DEFENSE NUCLEAR FACILITIES SAFETY BOARD

625 Indiana Avenue, NW, Suite 700 Washington, D.C. 20004-2901
(202) 694-7000

January 29, 2008

The Honorable Samuel W. Bodman
Secretary of Energy
1000 Independence Avenue, SW
Washington, DC 20585-1000

Dear Secretary Bodman:

On January 29, 2008, the Defense Nuclear Facilities Safety Board (Board), in accordance with 42 U.S.C. § 2286a(a)(5), unanimously approved Recommendation 2008-1, *Safety Classification of Fire Protection Systems*, which is enclosed for your consideration. This Recommendation identifies the need for standards applicable to the design and operation of fire protection systems being relied upon as a primary means of protecting the public and workers from radiological hazards at the Department of Energy's (DOE) defense nuclear facilities. Multiple projects in the past eight years have used fire suppression systems as part of the primary means for radiological hazard protection. All would have benefitted from the availability of such guidance.

After you have received this Recommendation and as required by 42 U.S.C. § 2286d(a), the Board will promptly make it available to the public. The Board believes that this Recommendation contains no information that is classified or otherwise restricted. To the extent that this Recommendation does not include information restricted by DOE under the Atomic Energy Act of 1954, 42 U.S.C. §§ 2161- 2168, as amended, please arrange to have it placed promptly on file in your regional public reading rooms. The Board will also publish this Recommendation in the *Federal Register*. The Board will evaluate DOE's response to this Recommendation in accordance with the Board's Policy Statement 1, *Criteria for Judging the Adequacy of DOE Responses and Implementation Plans for DNFSB Recommendations*.

Sincerely,

A. J. Eggenberger
Chairman

c: Mr. Mark B. Whitaker, Jr.

Enclosure

RECOMMENDATION 2008-1 TO THE SECRETARY OF ENERGY
Safety Classification of Fire Protection Systems
Pursuant to 42 U.S.C. § 2286a(a)(5)
Atomic Energy Act of 1954, As Amended

Date: January 29, 2008

Fire protection systems in defense nuclear facilities have generally not been designated as "safety-class" as that term pertains to protection of the public from accidents. Such designation would bring into play a variety of Department of Energy (DOE) rules and directives, among them DOE Order 420.1B, *Facility Safety*, and DOE Guide 420.1-1, *Nonreactor Nuclear Safety Design Criteria and Explosives Safety Criteria*. While these documents describe general requirements for safety-class systems, e.g., redundancy and quality assurance, they do not provide specific guidance on how a fire protection system such as an automatic sprinkler system should be designed, operated, and maintained.

Accordingly, when DOE's Savannah River Site contractor proposed in the late 1990s that certain fire protection systems employed in the site's tritium facilities be designated as safety-class (and thus credited with protecting the public from accidents involving an offsite release of tritium), both DOE and the Defense Nuclear Facilities Safety Board (Board) were forced to conduct reviews of the proposal on an ad hoc basis without reference to specific guidance. The Board's review led to a March 18, 1999, letter to the Secretary of Energy agreeing with the reclassification of certain fire protection systems at the site's tritium facilities. The technical basis for the Board's agreement is found in the report appended to the letter:

> Controlling incipient fires through operability of a more reliable fire suppression system would make large fires less likely to occur. To substantially reduce the predicted likelihood of such fires to the "extremely unlikely" frequency range, WSRC reclassified the fire suppression (and some detection) systems as safety class. TSRs will be applied to fire protection systems falling in this category . . . WSRC acknowledges that installed fire suppression systems will not meet criteria such as redundancy or nuclear-grade quality assurance, nor are these systems seismically qualified. Imposition of safety-class requirements means that, in addition to meeting National Fire Protection Association (NFPA) code requirements, higher levels of maintenance and surveillance and of operability for these systems will be addressed in the TSRs. The intent is to increase the reliability of the suppression systems to maintain the SAR assumption that full-facility fires will be extremely unlikely. The TSRs will require that immediate actions be taken, such as cessation of operations and posting of a fire watch, should a safety-class fire suppression system be taken out of service or found to be inoperative.

In June of 2000, the Board addressed more broadly the safety classification of fire protection systems. In Section 3.3 of Technical Report DNFSB/TECH-27, *Fire Protection at Defense Nuclear Facilities*, the Board stated:

> Designation of safety-class or safety-significant structures, systems, and components (SSCs), administrative controls, and engineered design features is determined through a prescribed methodology (DOE-STD-3009-94, [U.S. Department of Energy, 1994] and DOE G 420.1-2, [U.S. Department of Energy, 2000]) that relies to a large extent on the engineering judgment of the safety analysts and designers. Overall, the objective is to prevent a fire, or to control and confine a fire should one occur. Methods of accomplishing this objective are set forth in NFPA codes that have been a requirement of the DOE program for decades. It is essential that decisions concerning the application of these codes and the selection of features and controls be made by qualified and experienced fire protection engineers.

This section of the report provided additional guidance on application of these principles to the control of ignition sources, use of passive fire barriers, suppression of incipient fires, minimization of transient combustibles, and enhancement and protection of confinement systems such as ventilation through HEPA (high efficiency particulate air) filters. The report acknowledged the Board's letter regarding Savannah River's tritium facilities and encouraged the safety designation of suppression systems when they are relied on for critical safety functions: "Fire sprinkler systems relied upon for worker safety and public protection should be classified as safety-class or safety-significant SSCs because they provide the most effective, automated, and quick response to a fire." (Report, p. 3-3) The report noted that the Los Alamos National Laboratory (LANL) had identified the fire sprinkler system in the Chemistry and Metallurgy Research Facility as a vital system and had begun an effort to inspect and test the system for functional performance.

Subsequent to the Board's 1999 letter and 2000 technical report, DOE expanded its reliance on fire protection systems as primary lines of defense against accidents. For example, the following projects initially planned or reclassified fire protection systems as safety-class or safety-significant:

- Chemistry and Metallurgy Research Replacement Project, LANL
- Device Assembly Facility, Nevada Test Site
- Building 9212, Y-12 National Security Complex
- Explosive Bays and Cells, Pantex Plant
- Building 332, Lawrence Livermore National Laboratory
- Highly Enriched Uranium Materials Facility, Y-12 National Security Complex
- Uranium Processing Facility, Y-12 National Security Complex
- K-Area Container Surveillance and Storage Capability, Savannah River Site

Although it should be clear from the Board's earlier statements that it can support reliance on fire protection systems as primary safety measures, the Board is no longer comfortable with such widespread reliance in the continued absence of specific criteria for the design and operation of such systems. At this time, DOE's fire protection guidance documents do not provide design and operational criteria for fire protection systems designated as safety-class or safety-significant. This lack of guidance makes design of new facilities more difficult and time-consuming and renders problematic the assessment of proposed enhancements to fire protection systems in existing facilities. In the latter case, possible upgrades to existing systems can be evaluated using a procedure developed by the Energy Facility Contractors Group (EFCOG), *Safety System Design Adequacy* (August 2004). Proper application of this procedure demands that an existing system be compared with "a set of appropriate design, quality, or maintenance requirements, specifically including applicable current codes and standards." At present, DOE does not have a set of requirements that would permit use of the EFCOG procedure.

Lack of suitable requirements and guidance does not pose an immediate safety issue, because each separate project listed above can be evaluated on an ad hoc basis both by DOE and by the Board. However, this unstructured approach is wasteful of DOE and Board resources and prevents the sharing of technical knowledge and engineering solutions throughout the complex. More importantly, the Board's enabling legislation, 42 U.S.C. § 2286a(a)(1) requires that it

> . . . recommend to the Secretary of Energy those specific measures that should be adopted to ensure that public health and safety are adequately protected. The Board shall include in its recommendations necessary changes in the content and implementation of such standards, as well as matters on which additional data or additional research is needed.

Because the Department has chosen to increase its reliance on fire protection systems as primary safety systems, the Board concludes that the Department should without delay develop standards in this area. These standards should be sufficiently specific to guide both the design of new fire protection systems and the reclassification of existing systems. All of the necessary attributes of a safety-class or safety-significant fire protection system should be identified, leaving room for engineering judgment and innovative approaches in achieving high reliability and quality.

The Board observes that work on revising a key fire protection directive, DOE-STD-1066-99, *Fire Protection Design Criteria*, is expected to commence early in 2008 and be completed by the end of the year. Incorporation of suitable guidance for safety classification of fire protection systems in this standard would be a good starting point for carrying out the purposes of this Recommendation. Other guides that may need enhancement or revision include DOE Guide 420.1-1, *Nonreactor Nuclear Safety Design Criteria and Explosives Safety Criteria*, and DOE Guide 420.1-3, *Implementation Guide for DOE Fire Protection and Emergency Services Programs*. Safety classification of fire protection systems may necessitate changes to other DOE orders or directives.

Pursuant to its statutory mandate to recommend needed changes in DOE's standards for safety at defense nuclear facilities, the Board recommends that DOE:

1. Develop design and operational criteria for safety-class and safety-significant fire protection systems.

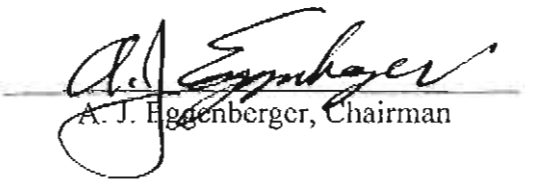
2. Use the revision of DOE-STD-1066-99, *Fire Protection Design Criteria*, as a starting point to provide suitable guidance for safety classification of fire protection systems. The revision to this standard must incorporate:

   a. Design approaches for a variety of fire protection systems, e.g., automatic sprinklers, gaseous suppression, alarm, detection, and passive barriers, that can be used to achieve safety-class or safety-significant designation.

   b. Guidance on technical safety requirements and administrative controls, in areas such as maintenance, tests, and configuration control, so as to ensure the operability of safety-class and safety-significant fire protection systems.

3. Identify design codes and standards for safety-class and safety-significant fire protection systems and their components, and incorporate them into DOE Guide 420.1-1, *Nonreactor Nuclear Safety Design Criteria and Explosives Safety Criteria.*

4. Modify other DOE directives and standards as necessary to ensure consistency with the new guidance for fire protection systems.



A. J. Eggenberger, Chairman

Contracting Officer's Representative, and date requested war souvenir registration.

RECORD SOURCE CATEGORIES:

From the individual.

EXEMPTIONS CLAIMED FOR THE SYSTEM:

None.

[FR Doc. E8–2145 Filed 2–5–08; 8:45 am]

BILLING CODE 5001–06–P

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

[Recommendation 2008–1]

Safety Classification of Fire Protection Systems

AGENCY: Defense Nuclear Facilities Safety Board.

ACTION: Notice, recommendation.

SUMMARY: The Defense Nuclear Facilities Safety Board has made a recommendation to the Secretary of Energy pursuant to 42 U.S.C. 2286a(a)(5) which addresses the safety classification of fire protection systems at defense nuclear facilities in the Department of Energy complex.

DATES: Comments, data, views, or arguments concerning the recommendation are due on or before March 7, 2008.

ADDRESS: Send comments, data, views, or arguments concerning this recommendation to: Defense Nuclear Facilities Safety Board, 625 Indiana Avenue, NW., Suite 700, Washington, DC 20004–2001.

FOR FURTHER INFORMATION CONTACT: Brian Grosner or Andrew L. Thibadeau at the address above or telephone (202) 694–7000.

Dated: January 31, 2008.

A.J. Eggenberger,

Chairman.

Recommendation 2008–1 to the Secretary of Energy Safety Classification of Fire Protection Systems Pursuant to 42 U.S.C. 2286a(a)(5) Atomic Energy Act of 1954, As Amended

Date: January 29, 2008.

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A.J. Eggenberger,

Chairman.

[FR Doc. E8–2185 Filed 2–5–08; 8:45 am]

BILLING CODE 3670–01–P

DEPARTMENT OF EDUCATION

Office of Elementary and Secondary Education; Overview Information; Indian Education—Demonstration Grants for Indian Children; Notice Inviting Applications for New Awards for Fiscal Year (FY) 2008

Catalog of Federal Domestic Assistance (CFDA) Number: 84.299A.

DATES: Applications Available: February 6, 2008.

Deadline for Transmittal of Applications: March 7, 2008.

Deadline for Intergovernmental Review: April 7, 2008.

Full Text of Announcement

I. Funding Opportunity Description

Purpose of Program: The purpose of the Demonstration Grants for Indian Children program is to provide financial assistance to projects that develop, test, and demonstrate the effectiveness of services and programs to improve the educational opportunities and achievement of preschool, elementary, and secondary Indian students.

Priorities: This competition contains two absolute priorities and two competitive preference priorities. In accordance with 34 CFR 75.105(b)(2)(ii), the absolute priorities are from the regulations for this program (34 CFR 263.21(c)(1) and (3)). In accordance with 34 CFR 75.105(b)(2)(iv), the competitive preference priorities are from sections 7121 and 7143 of the Elementary and Secondary Education Act of 1965, as amended (ESEA) (20 U.S.C. 7441(d)(1)(B) and 7473).

Absolute Priorities: For FY 2008 these priorities are absolute priorities. Under 34 CFR 75.105(c)(3), we consider only applications that meet one or both of the following priorities.

These priorities are:

Absolute Priority One

School readiness projects that provide age appropriate educational programs and language skills to three- and four-year-old Indian students to prepare them for successful entry into school at the kindergarten school level.

Absolute Priority Two

College preparatory programs for secondary school students designed to increase competency and skills in challenging subject matters, including math and science, to enable Indian students to transition successfully to postsecondary education.

Competitive Preference Priorities: For FY 2008, these priorities are competitive preference priorities. Under 34 CFR 75.105(c)(2)(i) we award up to an