

FIRE PROTECTION AND PREVENTION

1.0 SCOPE

This Performance Assessment Guide for Fire Protection and Prevention will be used to carry out the oversight responsibility of the U.S. Department of Energy (DOE) Brookhaven Group. This guide was prepared to assist in conducting performance-based assessments of both DOE prime contractors and subcontractors to ensure that their fire protection and prevention safety programs identify, disposition, and take corrective action on issues that affect satisfactory facility performance. The goals are to determine if a fire protection and prevention safety program has been established at the laboratory level to maximize the effectiveness of respective activities/processes and to minimize the risk of economic loss or worker/public injury/illness consistent with the risk of the activity or process.

Fire protection and prevention assessments will be directed at all prime contractors and subcontractors working at DOE sites. DOE line management must ensure that these contractors comply with DOE Orders and Federal and State regulations. Information developed from this assessment will determine the degree to which this is being done as well as the effectiveness of the laboratory's program.

2.0 ATTRIBUTES AND LINES OF INQUIRY

This section provides lines of inquiry to help assess whether the laboratory has implemented a program that ensures that fire protection and prevention requirements are incorporated into line activities. This section will be used to evaluate the laboratory's line organization.

2.1 The laboratory administers the fire protection and prevention program.

- Has an operations office directed the laboratory, through its management implementing procedures, to develop a comprehensive fire protection and prevention program?
- Has a written comprehensive fire protection and prevention program been developed?
- Have management implementing procedures been approved and are they being utilized?
- Are program elements implemented consistently throughout the site?

- Is a prioritization scheme in place to rank fire protection and prevention modifications in order of importance?
- Are there corrective action plans to resolve fire protection and prevention deficiencies? Are interim compensatory measures in place pending completion of modifications?
- Is the fire protection and prevention engineering group adequately staffed and trained to administer the fire protection and prevention program?
- Is the organizational structure adequately defined to ensure that fire protection and prevention goals are met?
- Is the "exemption" process being followed for fire protection and prevention nonconformances that are deemed acceptable?

2.2 The laboratory meets Life Safety Code requirements.

- Is there a program in place to ensure that facilities are designed and maintained in accordance with NFPA 101, Life Safety Code requirements? Is conformance verified by periodic appraisals or inspections?
- Is there a procedure that ensures security measures do not jeopardize life safety?

2.2 Public protection elements of the program are in place.

- Do site operating procedures acknowledge the risk from fire? Are there appropriate provisions to ensure safe operation and shutdown, and to ensure that fire protection and prevention features are not compromised?
- Have Fire Hazards Analyses (FHA) or Safety Analyses Reports (SARs) been prepared that evaluate the potential for release of hazardous materials beyond the site boundary as a result of a fire? Are these considered in the emergency preparedness program?
- Are combustible materials and operations or site contents that pose a threat to the environment controlled to the extent that an offsite release is not credible from a postulated fire?
- Are construction features (including containment, confinement, ventilation protection systems) and automatic fire protection and prevention features sufficient to preclude an offsite release in the event of a postulated fire?

- Are means of controlling liquid runoff from a credible fire provided so that contaminated liquids, including potentially contaminated water resulting from firefighting operations, will not escape the site?

2.4 Property/operations protection requirements are met.

- Are facilities properly protected in accordance with DOE fire protection and prevention criteria?
- Have "single point" safety and production system vulnerabilities been identified and protected to ensure that a fire will not adversely impact safe shutdown capability or plant operations?

2.5 Fire department operations are suitable for the site.

- Does the department have adequate personnel and equipment to respond to potential fires at the site?
- Is there is a documented and implemented training program to certify fire department personnel and to maintain their proficiency?
- Are current pre-fire plans in place for facilities and are routine site tours performed by fire department personnel?
- Are routine fire drills performed at facilities under simulated fire conditions and are their results critiqued and documented?

2.6 Overall program implementation meets other site needs and requirements.

- Are water supplies and the fire water distribution system reliable and sufficient for the maximum credible fire?
- Are documented programs in place for safe cutting and welding practices?
- Are storage and use of flammable/combustible materials done in accordance with OSHA and NFPA codes and standards?
- Is a program in place to eliminate or reduce PCB-filled equipment?

- Is fire protection and prevention engineering review and approval required for designs, modifications, readiness reviews, and the procurement of fire protection and prevention equipment?
- Is a comprehensive fire protection and prevention self-survey program in place and are the surveys conducted on frequent regular intervals? (Documentation should be available that the self-surveys have assessed all aspects of the fire protection and prevention program).

3.0 STANDARDS AND REQUIREMENTS

3.1 Specific DOE Orders and Standards.

- DOE O 232.1A, "Occurrence Reporting and Processing of Operations Information."
- DOE O 440.1A, "Worker Protection Management for DOE Federal and Contractor Employees."
- DOE 2300.1B, "Audit Resolution and Followup."
- DOE 2321.1B, "Auditing of Programs and Operations."
- DOE 5700.6C, "Quality Assurance."
- DOE *Fire Protection Manual*.
- DOE *Fire Protection Safety Manual*.

3.2 Title 10 CFR Requirements.

- 10 CFR 830.120, "Quality Assurance Requirements for DOE Nuclear Facilities."

3.3 OSHA Title 29 CFR Requirements.

- 29 CFR 1910 Subpart L, "Fire Protection."
- 29 CFR 1910 Subpart Q, "Welding, Cutting, and Brazing."
- 29 CFR 1910.38, "Employee Emergency Plans and Fire Prevention Plans."
- 29 CFR 1926.24, "Fire Protection and Prevention."

- 29 CFR 1926 Subpart F, "Fire Protection and Prevention."
- 29 CFR 1926.352, "Fire Prevention."

3.3 Other Standards and Requirements.

- NFPA 101, Life Safety Code requirements.

4.0 GUIDANCE TO ASSESSOR

This assessment guide is intended to assist in conducting a performance assessment of fire protection and prevention. It is not to be considered as all-inclusive, inflexible, or limiting reasonable assessment concentration when lines of inquiry responses dictate that an area must be more thoroughly probed.

The DOE policy and requirements regarding a comprehensive fire protection program are contained in DOE Fire Protection Manual. This, and the DOE Fire Protection Safety Manual establish general fire protection program requirements for facilities and delineates the specific responsibilities and authorities for various organizations within the Department. The responsibilities and authorities for Heads of Field Organizations are presented as follows:

- (1) Provide and maintain an "Improved Risk" level of fire protection for all facilities within the Operations Office's jurisdiction.
- (2) Provide and maintain a higher standard of fire protection than required to meet the "Improved Risk" requirements in instances where national security, program continuity, or the protection of the public makes it necessary.
- (3) Submit exemption requests to EH Headquarters for approval, where it is not feasible to meet the objectives of the fire protection Order.
- (4) Provide and maintain a system to ensure that DOE fire protection requirements are incorporated into construction documents for new buildings and for major renovations to existing buildings.
- (5) Provide assistance for all Headquarters-sponsored fire protection assessments.

- (6) Establish and maintain a list of facilities for which the Operations Office has fire protection responsibility, and designate for each the minimum frequency at which a fire protection appraisal will be made. Facility selection is based on the following criteria:
 - (a) Property is valued at \$1,000,000 or more.
 - (b) Property is valued at less than \$1,000,000, but Operations Office responsibility for fire protection is justifiable due to the potential impact of a fire.
 - (c) Property plays a vital or significant program role that could cause a significant program delay of 3 to 6 months as a result of a fire.
- (7) Conduct fire protection appraisals under their responsibility.
- (8) Provide fire protection assistance to contractors when necessary.
- (9) Submit an annual report to EH Headquarters covering the fire protection program and loss experience of the previous year.

In addition, the Heads of Field Organizations must serve as the Authority Having Jurisdiction for fire protection matters specifying alternative means of compliance.

In many instances, the Heads of Field Organizations have delegated the above responsibilities to line management, support contractors, or operating contractor organizations through local implementing procedures. The Operations Office subsequently provides independent oversight activities to ensure that their responsibilities are being carried out. Additionally, line management, through its implementation responsibility, directs the laboratory and then oversees its activities by utilizing the support organizations.