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**Level 2 Program Description Document (PDD)**

Revision	Record of Issue/Revision	Affected Pages
3	Minor Revision/Periodic Review: update to current template/format; add Appendix A, <i>Regulatory Requirement Flow Down</i> , and associated Step in 1.0 <i>Purpose</i> ; editorial clarifications/corrections; include information from latest version of DOE Order 420.1C, <i>Facility Safety</i> .	All

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## 1.0 PURPOSE

- 1.1 When properly implemented, the protocols and methods described in this Program Description meet the intent of FBP-PM-PDD-00001, *Integrated Safety Management System*, requirements for lessons learned, feedback and improvement Integrated Safety Management System (ISMS) Core Function 5, facility safety; and fully meet the ISMS requirements for Fire Protection (FP).
- 1.2 This document implements applicable regulatory requirements. They are listed in Appendix A, *Regulatory Requirements Flow Down*.

## 2.0 SCOPE AND APPLICABILITY

- 2.1 This Level 2 Program Description established the requirements for a comprehensive Fire Protection Program (FPP) for Department of Energy (DOE) sites, facilities, and emergency response organizations at the Portsmouth Gaseous Diffusion Plant (PORTS). This program applies to all Fluor-BWXT Portsmouth LLC (FBP) employees, Contracted Labor Resources, and all facilities, in whole or in part, for which FBP has responsibility.
- 2.2 This Program Description is not applicable to facilities, in whole or in part, for which United States DOE has retained responsibility or assigned responsibility through agreements with lessees, tenants, or other prime contractors.
- 2.3 This Program Description identifies the elements and program description of the FBP project FPP. The purpose of the program is to minimize the potential for:
  - Occurrence of a fire or related event
  - Fires that cause an unacceptable onsite or offsite release of hazardous or radiological material that could impact the health and safety of employees, the public, or the environment
  - Unacceptable interruption of vital DOE programs as a result of fire and related hazards
  - Property loss from fire exceeding limits established by DOE
  - Fire damage to critical process controls and safety-related Structure, System and Components (as documented by appropriate safety analysis)
- 2.4 This Program Description defines the administrative program responsibilities for ensuring FBP maintains compliance with FP requirements when managing or overseeing subcontractors.

## 3.0 PROGRAM DOCUMENTS

### 3.1 Requirements and Guidance

- 3.1.1 10 CFR 851, *Worker Safety and Health Program*
- 3.1.2 DOE Order 420.1C, *Facility Safety* (latest revision)

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**3.1.3** DOE STD-1066-2016, *Fire Protection*

**3.1.4** National Fire Protection Association (NFPA) Codes and Standards

**3.1.5** International Building Code or applicable State of Ohio codes

#### **4.0 PROGRAM RESPONSIBILITIES**

##### **4.1 General Requirements**

The FBP PORTS FPP for the PORTS facilities, sites, activities, design, and construction does the following:

- Provides a level of safety sufficient to fulfill requirements for highly protected risk (HPR)
- Provides methods to prevent loss of safety functions and safety systems as determined by safety analysis and provide defense-in-depth
- Meets or exceeds applicable building codes for the region and NFPA codes and standards as follows:
  - Facilities or modifications thereto must be constructed to meet codes and standards in effect, when design criteria are approved, otherwise known as the Code of Record (COR).
  - Provisions of subsequent editions of codes or standards (promulgated after the COR) must be met to the extent that they are explicitly stated to be applicable to existing facilities. Other provisions of updated codes and standards must be applied to existing facilities when a construction modification takes place or when a potential for immediate risk to life safety or health has been identified through either the facility assessment or Fire Hazard Analysis (FHA) review process, or during the construction review or permitting process.
  - Requirements of DOE O 420.1C take precedence over all NFPA and building code requirements and are subject to the relief requirements of DOE O 420.1C.
  - Conflicts between NFPA requirements and the applicable building code requirements are resolved by the DOE Head of Field Element, consistent with DOE-STD-1066-2016, and in consultation with designed building code and fire protection Subject Matter Experts (SMEs).

##### **4.2 Fire Protection Program**

**4.2.1** This program affirms FBP's commitment to fire protection and fire suppression capabilities sufficient to minimize losses from fire and related hazards consistent with highly protected risk status in private industry.

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- 4.2.2** The FBP PORTS FPP provides an acceptable level of safety from fire and related hazards. This is accomplished with the use of facility and site wide fire protection, fire alarm notification with appropriate egress capabilities, and access to an appropriately trained and equipped fire department. The primary drivers for the program are the applicable NFPA Codes and Standards.
- 4.2.3** The FBP PORTS FPP criteria or procedures include:
- Site-specific requirements
  - Staff organization, training, and responsibilities
  - Administrative responsibilities
  - Design, installation, operability, inspection, maintenance, and testing requirements
  - Use and storage of combustible, flammable, radioactive, and hazardous materials to minimize risk from fire
  - Fire Protection System (FPS) impairments
  - Smoking and hot work
  - Safe operation of process equipment
  - Prevention measures that decrease fire risk
- 4.2.4** The FPP is a system to ensure that FPP requirements are documented and incorporated in plans and specifications for new facilities and significant modifications to existing facilities.
- 4.2.5** The FPP requires documented review of plans, specifications, procedures, and acceptance tests by a qualified fire protection engineer.
- 4.2.6** FBP performs FHAs using a graded approach and are conducted for hazard category 1, 2 and 3 nuclear facilities, significant new facilities, and facilities that represent unique fire safety risks.
- 4.2.7** FHA conclusions are incorporated into the Documented Safety Analysis (DSA) and integrated into design basis and beyond design basis accident conditions.
- 4.2.8** FBP maintains access to a qualified, trained fire protection staff that includes Fire Protection Engineers (FPE), technicians, and firefighting personnel to implement the requirements of this program.

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- 4.2.9** FBP maintains a baseline needs assessment (BNA) of the fire protection emergency response organization which:
- Establishes the site firefighting capabilities to provide:
    - Effective response to suppress all fires
    - Emergency medical and hazardous materials response capabilities
    - Staffing, apparatus, facilities, equipment, training, pre plans, offsite assistance, and procedures
  - Reflects applicable NFPA codes and standards.
  - Updates at least every 3 years and in accordance with applicable NFPA code provisions and whenever a significant new hazard is introduced that is not covered by the current BNA.
- 4.2.10** FBP maintains site emergency plans, FHAs, and DSAs that incorporate BNA information.
- 4.2.11** FBP maintains pre fire strategies, plans, and standard operating procedures to enhance the effectiveness of site firefighting personnel.
- 4.2.12** FBP maintains procedures governing the use of firefighting water or other neutron moderating materials to suppress fire within or adjacent to moderation controlled areas.
- 4.2.13** Where no alternative exists to criticality safety restrictions on the use of water for fire suppression, the need for such restrictions is fully documented with written technical justification.
- 4.2.14** FBP has a documented comprehensive fire protection self-assessment program which is performed every 3 years.
- 4.2.15** FBP maintains processes to identify, prioritize, and monitor the status of fire protection assessment findings, recommendations, and corrective actions until final resolution.
- 4.2.16** FBP maintains a process for reviewing and recommending approval of fire safety equivalencies to any FP code or standard requirements to the DOE organization Authority Having Jurisdiction (AHJ) for fire safety.
- 4.2.17** FBP maintains procedures governing firefighting techniques to be used during deactivation, decontamination, and demolition phases, when applicable.
- 4.2.18** FBP maintains FBP-FS-PL-00001, *Fluor-BWXT Portsmouth Wildland Fire Management Plan*.

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### 4.3 Fire Protection Design

- 4.3.1** FBP maintains a comprehensive fire protection design program for facilities and supporting systems.
- 4.3.2** FBP maintains a reliable and adequate supply of water for fire suppression.
- 4.3.3** FBP requires noncombustible construction materials for facilities exceeding the size limits established by DOE. (See DOE STD-1066-2016, *Fire Protection*, for information on size limitations.)
- 4.3.4** FBP requires complete fire-rated construction and barriers; commensurate with applicable codes and fire hazards, to isolate hazardous areas and minimize fire spread and loss potential.
- 4.3.5** FBP design requirements include automatic fire extinguishing systems throughout all significant facilities and in all facilities and areas with potential for loss of safety class systems (other than FPS's); significant life safety hazards; unacceptable program interruption, or fire loss potential in excess of limits defined by DOE.
- 4.3.6** FBP requires redundant FPS's in areas where:
- Safety class systems are vulnerable to fire damage, and no redundant safety capability exists outside of the fire area of interest.
- or
- The maximum possible fire loss (MPFL) exceeds limits established by DOE.
- 4.3.7** FBP requires in new facilities, redundant safety class systems (other than FPS's) located in separate fire areas.
- 4.3.8** FBP maintains a means to notify emergency responders and building occupants of a fire (e.g., fire alarm or signaling system).
- 4.3.9** FBP requires emergency egress and illumination for safe facility evacuation in the event of fire as required by applicable codes or FHA.
- 4.3.10** FBP maintains physical access and appropriate equipment that is accessible for effective fire department intervention (e.g., interior standpipe systems in multi-story or large, complex facilities).
- 4.3.11** FBP provides a means to prevent the accidental release of significant quantities of contaminated products of combustion and firefighting water to the environment, such as ventilation control and filter systems and curbs and dikes. Such features would only be necessary if required by the FHA or DSA in conjunction with other facility or site environmental protection measures.

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**4.3.12** FBP provides a means to address fire and related hazards that are unique to DOE and not addressed by industry codes and standards. Mitigation features may consist of isolation, segregation or the use of special fire control systems (water mist, clean agent, or other special suppression systems) as determined by the FHA.

**4.3.13** FPSs are designed such that their inadvertent operation, inactivation, or failure of structural stability will not result in the loss of vital safety functions or affect the inoperability of safety class systems, as determined by the DSA.

## **5.0 PROGRAM DESCRIPTION**

### **5.1 Organizational Elements**

#### **Site Project Director**

**5.1.1** Designate an individual to serve as the Portsmouth Gaseous Diffusion Plant AHJ as recognized in DOE O 420.1C *Facility Safety*.

#### **Directors**

**5.1.2** Ensure project compliance with all applicable FP requirements contained in 10 CFR 851, *Worker Safety and Health Program*, and DOE Order 420.1C, *Facility Safety*.

**5.1.3** Ensure the Functional Area Managers (FAM)/project managers, Training Manager, and Facility Managers identify and develop procedures/instructions and training needed for personnel to carry out FP responsibilities.

**5.1.4** Ensure compliance with the FBP PORTS FPP by implementing project specific procedures to assure compliance with facility FP and safety basis documents.

#### **Environmental Safety Health & Quality (ESH&Q)/Occupational Safety & Health/Fire Protection Manager**

**5.1.5** Assigned as the Permit Authorizing Individual (PAI) for preparation and issuance of Hot Work permits per FBP-FP-PRO-00072, *Welding, Burning, and Hot Work*.

**5.1.6** Manage and direct FP personnel in the performance of fire prevention activities.

**5.1.7** Act as the principle liaison with the FBP Fire Services to:

- Coordinate new work activities.
- Initiate FP system impairments for projects.
- Track fire equipment system deficiencies for FBP facilities and report status to the Facility Manager.



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- 5.1.8** Ensure the FPP meets the mandated FP criteria, as defined in the FBP Prime Contract requirements and applicable DOE Orders and Standards.
- 5.1.9** Prepare FP technical reports, assessments, and FHAs to support FBP projects, as needed, in accordance with the criteria established in DOE Order 420.1C, *Facility Safety* and specific requirements including, FBP-FP-PRO-00042, *Fire Protection Engineering Building Surveys and Inspections*, and FBP-FP-PRO-00006, *Fire Hazard Analysis*.
- 5.1.10** Perform fire investigations as directed by the ESH&Q Manager.
- 5.1.11** Coordinate activities with the FBP Fire Services to ensure:
- Routine FP activities performed by FBP Fire Services Group (e.g., inspection of fixed FP systems and portable fire extinguishers) are performed in a timely manner.
  - Fixed fire suppression system outages are corrected/repared in a timely manner.
  - During such outages, ensure adequate compensatory measures that meet FBP expectations are established.
- 5.1.12** Coordinate with the training organization to ensure necessary FP training programs are developed and implemented to support project personnel. Provide review and assessments technical content and delivery of training course relative to FP.
- 5.1.13** Ensure FHA are prepared for all nuclear facilities, significant new facilities and facilities that represent unique or significant fire safety risks in accordance with DOE Order 420.1C, *Facility Safety*, as necessary, for new projects that warrant a technical appraisal for fire hazards associated with the proposed work are prepared per FBP-FP-PRO-00006.

**Fire Services Manager & Line Manager**

- 5.1.14** Ensure use of the FBP project document control system per FBP-BS-PRO-00062, *Records Management Process*, for managing applicable FBP documentation.
- 5.1.15** Ensure all FBP personnel and sub-contractors understand and adhere to fire safety rules and regulations as prescribed by applicable procedures, hazard assessments and work control documents.
- 5.1.16** Ensure employees with FP responsibilities have successfully completed all relevant training.

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### **Nuclear Safety Manager**

- 5.1.17 Ensure FHA and mitigation actions are appropriately integrated into FBP Safety Basis Documents (i.e., DSA, Technical Safety Requirements (TSR), FHAs, and implementing procedures in compliance with the requirements of 10 CFR 830, *Nuclear Safety Management*, Subpart B, *Safety Basis Requirements*.
- 5.1.18 Ensure FHA conclusions are incorporated into the FBP Safety Basis and integrated into evaluation of design basis and beyond design basis accident conditions as required by DOE Order 420.1C, Section 3(f)(1)(d)(3)(d).

### **S&M and D&D/Site Infrastructure & Maintenance and Work Control**

- 5.1.19 Ensure appropriate FP requirements are included in work control packages.
- 5.1.20 Ensure all personnel working in their area of responsibility comply with FBP PORTS FPP requirements.
- 5.1.21 Coordinate all FP system outages information with the Fire Protection Technical Specialist (FPTS). When fire system outages occur, determine limitations/restrictions on work activities until the systems are restored to normal.
- 5.1.22 Review and approve all FP Technical Assessments and analysis reports as related to their area of responsibility.

### **Fire Protection Engineer (FPE)**

- 5.1.23 Report any unresolved FP issues to the Facility Manager and ESH&Q/Fire Protection Manager.
- 5.1.24 Ensure procedures that describe the use, storage, and handling of combustible and flammable materials are in accordance with FBP Prime Contract requirements.
- 5.1.25 Provide FP support and technical resources to FBP Projects.
- 5.1.26 Support development of FP procedures and provide recommendations.

### **Contracts Manager**

- 5.1.27 Ensure appropriate FP requirements are flowed down to sub-tier contractors under the cognizance of FBP management.

### **Employees and Contracted Labor Resources**

- 5.1.28 Responsible for fire safety in the work place.
- 5.1.29 Plan and conduct all work in a manner that minimizes hazards from fire and other related events.

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- 5.1.30 Comply with FP requirements established in FBP performance documents.
- 5.1.31 **WHEN** necessary, **THEN** provide FP safety feedback on work processes to improve requirements and performance documents.
- 5.1.32 Recognize and respond to local fire evacuation alarms and report fire emergencies.
- 5.1.33 Understand the need for and implementation of good housekeeping practices including not obstructing exits, using emergency fire equipment, and minimizing transient combustibles.

**Training Organization**

- 5.1.34 Ensure FP and related training programs are reviewed by the FBP Fire Protection, Fire Services,, Facility Managers, and AHJ or designee as applicable

**Fire Protection Manager**

- 5.1.35 Ensure all FP procedures are:
  - Reviewed in accordance with FBP administrative policy
  - Reviewed and/or revised when there are changes to applicable contract requirements.

**5.2 Fire Prevention**

**All Managers**

- 5.2.1 Ensure familiarity with all relevant FP procedures applicable to their area of responsibility.
- 5.2.2 Ensure personnel assigned to their cognizant work group are adequately trained in fire safety and prevention measures.
- 5.2.3 Provide feedback to the FPE and Training Manager on adequacy of procedures or suggested changes.
- 5.2.4 Ensure fire prevention and safety topics are included in safety meetings, tool box briefings, etc.

**Facility Managers**

- 5.2.5 Ensure activities involving hot work (i.e., welding and cutting or open burning) are conducted in accordance with FBP-FP-PRO-00072.
- 5.2.6 With the technical support of the FPE, ensure the use and storage of combustibles and flammable materials are in accordance with FBP-FP-PRO-00005, *Combustible Control Program*.

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- 5.2.7 Review Fire Services inspection reports of facilities; take appropriate action to correct deficiencies, and report corrective actions to the FPE.
- 5.2.8 Ensure materials susceptible to spontaneous ignition, such as oily rags, paint thinner soiled rags, etc., are stored in an Underwriters Laboratory (UL) listed container that has been approved by FBP FP.
- 5.2.9 Ensure all small appliances have been approved by FBP FP and/or the Occupational Safety & Health (OS&H) group prior to purchasing and prior to use.

**Fire Protection Engineer (FPE)**

- 5.2.10 Perform periodic inspections to ensure combustibles are being controlled as described in the applicable procedure.
- 5.2.11 **IF** applicable, **THEN** initiate Problem Report per FBP-QP-PRO-00020, *Problem Reporting and Issues Management*.

**5.3 Facility Fire Safety**

**Facility Managers**

Ensure building life safety features are maintained in an operable condition at all times including:

- Exit passageways are clear of obstruction.
- Fire/Egress doors and associated hardware is functional.
- Fire barriers are maintained.
- FP systems are functional.
- Emergency Lighting is tested and remains operational.

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#### **5.4 Facility Modifications and Construction**

##### **NOTE**

FP requirements for the construction of new facilities and significant facility modifications must be in accordance with the applicable NFPA codes and standards and those requirements promulgated by DOE STD 1066-2016, *Fire Protection*, and DOE Order 420.1C Chg. 3, *Facility Safety*. Significant facility modifications are those that typically impact changes to occupancy type or involve major renovation to an existing structure.

##### **Authority Having Jurisdiction**

- 5.4.1 Determine the need for preparing a Transitional Fire Hazard Analysis (TFHA) or an addendum to an existing FHA for all Category III facilities or higher or those facilities which are vital to the DOE mission.

##### **ESH&Q/Occupational Safety & Health/Fire Protection Manager**

- 5.4.2 Ensure FPP requirements are documented and incorporated into plans and specifications for design of new facilities and modifications to existing facilities by Fire Service, FPE.
- 5.4.3 Assign a qualified FPE to execute the specific requirements for the project.

##### **Fire Protection Engineer (FPE)**

- 5.4.4 Notify the FBP Fire Services of the intent and invite their participation in project planning.
- 5.4.5 Determine design criteria for new construction or significant modifications to a facility.
- 5.4.6 Prepare TFHA or an addendum to the existing FHA as directed by the AHJ.
- 5.4.7 Review plans for new construction or proposed modifications to existing facilities and defines requirements to ensure compliance with life safety criteria and other applicable codes and standards.
- 5.4.8 Support the AHJ in the development of equivalencies and exemptions as needed.

##### **Facility Manager**

- 5.4.9 Coordinate with the FPE to obtain approval whenever the nature of a building occupancy changes (e.g., from storage to industrial or from laboratory to office) or building configuration or facility modifications are proposed.

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### **Design Engineer Manager**

- 5.4.10** Ensure Lead Engineers obtain FP design or program guidance from the FPE and establishes minimum FP criteria for decommissioning and demolition (D&D) projects.
- TFHA may be required and performed using the graded approach in accordance with FBP-FP-PRO-00006 to satisfy the requirements of DOE O 420.1C, *Facility Safety* and NFPA 241, *Standard for Safeguarding Construction, Alteration and Demolition Operations*.
  - Ensure Lead Engineers obtain FP design or program guidance from the FPE and establishes minimum FP design criteria for the project. The FPE will determine the need for a FHA is require for new or existing facilities to satisfy the requirements of DOE O 420.1C, *Facility Safety*, and NFPA 801, *Standard for Fire Protection for Facilities Handling Radioactive Materials*.
  - Ensure the FHA will be performed using the graded approach in accordance with FBP-FP-PRO-00006.
- 5.4.11** Incorporate in design documents those FP features deemed essential by PORTS FPE per applicable codes and standards.
- 5.4.12** Ensure design review/approval from FPE is performed on new construction and significant modifications.
- 5.4.13** Obtain concurrence with FBP Fire Service group that any new proposed construction or facility modifications will not exceed the fire departments ability to respond and suppress a fire.
- 5.4.14** Ensure installation of all electrical equipment is in accordance with the requirements of NFPA 70, *National Electrical Code*®, OSHA, and as shown on the applicable design drawings and specifications for both permanent plant installations and temporary construction installations.
- 5.4.15** Ensure that fixed FP system information related to new construction or modifications is forwarded to Fire Services for inclusion in the inspection and testing schedule.
- 5.4.16** Support the AHJ in the development of equivalencies and exemptions as needed.

### **All Employees and Sub-Contractors**

- 5.4.17** Comply with FBP smoking policy by prohibiting smoking inside buildings, radioactive material areas, radiological areas, or in areas where toxic or flammable materials are stored or used.
- 5.4.18** Comply with “hot work” requirements in FBP-FP-PRO-00072 for all work activities involving burning, welding, grinding or other hot work operations.

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## **5.5 Fire Protection for Abandoned Facilities and Facilities Undergoing Decontamination & Decommissioning (D&D)-Transitional Facilities**

### **Fire Protection Engineer (FPE)**

**5.5.1** 10 CFR 851, *Worker Safety and Health Program*, and DOE Order 420.1C, *Facility Safety* and other provisions contained in the FBP Prime Contract establish FP requirements for transitional DOE facilities. Decisions relating to the fire safety transitional facilities should be made on the basis of the following considerations:

- The need for FP in these facilities is governed by the fire risks to the public, workers, fire fighters, and potential release of hazardous and radiological materials to the environment.
- It is essential that access to the work site be maintained for emergency vehicles. Adequate accessibility is needed for large fire vehicles with a broad turning radius. Full access to fire hydrants must be maintained.
- The evaluation of fire risks in relation to the need for fire safety features can be accomplished through a “transitional” FHA or other technical assessment of the hazards.
- Fire safety features that have been required by DOE may be rendered inoperative or considered no longer needed if justified by the FHA or other analysis documents and approved by the AHJ. Such features can be abandoned in place until they are dismantled as part of D&D activities.
- Facilities undergoing D&D will reach a point where it is no longer practical to maintain fire safety features due to actual building demolition. At this point, such features can be abandoned in place or dismantled as part of D&D operations upon approval of the FBP AHJ and concurrence with the DOE AHJ, as necessary.
- All retained interior FP systems should be maintained operational to the extent possible while interior D&D activities are taking place. Temporary deactivation of FP features shall be treated as a FP system impairment, with appropriate compensatory measures implemented until such time as the feature(s) is returned to full operational mode.

### **Authority Having Jurisdiction (AHJ)**

**5.5.2** Determine the level of FP requirements for each specific D&D project to include:

- Need for a TFHA or written addendum to an existing FHA

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**5.5.3** Ensure a qualified FPE is assigned to support the specific requirements for the project.

- The FPE shall write a technical brief on proposed D&D activities and should obtain FBP concurrence prior to performing work. The DOE AHJ should be provided with a copy of the technical brief, as necessary.

**5.5.4** Notifies the FBP Fire Services of the intent and invite their participation in project planning.

**NOTE**

The Project manager should become familiar with the D&D guidelines for FP as delineated in DOE-STD-1066-2016, Appendix F, *Transitional Facilities*, and work with FPE to implement the D&D guidelines.

From Appendix F: “Fire safety and emergency response for transitional facilities are governed by the requirements contained in 10 CFR Part 851, *Worker Safety and Health Program*, (including 29 CFR Part 1926, *Safety and Health Regulations for Construction*) and the provisions of the National Fire Protection Association (NFPA) Standard 241, *Safeguarding Construction, Alteration and Demolition Operations*. (See also FM Global Loss Prevention Data Sheet 1-0, *Safeguards During Construction*, and Chapter 8 of NFPA 801, *Standard for Fire Protection for Facilities Handling Radioactive Materials*.)”

**Project Manager**

**5.5.5** With FPE, develop task specific FP criteria necessary to mitigate the risk of a fire event. This criteria can be identified in the task work plan and/or activity hazard analysis and should include:

- Control of flammable/combustible liquids
- Control of combustible materials and ignition sources
- Emergency response and fire emergency notification procedures
- Hazards control including hot work

**5.5.6** Ensure emergency egress features are maintained consistent with the requirements for buildings under construction as defined in NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*, and any specific controls as determined by the FPE.

**5.5.7** Locked and abandoned facilities where there is no human occupancy may not need to maintain emergency egress features such as emergency lighting, illuminated exit signs, etc. Paths of egress shall be maintained should access to the facility be required to perform periodic surveillances.



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**5.5.8** Deactivation and eventual removal of any FP features from an abandoned facility shall be justified either through a TFHA or a Technical Assessment. A deactivation plan shall be prepared as a step-out plan to ensure the systems are properly de-commissioned and de-energized. Where service connections to the sites underground fire water mains or central alarm system must be disconnected the step-out plan will be coordinated with the FBP Fire Services. Approvals for deactivation shall be approved as follows:

- The AHJ shall be the site's approving authority for deactivation of a fire suppression/detection/alarm system.

**5.5.9** Ensure retained FP features in abandoned facilities and facilities undergoing D&D are inspected, tested, and maintained, consistent with established procedures, sufficient to ensure that they will function effectively during a fire. Where defects or design deficiencies are discovered that are not critical to effective performance, as determined by the AHJ, such defects or deficiencies may remain uncorrected.

**5.5.10** Ensure abandoned facilities and facilities undergoing D&D are routinely inspected by representatives of the FBP Fire Services to familiarize them with existing conditions and to revalidate any pre-fire plans.

## **5.6 Fixed Fire Protection Systems**

### **Facility Managers**

**5.6.1** Ensure minimum requirements for operation of the following FP features are maintained:

- Fire doors
- Fire rated walls

### **Fire Services**

**5.6.2** Ensure minimum requirements for operation of the following FP features are maintained:

- Fire detection and alarm systems
- Fire suppression systems
- Portable fire extinguishers

**5.6.3** **IF** FP features or systems will be out of operation, **THEN** ensure compensatory measures are implemented until operation is restored in consultation with the FPE and AHJ.

**5.6.4** Ensure inspection and testing of fire detection/suppression systems and equipment are being performed in accordance with FBP procedures.

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**5.6.5** IF applicable, THEN ensure tracking and corrective actions of significant findings and recommendations are performed per FBP-QP-PRO-00020.

**5.6.6** Coordinate FP system outage activities between the Facility Manager and FBP Fire Services, as needed.

**5.7 Portable Fire Protection Systems**

**NOTE**

Portable fire extinguishers, for employee use on a voluntary basis, are provided in accordance with 29 CFR 1910.157, *Portable Fire Extinguishers*, and are selected and distributed per NFPA 10, *Standard for Portable Fire Extinguishers*.

**Fire Services**

**5.7.1** Ensure portable fire extinguishers are provided in FBP facilities.

**5.7.2** Verify fire extinguishers are being maintained and inspected by the FBP Fire Services on a monthly basis.

**All Supervisors**

**5.7.3** For special D&D tasks or work activities that are located outside a main structure, establish a location where the fire extinguishers and other essential emergency equipment will be maintained.

**5.8 Flammable/Combustible Materials**

**NOTE**

Applicable codes and standards are listed in Source Documents.

**Facility Managers**

**5.8.1** Ensure the effective control of ignition sources by complying with FBP-FP-PRO-00005, *Combustible Control Program*.

**5.8.2** Ensure the storage, processing, and handling of flammable and combustible liquids are in accordance with applicable codes, standards, and procedures. (See FBP-FP-PRO-00071, *Flammable and Combustible Liquids*.)

**5.8.3** Ensure the storage, processing, and handling of flammable and combustible materials are in accordance with applicable codes, standards, and procedures. (See FBP-FP-PRO-00005.)

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### **Fire Protection Engineer (FPE)**

- 5.8.4 Provide technical support as requested by other organizations on the site involved in hazard communication activities, such as defined by OSHA 1910.1200, *Hazard Communication*.
- 5.8.5 Document combustible loading inspections according to FBP-FP-PRO-00005.

### **5.9 Fire Investigations**

#### **Project Manager**

- 5.9.1 Formulate investigation team using fire officers, engineers, or multidiscipline teams, as warranted.
- 5.9.2 Using a graded approach, prepare a lessons learned document for appropriate project distribution and ESH&Q Manager to ensure prevention of recurrence.

### **Fire Protection Engineer (FPE)**

- 5.9.3 Provide technical assistance and guidance in the execution of a fire investigation as directed by the Project Manager.

### **5.10 Annual Fire Protection Summary Report**

#### **Authority Having Jurisdiction (AHJ)**

- 5.10.1 Prepare Annual Fire Protection Summary Report.
- 5.10.2 Submit final report per contractor requirements.

### **Fire Protection Engineer (FPE)**

- 5.10.3 Assist Fire Services Manager in developing/preparing Annual Fire Protection Summary Report.

## **6.0 DEFINITIONS/ACRONYMS**

### **6.1 Definitions**

- A. **Authority Having Jurisdiction (AHJ)** – The decision making authority in matters concerning fire protection. The AHJ responsibilities for FP systems reside with the FBP Fire Services for PORTS Project. The PORTS Project FSM is the AHJ for interpretation of codes, standards, and orders regarding FP issues.
- B. **Equivalency** – The approved alternate means of satisfying the technical provisions of a FP code or standard.
- C. **Exemption** – The approved deviation from a non-statutory code, standard or DOE Order.

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- D. FBP Employees and Contracted Labor Resources** – Any employee working on the FBP D&D Project.
- E. Fire Hazard Analysis (FHA)** – An FHA is an analysis of a facility or fire area(s) that are used to assure compliance with the objectives of DOE Orders. There are 3 types of FHAs and are defined as:
- **Preliminary Fire Hazard Analysis (PFHA)** – A PFHA is developed in conjunction with a Preliminary Safety Analysis Report (PSAR) or Safety Analysis Document (SAD) as a basis for determining FP requirements. This type of report is more subjective in nature and used for planning purposes for identifying minimum requirements that a design must meet.
  - **Fire Hazard Analysis (FHA)** – An FHA is a quantitative analysis of a facility or fire area(s) that comprehensively assess and document the risks and vulnerabilities from fire and explosion perils within individual facility or fire area. FHAs are used as a support document for preparing the Documented Safety Analysis (DSA). The conclusions of the FHA must be incorporated in the DSA.
  - **Transitional Fire Hazard Analysis (TFHA)** – Transitional facilities are those that have been placed in a safe-shutdown condition and abandoned, or are undergoing D&D work and ultimately demolition or abandonment. The TFHA is an evaluation of fire risks imposed by the work in relation to the need for traditional fire safety features. The TFHA or technical assessment shall be reviewed and concurred with by the AHJ and DOE.
- F. Fire Protection (FP)** – A broad term which encompasses all aspects of fire safety, including: building construction and fixed building fire features, fire suppression and detection systems, fire water systems, emergency process safety control systems, emergency firefighting organizations (fire departments, fire brigades, etc.), fire protection engineering, and fire prevention. Fire protection is concerned with preventing or minimizing the direct and indirect consequences of fire. It also includes aspects of the following perils as they relate to FP: explosions, natural phenomenon, smoke, and water damage from fire.
- G. Fire Protection Engineer (FPE)** – Fire Protection Engineers report to the Fire Protection Manager and are responsible for design review, specification requirements, building surveys, support to other site organizations and some fire investigations. Fire Protection Engineers are also responsible for annual review and periodic revision of the FHAs. Fire Protection Engineers are either graduates of a technical program or have at least 6 years’ experience in fire protection work.

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**H. Fire Protection System (FPS)** – Any system designed to detect, extinguish, and limit the extent of fire damage or enhance life safety. Where redundant FP systems are required, any two of the following will satisfy that requirement. These include:

- Automatic suppression systems, such as fire sprinklers, foam, gaseous, explosion suppression, or other specialized extinguishing systems plus appropriate alarms. An adequate supply, storage, and distribution system is an essential element.
- Automatic fire detection, occupant warning, manual fire alarm, and fire alarm reporting systems combined with properly equipped and adequately trained fire departments or brigades.
- Fire barrier systems or combinations of physical separation and barriers for outdoor locations.
- Other systems, such as alternate process control systems, as approved by the AHJ.

**I. Graded Approach** – The manner of completing an evaluation/document/analysis that sets a level of detail/rigor with the level of importance/significance of the element being addressed. The graded approach sets the level of detail in the document and is determined by the author and the AHJ.

**J. Highly Protected Risk (HPR)** – The facility as characterized by a level of fire protection design, systems, and management controls to fulfill requirements for the best-protected class of industrial risks.

**K. Safety Basis** – Those aspects of the facility design basis and operational requirements relied upon by DOE to authorize operation. These aspects are considered to be important to the safety of facility operations. The safety authorization basis includes (if they exist for a specific facility) approved Documented Safety Analysis (DSAs), Hazard Analyzes, Technical Safety Requirements (TSRs), Preliminary Hazard Surveys (PHSs), Inactive Waste Site (IWS) documents, Transportation Safety Documents (TSDs), DOE Safety Evaluation Reports (SERs), and facility specific commitments.

## 6.2 Acronyms

- A. BNA** – Baseline Needs Assessment
- B. COR** – Code of Record
- C. DSA** – Documented Safety Analysis
- D. FPP** – Fire Protection Program
- E. FPTs** – Fire Protection Technical Specialist
- F. HPR** – Highly Protected Risk

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- G. IH – Industrial Hygiene**
- H. ISMS – Integrated Safety Management System**
- I. NFPA – National Fire Protection Association**

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**Appendix A**  
**REGULATORY REQUIREMENTS FLOW DOWN**

1. 10 CFR 851, *Worker Safety and Health Program*
2. DOE Order 420.1C, *facility Safety* (latest revision)
3. DOE-STD-1066-2016, *Fire Protection*
4. National Fire Protection Associated (NFPA) Codes and Standards
5. International Building Code or applicable State of Ohio codes

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**Appendix B**  
**CROSS-REFERENCE DOE O 420.1C, FACILITY SAFETY TO FBP PORTSMOUTH FIRE PROTECTION PROGRAM**  
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<b>420.1C, Facility Safety, Chapter II</b>	<b>FPP Section</b>	<b>Implementing Procedures</b>
1. Objectives	2.0	<b>FBP-FP-PDD-00001</b> , <i>Fire Protection Program Description</i>
2. Applicability	2.0	<b>FBP-FP-PDD-00001</b> , <i>Fire Protection Program Description</i>
3. Requirements	2.0	<b>FBP-FP-PDD-00001</b> , <i>Fire Protection Program Description</i>
3.a(1)	4.1	<b>FBP-FP-PDD-00001</b> , <i>Fire Protection Program Description</i>
3.a(2)	4.1	<b>FBP-FP-PDD-00001</b> , <i>Fire Protection Program Description</i>
3.a(2)(a)(b)(c)	4.1	<b>FBP-FP-PDD-00001</b> , <i>Fire Protection Program Description</i>
3.b	4.2	<b>FBP-FP-PDD-00001</b> , <i>Fire Protection Program Description</i>
3.c.(1)	4.3	<b>FBP-FP-PRO-00043</b> , <i>Design Review</i> <b>FBP-NSE-PRO-00095</b> , <i>Conduct of Engineering</i>
3.c.(3)(a)	4.1	<b>FBP-FP-PDD-00001</b> , <i>Fire Protection Program Description</i>
3.d.(1)	4.2 4.2.15	Various Fire Protection Site Procedures <b>FBP-FP-PRO-00006</b> , <i>Fire Hazard Analysis</i> <b>FBP-FP-PRO-00042</b> , <i>Fire Protection Engineering Building Surveys and Inspections</i>
3.d.(1)(a)	4.2.3	Various Fire Protection site Procedures
3.d.(1)(b)	4.2.3	BNA, Fire Services Procedures and Protocol, Training
3.d.(1)(c)	4.2.3	BNA, Fire Services Procedures and Protocol, Training
3.d.(1)(d)	4.2.3	BNA, Fire Services Procedures and Protocol, Training
3.d.(1)(e)	4.2.3	Site Specific Procedures Applicable NFPA Codes and Standards
3.d.(1)(f)	4.2.3	<b>FBP-FP-PRO-00063</b> , <i>High Pressure Fire Water System (HPFW) Program</i> Fire Services Procedures and Protocol
3.d.(1)(g)	4.2.3	<b>FBP-FP-PRO-00072</b> , <i>Welding, Burning, and Hot Work</i> <b>FBP-FP-PRO-00043</b> , <i>Design Review</i>
3.d.(1)(h)	4.2.6	<b>FBP-FP-PRO-00006</b> , <i>Fire Hazard Analysis</i> <b>FBP-HR-POL-00056</b> , <i>Smoking Policy</i>
3.d.(1)(i)	4.2.3	Site Specific Procedures Applicable NFPA Codes and Standards
3.d.(2)	4.2.5	<b>FBP-NSE-PRO-00095</b> , <i>Conduct of Engineering</i>
3.d.(2)(a)	4.2.8	<b>FBP-FP-PRO-00006</b> , <i>Fire Hazard Analysis</i>
3.d.(2)(b)	4.2.4	<b>FBP-FP-PRO-00043</b> , <i>Design Review</i>
3.d.(2)(c)	4.2.16	<b>FBP-QP-PRO-00020</b> , <i>Problem Reporting and Issues Management</i> <b>FBP-QP-PDD-00001</b> , <i>ESH&amp;Q Performance Measurement, Analysis, and Reporting</i>
3.d.(2)(d)	5.1.1	<b>POEF-FBP-020</b> , <i>Safety Management Program Description for Fluor-BWXT Portsmouth Decontamination &amp; Decommissioning Project</i>



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<b>420.1C, Facility Safety, Chapter II</b>	<b>FPP Section</b>	<b>Implementing Procedures</b>
3.e.(1)(a)1	4.2.9	<b>FBP-FS-BNA-00001</b> , <i>Baseline Needs Assessment for PORTS Fire Services</i>
3.e.(1)(a)2	4.2.9	<b>FBP-FS-BNA-00001</b> , <i>Baseline Needs Assessment for PORTS Fire Services</i>
3.e.(1)(a)3	4.2.9	<b>FBP-FS-BNA-00001</b> , <i>Baseline Needs Assessment for PORTS Fire Services</i>
3.e.(1)(b)	4.2.9	<b>FBP-FS-BNA-00001</b> , <i>Baseline Needs Assessment for PORTS Fire Services</i>
3.e.(1)(c)	4.2.9	<b>FBP-FS-BNA-00001</b> , <i>Baseline Needs Assessment for PORTS Fire Services</i>
3.e.(1)(d)	4.2.9 4.2.14	<b>FBP-FS-BNA-00001</b> , <i>Baseline Needs Assessment for PORTS Fire Services</i> <b>FBP-NSE-PRO-00046</b> , <i>Management Self Assessments for Readiness</i>
3.e.(1)(e)	4.2.10	<b>FBP-FP-PRO-00006</b> , <i>Fire Hazard Analysis</i>
3.e.(2)	4.2.11	<b>FBP-FP-PRO-00043</b> , <i>Design Review</i> <b>FBP-NSE-PRO-00095</b> , <i>Conduct of Engineering</i>
3.e.(3)(a)	4.1	<b>FBP-FP-PDD-00001</b> , <i>Fire Protection Program Description</i>
3.e.(3)(a)	4.2 4.2.15	Various Fire Protection Site Procedures <b>FBP-FP-PRO-00006</b> , <i>Fire Hazard Analysis</i> <b>FBP-FP-PRO-00042</b> , <i>Fire Protection Engineering Building Surveys and Inspections</i>
3.e.(3)(a)	4.2.3	Various Fire Protection site Procedures
3.e.(3)(b)	4.2.3	BNA, Fire Services Procedures and Protocol, Training
3.e.(3)(c)	4.2.3	BNA, Fire Services Procedures and Protocol, Training
3.e.(3)(d)	4.2.3	BNA, Fire Services Procedures and Protocol, Training
3.f.(1)(a)	4.2.3	Site Specific Procedures Applicable NFPA Codes and Standards
3.d.(1)(f)	4.2.3	<b>FBP-FP-PRO-00063</b> , <i>High Pressure Fire Water System (HPFW) Program</i> Fire Services Procedures and Protocol
3.d.(1)(g)	4.2.3	<b>FBP-FP-PRO-00072</b> , <i>Welding, Burning, and Hot Work</i> <b>FBP-FP-PRO-00043</b> , <i>Design Review</i>
3.d.(1)(h)	4.2.6	<b>FBP-FP-PRO-00006</b> , <i>Fire Hazard Analysis</i> <b>FBP-HR-POL-00056</b> , <i>Smoking Policy</i>
3.d.(1)(i)	4.2.3	Site Specific Procedures applicable NFPA Codes and Standards
3.d.(2)	4.2.5	<b>FBP-NSE-PRO-00095</b> , <i>Conduct of Engineering</i>
3.d.(2)(a)	4.2.8	<b>FBP-FP-PRO-00006</b> , <i>Fire Hazard Analysis</i>
3.d.(2)(b)	4.2.4	<b>FBP-FP-PRO-00043</b> , <i>Design Review</i>
3.d.(2)(c)	4.2.16	<b>FBP-QP-PRO-00020</b> , <i>Problem Reporting and Issues Management</i> <b>FBP-QP-PDD-00001</b> , <i>ESH&amp;Q Performance Measurement, Analysis, and Reporting</i>
3.d.(2)(d)	5.1.1	<b>POEF-FBP-020</b> , <i>Safety Management Program Description for Fluor-BWXT Portsmouth Decontamination &amp; Decommissioning Project</i>