



Department of Energy
National Nuclear Security Administration
Washington, DC 20585
November 2, 2007



The Honorable A. J. Eggenberger
Chairman
Defense Facilities Nuclear Safety Board
625 Indiana Avenue, NW, Suite 700
Washington, D.C. 20004-2901

Dear Mr. Chairman:

The purpose of this letter is to report the results of the review of National Nuclear Security Administration (NNSA) site office and contractor procedures and mechanisms for using the 25 rem evaluation guideline (EG) as required under Deliverable 8.9.1 of the Department of Energy's (DOE) Implementation Plan (IP) for Defense Nuclear Facilities Safety Board (DNFSB) recommendation 2004-2, *Active Confinement Systems*.

Recommendation 2004-2, the Department's 2004-2 IP, and DNFSB/TECH-34, *Confinement of Radioactive Materials at Defense Nuclear Facilities*, document concerns that the 25 rem site boundary exposure EG is not being solely used for classification of safety controls as described in Appendix A, *Evaluation Guideline*, of the DOE's Standard 3009, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*, but instead is being used 1) as a design acceptance criterion for confinement system performance, and 2) as an allowable public dose.

By memorandum dated May 18, 2007, (enclosed) the NNSA requested that a review of site office and contractor mechanisms or procedures for using the 25 rem offsite dose EG and application to approved safety bases be performed to verify that, consistent with Appendix A, it is only being used for classification of safety controls, and not for designing or operating defense nuclear facilities, or as an allowable dose to the public. Further, NNSA sites were directed to clearly describe any instances where mechanisms or procedures are found deficient, and the actions that will be taken to correct the deficiencies.

Our review of the NNSA site responses to the May 18, 2007, memorandum and subsequent discussions with NNSA site office lead safety basis subject matter experts confirms that, with the following exceptions, site office and contractor processes and procedures only allow use of the 25 rem offsite dose EG for classification of safety controls consistent with the guidance of Appendix A to DOE Standard 3009, and not for designing or operating defense nuclear facilities or as an allowable dose to the public.

- Los Alamos Site Office (LASO) Management Procedure (MP) 01.01, Safety Basis Review Procedure and Operations Plan, contained the following statement:
"Evaluation Guidelines (EG) refers to the hazardous material dose/exposure values that the safety analysis evaluates against. The intention is that theoretical individual



doses/exposures exceeding the Evaluation Guidelines should not occur at a given point, unlike other values, such as emergency planning thresholds. Offsite Evaluation Guidelines are established for the purpose of identifying and evaluating safety-class structures, systems, and components.” This could be interpreted to mean that doses to the public of less than or equal to the EG are acceptable. This procedure has been replaced by new procedures that have replaced discussions of the EG with references to Appendix A of DOE-STD-3009. LASO has recently implemented the new procedures, and is confident that the 25 rem EG has been used appropriately during the Los Alamos National Laboratory (LANL)/LASO safety basis reviews despite the language in MP 01.01.

- The NNSA *Nuclear Safety Specialist Qualification Standard Reference Guide*, dated September 2005, contains two sections of text that need to be revised. The first is section 4.a which states: *The evaluation guidelines establish the hazardous material dose/exposure values that the safety analysis is evaluated against. Theoretically, individual doses/exposures exceeding the evaluation guideline should not occur at a given point inside the evaluation area. Offsite evaluation guidelines are established for the purpose of identifying and evaluating safety-class structures, systems, and components.* This could also be interpreted to mean that doses less than or equal to the EG are acceptable. The second is section 30.d which states: *The accident analysis is used to quantify the hazard analysis and to bin accidents by order of magnitude. This is done to have relative values to compare to the evaluation guidelines that define limits allowable for both workers and the public.* This statement is wrong and must be corrected. The Office of Facility and Infrastructure Acquisition and Operation (NA-17) is working with the NNSA Service Center to have these statements corrected in the next revision to the guide which is scheduled to be issued by December 2007.

Based on our review, we do not believe that either of the above situations has resulted in misapplication of the EG in the development or review and approval of the safety basis for NNSA defense nuclear facilities.

In summary, our review has determined that NNSA site offices and contractors understand proper use of the 25 rem EG and that it is being used correctly.

If you have any questions, please contact me or have your staff contact Rick Kendall, NA-173 by phone at (301) 903-3102 or by e-mail at Rick.Kendall@nnsa.doe.gov.

Sincerely,



Martin J. Schoenbauer
Principal Assistant Deputy Administrator
for Operations

Enclosure




Department of Energy
National Nuclear Security Administration
Washington, DC 20585



May 18, 2007

MEMORANDUM FOR MANAGER, LIVERMORE SITE OFFICE
ACTING MANAGER, LOS ALAMOS SITE OFFICE
MANAGER, NEVADA SITE OFFICE
ACTING MANAGER, PANTEX SITE OFFICE
MANAGER, SANDIA SITE OFFICE
MANAGER, SAVANNAH RIVER SITE OFFICE
MANAGER, Y-12 SITE OFFICE

FROM:

THOMAS P. D'AGOSTINO 
DEPUTY ADMINISTRATOR
FOR DEFENSE PROGRAMS

SUBJECT:

Defense Nuclear Facilities Safety Board (DNFSB)
Recommendation 2004-2, *Active Confinement Systems*,
Implementation Plan (IP) Deliverable Concerning Proper Use of
the 25 rem Evaluation Guideline (EG) at National Nuclear
Security Administration Facilities

This memorandum requests information required to prepare Deliverable 8.9.1 of the Recommendation 2004-2 IP. The deliverable is a report of the results of the review of site procedures and safety basis mechanisms for using the 25 rem EG. The report is due following completion of the pilot and high-priority facility-specific ventilation system evaluations performed under Deliverable 8.6.3. These evaluations are scheduled to be completed in June 2007. Background information and the specific information being requested, and associated due date, are provided below.

The DNFSB is concerned that the 25 rem site boundary exposure EG is not only being used for classification of safety controls as described in Appendix A, *Evaluation Guideline*, of Department of Energy (DOE) Standard 3009, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports*, but is being used as a design acceptance criterion for confinement system performance, or as an allowable public dose. The DNFSB concerns over misusing the EG are documented in Recommendation 2004-2 (December 7, 2004, letter from John T. Conway to Secretary Abraham), the 2004-2 IP (July 12, 2006, letter from Secretary Bodman to A.J. Eggenberger), and in DNFSB/TECH-34, *Confinement of Radioactive Materials at Defense Nuclear Facilities*, dated October 2004. These documents are also available from the Departmental Representative's website.



Appendix A to DOE Standard 3009 provides the following guidance concerning use of the 25 rem EG:

- Unmitigated releases should be compared against the EG to determine whether they challenge the EG, rather than exceed it, for the purpose of determining whether the need for Safety Class (SC) systems, structures, or components (SSCs) exists. Challenges to the EG indicate that the potential level of hazard in a specific facility warrants SC SSC designation. The SC designation is intended to focus a higher level of attention and requirements on this select subset of controls intended for public protection.
- The value of 25 rem Total Effective Dose Equivalent is not to be used as a hard pass/fail level because consequence calculations are highly assumption-driven and uncertain.
- The EG is not to be treated as a design acceptance criterion, an acceptable public exposure, or as a justification for not having to provide defense-in-depth safety measures.

Therefore, we are asking you to perform a review of site office and contractor mechanisms or procedures for using the 25 rem offsite dose EG and application to approved safety bases at your site to verify that, consistent with Appendix A, it is only being used for classification of safety controls, and not for designing or operating defense nuclear facilities, or as an allowable dose to the public. Your response should clearly describe any instances where mechanisms or procedures are found deficient, and actions that will be taken to correct the deficiencies.

Please provide the results of your review to Rick Kendall, NA-17 by June 29, 2007. Please contact Rick by phone at (301) 903-3102 or by e-mail at Rick.Kendall@nnsa.doe.gov if you have any questions concerning this request.