Department of Energy
Washington, DC 20585
October 18, 2004

The Honorable John T. Conway
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW, Suite 700
Washington, DC 20004

Dear Mr. Chairman:

In a letter to you dated April 12, 2004, then former Assistant Secretary confirmed the completion of our commitment to issue revised reporting requirements and also related our plans to reevaluate fire safety performance measures and reporting methodology. My predecessor stated that the DOE Fire Safety Committee would evaluate the need to develop a limited set of such measures and would provide its recommendations in September, at which time we would report back to you. The enclosure provides the Department's current assessment on fire safety performance metrics.

The Department remains committed to developing an effective set of fire safety performance measures and reporting requirements. The DOE Fire Safety Committee has established a subcommittee composed of experienced fire protection engineers and fire chiefs to conduct a detailed evaluation of the Department's fire safety reporting requirements and provides formal recommendations on necessary improvements. The subcommittee has held two meetings with the goal defining a meaningful set of performance indicators and a cost-effective method for collecting the data. Finalizing these recommendations will require more time than originally anticipated. I expect a final recommendation and decision by March 2005.

To keep the Board informed on this issue, I would like to propose that my staff and members of the subcommittee provide periodic status briefings to your staff. The first briefing would be within 30 days and subsequent briefings would take place twice a month until all actions on this matter are complete. If you have any questions, please contact me at (202) 586-6151, or members of your staff can contact Mr. Frank Russo at (301) 903-8008.

Sincerely,

John Spitaleri Shaw
Acting Assistant Secretary
Environment, Safety and Health

Enclosure

DOE Fire Safety Program Metrics

Background

Historically, the Department of Energy (DOE) and its predecessor agencies along with its contractors have collected a variety of fire safety related data and information. Beginning with the Atomic Energy Commission, statistics on fire losses, loss rates and certain recurring costs were collected and published. In response to the Rocky Flats fire of 1969, DOE implemented an independent fire safety appraisal program under the leadership of the DOE Headquarters Office of Environment, Safety and Health (EH). This program provided a wide perspective on site fire safety programs every three years until it was terminated in 1992 in the face of competing priorities. No comparable program has been implemented to replace it. In 1972, an annual "Summary of Fire Protection Programs" was begun by EH. This report continues to be developed on the basis of the requirements contained in DOE O 231.1 and its related Manual.

Additional fire protection information has been gathered and publicized under the DOE CAIRS and ORPS programs. Because of their unique nature, this information was oftentimes inconsistent with that published in the EH annual summary. A 1996 "energy release" (read fire) that resulted in an approximately $2 million loss was not reported in either CAIRS or ORPS but was noted in the EH report.

A variety of fire protection program information has been required to be submitted on a periodic basis to DOE Operations Offices by Maintenance and Operating (M&O) contractors under the requirements of implementing directives and by contract. This information includes the statistics noted above, along with supplementary information deemed desirable by the individual DOE field elements. Such information includes, but was not limited to, fire protection inspection and maintenance statistics, information on fire protection self-assessments, resolution of audit findings, among other metrics.

DOE site fire departments and brigades have implemented a system for collecting emergency response statistics that are submitted annually for incorporation into local and national fire incident reporting data bases. While addressing a core of information needs, these sites have customized their reporting system to feature information and software that vary significantly among DOE sites. Efforts begun in the early 1990s to standardize these reporting systems across the Department floundered over the lack of a clear mandate, the absence of consensus, and funding limitations.

Recent Evaluations of DOE Fire Safety Metrics

In 1997 the DOE Fire Safety Committee met to discuss the adequacy of fire protection program performance measures, among other issues. It concluded that the information then reported in the annual summary was not comprehensive, nor did it give sufficient indication of fire precursors. In response, the Committee developed a revised set of metrics in 1998 that

were distributed to the DOE fire safety community as guidance. This guidance is available on the DOE Fire Protection Website at: http://tis.eh.doe.gov/fire/guidelines.html#guidance. In May 1998 the Deputy Secretary of Energy Elizabeth Moler issued a directive to the Department to address this issue and other perceived weaknesses in the management of fire safety. In response to this initiative, a number of DOE Operations Offices, including Richland and Idaho, revised their fire protection performance measures to reflect those proposed by the Committee. Most did not because of a lack of a clear mandate. (Deputy Secretary Moler left office shortly after the issuance of her directive.)

In June 2000 the Defense Board issued Technical Report 27 that highlighted a number of weaknesses in the management of fire protection within DOE. With regard to metrics, the report stated: "Performance measures are needed to track overall fire safety performance complex wide. (It should be noted that tracking of overall performance is broader than tracking of fire losses, which DOE has performed for many years.)"

Following the severe wildfire season in the year 2000, then Secretary Richardson convened an independent fire safety commission to evaluate the Department's fire protection and emergency response efforts. Among other recommendations, the commission in its final report of May 2002 called for the implementation of "effective performance measures, such as those developed by the DOE Fire Safety Committee." The Defense Board, in a letter to the Secretary dated July 17, 2002, endorsed the recommendations of the commission. The Department's commitment in response to the report and Board letter was to "work to strengthen existing management systems in a number of areas including…performance measures…" This effort is pending.

Current Assessment

A review of the statistics contained in the annual summary reveals that, for over 50 years, the DOE and its predecessors have experienced loss rates below "industry" averages. (This is "general" industry and not the nuclear industry.) Every few years, however, a major fire occurs that results in a significant loss. The most recent "spike" occurred in the year 2000, when the Cerro Grande Fire at Los Alamos and other minor fires at Hanford and in Idaho, resulted in losses in excess of $100 million. This pattern has not varied significantly over 5 decades and, consequently, does not offer any significant new insights into the effectiveness of fire protection program activities. Following these fires, a review revealed significant weaknesses in DOE's wildland fire protection program that were not captured in the summary or any other existing metric employed by the Department.

For a significant number of years, major program offices have ignored the requirement to submit data for the annual summary. For example, the Power Marketing Administrations, the Naval Reactors Program, the Nuclear Energy and Fossil Energy Programs have not submitted reports. Consequently, the summary does not offer a complete perspective.

Similarly the information from many sites is submitted months beyond the nominal March 31st reporting deadline. As a result, the summary is not typically published until the month of September of the following year. This published information is not considered timely, which

aggravates the report submission dilemma and the ability to utilize the data in program management.

Finally, the summary does not currently capture significant performance measures, such as the reliability of aging fire protection systems, the completeness of fire hazards analyses, the sufficiency of fire department capability, and the performance of adequate fire safety self assessments. These and other measures were deemed critical by the fire safety committee and others in assessing the success or failure of fire protection program activities.

The CAIRS and ORPS reporting programs are intended to identify and highlight significant events to management in a timely manner and are based on reporting systems used effectively by the commercial nuclear industry. They are not intended to comprehensively address a complete range of fire protection program performance measures. Any attempt to transform these programs into such would tend to overwhelm management with an excessive amount of data (much of it trivial) on a daily basis. Nevertheless, CAIRS data and ORPS reports, used in conjunction with other fire safety metrics, can enhance an assessment of site fire protection program success. For example, while ORPS would report an individual fire protection system failure, this information is largely irrelevant without context (such as how many related failures have occurred.)

Contractor fire safety performance measures that are collected by DOE Site and Operations Offices provide a useful barometer of the effectiveness of site fire protection engineering and fire services (where fire departments and brigades are provided). These measures include loss statistics, recurring fire department costs, fire protection system inspection, testing and maintenance parameters, resolution of audit findings, training and qualifications of fire safety staff, completed self assessments, among others. The issue is that this information is not collected consistently across the Department. As a result, it is difficult to compare sites or groups of sites. Consequently, a complete an accurate assessment of the entire Department is problematic. In September of 2003, the Undersecretary requested such an assessment. It required weeks of effort on an ad hoc basis to develop a response that was incomplete and subjective at best.

DOE fire departments and (some) brigades collect information on emergency and non-emergency responses that are generally consistent with data that are collected by fire departments across the country. This information includes the cause of fires, the location, and the duration (from alarm transmission to termination), among other statistics. These records also identify non-fire responses, such as medical, that are increasingly dominating the mission of site emergency services organizations. However, because of differences in software, privacy issues, national security concerns, and other related factors, this information is not easily available to other DOE fire departments, field elements and headquarters entities. An effort has been underway for years by the Chairman of the DOE fire safety committee to develop and adopt a consistent, complex-wide, computerized network for fire department statistics. But no site has yet to officially adopt this system.

Additionally, there is no consistent evidence that existing fire department response records are being evaluated by either the contractors themselves or the DOE fire protection authority

having jurisdiction. Individual studies have been funded over the years. The results of some of these studies have been shared in public fora, such as the annual DOE fire safety conference. But no institutionalized program for tracking and trending of his data exists within program offices or across the Department.

Conclusion:

Significant information related to the performance of DOE fire protection programs is not being reported. Fire protection program information is being collected inconsistently across the Department. Useful information is not always being evaluated as part of program management.