

FIRE PROTECTION PROGRAM

1.0 Objective

The objective of this performance assessment is to evaluate the effectiveness of the laboratory's fire protection program as implemented in the facility. The Facility Representative or Environmental Safety, and Health Support Specialist examines policies, procedures and programs implemented in the facility. To evaluate the effectiveness of implementation, the Facility Representative or Environmental Safety, and Health Support Specialist observes work activities, interviews personnel, performs walkdowns, and reviews specific documents.

2.0 Definitions

Concern - A determination of a programmatic breakdown or widespread problem supported by one or more findings or observations.

Finding - An individual item which does not meet requirements.

Functional Area - A discrete group of related safety and support programs.

Lines of Inquiry - Questions that guide the assessor in planning and conducting the performance assessment.

Observation - A condition or practice that does not provide or promote effective protection of the health and safety of the public or DOE's workers or the environment.

Performance Assessment - An evaluation of a program or functional area to verify laboratory line management effectiveness in ensuring the health and safety of the public and of DOE's workers and in ensuring protection of the environment.

Performance Attributes - Key elements, functions, or activities to be assessed in a particular functional area.

3.0 References

- 4.1 DOE O 151.1, *Comprehensive Emergency Management System*
- 4.2 DOE O 420.1, *Facility Safety*
- 4.3 DOE O 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*

- 4.4 DOE 5480.4, *Environmental Protection, Safety, and Health Protection Standards*
- 4.5 DOE 5484.1, *Environmental Protection, Safety, and Health Protection Information Reporting Requirements*
- 4.6 DOE 6430.1A, *General Design Criteria*
- 4.7 DOE/EP-0108, *Standard for Fire Protection of DOE Electronic Computer/Data Processing Systems*
- 4.8 DOE/EV-0043, *Standard on Fire Protection for Portable Structures*
- 4.9 29 CFR 1910, *Occupational Safety and Health Standards*
- 4.10 29 CFR 1926, *Safety and Health Regulation for Construction*
- 4.11 National Fire Protection Association (NFPA) Codes and Standards, Guides, Manuals, and recommended standard practice
- 4.12 *International Conference of Building Officials, Uniform Building Code (UBC)*
- 4.13 *Underwriter Laboratories Product Directories*
- 4.14 *The Factory Mutual Loss Prevention Data Sheets, Industrial Risk Insurance Recommended Practices, and Kemper Good Practice Standards*

4.0 Performance Assessment Activities

The assessor initially reviews applicable documents defining the scope of the Fire Protection Program and how the program is implemented in the facility. These documents include applicable program documents, policies, and procedures. Appendix A provides a suggested list of documents that the assessor may review during preparations for the assessment.

During the assessment, the assessor evaluates selected performance attributes by developing and applying lines of inquiry for each performance attribute. In implementing each line of inquiry to determine if the facility is meeting the performance attributes, the assessor completes a range of activities such as reviews of facility documents, interviews with facility and support staff personnel, observations of facility activities, and walkdowns of the facility. Appendix A provides a listing of suggested performance attributes and lines of inquiry. In conducting this assessment, the assessor may also draw upon surveillance guides prepared for the fire protection functional area. The following guides are available:

FPS 12.1 Life Safety
FPS 12.2 Fire Protection and Prevention

The emphasis of this assessment is on the effectiveness of the laboratory's fire protection program as implemented in a specific facility. In performing the assessment, the assessor must balance review of site-wide programs, facility-specific policies and procedures, and "on-the-ground" implementation. The following questions provide the general framework that should be used in planning, conducting and documenting the assessment:

- Does the laboratory's site-wide fire protection program provide an effective program for protecting against a fire and for mitigating the effects of a fire?
- Has the laboratory adequately identified its primary fire hazards?
- Has the laboratory made appropriate provisions for protecting personnel from potential fires in the facility?
- Is the laboratory adequately prepared to detect and respond to fires in the facility?

APPENDIX A

POSSIBLE DOCUMENTS TO BE REVIEWED

Fire Protection Program Plan
Facility Emergency Plan
Safety Analysis Report/Fire Hazards Analysis
Procedures for testing fire protection systems and equipment
Results from testing of fire protection systems and equipment
Results from past fire protection audits, inspections, or assessments.

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PERFORMANCE ATTRIBUTES AND LINES OF INQUIRY

PERFORMANCE ATTRIBUTE: I. The laboratory Fire Protection Program has the basic elements to achieve DOE fire protection goals.

LINES OF INQUIRY:

1. Does the program include provisions for minimizing the occurrence of a fire and related perils?
2. Does the program address limiting the occurrence or consequence of a fire such that unacceptable on-site or off-site release of hazardous materials is prevented?
3. Do the program requirements include:
 - a. A reliable water supply of adequate capacity for fire suppression?
 - b. A fully staffed, trained, and equipped emergency response force?
 - c. A means to summon the emergency response force in the event of a fire?
 - d. A means to notify building occupants of a fire and to evacuate the building?
 - e. Automatic fire extinguishing systems in all areas subject to serious property damage, program interruption, or loss of safety class systems?
 - f. Administrative procedures for control of hazardous materials and processes?

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PERFORMANCE ATTRIBUTE: II. The laboratory's organization, administration, and management provides for effective implementation of the fire protection program.

LINES OF INQUIRY:

1. Are fire protection roles, responsibilities, authorities, and accountabilities clearly communicated and understood by line management, support staff, and workers at the facility?
2. Are supporting management systems such as job descriptions, performance standards, and performance appraisals implemented to ensure effective implementation of fire protection roles and responsibilities?
3. Do facility fire protection managers have sufficient organizational structure, independence, and authority to effectively implement fire protection programs and to make decisions related to fire protection?
4. Do facility personnel responsible for fire protection have the appropriate qualification, experience, and training to implement the established program?
5. Are interfaces and areas of joint responsibility between the site fire protection organization, facility support staff, and line management clearly defined to ensure that all organizations effectively support the fire protection program?

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PERFORMANCE ATTRIBUTE: III. The laboratory has committed required resources to effectively implement the fire protection program.

LINES OF INQUIRY:

1. Does the laboratory budget provide sufficient resources so that all fire protection responsibilities can be fulfilled?
2. Does the laboratory have a long-term and short-term staffing plan to ensure that fire protection program responsibilities will be met?
3. Do the staffing plans include provision for ongoing training and professional development of fire protection staff and management?
4. Does the laboratory staffing level meet the existing staffing plan?
5. Does the laboratory's budget include funds to correct recognized deficiencies in the fire protection program and to mitigate or eliminate recognized hazards?

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PERFORMANCE ATTRIBUTE: IV. Laboratory personnel are trained in fire protection program responsibilities.

LINES OF INQUIRY:

1. Are laboratory personnel trained to recognize fire hazards?
2. Are laboratory personnel trained to locate and use fire fighting equipment and to provide first aid?
3. Are laboratory personnel trained to initiate fire alarms and to evacuate the facility in accordance with established procedures?
4. Are incipient stage fire fighting facility personnel periodically trained in safe fire fighting techniques and location and use of fire fighting equipment?
5. Does the fire fighting training include familiarization with facility hazards, first aid, rescue and salvage?
6. Is there continuing training for incipient stage fire fighting personnel?
7. Are drills or exercises periodically conducted to verify the ability to evacuate the facility and respond to potential fires?

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PERFORMANCE ATTRIBUTE: V. A Safety Analysis Report and accompanying Fire Hazards Analysis Report provide a thorough analysis of fire hazards.

LINES OF INQUIRY:

1. Does the Safety Analysis Report include the Fire Hazards Analysis Report or reference the Fire Hazards Analysis Report?
2. Does the Safety Analysis Report or the Fire Hazards Analysis Report reflect current design, operations, and occupancy at the facility?
3. Does the Safety Analysis Report and/or Fire Hazard Analysis Report contain the following elements:
 - a. Description of facility construction?
 - b. Protection of essential safety class equipment?
 - c. Fire protection features?
 - d. Description of fire hazards?
 - e. Life safety considerations?
 - f. Critical process equipment?
 - g. High value property?
 - h. Damage potential: Maximum Credible Fire Loss (MCFL) and Maximum Possible Fire Loss (MPFL)?
 - I. Fire Department/Fire Brigade response?
 - j. Recovery potential?
 - k. Potential for a toxic, biological and/or radiation incident due to a fire?
 - l. Emergency planning?
 - m. Security considerations related to fire protection?
 - n. Natural hazards (earthquake, flood, wind) impact on fire safety?
 - o. Exposure fire potential, including the potential for fire spread between fire areas?
4. Are quantities of combustible or flammable materials in the facility within limits established in the Safety Analysis Report or Fire Hazards Analysis?
5. Is outside storage of combustibles and hazardous materials in accordance with the Safety Analysis Report and/or Fire Hazards Analysis?

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PERFORMANCE ATTRIBUTE: VI. Fire protection systems are required to be operable and are tested, maintained, and inspected in accordance with applicable NFPA Standards and Improved Risk Guidelines as supplemented by the DOE Fire Protection Resource Manual.

LINES OF INQUIRY:

1. Has the laboratory established operability requirements for fire protection features such as fire doors, fire detection and suppression systems, fire protection water supplies, etc.?
2. Does the fire protection system inspection and testing program include the following systems or equipment:
 - a. Sprinkler systems?
 - b. Fire suppression and water systems control valves?
 - c. Heat and smoke detection systems?
 - d. Water flow actuated devices?
 - e. Supervisory switches?
 - f. Water level and temperature control devices?
 - g. Manual fire alarms?
 - h. Fire hydrants?
 - i. Water supply systems?
 - j. Fire pumps?
 - k. Fire extinguishers?
 - l. Interior standpipes?
 - m. Fire hoses?
 - n. Fire doors?
 - o. Fire dampers?
 - p. Exit doors?
 - q. Halon systems?
 - r. Carbon dioxide systems?
 - s. Emergency notification system?
 - t. Emergency lights?
2. Does the testing and inspection program for fire protection system and equipment reference the applicable standards related to periodicity and conduct of the testing and inspection?
3. Are the tests and inspections being conducted as required?
4. Are personnel conducting tests and inspections trained and qualified to conduct the tests and inspections?

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5. Are the tests and inspections documented?
6. Are deficiencies identified as a result of the testing and inspection program or through audits or appraisals prioritized and corrected?
7. Are compensatory measures (e.g. firewatches, fire patrols, enhanced hazard control procedures, etc.) taken in the event systems or equipment are inoperable?
8. Has a formal system been established to document and track fire protection findings, deficiencies, and recommendations that result from Fire Protection Engineering Surveys, fire protection system inspections and tests, and other appraisals and audits?

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PERFORMANCE ATTRIBUTE: VII. Fire protection and prevention requirements are established for special hazards.

LINES OF INQUIRY:

1. Do the designs of systems, equipment, and buildings containing flammable liquids, gases, and dusts meet minimum design criteria of the National Fire Codes and the Uniform Building Code?
2. Is the use, handling, and storage of unusually hazardous materials (e.g., pyrophoric metals, highly reactive chemicals, etc.) evaluated and special precautions implemented where needed?
3. Is the use and handling of combustible liquids controlled by procedures?
4. Are flammable and combustible liquid storage tanks, valves, and piping conspicuously identified?
5. Are listed and/or approved containers used for the handling and storage of flammable and combustible liquids?
6. Does the facility have test equipment capable of determining the existence of flammable gases (or vapors) of the type of potential explosive hazards actually in the facility?
7. Are aboveground tanks diked and provided with fire fighting equipment?
8. Are aboveground tanks separated by a fire wall?
9. Are gas- and oil-fired equipment such as boilers and furnaces provided with combustion safeguards?
10. Are transformers with combustible liquid as an insulated medium protected?

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PERFORMANCE ATTRIBUTE: VIII. Adequate provisions to protect the life safety of personnel in the facility have been implemented.

LINES OF INQUIRY:

1. Are all exits from the facility clearly identified?
2. Where exits are not visible, is the route to the nearest fire exit identified?
3. Are all fire exits unobstructed and provide direct access outside the building?
4. Are emergency exits identified by illuminated signs or highly reflective signs?
5. Are doors or passages that might be confused with emergency exits posted with signs saying "NOT AN EXIT"?
6. Are sufficient emergency lights available to permit emergency operations and egress?
7. Are emergency lights operable?
8. Are fire extinguishers located throughout the facility and are they marked and clearly visible?
9. Are fire extinguishers periodically checked and tested to ensure their operability?