

**Office of Health, Safety and Security  
Independent Review of the  
Oak Ridge Office Oversight of the Fire  
Protection Program at the  
Oak Ridge Reservation**



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**Office of Enforcement and Oversight  
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## Acronyms

AHJ	Authority Having Jurisdiction
BNA	Baseline Needs Assessment
CSE	Cognizant System Engineer
DOE	U.S. Department of Energy
EM	DOE Office of Environmental Management
ES&H	Environment, Safety, and Health
FPE	Fire Protection Engineer
HSS	DOE Office of Health, Safety and Security
ORO	DOE Oak Ridge Office
RFA	Request for Authority
SCMS	Science Management System
SSO	Safety System Oversight

# **Office of Health, Safety and Security Independent Review of the Oak Ridge Office Oversight of the Fire Protection Program at the Oak Ridge Reservation**

## **1.0 PURPOSE AND SCOPE**

The Office of Safety and Emergency Management Evaluations (Independent Oversight), within the Office of Health, Safety and Security (HSS), conducted an independent review of selected aspects of the U.S. Department of Energy (DOE) Oak Ridge Office (ORO) fire protection program. The scope of the review was to assess ORO's oversight of contractor implementation of the site fire protection program. Key elements assessed included conducting comprehensive self-assessments, fulfilling the roles and responsibilities for the authority having jurisdiction (AHJ), reviewing and approving request for authority (RFA) documentation (exemptions, equivalencies, etc.), and reviewing and approving fire department baseline needs assessments (BNAs) in accordance with DOE Order 420.1B. Contractor performance was not assessed.

The field work for the assessment was completed from June 26 through July 1, 2011. This review was requested by the ORO Manager and the ORO Assistant Manager for Environmental Management.

## **2.0 RESULTS**

### **Program Description**

ORO Directive 420, Chapter XVI, which previously assigned responsibilities and provided instructions for Federal oversight and management of the fire protection program, was superseded as part of the implementation of the Science Management System (SCMS). In an effort to manage the transition to SCMS and to flow down appropriate fire protection requirements to site contractors, the ORO Manager issued a memorandum in April 2009 specifying requirements to be included in contracts. This memorandum was addressed to the Assistant Manager for Science, the Assistant Manager for Environmental Management, the Assistant Manager for Nuclear Fuel Supply, and the Assistant Manager for Administration. Requirements were specified for: (1) RFA documentation; (2) reduced inspection, testing, and maintenance frequencies for fire systems; (3) the use of alternative fire protection for abandoned facilities; and (4) protection clothing for hot-work activities. The objective was for the ORO Assistant Managers to use this information to flow down ORO fire protection requirements, as applicable, to their respective operations. The memorandum currently serves as the basis for the ORO fire protection program requirements.

Although this memorandum specifies roles and responsibilities, it does not provide the necessary detailed information on how to implement these roles and responsibilities. For example, it does not provide information on how to implement programs, including the triennial fire protection self-assessment, the contractor facility fire assessment, and the annual fire protection summary report, in accordance with DOE Order 420.1B.

### **Fire Protection Assessments and Oversight**

Independent Oversight's review of documentation for ORO self-assessments showed that a justification request was issued to extend commitment dates for completing the 2006 ORO triennial fire protection self-assessment. This request was approved, extending the completion date to November 2006, and the assessment was later completed and the report issued in January 2007. One deficiency and one observation resulted from this self-assessment. The deficiency stated that ORO had not performed

triennial self-assessments of Oak Ridge Institute for Science and Education facilities. The observation addressed the need for improved documentation and resulted in an action for ORO to assemble a file of all of the RFA documentation for DOE Office of Environmental Management (EM) contracts. Creating a spreadsheet to maintain a status of these files was also part of this commitment. This deficiency was not tracked in the ORO issues management database, ORION. The next ORO triennial fire protection self-assessment should have been completed in 2010, and it remains overdue.

Members of the ORO Nuclear Safety Team have performed additional assessments as part of the EM integrated assessment schedule. The team is composed of safety system oversight (SSO) engineers responsible for overseeing assigned active safety systems. These engineers serve as leads for system-specific assessments intended to evaluate contractor programs' compliance with DOE Order 420.1B. In general, these assessments focus on implementation of the specific safety system, cognizant system engineer (CSE) performance, evaluation of past assessments and status of related activity, and history of the system. The results of these assessments are entered into ORION for tracking and trending.

The ORO fire engineers actively participate in this assessment process and have met the established frequencies for completing the assessments. Completed assessment reports are available in the ORION database. This additional level of oversight focuses on the facility credited systems and is viewed as a noteworthy practice.

ORO oversight responsibilities should also be considered for buildings that are owned by DOE, including the 2714 Building. Recent sprinkler modifications to this building have not been reviewed or approved by the DOE fire protection engineers (FPEs).

### **Responsibility of the Authority Having Jurisdiction**

The role of the AHJ was found to be implemented in accordance with DOE Order 420.1B. Documentation, including exemptions and equivalencies, is reviewed and approved by the ORO Fire Protection staff, which consists of two qualified FPEs. All six of the EM contractors have completed a BNA, and ORO has approved these required documents. Contractors are also responsible for submitting the qualifications of their designated AHJs to the ORO Fire Protection staff for approval. For most contractors, these qualifications are not limited to meeting the basic DOE requirements for a qualified FPE, but also assure that the individual is experienced in the field of fire protection. Most of these documents, including the RFAs, BNAs, and contractor qualifications, are maintained and retrievable, but not readily accessible. There was one exception, in that the EM contractor responsible for completing the American Recovery and Reinvestment Act work was not required to comply, and did not comply, with this AHJ requirement. There was no documentation for this exception.

### **Fire Protection Staffing**

The two FPEs on the ORO staff are qualified in accordance with applicable DOE requirements and provide support as needed to the Assistant Managers for Science, Environmental Management, Nuclear Fuel Supply, and Administration. There is no apparent method or process for gauging the level of support needed by specific programs, projects, contractors, or facilities on a daily basis or forecasting resource needs. As a result, the current system was found to be fragmented and lacking an integrated schedule of all ongoing needs and commitments. Informal methods for addressing these issues were initiated in the past, with limited success. A plan for addressing this issue was presented to the HSS review team by the environment, safety, and health (ES&H) management team during the assessment. The plan involves a new software program that the various stakeholders can use to request fire protection assistance, and a dedicated person would be assigned as a contact for these services. The software would also provide a means for tracking completed work, such as assessments, and other program responsibilities. This

concept appears to be a reasonable solution for managing fire protection resources. Implementation of this plan is scheduled to be complete before the end of calendar year 2011.

### **3.0 CONCLUSIONS**

The ORO Fire Protection staff is well integrated and knowledgeable of all contractor-related activities. Communication among the ES&H staff and the FPEs appears to be very positive and effective. The Fire Protection staff is challenged by their current workload. The Fire Protection staff's ability to prioritize their work and address minimum program requirements, in the absence of a formal program, underscores their knowledge and experience. Developing an institutionalized program, including documented procedures identifying roles and responsibilities, should be considered a priority. Process improvements would improve the efficiency, consistency, and effectiveness of the ORO Fire Protection staff.

The HSS review team views ORO's plan to develop a work control process for prioritizing and scheduling the Fire Protection support staff as a significant improvement. The "Service Center" concept utilized at other sites, such as Los Alamos National Laboratory and Lawrence Livermore National Laboratory, should continue to be used as a benchmark as this process is implemented and refined.

A noteworthy practice was observed in that the FPEs are integrated into the SSO program. This integration is an effective means of ensuring that facility safety systems are adequately controlled and that the flowdown of requirements from the documented safety analysis to technical baseline documents, such as the fire hazards analysis, is properly managed. This program also ensures ongoing communication among the FPE, the CSE, and the Facility Representative.

In summary, ORO has implemented the basic fire protection program functions, but lacks a formalized program. As a result, the fire protection program depends heavily on individuals' knowledge, rather than established and documented processes. Implementation procedures for the fire protection program and triennial self-assessment need to be established to meet the requirements of DOE Order 420.1B. Management demonstrated a keen awareness of these concerns and expressed their support for taking the necessary steps to improve these areas.

### **4.0 OPPORTUNITIES FOR IMPROVEMENT**

This HSS review team identified the following opportunities for improvement. These potential enhancements are not intended to be prescriptive or mandatory. Rather, they are offered for review and evaluation by responsible line management organizations and accepted, rejected, or modified as appropriate, in accordance with site-specific program objectives and priorities. Four specific actions to consider are:

#### **1. Strengthen processes and procedures.**

- Develop and issue implementation procedures for the ORO fire protection program. The ORO Fire Protection staff has developed a draft plan.
- Develop and issue an annual contractor fire protection summary report. This report will help the fire protection program identify areas for improvement and focus areas for trending.
- Identify specific fire protection areas of assessment for evaluating contractor performance. These assessments should be prioritized and scheduled.
- Implement the "Service Center" approach to help manage the Fire Protection staff and prioritize work.

**2. Strengthen inspection and reporting procedures and practices.**

- Consider clarifying contractor responsibilities described in the memorandum for hot-work operations. For example, clarify who is qualified, authorized, and responsible for performing the assessment and how often assessments are required. Consider including the lessons-learned report from the ORO hot-work fatality to raise awareness of these requirements.

**3. Improve utilization of the issues management program.**

- Use the ORION database to track deficiencies resulting from fire protection assessments to closure. For example, the RFA documentation should be assembled in a file and a spreadsheet created (ref. deficiency Management Assessment of the ORO Fire Protection Program, 3/2007). Consider adopting the file management practices currently utilized by the Office of Science Management.

**4. Strengthen oversight procedures and activities.**

- Consider providing fire protection oversight and support for the 2714 Building and the Federal Building fire protection systems and administrative programs.
- Complete SSO engineer training for all fire engineering staff.

## **Appendix A Supplemental Information**

### **Dates of Review**

Data Collection: June 26-July 1, 2011

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