requested a report on the actions DOE is taking to meet the commitments of its IP and an updated IP schedule.

In its letter, the DNFSB also identified a concern that the draft DOE Standard 3009 fails to meet a number of commitments in the IP. In particular, the DNFSB raised concerns that the draft Standard:

- Does not provide a determination of the applicability of DOE Standard 3009 to new and existing facilities; and
- Does not identify criteria for evaluating the adequacy of the control set to perform its safety function.

**3. ACTIONS DOE HAS COMPLETED PER THE IP COMMITMENTS**

**3.1 Interim Measures to Address Central Technical Authority Role in Design Basis Accident (DBA) Review (Milestone 6.6.1)**

The IP stated that DOE would expand the role of the Central Technical Authorities (CTAs) to require CTA concurrences on Safety Evaluation Reports in new situations where the mitigated DBA exceeds the Evaluation Guideline (a situation not previously evaluated by the Department).

This expanded role was established via a memorandum issued on October 31, 2011, from the Central Technical Authorities.

### **3.2 Interim Evaluation Criteria for When Mitigated DBA Exceeds the Evaluation Guideline**

The IP stated that, in the event that the subject standards are not published within nine months of the issuance of the IP, the Department will consider establishing interim evaluation criteria that can be used as part of its review and approval process for those Documented Safety Analyses (DSAs) where potential mitigated DBA doses exceed the Evaluation Guideline and that appropriate levels of authority for approving these potential cases will be incorporated into the interim criteria.

These interim criteria were issued by the Deputy Secretary to the CTAs in a memo dated September 17, 2012.

### **3.3 Report on Areas for Improvement in DOE Standard 3009 (Milestone 6.1.1)**

The IP stated that DOE would develop a report on additional areas of improvements to safety analysis preparation standards or guidance documents and plans for implementing these standards and documents.

This report was sent to the DNFSB in a letter dated January 6, 2012.

### **3.4 Standard 3009 into RevCom Review and Comment (Milestone 6.1.2)**

The IP stated that DOE would develop and put a draft revision of Standard 3009 into RevCom for Complex-wide and DNFSB review.

The Draft Standard was put into RevCom on January 24, 2013.

### **3.5 Determination of Process for Invoking DOE Standard 1104 (Milestone 6.5.3(a))**

The IP stated that DOE would develop a requirement document for invoking DOE Standard 1104, *Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents*, if determined to be necessary.

DOE reviewed options for invoking DOE Standard 1104 and chose to invoke it via the addition of a requirement to DOE Order 420.1C, *Facility Safety*. Approval to process this revision was received from DOE's Directives Review Board on June 20, 2013.

## **4. UPDATE TO IP SCHEDULE**

Most of the IP commitment dates are based on the date of completion of Standard 3009, since most of products are based upon the revised Standard 3009. The revision of Standard 3009 took longer than initially anticipated due to substantial work to research and re-establish the technical and

regulatory basis for the 3009 guidance and criteria, as well as to capture best practices in its implementation. This is a lesson learned that is being applied in the commitment dates for the remaining IP products.

The table below provides the expected completion dates for all the IP products. It is based upon issuance of Standard 3009 by the end of March 2014.

**Table: Revised IP Commitment Dates**

<b>Commitment</b>	<b>Product</b>	<b>Anticipated Delivery Date</b>
Milestone 6.1.2, Update DOE Standard 3009	Final Standard Issued	March 2014
Milestone 6.1.3, Update DOE Standard 1120, DOE Standard 3011, and DOE Standard 1189	Draft Standards into RevCom for Complex-wide and DNFSB review	12 months after issuance of DOE Standard 3009 (March 2015)
Update DOE Standard 1120, DOE Standard 3011, and DOE Standard 1189	Final Standards Issued	12 months after submittal of DOE Standard 1120, 3011, and 1189 into RevCom (March 2016)
Milestone 6.2.1, Review of DSAs for Facilities with Mitigated Doses Above the Evaluation Guideline	Safety Evaluation Reports for DSAs (and any updates to the DSAs) for those facilities with mitigated doses above the Evaluation Guideline.	The first annual DSA update initiated six months after issuing the revision to the standard on which the safety analysis is based.
Milestone 6.3.1, Update DOE Standard 1104	Draft Standard into RevCom for Complex-wide (and DNFSB review)	December 2013
Milestone 6.3.1, Update DOE Standard 1104	Final Standard Issued	6 months after issuance of DOE Standard 3009 (September 2014)
Milestone 6.4.1, Update Independent Oversight Protocols	Draft Oversight Protocols (including Criteria Review and Approach Document)	1 month after DOE Standard 1104 is issued (October 2014)
Milestone 6.4.1, Update Independent Oversight Protocols	Final Protocols Issued	2 months after Draft Protocols Issued (December 2014)
Milestone 6.5.1, Analysis of Regulatory Options	Technical Paper on Regulatory Options	December 2013
Milestone 6.5.1, Analysis of Regulatory Options	Deliverable: Decision on Regulatory Options	2 months after Technical Paper is issued (February 2014)
Milestone 6.5.2, Update of 10 Part C.F.R.	10 C.F.R. Part 830 Proposed Revision* into Federal Register	9 months after DOE Standard 3009 is issued (December 2014)*

830*	(FR) for Notice and Comment	
Milestone 6.5.2, Update of 10 Part C.F.R. 830 *	10 C.F.R. Part 830 Revision Issued*	12 months after put into FR for comment (December 2015)*
Milestone 6.5.3, Develop a DOE Directive requirement to invoke DOE Standard 1104 (if determined necessary)	Deliverable: DOE Directive requirement issuance	Issued with DOE Standard 1104 (September 2014)

\*If revision to 10 C.F.R. 830 is determined to be necessary per milestone 6.5.1.

## 5. REVISION OF DOE STANDARD 3009

In its IP, DOE stated, among other things, that it would address the following in the revision of DOE Standard 3009:

- The usage of unmitigated, bounding-type accident scenarios to estimate doses to the maximally exposed offsite individual.
- The usage of the Evaluation Guideline as it applies to new and existing facilities.
- The requirements that must be met to fully implement the DSA development methodology. In particular the requirements for:
  - Methodologies that must be used in preparation of a DSA, including criteria for input data, accident analysis parameters, and analytical tools used as part of the process. (Sub-Recommendation 3.a).
  - Criteria that must be met for identifying and analyzing an adequate set of DBAs (for new facilities), or Evaluation Basis Accidents (for existing facilities). (Sub-Recommendation 3.b).
  - Criteria for performing mitigated dose consequence analyses to determine the effectiveness of safety-class SSCs to reduce dose consequences to below the Evaluation Guideline (Sub-Recommendation 3.c).
  - Criteria for evaluating the adequacy of the control set to perform its safety-related function.
  - Actions that must be taken if the consequence cannot be mitigated below the Evaluation Guideline.

To do this, DOE stated that it would evaluate the current draft revision to DOE Standard 3009 in areas of hazard assessments, accident analysis, and hazard control identification to determine where further improvements are warranted to ensure consistent and predictable implementation of these processes (including use of appropriate input parameters and analysis methods). As part of this evaluation, DOE stated that it would determine whether identified improvements should be made in the current draft revision to DOE Standard 3009, a Code guidance document, or a future revision to DOE Standard 3009 (or a new DOE Standard). This determination was to be based on the best fit

for the new criteria or guidance and the time needed to develop the new criteria or guidance relative to the priority for completing current improvements to DOE Standard 3009.

DOE draft revision of DOE Standard 3009 has addressed all of these issues and further refinements are in process. For example, DOE Standard 3009 has been restructured and modified to meet industry practices for Standards including clear identification of requirements by utilizing “shall” statements. The direction for developing DSAs has been expanded and clarified. DOE is developing a supporting Accident Analysis Handbook that will provide best practices for the development of DSAs. This approach and the level of detail provided by the requirements/criteria in the Standard versus guidance and best practices provided in the Accident Analysis Handbook are consistent with Nuclear Regulatory Commission regulatory practices relative to Fuel Cycle Facilities.

Regarding the applicability of the new Standard, it is stated in the Foreword to the draft Standard that it is to be used for existing facilities that have not mitigated doses below the evaluation guideline. It also stated in the Foreword that it can be applied to other existing facilities, but that this is not mandatory. Furthermore, the draft Standard was specifically developed to support preparation of DSA for facilities whose preliminary DSA was prepared in accordance with DOE Standard 1189, *Integrating Safety into the Design Process*. However, DOE is in the process of completing its formal regulatory analysis, as called for in the 2010-1 IP, that will serve as the basis for the Department’s final decision on the applicability of the new DOE Standard 3009 to new and existing facilities and how best to implement it (for example, via a DOE Notice). The new Standard’s Forward will be updated to reflect the Department’s final decision on its applicability.