

OE-1: 2015-1

June 2015

Evaluation of Existing Facilities to DOE-STD-3009-2014

PURPOSE

This Operating Experience Level 1 (OE-1) document provides requirements related to an evaluation of existing Department of Energy (DOE) defense nuclear facilities' Documented Safety Analyses (DSAs) to the newly revised DOE Standard (STD) 3009-2014, *Preparation of Nonreactor Nuclear Facility Documented Safety Analysis*.

The purpose of the evaluation is to gain insights that may enhance protection of the public from nuclear hazards at DOE defense nuclear facilities.

BACKGROUND

On October 18, 2014, Secretary Moniz reiterated a Department commitment in a letter to the Defense Nuclear Facilities Safety Board stating the following: *"the evaluation of DSAs for existing defense nuclear facilities relative to the new revision of DOE-STD-3009 will be performed consistent with the current regulatory process for developing and maintaining DSA updates. This evaluation will look for and implement enhancements that can be made based upon lessons learned and best practices that have been incorporated in the revised DOE-STD-3009, related to protection of the public from nuclear hazards."*

ACTIONS REQUIRED

(1) Identify Existing Facilities to be Evaluated. An evaluation is required for Hazard Category 2 defense nuclear facilities that:

- Use DOE-STD-3009 as their DSA method (e.g., not on-site transportation activities, which typically use other methods);
- Have an unmitigated offsite dose estimate that exceeds 5 rem; and
- Have an expected operational lifetime greater than three years.

Existing facilities include new projects and major modifications that have achieved design maturity (e.g., reached Critical Decision 2). Where facility DSAs are required to be developed or upgraded to meet DOE-STD-3009-2014 either by DOE Order 420.1C, *Facility Safety*, Chg 1, or contract direction, this evaluation is not required. Program Offices shall document the list of existing facilities meeting these screening criteria.

(2) Perform Evaluations. DOE Field Offices, with support of applicable contractors as needed, shall perform the evaluation using the criteria attached. The evaluations are intended to be an informed look (qualitative evaluation), not a full re-analysis (e.g., revised consequence calculations are not necessary or desired).

(3) Document Evaluation Results. DOE Field Offices shall document the results of their evaluations, including whether the existing facility DSA meets the DOE-STD-3009-2014 requirements specified in the Attachment, the significance of any differences, and any potential safety or documentation enhancements. DOE Field Offices shall submit evaluation results to the associated DOE Safety Basis Approval Authority.

(4) DOE Review of Evaluation Results. The DOE Safety Basis Approval Authority will review the DSA evaluations and document conclusions. As part of this review, DOE shall evaluate whether any potential safety or documentation improvements or other actions are warranted and, if so, set the path forward and schedule for these actions.

(5) DSA Annual Updates. If any DSA updates are determined to be warranted, these will be completed by the Contractor as part of the regular annual update process.

Schedule: Evaluation results will be submitted to the associated DOE Safety Basis Approval Authority by the DOE Field Offices no later than October 2016 and approved by December 2016.

FOLLOW-UP ACTIONS

(1) The results of these evaluations of existing defense nuclear facilities will be reviewed by the Program Offices, in consultation with the Department's Nuclear Safety Committee, to determine whether any actions or evaluations for existing nondefense DOE nuclear facilities are warranted.

(2) To continue to benefit from the best practices and lessons learned incorporated into the new DOE-STD-3009-2014, DOE nuclear facilities are encouraged to move toward its use over time (i.e., 5-10 years). This action is not intended to revise any existing DOE requirements. Sites can evaluate whether DOE-STD-3009-2014 is appropriate for their facilities through the normal processes of evaluating new standards to determine applicability and benefit. For those facilities where the new DOE-STD-3009-2014 is deemed appropriate, the Office of Nuclear Safety has developed training and tools to support this transition. The Office of Nuclear Safety will continue to work with the Program Offices to support the transition and

will be updating its training and tools based upon lessons learned.

INFORMATION CONTACT

Garrett Smith, Director
Nuclear Safety Basis and Facility Design
Office of Nuclear Safety (DOE AU-31)
301-903-7440
garrett.smith@hq.doe.gov



Elizabeth Sherwood-Randall
Deputy Secretary
Department of Energy

ATTACHMENT EVALUATION CRITERIA

The evaluations¹ will focus on the following significant changes (either new requirements or significant clarifications) to DOE-STD-3009-2014 requirements related to accident analysis and selection of safety class controls for public protection against radiological hazards:

- (1) Unmitigated analysis is consistent with the methods and assumptions described in DOE-STD-3009-2014 [Section 3.2.2].
- (2) Mitigated offsite radiological consequences are below the Evaluation Guide [see Sections 3.2.3 and 3.3.1 of the revised DOE-STD-3009-2014].
- (3) Damage Ratio of 1.0 is used in the accident analysis unless there is applicable standard or technical basis for a different value [Section 3.2.4.1].
- (4) Air Dispersion Modeling methods are determined to be adequate when compared to the methods and assumptions described in DOE-STD-3009-2014 [Section 3.2.4.2], including:
 - (a) Selection and appropriate use of one of the three options described (although requirements for prior approval of Option 3 modeling protocol are not applicable);
 - (b) Representative recent meteorological data for five years, unless a smaller set is justified;
 - (c) Use of atmospheric relative concentration values (X/Q) for offsite mitigated consequence calculations as described in either (1) Reg. Guide 1.145, Section C.3, Regulatory Position 3, "Determination of 5 Percent Overall Site X/Q Value," or (2) Reg. Guide 1.145, Section C.2, Regulatory Position 2, "Determination of the Maximum Sector Values."
- (5) Technical basis that supports controls selected is provided when the hierarchy of controls is not used for situations that require safety class controls to prevent or mitigate accidents [Section 3.3, and Appendix A, Section A.8].

¹ Because this evaluation will be performed by the DOE Field Office and will not involve actual changes to the facility, the Unreviewed Safety Question (USQ) process should not be involved. However, for the purposes of the USQ process, this evaluation may be considered to be "a DSA upgrade in response to new requirements." DOE Guide 424.1-1B, Section 2.4, states: "The USQ process does not apply to DSA upgrades in response to new requirements or to the use of new or different analytical tools during the upgrade process. However, the USQ process does apply when there is reason to believe that the current safety basis may not be bounding or may be otherwise inadequate."