Department of Energy
Washington, DC 20585

October 25, 2006

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

Dear Mr. Chairman:

On June 26, 2006, you requested that the Department of Energy (DOE) review DOE-STD-1027, Change Notice 1, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*, (DOE-STD-1027) to ensure defense nuclear facilities are applying the standard consistently and correctly. In particular, you requested that we provide a report within 120 days of receipt of the letter addressing the following:

1. A review of DOE-STD-1027 for areas that might benefit from improvement, including the problems described in the enclosure to the June 26, 2006, letter.
2. Identification of any defense nuclear facilities affected by problems identified during the review of the standard.
3. The path forward to address these problems in any affected nuclear facilities and to prevent these problems in the future.

Through the Chief, Defense Nuclear Safety, and the Chief of Nuclear Safety, we have canvassed our site offices to develop a list of potential areas for improvement to be reviewed by a working group for DOE-STD-1027, which we plan to establish next month. The list, which includes the issues identified in your June 26, 2006, letter, is provided as an enclosure to this letter. The working group will review the issues identified in the attachment and determine the necessary actions to be taken, including whether changes to DOE-STD-1027 are warranted. A path forward will then be developed to revise DOE-STD-1027, as appropriate; to identify any defense nuclear facilities affected by problems implementing DOE-STD-1027; and to ensure the standard is correctly implemented to prevent problems in the future. We will provide you the path forward with actions and a schedule to complete them by February 28, 2007.

If you have further questions on our efforts on this issue, please contact me at (301) 903-3777 or have your staff contact James O'Brien at (301) 903-1408.

Sincerely,

Glenn S. Podonsky
Chief Health, Safety and Security Officer
Office of Health, Safety and Security

Enclosure

cc: Michael A. Kilpatrick, HSS
James J. McConnell, NA-1
Richard H. Lagdon, Jr., US
Mark B. Whitaker, Jr., HSS
Andrew C. Lawrence, HSS

List of Potential Areas for Clarification or Improvement
in DOE Standard 1027-92, CN 1
October 2006

1. Treatment of sealed sources exclusions.

2. Criticality as a potential event in hazard category 3 facilities.

3. Additional guidance on the adjustment from hazard category 2 to hazard category 3 (including the use of alternate airborne release fractions in determining the final hazard category and consideration of accident conditions for shipping caskets and sealed sources).

4. Segmentation and the nature of the process as related to criticality, including evaluation of seismic events when considering criticality and the permissible use of segmentation for events which, by their nature, will affect all portions of the facility (e.g., seismic event).

5. Potential increase of hazard category in final categorization.

6. Consistent methodology for derivation of hazard category 2 and hazard category 3 threshold quantities or clarification on how and when they are used.

7. Consideration of more realistic exposure pathways for hazard category 3 facilities.

8. Updating of hazard category 2 and 3 threshold quantities in Table A.1 based on later International Commission on Radiological Protection (ICRP) information (e.g., ICRP 68/72) and an allowance to use the latest available dose conversion factor information available at the time of the hazard categorization effort (regardless of whether Table A.1 is actually updated or not).

9. Addition of subcritical limits for other fissionable isotopes addressed in ANSI/ANS-8.15.

10. Discussion of the relationship between the hazard analyses performed for hazard categorization and safety basis for 10 CFR 830 and hazard analyses and/or categorizations performed for Emergency Preparedness (EPHAs), Environmental Impact Statements, and Process Safety Management requirements.

11. Further guidance on the transition from a hazard category 3 facility to a radiological facility.

12. Clarification of how assumptions used in calculating threshold quantities are to be applied including situations where the public site boundary is much closer than 300 meters and whether the hazard categorization and/or facility materials at risk (MAR) inventory can be based on ensuring doses are consistent with these values rather than using the threshold quantity values.

13. Clarification of
    a. the minimum theoretical mass necessary for criticality emergencies,
    b. the minimum theoretical mass necessary for nuclear criticality to occur with moderation and reflection, and
    c. criticality determined to be incredible by "nature of process."

14. Updating the standard to reflect issuance of 10 CFR 830, Subpart B, and retirement of DOE Order 5480.23, as well as to update other references.

15. Stricter guidance that prohibits the use of Type B containers for projects under design as a means of controlling MAR.

16. Additional clarification of sealed source exclusion, particularly as it relates to acceptable certifications of the sources.

17. Updating the standard to reflect the latest dose conversion factors from ICRP 68, 71, and 72 as discussed in Federal Guidance Report (FGR) 13.

18. Expansion of the threshold quantities to cover the missing isotopes that are currently contained in a supplemental LANL document (referenced in 1027).

19. Whether DOE-STD-1027 should be consistent with DOE-STD-3009 in allowing credit for passive safety systems that will survive the accident conditions.

20. Changing the threshold gram limit for Fe-59 given in Table A.1.