



The Deputy Secretary of Energy
Washington, DC 20585

June 10, 2010

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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:

I am writing in response to the Defense Nuclear Facilities Safety Board's (Board) letter of March 15, 2010, alerting me to the Board's concerns over perceived changes in the Department of Energy's (DOE) use of the Evaluation Guideline, as described in DOE Standard 3009, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*.

As described in the enclosure, DOE requirements and standards provide the foundation for ensuring the safe design and operation of our nuclear facilities. These requirements and standards, and their implementation, remain essentially unchanged since the promulgation of Title 10, Code of Federal Regulations, Part 830, *Nuclear Safety Management*, and have been effective in enhancing the safety of our facilities. That said, we continue to look for ways to improve our requirements and standards and their implementation, and will consider the Board's concerns to determine if clarification on the use of the Evaluation Guideline in Standard 3009 is needed.

The enclosure provides a detailed response to your first set of questions related to the regulatory status of DOE Standard 3009 and our regulatory framework for ensuring adequate protection of the public. Regarding your second set of questions, I have asked the responsible program offices to provide information directly to you on their defense nuclear facilities in which accident analysis calculations do not demonstrate that safety class controls will mitigate dose consequences to below the DOE Standard 3009 Evaluation Guideline.

If you have any questions on this matter please contact my Chief Health, Safety and Security Officer, Glenn Podonsky, at (202) 287-6071.

Sincerely yours,

A handwritten signature in black ink, appearing to read "D. B. Poneman", written over a horizontal line.

Daniel B. Poneman

Enclosure



cc: Thomas P. D'Agostino, US
Kristina Johnson, US
Steven Koonin, US
Scott Harris, GC-1
Glenn Podonsky, HS-1
Mari-Jo Campagnone, HS-1.1

SEPARATION

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Enclosure

Response to Defense Nuclear Facilities Safety Board (DNFSB) Questions
from the Vice Chairman's March 15, 2010, Letter

DNFSB Question 1:

"What is the regulatory status of DOE Standard 3009? That is, if a contractor chooses to use this methodology, what part of the recommended approach to safety and the contents of Appendix A for implementation of the Evaluation Guideline are mandatory, and what parts are optional?"

Answer: The first sentence of your question implies a need for a legal interpretation and it has been answered separately from the second sentence.

Regulatory Status of DOE Standard 3009

The regulatory "status" of Department of Energy (DOE) Standard 3009, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analysis*, is that it is identified in title 10 Code of Federal Regulations (C.F.R.) Part 830 as an acceptable method for developing a Documented Safety Analysis (DSA) for the types of facilities specified for such use in Subpart B, Appendix A, Table 2. It is not the only acceptable method identified, nor is it a mandatory method. Thus, DOE contractors are not required to follow DOE Standard 3009 in order to comply with 10 C.F.R. Part 830. Specifically, DOE Standard 3009 is identified as non-mandatory in Table 2 of Appendix A of 10 C.F.R. Part 830, Subpart B, as a method for developing a documented safety analysis for a DOE nonreactor nuclear facility. Title 10 C.F.R. § 830.204(a) requires that contractors obtain approval from DOE for the methodology used to prepare the documented safety analysis for the facility unless the contractor uses a methodology set forth in Table 2 of Appendix A to Subpart B. The regulation does not specify a particular format or process for obtaining that approval. Once adopted, however, failure to adhere to the chosen method (either Standard 3009 or an alternative method) may result in disapproval of the DSA or a requirement to seek and obtain approval for use of the alternative method actually used.

What Parts of DOE Standard 3009 are Mandatory

If a contractor chooses to follow the DOE Standard 3009 methodology, it must follow the entire methodology, including Appendix A of the Standard, or the contractor may request to have an alternative methodology approved by DOE.

The Standard was not written as a prescriptive item-by-item requirements document; rather it provides an overall approach and guidance for preparing a DSA. An essential element of the approach requires contractors to use the Evaluation Guideline described in Appendix A of the Standard as a benchmark for evaluating the need for safety class controls¹. In most cases, it is

¹ The role of safety class controls is discussed in the answer to the next question.

possible for contractors to quantitatively demonstrate that existing or proposed safety class controls reduce the calculated dose to the public to below the guideline. However, pursuant to the Standard, when the analysis does not demonstrate this result, planned improvements (and interim controls until the improvements are implemented) may be required by the Safety Basis Approval Authority as a condition of approval of the documented safety analysis. Additional discussion of this point is provided in the answer to the second question and subsequent discussion.

Once a DSA is submitted for approval, the DOE Safety Basis Approval Authority performs a detailed technical review of it, utilizing DOE Standard 1104, *Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents*. If the DSA is approved, the review results in a Safety Evaluation Report (SER) that documents DOE's technical rationale for concluding that the conditions, boundaries, and controls associated with activities encompassed in the DSA provide a reasonable basis for safe operation of the facility, together with any conditions of approval. The SER also reflects the Approval Authority's conclusion, on behalf of the Department, that the DSA adequately meets the requirements of Subpart B of 10 C.F.R. Part 830, and that there is reasonable assurance that the nuclear facility can be operated safely and in a manner that adequately protects workers, the public, and the environment.

DOE utilization and implementation of Standard 3009 has not changed since the promulgation of 10 C.F.R. Part 830. Two change notices to DOE Standard 3009 have been issued since the promulgation of 10 C.F.R. Part 830, but they did not affect the use of the Evaluation Guideline. The first of these was a conforming change that recognized the publication of the final rule, and the second incorporated the concept of Specific Administrative Controls in response to Defense Nuclear Facilities Safety Board Recommendation 2002-3, *Requirements for the Design, Implementation, and Maintenance of Administrative Controls*.

DNFSB Question 2:

“What is DOE's regulatory framework for assuring adequate protection of the public, the workers, and the environment if the methodology prescribed in DOE Standard 3009 is used but the goals specified in Appendix A are not achieved? More specifically, if the mitigated dose consequences to the public, with safety class controls being credited, approach or exceed the Evaluation Guideline, what steps or actions must be taken to ensure adequate protection of public health and safety is provided?”

Answer:

The regulatory framework for assuring adequate protection of the public, workers, and the environment consists of the Departmental Regulations, Directives and Standards, which include safety goals, specific requirements, implementation guidance, and DOE review and approval of the DSAs for Hazard Category 1, 2, and 3 DOE nuclear facilities. Important elements of this framework include requirements and guidance for: (1) performing and documenting a rigorous hazard and accident analysis to support identification of safety controls; (2) facility designs that incorporate fundamental safety principles of defense in depth and margins of safety; (3) quality assurance in the design, construction and operation of nuclear facilities; (4) disciplined conduct of operations, maintenance, training of personnel and other safety management programs

including Integrated Safety Management, and (5) DOE oversight and enforcement of contractor compliance with DOE requirements.

DOE Standard 3009 is an important part of the DOE regulatory structure in that it provides an acceptable methodology for performing and documenting the safety analyses for DOE nonreactor nuclear facilities. DOE Standard 3009 and Appendix A in particular, describes how the Evaluation Guideline is to be used to identify safety class controls—that is, controls whose preventive or mitigating functions are needed to limit the exposure of the public to radiological hazards. Following the DOE Standard 3009 methodology, results in the identification and implementation of safety class controls that, in most cases, prevent public exposure to doses that exceed the Evaluation Guideline. However, in Sections 3.3.2.3.1 and Appendix A, Section A.2, the Standard recognizes that there can be situations where mitigation to below the guideline may not be possible, particularly for existing facilities. Steps identified in DOE Standard 3009 that contractors may take in such cases include (1) implementing compensatory measures, such as material-at-risk limits, which may be applied if the controls to reduce potential doses below the Evaluation Guideline cannot be applied immediately and (2) identifying intermediate commitments for implementing controls that cannot be applied immediately. In addition, DOE Standard 1104 provides guidance for steps DOE can take (1) to document directed changes and conditions of approval in the SER to address inadequacies in the safety basis that are not significant enough to warrant rejection of the safety basis but which need to be addressed and (2) to verify contractor progress toward implementing the directed changes and conditions of approval.

The specific steps or actions that must be taken will be those imposed or agreed to by the Safety Basis Approval Authority when approving the DSA. These steps or actions that achieve the final intended condition will vary depending on the details of the situation and their adequacy described in the SER.

Discussion²

Protection of the environment, workers, and the public is a vital national interest. The Department relies upon a variety of factors that, working together, provide for the adequate protection of the environment, workers and the public. One factor is the establishment of a suite of safety class and other defense-in-depth controls that reduce potential doses to the public from any accident to a small fraction of the DOE Standard 3009 Evaluation Guideline.

As described in the answers provided above, DOE requirements acknowledge the development and approval of DSAs that meet requirements but fail to fully meet DOE guidelines. An approval does not mean that the condition analyzed in the DSA and the quality of the analyses represents the final intended condition for the facility or the DSA. Rather, it represents the codification of an interim phase while compliance with the final intended condition is being

² This discussion does not address beyond design basis accidents. For additional information on Technical Standard 3009's treatment of design basis accidents, see Section 3.4.3 on page 54 of the Standard.

achieved. Approval of the DSA is a step towards establishing the suite of facility and analytic upgrades that are needed to meet DOE expectations. Approval establishes formal recognition of the facility condition and that improvements are needed.

The fact that the guideline represents an expectation, not a requirement, does not in any way suggest that its level of importance to DOE is diminished or subordinate. The Department's regulatory framework continues to rely upon competent, informed decision makers who faithfully implement DOE's requirements and expectations when executing their delegated authorities. Those managers are expected to carefully evaluate situations that fall short of expectations and only provide their approval of documented safety analyses when they are satisfied that operations can be conducted safely under the controls and boundaries it includes, that options to meet DOE expectations have been evaluated, and that adequate commitments to achieve an appropriate safety posture in a timely manner have been made.