



Department of Energy
Washington, DC 20585

January 25, 1999

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

Dear Mr. Chairman:

As noted in our reply to your September 10, 1998, letter concerning field responses to Deputy Secretary Moler's May 14, 1998, memorandum entitled "Fire Safety Programs," this Office has prepared and is hereby forwarding to you, a report summarizing these responses from the Department's field elements. The reports from the defense nuclear facilities were provided informally to Defense Nuclear Facilities Safety Board staff.

The summary report observes that, despite the Department's historically substantial efforts at minimizing fire losses, challenges remain to improve management systems, and to assure success at minimizing fire risk to the public, workers, programs and property. Deputy Secretary Moler's memorandum tasked the separate Field Office Managers to ensure that appropriate and timely corrective actions when warranted are taken to address deficiencies noted by their reviews.

If you have any specific questions concerning the underlying field responses, please feel free to contact them directly.

Sincerely,

A handwritten signature in black ink, appearing to read "David Michaels".

David Michaels, PhD, MPH
Assistant Secretary
Environment, Safety and Health

Enclosure

cc: Mark Whitaker



SUMMARY REPORT

FIELD ELEMENT RESPONSE TO THE SECRETARIAL MEMORANDUM ON FIRE SAFETY PROGRAMS

Introduction:

Subsequent to the "hot work" fatality at the Oak Ridge East Tennessee Technology Park (ETTP) site, a Secretarial Memorandum on Fire Safety Programs was issued on May 14, 1998, which required all Field Elements to evaluate their programs and identify corrective actions, where necessary. In November 1998, the last of the expected written responses was received. (The Naval Reactors Program verbally responded that no significant fire safety programmatic or facility deficiencies exist.)

Despite the availability of review guidelines as provided by the Office of Environment, Safety and Health (EH), a number of sites developed their own review and report formats. Consequently, there is some variability in the scope and comprehensiveness of submitted information. For example, some reports did not address the issues of "management commitment" to fire safety and the adequacy of fire protection and emergency services staffing. Notwithstanding these inconsistencies, the body of the information provided provides a broad perspective on field management of fire protection programs. The following narrative represents a brief summary of the collective responses. It is organized to address the four program elements, defined below, as quoted from the Secretarial Memorandum.

1. ***"Defines critical fire safety management authorities, systems and capabilities (including the involvement of cognizant fire safety and emergency response professionals); implements accurate fire safety performance measures; and defines minimum response capabilities to site fire emergencies ("Baseline Needs")."***

- **Critical fire safety management authorities, systems, and capabilities**

Most Field responses indicated that site documentation exists that defines site safety and health programs, management and staff authority and responsibilities. There are circumstances where respondents indicated that cognizant fire safety professionals are not always involved in discussions and decisions regarding issues which affect their responsibilities. Consequently, critical decisions which affect fire safety are sometimes made without the benefit of the perspective of a trained specialist.

In a similar manner, some responses concluded that fire department line officers are

sometimes not involved in analyses and decisions which may affect their ability to effectively respond to site emergencies (e.g., Safety Analysis Reports and Fire Hazardous Analyses). Also, site emergency preparedness specialists are sometimes assigned tactical decision making authority bearing on fire protection. For some fire department operations, this may be a responsibility for which they have limited training or experience.

- **Accurate fire safety performance measures**

Most Field Elements observed they measure fire protection program performance in terms of the parameters defined in DOE Order 5484.1 or its current equivalent, DOE Order 231.1. These are fire losses, fire loss rates, and recurring fire protection program costs. Some determination of fire protection system reliability is achieved through the recording of inadvertent fire protection system activations. A few isolated sites have adopted the more comprehensive set of fire protection performance measures that were developed by the DOE Fire Safety Committee. DOE Fire Departments and Brigades routinely document and report annual response statistics as part of their annual reports.

- **Minimum response capabilities to site emergencies**

Within the last several years, in response to a requirement of DOE Order 420.1, most site emergency services organizations have previously evaluated their need for additional personnel, mobile apparatus, equipment and training in terms of an Operational Basis Document, Baseline Needs Assessment or the equivalent. This usually included a review of the capabilities of local emergency services organizations under "automatic aid" or "mutual aid" agreements. The respondents of some field units that do not have a site fire department or brigade observed they generally do not attempt to assess in a comprehensive fashion the ability of off-site fire departments to respond in a timely and effective manner to emergencies. Some sites do invite representatives of the local fire departments to perform site familiarization tours.

2. ***"Assures performance of comprehensive fire safety assessments on a regular basis and the maintenance of up-to-date fire hazards analyses (FHAs) for all significant facilities."***

- **Comprehensive fire safety assessments**

Most responses observed that contractor and DOE Field Element fire protection self assessments are performed on a routine basis, at frequencies determined on the basis of facility "significance" (nuclear, high value, risk significance). Results are documented, with findings tracked increasingly through site computer-based, prioritized issues management systems. Independent assessments, such as those historically performed of contractors by DOE Field Office fire safety personnel are no longer the norm; although

continuing selective audits are evident at a number of Operations and Area Offices.

- **Up-to-date fire hazards analyses**

With few exceptions, FHAs exist for all "significant" facilities, as defined by the DOE authority having jurisdiction. There is a significant degree of variability in the nature of these documents, with some being very expansive in scope and others more limited in the amount of information provided. Still others combine the elements of a fire protection assessment report into the FHA. Many sites rely on the use of consultants to develop these documents.

3. ***"Adopts a comprehensive set of fire safety policies, program requirements, standards, and procedures, coupled with other measures such as active and passive fire protection systems, appropriate to the activities and hazards present, as part of a defense-in-depth approach to fire protection."***

- **Comprehensive fire safety policies, program requirements, standards and procedures**

The DOE Fire Safety Program is typically defined in terms of a comprehensive body of requirements and guidelines. These include Code of Federal Regulation (CFR) requirements, DOE fire protection Orders and standards, and industry criteria, such as those developed by the National Fire Protection Association (NFPA). However, under the DOE's Work Smart Standards Initiative, contractors are permitted to define their own body of applicable requirements. Consequently, at some sites, the fire protection program or specific facility fire safety measures have become quite variable as observed in the responses.

- **Active and passive fire protection systems, appropriate to the activities and hazards present**

Fire protection systems for most facilities are characterized by noncombustible construction (including rated fire barriers), automatic fire protection systems (fire suppression and/or fire detection and alarm/signaling systems), emergency egress provisions, fire prevention procedures, access to site or local community fire departments, among other features. Several responses indicated deficiencies which are usually tracked through site "issues management" systems, that include a method of prioritization among other environment, safety and health issues. Noteworthy is the observation that low priority deficiencies may exist for years, because of limitations on funding. The use of "interim" compensatory measures to mitigate risk while awaiting corrective action is often applied to high risk deficiencies.

4. ***"Assures performance feedback through routine DOE oversight and contractor self-assessments, including the collection and analysis of complete and accurate fire protection program data and statistics, and an effective issues management system that demonstrates validation and closure of corrective measures."***

- **Complete and accurate fire protection program data and statistics**

Fire safety program data and statistics that are delineated in DOE Orders 5484.1 and 231.1 are routinely collected and reported in conjunction with the publication of the DOE Annual Fire Protection Program Summary, as well as by the Computerized Accident and Injury Reporting System (CAIRS) and Occurrence Reporting Systems (ORPS). A few contractors do not collect and report this information routinely because of their interpretation of the Work Smart Standards Initiative. This could reduce the body of fire safety related data and statistics that is available to program managers to perform trend and comparative analysis.

An effective issues management system

DOE Field Elements have all implemented some form of issues management system (computer-based systems are increasingly the norm). Some inconsistency exists regarding the comprehensiveness of these systems. A few sites attempt to encompass all environment, safety and health issues, which adds a significant burden in time, effort and cost. Others focus only on "significant" issues. Validation by DOE of closure of fire safety issues at contractor facilities does not always occur.

Other Issues

The May 14, 1998 Secretarial Memorandum also reinforced the need for a *"firm management commitment to fire safety."* Most Field Elements reported that management commitment to the implementation of a comprehensive and effective fire safety program is manifested in a number of source documents, such as policy statements and program documents. Some noted that representatives of management take a personal interest in fire safety. Others report that the program is supported through the budget process.

The Secretarial Memorandum also elicited a commitment to assure the *"adequacy of staffing of qualified fire protection professionals."* Some sites reported that the cumulative effect of "downsizing" and "outsourcing" has had some adverse consequences on their DOE fire protection programs. Specific examples included sites where the emergency services organizations may not be fully capable of responding effectively to credible incidents (fires, hazardous materials incidents and medical emergencies). Other sites reported that inspection,

Certain engineering responsibilities (e.g., fire hazards analyses and facility assessments) are not always being performed as warranted due to resource limitations.

Corrective Action Plans

There was wide variability in the responses submitted regarding the need and schedule for field level approval of actions necessary to correct programmatic weaknesses. A few sites offered no specific plan while others included very detailed plans with specific milestones. These responses have been forwarded to the EH Office of Oversight, as well as issues surrounding the adequacy of staffing, issue management and reporting for future follow up. In compiling the summary report, EH has identified a number of programmatic activities it will pursue to provide additional support and assistance to individual field organizations. Fire protection issues, including lessons learned from the 1997 fatality, will figure in our Integrated Safety Management implementation activities across DOE, and will be included in future DOE Safety Forums.

Summary and Conclusions:

Despite its historic success at minimizing fire losses a summary review of the responses would suggest that continuing program weaknesses at some sites and emerging vulnerabilities at others, indicate that considerable room for improvements remain. The overriding reason for these circumstances as observed by the respondents is due principally to reduced budgets, downsizing/outsourcing, contractor reorganizations and potentially contradictory programmatic initiatives, among other factors. Efforts are being made both in the Field and within the office of the Assistant Secretary for Environment, Safety and Health to address these fundamental fire safety issues. For its part, EH will continue reviewing fire protection as a "special emphasis" program with the field and will assure it receives the visibility and priority necessary to assure program support needs are identified and addressed, and to assure focussed self-assessment and oversight. It also will be addressed in ongoing efforts to strengthen field implementation of Integrated Safety Management, and at upcoming Secretarial DOE Safety Forums.