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Level 2 Program Description Document (PDD)

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1.0 PURPOSE [10 CFR 851]

- 1.1 Fluor-BWXT Portsmouth LLC (FBP) performs Decontamination & Decommissioning (D&D) and Environmental Remediation (ER) work at the U.S. Department of Energy (DOE) Portsmouth Gaseous Diffusion Plant (PORTS), according to the terms and conditions of prime contract DE-AC30-10CC40017. FBP is responsible for ensuring compliance with all applicable laws, regulations, regulatory agreements, and requirements, as defined in the prime contract.
- 1.2 FBP's policy is to provide a safe and healthy workplace for all employees. Safety is FBP's number one core value and shall take precedence over cost and schedule. FBP is dedicated to the belief that all injuries, accidents, and incidents are preventable and is committed to integrating safety into all aspects of work planning and execution, as described in the Integrated Safety Management System (ISMS).
- 1.3 The effective implementation of this policy necessitates that work activities conducted for DOE are directed by a project-wide Worker Safety and Health Program (WSHP). Program requirements are effectively flowed down into implementing documents that provide the necessary detail for the successful implementation of controls at the work/task level.
- 1.4 The purpose of the WSHP is to provide workers with a safe and healthful workplace through an effective safety and health program that will reduce or prevent accidental losses, injuries, and illnesses on the FBP D&D and ER project. Implementation of this program ensures safety and health requirements are flowed down to the lowest task level and demonstrates compliance with 10 Code of Federal Regulations (CFR) 851, *Worker Safety and Health Program*, and other applicable requirements.
- 1.5 This document implements applicable regulatory requirements. They are listed in Appendix A, *Regulatory Requirements Flow Down*.

2.0 SCOPE AND APPLICABILITY [10 CFR 851.11]

- 2.1 This WSHP incorporates a graded approach, which is based upon the specific hazards related to the scope of work and associated risk(s). Where necessary, a hazard analysis and/or a sub-project level plan may also be developed to address more specific detailed activities or subcontracted work (e.g., Health and Safety Plan [HASP], according to 29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response*).
- 2.2 The safety and health requirements described in this program are applicable to all activities performed by FBP. Except as otherwise identified in this document, all persons, including visitors, entering the FBP D&D and ER Project sites are subject to the requirements of this program and will be held responsible for adhering to the requirements as specified herein (see exclusions in Step 2.4 of this Section). Furthermore, each individual is responsible for bringing to the attention of management any unsafe or unhealthy conditions that he/she observes. Unsafe or unhealthy conditions are addressed immediately upon discovery.

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- 2.3** Subcontractors will develop and submit safety and health program documents for review and approval by FBP to meet the requirements of 10 CFR 851. All work performed by subcontractors shall be in accordance with the U.S. Department of Energy Acquisition Regulation 970.5223-1, *Integrated Safety Management*, 10 CFR 851, 10 CFR 835, *Occupational Radiation Protection*, and all applicable federal regulations and site-specific requirements. Subcontractors shall comply with such portions of the FBP WSHP, as are applicable to the subcontracted work, as identified in the Statement of Work, specifications, or any other part of their contract.
- 2.4** Subcontractors performing limited scope and limited “hands-on” work or strictly performing observation/consultation may accept and follow the FBP WSHP and applicable procedures and training under the appropriate Program Functional Areas. The Subcontractor shall submit their WSHP determination for review and approval by the Company.
- 2.5** Vendors, delivery persons, and others who do not have service contracts with DOE, or who are not Subcontractors to such contractors are excluded from requirements of 10 CFR 851. The process for vendor site access and management while performing services is specified in FBP-BS-PRO-00114, *Vendor Oversight Process*. Subcontractors who utilize vendors will do so under an equivalent process to FBP-BS-PRO-00114 which is described in the subcontract documents. Work that is excluded from the 10 CFR 851 rule (as described in DOE G 440.1-1B, *Worker Safety and Health Program for DOE [Including the National Nuclear Security Administration] Federal and Contractor Employees*), since employee Health & Safety is governed by the employer’s Occupational Safety and Health Administration (OSHA) based program and further assessed by FBP’s coordinated application of the Vendor Oversight process includes:
- Vendors, delivery persons, and others who generally do not have PORTS mission-related service contracts with DOE. Including (but not limited to):
 - Sanitary Waste Collection
 - Servicing of Vendor-Owned Equipment
 - Portable Restrooms and Hand Washing Stations
 - Document Shredding
 - Vending Machines (filling, moving/relocating, and performing maintenance)
 - Safety Shoes
 - Safety Glasses
 - Food Vendor
 - Automated Teller Machine (ATM) Vendor
 - Ice Vendor
 - Fuel Delivery

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- Chemical Delivery
- Equipment Delivery (e.g., rental equipment and compressed gas cylinders)
- Copy machine maintenance
- Delivery personnel such as United Parcel Service (UPS) or office supplies delivery
- Suppliers that engage in no more than tangential work at PORTS
- Off-site utility providers
- Off-site emergency services
- Colleges/Universities under a DOE grant
- Services that are not in furtherance of PORTS DOE mission
- Other companies whose employees are covered by OSHA, that provide only “commercial items” as defined under the Federal Acquisition Regulations.

2.6 The process for vendor site access and management while performing services is specified in FBP-BS-PRO-00149, *Integrated Vendor Oversight Process*. Project-Integrated Vendors work alongside FBP project personnel on a routine basis to provide maintenance and/or repair service support on vendor-provided equipment and machinery. They receive day-to-day direction, support and oversight from FBP project personnel.

Unlike traditional commercial services vendors, Project-Integrated Vendor personnel are subject to the FBP Integrated Safety Management System and the WSHP including other relevant flow-down requirements such as training, radiation protection, medical qualification, and substance testing as may be determined necessary by FBP for the performance of their service maintenance/repair support activities on the PORTS Site.

The FBP Contracts Organization will designate those vendors which are considered Project Integrated Vendors and work directly with Environmental, Safety, Health & Quality (ESH&Q) and the respective Project Management Team to establish any site-specific relevant flow-downs necessary for the Vendor’s intended support activities. Refer to Subsection 5.10 for work performed by subcontractors or vendors.

2.7 Hazards that are identified during the performance of FBP work planning/activities that may have a larger impact (or potential for similar occurrence) that could affect other site entities will be handled through the Shared Site process. This process is detailed in FBP-PI-PRO-00002, *Administration of Shared Site Issues*. Additionally, information is shared at a periodic site-wide interface meeting (DOE Portsmouth Environmental, Safety, Health (ES&H) Council Meeting) which includes representatives from each of the site entities and during which common issues are discussed and resolved.

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3.0 PROGRAM DOCUMENTS

3.1 Requirements and Guidance

3.1.1 Programmatic [10 CFR 851.12]

This document describes the elements of the FBP WSHP applicable to all work performed by FBP and subcontractors. Requirements identified in this program document are derived from 10 CFR 851 which is incorporated in List A of prime contract DE-AC30-10CC40017. FBP implements 10 CFR 851 requirements including the consensus standards incorporated by reference through implementing documents as identified throughout this program document.

3.1.2 Policies

FBP establishes the written policies, goals, and objectives for implementation of the WSHP.

4.0 PROGRAM RESPONSIBILITIES [10 CFR 851.20]

4.1 Site Project Director and Management Team

The Site Project Director (SPD) is responsible and accountable to DOE for managing and guiding the company in the safe performance of all work under the prime contract. As the senior manager for FBP, the SPD has the ultimate responsibility for safe completion of work and leads in establishing the company standards and expectations for all work under the prime contract. The SPD and Management Team, which is composed of Directors, Senior Managers, and Managers work together to achieve safe performance of work. The Management Team is also responsible for compliance with applicable requirements, allocation of resources, integration of project execution and support functions, and safe project completion. The Management Team is accountable to the FBP SPD for satisfactory safety performance within his/her functional or project areas.

4.1.1 ESH&Q Director

During the change, development, comment, and resolution period, the WSHP is distributed to the cognizant Labor Union Presidents for review and comment in accordance with existing FBP document control procedures. The ESH&Q Director will discuss the resolution of the significant comments raised by the respective Union Presidents prior to issuance of the revised plans. Consistent with 10 CFR 851, FBP Senior Management commits to bargain with the respective labor organization in a timely fashion where the respective labor Union Presidents identifies a change in the issued WSHP update impacting the terms of the approved collective bargaining agreements.

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4.1.2 Supervisors

Supervisors are responsible for the planning and successful execution of the work. They are responsible for compliance with all applicable WSHP requirements and implementation of ISMS during the execution of work. They are held accountable for ensuring the employees assigned to them have the training and qualifications needed to safely perform work on their projects.

4.1.3 Facility Management

Facility Managers must authorize all activities performed within their facilities, and ensure all facility activities are performed within the approved safety basis, according to FBP-NSE-PRO-00141, *Facility Management*, and FBP-FMD-PRO-00001, *Facility Management Division (FMD) Facility Management*.

4.1.4 Occupational Safety and Health

The Occupational Safety and Health (OS&H) department is responsible for guiding the implementation and routinely evaluating the effectiveness of the WSHP. OS&H professionals are full-time positions with no other collateral duties (unless approved by the FBP OS&H Senior Manager). They interact on a day-to-day basis with Supervisors to support and plan work activities, communicate requirements, identify and correct safety and health issues, and sustain continuous improvement initiatives. OS&H professionals provide support and/or consultation when work is being performed. OS&H subject matter experts perform design reviews, program reviews, procedure reviews, work planning reviews, assessments, and interpretation of safety and health requirements. The FBP OS&H Professional staff includes Certified Industrial Hygienists (CIHs); Certified Safety Professionals (CSPs); and the OS&H Senior Manager, who directs and manages the program, is required to have at least one certification.

4.2 Training and Records [10 CFR 851.25 and 851.26]

4.2.1 Training

- FBP ensures all employees are trained and qualified commensurate with their duties and responsibilities. Supervision has the responsibility to ensure this prior to assigning an individual to perform work. This training also ensures the worker understands his/her rights and responsibilities, as well as the hazards he/she may encounter.

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- Training and qualification requirements for positions are derived through analysis of site, facility, and job-specific procedures and processes. Requirements are specific to each position. Training and qualifications that apply to an individual depend on several factors such as site, facility, and position assignment, as well as job tasks and hazards that may or will be encountered on the job. Training plans exist for each position. The process for determining what training is required is defined in FBP-TRN-PL-00001, *Training Program Plan*. Personnel will be denied access to areas when their level of training does not meet the minimum requirements for the area to which they desire access.

4.2.2 Records

- A. Records are generated and maintained that demonstrate compliance with worker safety and health requirements. These records are managed according to FBP-BS-PRO-00062, *Records Management Process*. Examples of records include (but are not limited to):
 - Safety inspections
 - Completion of training
 - Instrumentation and Calibration Logs
 - Industrial Hygiene (IH) measurements
 - Accident/Incident Reports
 - Completed Permits
 - Job Hazard Analyses (JHAs)
 - OSHA 300 Forms
 - Fire Hazard Analyses (FHAs)
 - Transitional Fire Hazard Analyses (TFHAs)
- B. Recordkeeping for occupational injuries and illnesses complies with the requirements of OSHA 29 CFR 1904, *Recording and Reporting Occupational Injuries and Illnesses*. Occupational Medical Records are retained confidentially by the contracted Medical Provider.

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5.0 PROGRAM DESCRIPTION

5.1 Integration with ISMS [10 CFR 851.10, CFR 851.11, and 10 CFR 851.13]

FBP is committed to maintaining an ISMS that promotes the company's core values of providing a safe and healthy workplace for all employees. The incorporation of the ISMS guiding principles and core functions during the planning and execution of work activities ensures that worker protection is afforded to all persons at the FBP site. A key component to the successful implementation of ISMS is integration of the WSHP during the planning, execution, and completion stages of work activities. Implementation of the FBP ISMS is described in FBP-PM-PDD-00001, *Integrated Safety Management System*.

5.2 Zero Accident Philosophy [10 CFR 851.10 and 10 CFR 851.11]

FBP adheres to a Zero Accident Philosophy and establishes a goal of zero accidents. This philosophy is based on the premise that all accidents are preventable. The Zero Accident Philosophy focuses on not only decreasing accidents, but also on eliminating them. The goal of the Zero Accident Philosophy is to create a safe working environment that empowers employees to "take charge" of their own safety. A critical element to achieving Zero Accidents is effectively implementing the FBP WSHP.

5.3 Stop Work Authority [10 CFR 851.10, 10 CFR 851.20, and 10 CFR 851.21]

5.3.1 In accordance with FBP-OS-PRO-00028, *Work Stoppage Due to Environmental Safety, Health and Quality Concerns*, individuals involved in any aspect of the PORTS project have the right, but also the obligation to stop work or decline to perform an assigned (i.e., planned or in-progress) task because of a reasonable belief that the task poses an imminent risk of:

- Death, serious physical harm, or other serious hazard to workers;

OR

- Significant adverse effect to the safe operation of or damage to a facility;

OR

- Significant insult(s) to work or activity quality;

OR

- Release(s) of hazardous, radiological, or chemical items/effluents to the environment AND

- In circumstances where the employee(s) reasonably believes there is insufficient time to promptly resolve the concern utilizing normal hazard/quality reporting and abatement procedures.

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- 5.3.2 These concerns are brought to the attention of supervision and functional area personnel who will then assess the circumstances surrounding the perceived threat and take appropriate actions to resolve the reported concerns.

5.4 Work Control [10 CFR 851.20]

- 5.4.1 FBP has multiple methods to control work ensuring work is performed safely. Work control documents are used to provide instructions for performing hands-on, physical work activities and to identify the roles and responsibilities for implementing those instructions. Technical procedures are the primary work control document for performing operations and other types of repetitive tasks. Maintenance and project work are described in work control documents and/or project plans that are tailored to the type of work activity. These documents include instructions and responsibilities for their execution and may also include the use of technical procedures when the work scope includes some repetitive tasks described by those procedures. Some simple tasks which neither fall under the scope of the work control program nor are appropriate for performance using technical procedures are performed using the JHA for identifying and implementing controls.

- 5.4.2 Procedures are developed according to FBP-BS-PRO-00024, *Developing and Maintaining Performance Documents*. Work at PORTS is performed and controlled as described by FBP-WPC-PDD-00001, *Integrated Work Control Program Description Piketon, Ohio*, and its implementing documents and FBP-NSE-PRO-00090, *Use of Procedures*.

- 5.4.3 Work by subcontractors will be performed in accordance with one of more of the following:

- FBP-BS-PRO-00113, *Control of Contractors*
- FBP-BOP-PRO-00002, *Control of Construction Support Contractor Work*
- FBP-BOP-PRO-00003, *Decontamination and Demolition/Construction Project Planning*
- FBP-BS-PRO-00115, *Contract Labor*
- FBP-WPC-PDD-00001, *Integrated Work Control Program Description Piketon, Ohio*

- 5.4.4 Work by vendors will be overseen and performed in accordance with FBP-BS-PRO-00114.

- 5.4.5 Work performed by Integrated vendors will be overseen in accordance with FBP-BS-PRO-00149, *Integrated Vendor Oversight Process*.

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5.4.6 These documents describe the requirements for performing various types of work safely and efficiently according to ISMS core functions and guiding principles.

5.5 Hazard Identification and Control [10 CFR 851.21and 10 CFR 851.22]

5.5.1 Hazard Baseline

- A.** Hazard identification and analysis will be performed initially to obtain a baseline and then as often as necessary to ensure compliance. The scope and level of detail of the information generated will be commensurate with the hazards and risk to workers.
- B.** FBP utilizes multiple work planning methods and techniques to baseline hazards throughout PORTS. Procedures FBP-NSE-PRO-00024, *Hazard and Accident Analysis*; FBP-NSE-PRO-00007, *Preliminary Hazard Screening*, and FBP-FP-PRO-00006, *Fire Hazard Analysis*, define the process to identify hazards for all FBP facilities. Other procedures and work practices to baseline site hazards include: FBP-IH-PRO-00022, *Job Hazard Analysis*; FBP-IH-PRO-00024, *Industrial Hygiene Sampling*. By making use of these methods, procedures and techniques, FBP maintains compliance with 10 CFR 851.
- C.** Nuclear Criticality Safety Evaluations (NCSEs) are performed for fissile material operations. Fissile material operations are approved subject to limits and conditions documented in the NCSEs. FBP-NSE-PDD-00001, *Nuclear Criticality Safety Program Description Document*, describes the Nuclear Criticality Safety (NCS) program in detail.

5.5.2 Hazard Identification

Based on the work scope of an activity, a hazard analysis team participates in a work area walk down to identify existing and potential hazards. After the hazards are identified, the team documents the hazard assessment and any required controls are incorporated into the appropriate procedures, specifications, design documents, work control documents, etc. When available, supplemental site information (e.g., site characterization data, as-built drawings) will be reviewed to assess for additional hazards. If additional hazards are identified during performance of work, work activities will be halted until the hazards are effectively evaluated, removed, or controlled prior to the restart of work activities.

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5.5.3 Hazard Control

Methods to eliminate, mitigate, and/or control hazards for each task are identified, analyzed, and documented prior to the task(s) being performed. Removal of the hazard to prevent personnel exposure is always the preferred method of hazard mitigation; however, if removal of the hazard is not feasible and appropriate, then engineering controls to mitigate or control the hazard are evaluated. If engineering controls are not feasible and appropriate, then administrative controls will be evaluated for use. Use of personal protective equipment (PPE) is the least preferred approach to preventing exposure to a hazard. Safe work controls will be established based on the job hazard analysis process, as defined in FBP-IH-PRO-00022, *Job Hazard Analysis*. Employee involvement in the hazard analysis team and review of lessons learned are crucial elements of ensuring that hazards have been adequately analyzed and effectively controlled. A professional engineer or other qualified professional will approve protective measures when required by OSHA.

5.5.4 Personal Protective Equipment

PPE and fieldwork apparel are considered on a task-specific basis for any fieldwork performed on FBP-managed sites, as described in FBP-OS-PRO-00021, *Personal Protective Equipment and Protective Clothing*.

5.6 Feedback/Continuous Improvement [10 CFR 851.20 and 10 CFR 851.21]

5.6.1 Employee Feedback

Workers must be informed of the hazards and protective measures associated with assigned work activities (e.g., General Work JHA, Site Safety Orientation JHA, general JHAs, job-specific JHAs, Pre-Job briefings, training, and postings). Workers are encouraged to provide feedback and suggestions for improvement to enhance safety and efficiency. Worker involvement, feedback, and suggestions will be sought through participation (during official time) in the following:

- Job Planning walk-downs
- Pre-Job Brief/Post-Job Review
- Development and review of JHAs and procedures
- Safety Work Group meetings/walk-downs
- Problem Reporting System
- Accident/Incident Investigations
- Participation in periodic safety surveys

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- Employee/Supervisor Interactions
 - a) In addition, through involvement of employees in the Safety Work Group Program (SWG) workers and their elected representatives have the opportunity to be involved in development of safety and health program goals, objectives, and performance measures, most notably at the Company Employee Safety Team (CEST) level which addresses primarily programmatic issues.
 - b) Through the employee's supervision and upon request or notification to the OS&H Department, employees have the right without reprisal to:
 - Accompany DOE during workplace inspections
 - Participate in activities provided for herein on official time
 - Express concerns related to OS&H
 - Subject to Freedom of Information Act requirements and restrictions, have access to limited information on any recordkeeping log (OSHA Form 300)
 - Have access to DOE worker protection publications, DOE prescribed standards, FBP standards and procedures, and DOE Form 5484.3 (the DOE equivalent to the OSHA Form 301 that contains the employee's name as the injured or ill worker)
 - Observe monitoring and measuring of hazardous agents and have access to the results of exposure monitoring
 - Be notified by FBP OS&H when monitoring results indicate an overexposure to hazardous materials
 - Receive results of inspections and accident investigations upon request
 - c) Workers have the right to have an authorized employee representative accompany the authorized DOE official(s) during physical inspection of the workplace for the purpose of aiding the inspection. When no authorized employee representative is available, the DOE official(s) must consult, as appropriate, with employees on matters of worker safety and health.
 - d) The Notification of Employee's Rights, listed above, are implemented through posting of DOE Worker Protection Posters, which are located in areas commonly occupied by workers. The Poster also informs employees of how to submit concerns or inquiries.

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5.6.2 Continuous Improvement

- A. FBP uses a variety of methods to ensure continuous improvement. Workers, supervision, and management use the following programs to evaluate work areas and report safety problems/issues. Identified issues are tracked to closure under FBP-QP-PRO-00020, *Problem Reporting and Issues Management*:
 - FBP-QP-PRO-00010, *Management Assessment*
 - FBP-QP-PRO-00011, *Independent Assessment*
 - FBP-QP-PRO-00019, *Occurrence Reporting and Processing*
 - FBP-QP-PRO-00023, *Surveillances*
 - FBP-QP-PRO-00029, *Management Field Observations and Job Safety Observations*
 - FBP-QP-PRO-00030, *Response to Abnormal Events and Conditions*
 - FBP-NSE-PRO-00002, *Pre-Job Briefing and Post-Job Review*
- B. Work planning and control procedure FBP-WPC-GUI-00004-F01, *Walkdown Checklist*, requires the lessons learned database to be reviewed during the planning of work. Review of lessons learned from other DOE sites, as well as the entering of lessons learned into the DOE database, is addressed in FBP-QP-PRO-00004, *Processing Operating Experience and Lessons Learned*.
- C. The effectiveness of the WSHP is objectively measured. Metrics providing data on the effectiveness of the critical elements of the program are selected that are measurable. These metrics are trended. The trends are evaluated to identify areas that need improvement and to maximize the use of available resources in the prevention of accidents.

5.7 Employee Recognition Programs

FBP utilizes Employee Recognition Programs (The Programs) to recognize employees for their efforts and achievements that support the company's goals in such areas as safety, quality, adaptability, teamwork, and excellence. The Programs are intended to motivate employees to focus their efforts upon excellent Project execution through meeting or exceeding performance targets/milestones, cost savings goals, and adhering to FBP's safety requirements.

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5.8 Safety Work Group Program

5.8.1 FBP has developed the SWG Program as an ongoing initiative to promote employee ownership and commitment to safety. The goal is to ensure that safety is given primary consideration in all aspects of the work from planning through completion. The main function of the SWG Program is to identify and successfully resolve safety issues. Meetings, walkdowns, and other safety workgroup activities (including volunteering as SWG Advocates and Employee Safety Team Leads) are conducted on official time. The SWG Program focuses on participation by FBP employees and contracted labor resource personnel (e.g., Indefinite Delivery/Indefinite Quantity, Staff Augmentation). Subcontractors and/or subcontracted work may be included in the SWG Program on a case-by-case basis.

5.8.2 Individual Safety Work Groups are the primary element of the program structure. This is the first level of the organization and is where the majority of safety-related issues will be addressed and resolved. It is comprised of members of the workforce and their direct supervisors.

- One member of the workforce volunteers to be the Safety Advocate for the SWG and acts as a liaison between workers, management, and safety professionals. The Safety Advocate role is to guide the discussion, document issues, and carry unresolved issues or pertinent information to other levels within the organization.
- The overall success of the SWG Program relies on the success of the SWGs. Every FBP employee and Contracted Labor Resources (CLR) on the PORTS reservation is assigned to an SWG based on the area in which they work, the project that they support, or the organization to which they belong. This allows for focused discussion on common issues related to safety, controls, concerns, best practices, etc. As issues are identified, they are tracked to completion. Although every SWG is independent, each has the ability to communicate with other SWGs.
- A SWG Handbook has been developed to provide Safety Advocates with guidance on developing and maintaining a SWG.

5.8.3 Employee Safety Teams (EST) are the next level within the SWG Program structure. This level is comprised of every Safety Advocate that is in a particular area or organization, directors/senior management for the specific area or organization, safety and health representatives, and union safety representatives.

- One Safety Advocate in each EST volunteers to be an EST Lead to guide the discussion and carry unresolved issues to the next level within the organization. The EST level of the organization allows for networking among the Safety Advocates that support similar areas or different parts of the same organization. It also creates the opportunity to share challenges and successes from their individual SWG efforts and present unresolved issues for discussion.

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- Having a larger audience of management and support personnel allows for additional resources to resolve issues. Any resolutions that happen at this level are flowed back down to the SWGs by the Safety Advocate for consideration and acceptance. Any issues that cannot be resolved at the EST level are carried to the next level within this structure.

5.8.4 The Company Employee Safety Team is the final level within the SWG Program structure. This level is composed of every EST Lead, the Site Project Director, senior management, union presidents, ESH&Q management, and union safety representatives.

- A Facilitator guides the discussion and documents action items that are necessary to resolve any issues that make it to this level. The CEST level of the organization allows for networking among the EST Leads that represent every aspect/area of the FBP PORTS reservation. It also creates the opportunity to share challenges and successes from their individual ESTs/SWGs and present unresolved issues for discussion. This level also provides a larger audience of management and support personnel as additional resources for resolving issues.
- Any resolutions that happen at this level are flowed back down to the ESTs by the EST Lead and then to the SWGs by the Safety Advocate for consideration and acceptance.
- Sub-committees are often formed in order to gain additional information for determining resolutions to larger, programmatic issues.
- This is the final level of the structure and all unresolved issues must be resolved at this level.

5.9 Emergency Management [10 CFR 851.24]

5.9.1 The Emergency Management Program ensures that emergency events are responded to in a manner that protects the health and safety of employees, the public, and the environment. The FBP emergency management process is described in FBP-EM-PDD-00002, *Emergency Management Program*.

5.9.2 FBP has a comprehensive all-hazard Emergency Management Program. The full-time emergency management staff prepares, plans, and trains the Emergency Response Organization (ERO) for any emergencies, disasters, threats, and/or problems that could occur at PORTS. The Field ERO is composed of the responder including but not limited to, the Incident Commander, Fire Services, Protective Force, and Radiation Protection. The Field ERO is supported by the Emergency Operations Center (EOC) and Joint Information Center (JIC), as needed.

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5.9.3 Severe Weather

Due to the nature and scope of work being conducted at PORTS, personnel outdoors may be potentially exposed to adverse weather conditions. A severe weather procedure has been developed to provide guidance to personnel performing work outdoors when severe weather is approaching the site. FBP-EM-PRO-00026, *Employee Response to Severe Weather*, provides response guidance for thunderstorms, tornados, and earthquakes. For adverse weather conditions not specifically addressed in the severe weather procedure, personnel response guidance may be provided by supervision, OS&H, and/or the Plant Shift Superintendent (PSS).

5.10 Work Performed By Subcontractors [10 CFR 851]

5.10.1 Work to be performed by subcontractors or vendors is initiated through FBP-BS-PRO-00039, *Request for Purchase*. The statement of work is reviewed to determine it is vendor or subcontractor work. If the work is a commercial item and is to be performed by a vendor, the work will be managed in accordance with FBP-BS-PRO-00114. If the work will be performed by a subcontractor, then it will be managed under one of the following processes:

- FBP-BS-PRO-00113 (primarily when the work is performed by a construction subcontractor)
- FBP-BOP-PRO-00002
- FBP-BS-PRO-00115
- FBP-BS-PRO-00149
- FBP-WPC-PDD-00001

5.10.2 Through the contract submittal process described in FBP-BS-PRO-00113, FBP ESH&Q Subject Matter Experts (SMEs) review the subcontractor documents to determine compliance with the ESH&Q portions of the contract, including the safety and health requirements contained in the FBP Contract Attachment J-13 *Flowdown of Fluor-BWXT Worker Safety and Health Program*. This review confirms that the subcontractor's planned controls for recognized hazards provide an equivalent level of safety.

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5.10.3 Attachment J-13 of the FBP Subcontractor’s Safety Requirements Document, *Flowdown of Fluor-BWXT Worker Safety and Health Program*, is used to flow down the applicable parts of 10 CFR 851 and applicable FBP procedural requirements. By use of this contract instrument, FBP is assured that subcontractors maintain compliance with the requirements of 10 CFR 851 during the performance of work for FBP. Subcontractors will follow all federal and state standards applicable to their scope of work.

A. Equivalencies: If it is determined (i.e. by FBP SMEs) that the subcontractor’s planned controls effectively address the hazards present, approval of such alternative controls takes place through the normal contract submittal and review process. Equivalency is predicated upon the following:

- The control is not prohibited under the governing regulations.
- The control provides for an adequate and robust level of protection.

NOTE

Typically equivalencies are granted to support subcontractors employing their routine and standard methodologies that are protective.

B. Exceptions: If the alternative control does not meet the criteria for an equivalency, FBP may seek approval from DOE to accept the alternative controls.

5.10.4 Subcontractor work performed on Structures, Systems, and Components (SSC) that are designated as Safety Class (SC), Safety Significant (SS), Quality (Q), Augmented to Quality (AQ) and Augmented to Quality-Nuclear Criticality Safety (AQ-NCS) must be performed in accordance with the FBP-approved project work plans.

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5.11 Program Updates [10 CFR 851.11]

5.11.1 Whenever changes are made to the FBP WSHP, a determination shall be made as to whether the change is significant enough to warrant submittal for DOE approval. This determination will be based on whether the change is needed to ensure the program accurately reflects actual workplace activities, related hazards and controls, and approved major program roles and responsibilities. The determination of change significance and coverage under the current WSHP shall be made by the OS&H Manager and approved by the ESH&Q Director. For changes determined not to be significant, the determination shall be documented through interoffice memoranda or other formal means. For changes determined to be significant, an update of the WSHP will be submitted to the DOE for approval. A change will be submitted to DOE if a hazard associated with a change in the worksite or processes, or any newly recognized hazards, is not effectively controlled by the measures in the currently approved WSHP. Examples of significant changes that would be identified by the above processes as requiring DOE approval could include:

- FBP accepts a new scope that introduces a chemical hazard which was not addressed in the current WSHP (or associated Programs and Plans) and/or is not included in the Authorization Basis or Safety Basis Documents.
- A toxicity or high energy (e.g., explosive) hazard, such as chemical storage, has increased such that a new credible accident scenario is postulated that would impact co-located workers or the off-site public.
- A new project involving new high hazard activities (e.g., use of explosives) that is not described or evaluated in the Safety Basis or Design Basis.
- A facility or process change that requires evaluation and crediting as a hazard control SSCs (e.g., ventilation or utility systems) that are not credited in existing analyses.
- An activity which requires implementation of a new hazard control regime (e.g., first of a kind PPE use).

5.11.2 During the change, development, comment, and resolution period; the WSHP is distributed to the cognizant PORTS Labor Union Presidents for review and comment in accordance with existing FBP document control procedures.

5.11.3 The ESH&Q Director will provide the respective Labor Union President(s) written resolution information, addressing the president'(s) significant comments, prior to issuance of the DOE approved revision of the PORTS WSHP.

5.11.4 Consistent with 10 CFR 851, FBP Senior Management commits to participate in bargaining, as required and in a timely fashion, when a Labor Union President(s) identifies a change in the issued PORTS WSHP update that the President(s) conclusion has an impact on the terms of the approved collective bargaining agreement(s).

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5.12 Pilots

5.12.1 A pilot or trial operation may be used in lieu of an existing process or as a modification to an existing process to determine how effective the new process will be to produce the expected improvements. When a pilot or trial operation is established, the period of the trial is clearly documented with the exceptions to existing processes, as well as the actions that will occur at the conclusion of the trial period (e.g., revise the existing process to institute aspects of the pilot process, revert to the existing process, or make other adjustments based on the results of the pilot operation).

5.12.2 When a pilot is proposed, it is evaluated with the processes described in Subsection 5.11 to determine whether DOE approvals are required prior to proceeding.

6.0 PROGRAM FUNCTIONAL AREAS

6.1 Construction Safety [10 CFR 851.24 and Appendix A Section 1]

6.1.1 Hazard Analysis

Construction projects are required to prepare a hazard analysis as described in the governing work performance process. An example of a general hazard analysis is provided to the project subcontractor. The subcontractor is required to submit their own hazard analysis and have it approved by FBP prior to the commencement of work. These analyses are conducted by qualified personnel.

6.1.2 Inspections and Hazard Abatement

- A.** During periods of active construction, OS&H representatives and supervisors (FBP or Subcontractor) will be on site. These individuals will conduct periodic inspections of the worksite to identify and correct hazards and instances of noncompliance with project safety and health requirements. If immediate corrective action is not possible or the hazards fall outside the project scope, the OS&H representative and/or supervisor will suspend work, notify affected employees, secure the area, and notify the FBP responsible manager.
- B.** FBP or its Subcontractor will communicate hazards to workers prior to commencement of work and document worker acknowledgement of receipt of the hazards and required protective measures. Furthermore, all individuals involved in any aspect of the project have the authority and responsibility to suspend or stop work for any perceived threat to the safety and health of the workers, other personnel, or the environment.

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6.1.3 Subcontractor Safety and Health Plans

- A. Subcontractors will develop and submit safety and health program documents for review and approval by FBP to meet the requirements of 10 CFR 851. All work performed by subcontractors shall be in accordance with the U.S. Department of Energy Acquisition Regulation 970.5223-1, 10 CFR 851, 10 CFR 835, and all applicable federal regulations and site-specific requirements. Subcontractors shall comply with such portions of the FBP WSHP, as are applicable to the subcontracted work, as identified in the Statement of Work, specifications, or any other part of their contract. Applicable requirements are as described in Attachment J-13, of the Request for Proposal (RFP). Equivalencies and exceptions are evaluated as described in Subsection 5.10.
- B. Contractors that are performing limited scope and limited “hands-on” work or strictly performing observation/consultation, that do not meet the 10 CFR 851 exclusions may accept and follow the FBP WSHP and applicable procedures and training under the appropriate Program Functional Areas as identified in Attachment J-13. The Contractor shall submit their WSHP determination for review and approval by FBP OS & H.
- C. The Subcontractor Construction Manager and/or Subcontractor OS&H Representative are responsible for ensuring implementation of contractually required safety and health program documents. They are required to be trained and qualified commensurate with their duties and responsibilities for the preparation of these documents, as well as for conducting work.

6.2 Fire Protection [10 CFR 851.24 and Appendix A Section 2]

6.2.1 Program

The FBP Fire Protection Program 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 *National Fire Protection Association* (NFPA) Codes and Standards and DOE Order 420.1C, *Facility Safety*. The Fire Protection Program is described in FBP-FP-PDD-00001, *Fire Protection Program Description*, and FBP-FP-PRO-00004, *Fire Protection Program*.

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6.2.2 Program Elements

A. The elements that make up the FBP Fire Protection Program are described below:

- Procedures have been developed to ensure all parts of the FBP Fire Protection Program are effectively and consistently implemented. This includes control of combustible and flammable liquids, as required by NFPA 30, *Flammable and Combustible Liquids Code*; as well as performance of hot work activities according to American National Standards Institute (ANSI) Z49.1, *Safety in Welding, Cutting, and Allied Processes*, which includes the use of fire watches as required by NFPA 51B, *Standard for Fire Prevention During Welding, Cutting, and Other Hot Work*. The process to implement these requirements is contained in FBP-FP-PRO-00072, *Welding, Burning and Hot Work*, and FBP-FP-PRO-00005, *Combustible Control Program*.

B. Analysis

- FHAs are performed to qualitatively assess the potential for a fire in a facility to ensure that the possibility of injury to people or damage to building, equipment, or the environment has been minimized. FHAs are developed and maintained for all Category 2 nuclear facilities. No other facilities within the FBP scope have hazardous material inventories greater than the threshold quantities.
- FHAs are also developed for significant new facilities and facilities representing unique fire safety risks or as directed by DOE. TFHAs are performed for facilities that are planned to undergo D&D and final demolition or as directed by DOE. FBP-FP-PRO-00006, *Fire Hazard Analysis*, describes the FHA process in detail.

C. Hardware and Systems

- Most FBP facilities have fire suppression systems installed and have fire detection equipment and alarms connected to a central monitoring station. FBP is responsible for maintenance of these systems and performs periodic tests to ensure their operability.

D. Apparatus and Equipment

- FBP operates the on-site fire department. The department maintains an adequate number and types of firefighting vehicles and associated equipment to contain most fires that would occur on site. Mutual aid agreements with local off-site fire departments are in place for those events that are beyond the capability of the on-site fire department to address.

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E. Personnel

- Fire department personnel are trained and qualified, according to the FBP training program and applicable federal and state requirements. Maintenance of this qualification is accomplished by ongoing training and their participation in drills and exercises.

6.3 Explosive Safety [10 CFR 851.24 and Appendix A Section 3]

- 6.3.1** If explosive use is required, the use, storage or transportation of explosive material would require coordination with Protective Services and affected safeguards and security organizations, in compliance with the applicable requirements of DOE-STD-1212-2019 *Explosives Safety*; 29 CFR 1926, Subpart U, *Blasting and the Use of Explosives*; NFPA 495, *Explosive Materials Code*; and any specific state or local requirements.
- 6.3.2** Personnel using powder-actuated tools are trained and qualified and have on their person a card indicating such. The loads for powder-actuated tools are kept in a designated container labeled “EXPLOSIVES,” which is kept in a designated locked area with restricted access.

6.4 Pressure Safety [10 CFR 851.24 and Appendix A Section 4]

- 6.4.1** FBP is an Owner-User Inspection Organization (OUIO). FBP Quality Assurance group has an established inspection program that meets the requirements of *The National Board of Boiler and Pressure Vessel Inspectors NB-371, Accreditation of Owner-User Inspection Organizations (OUIO)*, and has jurisdictional authority over FBP-owned pressurized systems. Controls are in place for the utilization and inspection of pressure vessels according to POEF-FBP-009, *Owner/User Accreditation Program*. FBP is committed to strict compliance with the State of Ohio, National Board Inspection Code, applicable sections and divisions of the ASME Boiler and Pressure Vessel (ASME B & PV) Code, and approved FBP methods and procedures.
- 6.4.2** Compressed gas cylinders are stored, used, and handled according to FBP-OS-PRO-00034, *Storing, Handling, and Using Compressed Gases*, to ensure compliance with applicable OSHA 29 CFR 1910 and/or 29 CFR 1926 standards, Compressed Gas Association Pamphlets, and NFPA 55, *Compressed Gases and Cryogenic Fluids Code*.

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6.5 Firearms Safety [10 CFR 851.24 and Appendix A Section 5]

FBP's firearm safety requirements provide for compliance with 10 CFR 851.24 and Appendix A to 10 CFR 851.5. FBP implements the firearm safety requirements in procedure *FBP Protective Force Training Standard Operating Procedure: Range Operating Procedure* and *FBP Protective Force Management Standard Operating Procedure: Weapons/Firearms, Ammunition and Storage*. The procedure establishes rules and regulations which govern the scheduling and operation of the firing ranges; weapons handling, loading, unloading, and cleaning; weapons qualification; arming credentials; the overall policy of handling firearms; employee involvement; and assessment of the program for compliance with requirements and continuous improvement. Additional guidance is contained in the FBP Range Risk Analysis and the FBP Annual Training Plan.

6.6 Industrial Hygiene [10 CFR 851.24 and Appendix A Section 6]

The goal of the FBP IH Program is to control and/or eliminate occupational health hazards that arise as a result of or during work. The Program is devoted to the anticipation, recognition, evaluation, and control of those environmental factors or stresses arising in or from the workplace which may cause sickness, impaired health and well-being, or significant discomfort among workers. The objective is to ensure personnel exposures to chemical and/or physical agents are restricted to levels below regulated exposure. This program and its elements are driven by and conform to applicable DOE Orders, 29 CFR 1910 and 1926, and other applicable regulatory standards.

6.6.1 Qualifications and Standards [10 CFR 851.24 and 10 CFR 851.27]

The program has adopted health standards promulgated by OSHA and published by American Conference of Governmental Industrial Hygienists (ACGIH). All IH sampling performed is according to the National Institute of Occupational Safety and Health (NIOSH) or OSHA methodologies, whenever possible. Laboratories performing IH sample analysis shall be accredited by American Industrial Hygiene Association (AIHA) or National Voluntary Laboratory Accreditation Program (NVLAP).

6.6.2 IH Surveys & Assessments [10 CFR 851.20 and 10 CFR 851.21]

- A.** An initial or baseline evaluation of all work areas is conducted whenever a potential hazard is identified as a result of:
 - Review of project work plans
 - Inspection of areas or walk-downs
 - Review of work documents
 - Investigation of complaints of illness or injury or
 - Employee reports of potential health hazards

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- B. The initial evaluation consists of the gathering of information such as processes involved, chemical/material information, Safety Data Sheets (SDS), health hazards and controls, exposure routes, and exposure groups.
- C. Based on the initial evaluation, a health hazard assessment (e.g. JHA) is performed to evaluate and document potential employee exposures to chemical, physical, and biological agents and ergonomic stressors. The initial evaluation results may be incorporated into the associated JHA, procedure, or other industrial hygiene assessment document.
- D. FBP-IH-PRO-00024 provides the process to ensure application of the most conservative exposure limit identified by either the ACGIH, *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*, or the OSHA Permissible Exposure Limits listed in 29 CFR 1910 and 29 CFR 1926 (with the exception of beryllium or beryllium compounds).
- E. Personnel monitoring, based on the applicable exposure limits, is performed and documented using the sampling strategy. Monitored employees are informed of results and their legal rights to their exposure records, according to 29 CFR 1910.1020, *Access to Employee Exposure and Medical Records*. Other applicable disciplines receive exposure results according to work activity and craft.
- F. Follow-up monitoring/resurveys are performed:
 - To assess conditions after modifications which may increase the potential for employee exposure or the implementation of hazard control measures are completed; or
 - At intervals specified in substance specific standards identified in 29 CFR 1910 and 1926

6.6.3 IH Hazard Controls

Hazard controls are the methods used to eliminate or reduce personnel exposure to hazardous agents. Exposures to hazardous chemicals or agents in the workplace are controlled by the application of one or more of the methods listed below. Hazard controls are directed first toward eliminating the source of the hazard, second toward the route or path the potential hazard takes, and third toward shielding or protecting specific personnel who may be subject to exposure to the hazard. The hierarchy of controls for hazards is as follows:

- Elimination or substitution of the hazards where feasible and appropriate
- Engineering controls where feasible and appropriate
- Work practices and administrative controls that limit worker exposures
- PPE

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6.6.4 IH Training [10 CFR 851.25]

Employees are trained to recognize potential health hazards and the means to protect themselves from such hazards per their training plan. If required, Hazardous Waste Operations and Emergency Response (HAZWOPER) Training may be provided by the United Steel Workers (USW) or any other accredited entity.

6.6.5 Respiratory Protection [10 CFR 851.22 and 10 CFR 851.24]

Only respirators approved by NIOSH or approved by DOE through its respirator studies program are used. Fit testing using OSHA-specified protocols is required for all employees wearing positive- or negative-pressure, tight-fitting face-piece respirators. FBP personnel will not be issued a respirator without current respirator qualification. The primary drivers for the program are 29 CFR 1910.134, *Respiratory Protection*, and ANSI Z88.2, *Practices for Respiratory Protection*. The program-implementing document is FBP-IH-PRO-00028, *Respiratory Protection Program*.

6.6.6 Chemical Safety Management [10 CFR 851.23]

- This includes hazardous chemicals as defined in the 29 CFR 1910.1200, *Hazard Communication*, substances reportable under 40 CFR 302.4, substances regulated under 29 CFR 1910.119, *Process Safety Management of Highly Hazardous Chemicals*; 29 CFR 1910.1450, *Occupational Exposure to Hazardous Chemicals in Laboratories*, and the Environmental Protection Agency (EPA) Risk Management System Program (40 CFR Part 68). These programs reduce and/or help eliminate the risk of occupational exposure to carcinogens and other toxins. These programs apply to FBP activities involving the handling, processing, and storing of hazardous materials. The primary program implementing documents are FBP-IH-PRO-00014, *Hazard Communication*, FBP-IH-PRO-00082, *Process Safety Management of Highly Hazardous Chemicals*, and FBP-IH-PRO-00051, *Carcinogen Control*.
- Hazardous chemical handling and disposition, which falls outside of established programs, is performed by FBP and subcontractors through defined work control processes and/or subcontractor project work plans which are evaluated and approved by FBP SMEs. For characterization of small quantities of unknown chemicals that falls outside of established processes (e.g., X-710 laboratory analytical methods), FBP will employ subcontractor's hazardous material sampling procedures (e.g., Veolia Reactive Chemical Group Procedure, *Unknown Characterization of Labpacks*, 11/16/2016) and approve associated work plans (including JHAs) submitted following FBP SME evaluation.

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6.6.7 Noise [10 CFR 851.22]

The operation of equipment at PORTS can create areas where noise levels equal or exceed 85 decibels on the “A” weighted scale (dBA). Exposure to excessive noise levels may lead to temporary or permanent hearing loss. All noise level monitoring and postings are according to FBP-IH-PRO-00015, *Occupational Noise Exposure and Hearing Conservation Program*. Hearing protection is worn by personnel when noise levels equal or exceed an 8 hour time-weighted average of 85 dBA. Areas and equipment with excessive noise levels are posted with “CAUTION” signs or labels to require hearing protection. This program meets the requirements of OSHA and ACGIH.

6.6.8 Temperature Extremes (Heat and Cold Stresses) [10 CFR 851.22 and 10 CFR 851.23]

Working in hot environments can result in heat illnesses including heat cramps, heat exhaustion, and heat stress. Personal protective clothing can greatly increase the likelihood of heat cramps, heat exhaustion, and heat stroke, the latter being a life-threatening condition. Supervision will ensure controls (i.e. physiological monitoring, work rest regimen and detailed analysis) are implemented into work activities. To protect workers from cold stress, engineering controls are recommended, where feasible. When engineering controls are not adequate to protect personnel from the cold, winter clothing will be issued and work/warm – up schedules implemented. FBP-IH-PRO-00069, *Temperature Extremes*, details requirements for working in hot and cold environments. This procedure meets the applicable requirements of 10 CFR 851.

6.6.9 Confined Space Entry [10 CFR 851.22 and 10 CFR 851.23]

FBP’s Confined Space Program is based on compliance with OSHA 29 CFR 1910.146, *Permit-Required Confined Spaces*, and 29 CFR 1926, Subpart AA, *Confined Spaces in Construction*, and employs a risk-based methodology to evaluate and classify confined spaces as either permit-required or non-permit confined spaces. FBP utilizes a performance-oriented approach to confined space identification and classification that is focused on hazard prevention. As a result, FBP requires the completion of an entry permit and atmospheric monitoring for each permit-required confined space entry. If entry into a permit-required confined space is necessary, then requirements of FBP-IH-PRO-00049, *Confined Space Program*, are followed at all times.

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6.6.10 Dust Control [10 CFR 851.22 and 10 CFR 851.23]

During activities requiring dust control, water spraying or other authorized methods will be used to suppress dust emissions to the lowest practicable level. Depending on specific work area conditions and restrictions, various types of equipment may be used for dust suppression efforts (ranging from water spray tank trucks to handheld garden hoses or garden sprayers). Excessive runoff due to dust control operations will not be permitted. Excessive visible emissions of particulate will not be permitted. If planned activities involve disturbing known or suspected contaminated soils, the project Radiological Protection Representatives will be consulted concerning dust suppression in these areas.

6.6.11 Ergonomics [10 CFR 851.23]

The interaction of personnel with their working environment may present potential musculoskeletal hazards such as incorrect lifting of heavy loads, equipment vibrations, improper body positioning, negotiation of physical obstacles, and office computer workstations. Guidance for preventing musculoskeletal disorders is detailed in FBP-IH-PRO-00017, *Ergonomics Program*.

6.6.12 Indoor Air Quality [10 CFR 851.23]

Various factors, such as chemical contaminants, carbon dioxide levels, humidity, and microbiological organisms influence the quality of breathing air. Biological organisms such as molds, mildew, other fungi, and spores thrive in moist and stagnant environments. Air quality evaluations can be performed using guidelines in FBP-IH-PRO-00038, *Indoor Air Quality*.

6.6.13 Asbestos and Other Fibrous Materials [10 CFR 851.22 and 10 CFR 851.23]

- Based on the widespread use of asbestos in insulation and other building materials, Asbestos-Containing Material (ACM) may frequently be encountered during work activities. ACM that is maintained in good condition in buildings does not pose a threat to humans as long as the material is not deemed “friable” and is in an “undisturbed” condition.
- Due to the age of the facilities at the PORTS site, the possibility of disturbing ACM should be considered when planning work activities. Inspections and bulk sampling shall be performed by qualified personnel if the presence of ACM is in question.
- Activities dealing with ACM comply with 29 CFR 1910.1001 *Asbestos*, 29 CFR 1926.1101 *Asbestos*; EPA guidelines; FBP-IH-PRO-00036, *Asbestos Control*; and FBP-IH-PRO-00006, *Bulk Sampling of Material Suspected of Containing Asbestos*.

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6.6.14 Reproductive Hazards [10 CFR 851.20 and 10 CFR 851.22]

FBP makes every reasonable effort to protect both male and female workers from exposure to reproductive hazards. Details for this program are covered in FBP-IH-PDD-00003, *Reproductive Health Program Description*. Due to the sensitivity of the human reproductive system to the effects of chemical, biological, and physical agents, special precautions such as engineering controls, product substitution, PPE, and administrative controls may be necessary to reduce employee exposure.

6.6.15 Biological Monitoring for Industrial Chemicals [10 CFR 851.20 and 10 CFR 851.24]

Biological monitoring provides a tool for assessing a worker's potential exposure to chemical substances and for determining the effectiveness of PPE and controls. FBP-IH-PDD-00006, *Biological Monitoring for Industrial Chemicals*, provides the details of this program. Early integration of exposure assessment with work planning activities will identify potential exposures associated with specific chemical substances and biological monitoring during pre-task planning. The use of a multidisciplinary team in planning work facilitates this integration.

6.6.16 Inorganic Arsenic, Lead, Cadmium, and Hexavalent Chromium [10 CFR 851.23]

- A.** Inorganic arsenic and lead are primarily found in painted items and in trace amounts on uranium hexafluoride (UF₆) cylinders; however, any painted surface (unless painted after 2002) should be suspected of containing inorganic arsenic and lead. Also, inorganic arsenic may be present at the PORTS site in limited areas as it arrived as an impurity in the feed material during operations. Each work activity that involves the potential for exposure to inorganic arsenic or lead will be evaluated on a case-by-case basis. Appropriate controls and protective measures will be specified in a JHA, procedure, or other work control documentation developed for this activity. All construction activities involving inorganic arsenic and lead adhere to 29 CFR 1926.1118 for inorganic arsenic; and 29 CFR 1926.62, *Lead*, and FBP-IH-PDD-00002, *Lead Compliance Program Description*, for lead.
- B.** Occupational exposure to cadmium and cadmium compounds, in all forms, in construction work is managed according to 29 CFR 1926.1127, *Cadmium*.
- C.** Occupational exposure to hexavalent chromium in construction work is managed according to 29 CFR 1926.1126, *Chromium (IV)*.

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6.6.17 Bloodborne Pathogens [10 CFR 851.23]

FBP-IH-PRO-00050, *Bloodborne Pathogens Exposure Control Plan*, which has been reviewed by Occupational Medical provider, flows down the requirements of 29 CFR 1910.1030, *Bloodborne Pathogens*, and defines the measures for protecting personnel who have the potential for occupational exposure to bloodborne pathogens. Individuals who come in contact with blood or other potentially infectious material should report the incident to the Project OS&H Representative or Occupational Medicine for evaluation and to effect appropriate medical treatment.

6.6.18 Beryllium [10 CFR 851.21 and 10 CFR 851.23]

Beryllium has been identified as being responsible for the development of beryllium sensitization and chronic beryllium disease. All work activities involving beryllium are performed in compliance with FBP-IH-PDD-00005, *Chronic Beryllium Disease Prevention Program*. It is important to note that the concentration specified in the beryllium definition is consistent with the criterion that OSHA Hazard Communication Standard uses for a carcinogenic mixture concentration of 0.1 percent (or 1,000 ppm) or greater, by weight or volume.

At PORTS facilities, trace levels of beryllium are sometimes found as mixtures in waste streams including oils, solids, liquids, and other waste stream components. Also, beryllium surface contamination has been detected on legacy equipment in controlled areas where machining of beryllium containing equipment was once performed. Laboratory operations involving beryllium that fall within the scope of 29 CFR 1910.1450, *Occupational Exposure to Hazardous Chemicals in Laboratories*, are excluded from the scope of the Chronic Beryllium Disease Prevention Program.

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6.6.19 Crystalline Silica

The purpose of the Silica Exposure Control program (FBP-IH-PDD-00009, *Silica Exposure Control*) is to outline the management of tasks that might reasonably result in an exposure to airborne silica to be in compliance with OSHA 29 Code CFR 1910.1053, *Respirable Crystalline Silica*, and 29 CFR 1926.1153, *Respirable Crystalline Silica*. The program description covers compliance with and training requirements of general industry and construction work scope activities associated with silica-containing material such as construction, demolition, or abatement activity, hazard analysis, and written exposure control plan for the project.

6.7 Occupational Medicine [10 CFR 851.23, 10 CFR 851.24, 10 CFR 851.26, and Appendix A Section 8]

6.7.1 The goal of the FBP Occupational Medical Program is to provide the earliest possible detection and mitigation of occupational illness and injury with emphasis on prevention. The occupational medicine program elements of 10 CFR 851 are fully implemented through the Occupational Medical Programs listed below.

6.7.2 FBP has an Occupational Medical services contract to provide medical services according to the contract scope of work. The scope of work is to establish and maintain an Occupational Health Program as a basic worker protection requirement that provides comprehensive occupational health services to FBP employees. The Occupational Health Program complies with all applicable federal, state, and local laws with emphasis on prevention, early detection, and treatment of occupational related injuries and illnesses. The program is reviewed and updated as needed. FBP-IH-PDD-00007, *Occupational Health Program*, utilizes multiple procedures for compliance including:

- FBP-IH-PRO-00025, *Release of Medical Records*
- FBP-IH-PRO-00050, *Bloodborne Pathogens Exposure Control Plan*
- FBP-IH-PRO-00086, *Controlled Substance (Drug) Testing*
- FBP-IH-PRO-00087, *Health Services Radiographic (X-Ray) Program Requirements*
- FBP-IH-PDD-00008, *Fitness for Duty*
- FBP-IH-PRO-00090, *Calibration Program Biomedical Equipment*
- FBP-IH-PRO-00091, *Medical Radiological Decontamination*
- FBP-IH-PRO-00093, *Medical Visits and Employee Work Restrictions*
- FBP-FS-PRO-00068, *Transportation of Ill or Injured Off-Site*

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- 6.7.3** The Occupational Health Program describes how special mandatory occupational examinations are performed for employees based on their essential job functions. The scope, content, and frequency of such examinations are determined by the nature of the potential hazard by DOE and OSHA regulations, and by the Contracted Medical Director.
- A.** Special examinations and medical laboratory work for occupational concerns may also be performed when requested by a worker's primary care medical physician when considered appropriate by the contracted Medical Director.
 - B.** The program defines the process for determining and obtaining necessary employee medical qualifications and monitoring based on job requirements, hazards, exposures, and overall risks associated with his/her assigned work scope.
 - C.** This program also directs the use of JHAs and Employee Exposure Results which supports the collection of the data necessary for a risk-based approach to medical qualification and monitoring. The information collected represents a compilation of hazards and exposures associated with routine work activities, as well as hazards associated with non-routine work activities that can be predicted or anticipated.
 - D.** Another aspect of the program is devoted to identifying, preventing or managing, and monitoring the causes of premature morbidity to the extent that they are cost effective as well as the development of other wellness programs.
- 6.7.4** In addition, this program facilitates compliance with various OSHA standards found in 29 CFR 1910, 1926, and other regulations that either require medical qualification examinations or medical monitoring when specific activities are being performed or specified hazards or exposures are encountered. In order for the medical surveillance program to be effective, employee exposure results and JHAs are provided to the Contracted Medical Director.
- 6.7.5** The occupational medicine portion of this WSHP applies to personnel who:
- Work at one of the covered workplaces/activities for 30 days or more in a 12-month period, or
 - Are required to be enrolled in a medical exposure monitoring program due to potential for exposure

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NOTE

Personnel on-site less than 30 days and conducting higher-risk or physically demanding work may be required to participate in the occupational medicine program at FBP management's direction.

6.7.6 Injury/Illness Reporting and Response [10 CFR 851.20 and 10 CFR 851.26]

- A. All work-related injuries or illnesses to project personnel, regardless of how minor, are reported immediately to their supervision and assigned an OS&H representative. FBP-OS-PRO-00100, *Reporting, Investigating, and Managing Occupational Injuries/Illnesses*; FBP-QP-PRO-00020, *Problem Reporting and Issues Management*, and FBP-QP-PRO-00019, *Occurrence Reporting and Processing*, provide direction for reporting, investigating, managing injuries, illnesses, and accidents. Employees who become injured or ill as a result of a work-related exposure or event and seek off-site medical treatment shall notify supervision immediately and report back to work through the on-site medical provider. Any work restrictions shall be based on the medical evaluation by the treating physician.
- B. Emergency Medical Services are provided by the PORTS on-site Fire Department for response and treatment. All non-emergency injuries or illnesses are treated by FBP's Contracted Medical Provider. All FBP or contractor employees receiving treatment for any work-related injury or illness off-site shall be accompanied by their supervisor. An FBP OS&H Representative will assist, as appropriate.

- 6.7.7 Confidentiality of medical records is maintained, but disclosure of personalized data will be made upon that individual worker's request or according to legal requirements. Non-personalized data may be used in research and in the assessment of the Occupational Medical Services. Upon request by a worker to the medical director, a copy of that worker's medical record will be provided to that worker or the worker's private physician, if so requested. Applicable records generated or received as a result of this program are managed according to FBP-BS-PRO-00062.

6.8 Motor Vehicle Safety [10 CFR 851.24 and Appendix A Section 9]

The goal of the FBP Motor Vehicle Safety Program is to protect the safety and health of all drivers and passengers in Government-owned, privately-owned or leased motor vehicles (including utility-type vehicles), powered industrial equipment, and non-motorized equipment such as bicycles and tricycles. Motor Vehicle Safety is implemented according to FBP-OS-PRO-00010, *Vehicle Safety*.

- Only licensed and authorized drivers are permitted to operate government motor vehicle and powered industrial equipment. Their use is limited to official company business.

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- Seat belts, where provided, are required when operating vehicles, construction equipment, and powered industrial equipment, according to 29 CFR 1910, 29 CFR 1926, PORTS Policy, and Ohio State Law.
- Vehicle operators will comply with the traffic laws of the state and the DOE installation requirements including posted speed limits and other traffic signs and will yield to pedestrians at all times.
- Motor vehicle accidents will be promptly reported to supervision who will in turn report to the PSS and the responsible Project Safety Representative. Motor vehicle accidents occurring off-site will be reported to the appropriate law enforcement agency.
- All motor vehicles including all-terrain vehicles, rough-terrain vehicles, and cart operators are subject to the same traffic safety rules as motor vehicle operators.

6.8.1 Traffic Control

Managers and Supervisors are responsible for the orderly traffic control on their projects. All traffic control measures on site roadways are according to applicable OSHA standards; and local, state, and Department of Transportation regulations. Traffic signs and/or signalmen will be utilized, as necessary, to protect personnel and/or the general public. Speed limits will be imposed, as conditions dictate. Speed limits may be enforced through the removal of individual's project driving privileges.

6.8.2 Equipment and Vehicles

FBP-OS-PRO-00010, *Vehicle Safety*; FBP-DD-PRO-00044, *Vehicle Safety Inspection*; FBP-WM-PRO-00061, *Material Handling*, FBP-OS-PRO-00057, *Powered Industrial Trucks*; FBP-NO-PRO-00065, *Inspection of UF6 Handling Forklift and Forklift Fixture*; and FBP-OS-PRO-00025, *Government Owned/Fluor-BWXT Portsmouth LCC (FBP) Leased Equipment Procedure*, provide the instruction to properly inspect and maintain equipment and vehicles that are used at the FBP site. This program ensures that all PORTS equipment and vehicles will at a minimum meet the requirements of 29 CFR 1926 Subpart O, *Motor Vehicles, Mechanized Equipment, and Marine Operations*, and 29 CFR 1910.178, *Powered Industrial Trucks*.

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6.9 Electrical Safety [10 CFR 851.22, 10 CFR 851.23, 10 CFR 851.24, and Appendix A Section 10]

- Electrical hazards that may be present at FBP sites may include but not be limited to undetected live wires, deteriorating wiring insulation, buried power lines, overhead power lines, transformers, electrical generators, and lighting. Any work on electrical systems/equipment will be performed in accordance with 29 CFR 1910.269; 29 CFR 1910, Subpart S; FBP-OS-PRD-00001, *Electrical Safety*; FBP-OS-PRD-00003, *Electrical Utility Safety Program*; and applicable requirements of OSHA Standards; National Fire Protection Association (NFPA) 70, *National Electrical Code*; and NFPA 70E, *Standard for Electrical Safety in the Workplace*.
- Unless legacy electrical equipment is identified to have obvious deficiencies that pose a substantial hazard to employees, it shall be considered to be compliant by a previous authority in regards to mandatory rules in OSHA, NFPA 70, and other binding regulations that govern installation requirements.

6.9.1 Overhead Power and Communication Lines

PORTS has overhead power lines that could pose a hazard during the operation of heavy equipment such as cranes, forklifts, dump trucks (with bed raised), and aerial work platforms where the possibility of inadvertent contact may exist. Where work is required in proximity to electrical power lines, personnel comply with 29 CFR 1910.269 (P) (4) *Operations Near Energized Lines or Equipment*; 29 CFR 1926 Subpart O, *Motor Vehicles, Mechanized Equipment, and Marine Operations*; 29 CFR 1926.1408 through 1411; and 10 CFR 851, as applicable, by following FBP Safety and Health procedures and associated work documents.

6.10 Lockout/Tagout of Hazardous Energy Sources [10 CFR 851.22, 10 CFR 851.23, and 10 CFR 851.24]

In order to ensure safety of personnel during construction or maintenance activities that may involve the potential for exposure to hazardous energy (latent and residual energy including electrical, hydraulic, thermal, pneumatic, mechanical, chemical, radiation from radiation generating machines, toxic, and other potentially hazardous sources which may result in an employee injury or illness if released), equipment or processes will be locked out/tagged out and verified isolated from hazardous energy sources in accordance with 29 CFR 1910.147, *The Control of Hazardous Energy (Lockout/Tagout)*; 29 CFR 1910.333, *Selection and Use of Work Practices*; 29 CFR 1910.269(m), *De-energizing Lines and Equipment for Employee Protection*; or FBP-OS-PRO-00068, *Instructions for Lockout/Tagout*, where applicable.

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6.11 Hoisting and Rigging Operations [10 CFR 851.23]

The operation and maintenance of hoisting and rigging equipment (i.e., overhead and gantry cranes, mobile cranes, derricks, hoists, rigging devices, and devices such as wire rope, chain, metal mesh slings, synthetic-web slings, and special below-the-hook attachments and fixtures) are governed by 29 CFR 1910, Subpart N, *Materials Handling and Storage*; 29 CFR 1926 Subpart H, *Materials Handling, Storage, Use, and Disposal*; and Subpart N, *Helicopters, Hoists, Elevators, and Conveyors*. These requirements are implemented through FBP-SM-PDD-00001, *Hoisting and Rigging Program*, and FBP-DD-PRO-00136, *Hoisting and Rigging Procedure*.

6.12 Elevated Work/Fall Protection [10 CFR 851.23]

- A. All work that requires the use of fall protection devices or use fall prevention practices will meet the requirements of 29 CFR 1910, Subpart D, *Walking-Working Surfaces*; 29 CFR 1926, Subpart L, *Scaffolds*; and/or 29 CFR 1926, Subpart M, *Fall Protection* (as applicable). FBP-OS-PRO-00020, *Fall Prevention and Protection*, describes the requirements and guidance when work is being performed at unprotected heights, or at any height above operating equipment or areas posing risk of serious injury/impalement. The procedure incorporates “safe-by-distance” concepts, which are permissible under 29 CFR 1910 Subpart D when working on low-slope roofs.
- B. Work requiring the use of portable ladders will be performed according to FBP-OS-PRO-00031, *Portable Ladders*; 29 CFR 1910, Subpart D, *Walking-Working Surfaces*; and 29 CFR 1926, Subpart X, *Stairways and Ladders*. Work requiring the use of a scaffold will be performed according to FBP-OS-PRO-00061, *Scaffolds*; 29 CFR 1910, Subpart D; and 29 CFR 1926, Subpart L, *Scaffolds*.

6.13 Excavation, Trenching, and Penetrations [10 CFR 851.23]

Operations involving excavation or penetration into the earth’s surface, concrete or pavement, and interior penetrations into building walls, floors, and ceilings are subject to various potential hazards (contact with hazardous or radioactive materials, utility lines, cave-ins, etc.). These operations require that an excavation/penetration permit be obtained before the work is initiated. Excavations and penetration activities are performed according to FBP-OS-PRO-00022, *Excavation/Penetration*, and 29 CFR 1926, Subpart P.

6.14 Slip, Trip, and Fall Hazards [10 CFR 851.23]

Roadways, access ways, aisles, stairways, scaffolds, and ladders are to the extent possible kept clean and clear of hoses, extension cords, welding leads, and other obstructions that may cause tripping or other accident hazards. Slipping hazards, such as grease, oil, water, ice, snow, or other liquids are cleaned up or eliminated on walkways, ladders, scaffolds, or other access ways or work areas. If slipping and/or tripping hazards cannot be completely eliminated, the area is barricaded and posted with applicable hazard postings. The requirements for housekeeping are outlined in 29 CFR 1910.22, *General Requirements*; 29 CFR 1926.25, *Housekeeping*; and FBP-OS-PRO-00041, *Housekeeping*.

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6.15 Working on or Near Water [10 CFR 851.23]

Any time personnel work on or near waterways, such as ponds, lakes, rivers, near or above liquid containing tanks, and water or sewage treatment holding ponds where the potential danger of drowning exists, they will meet the requirements of FBP-OS-PRO-00060, *Safe Work Practices Around Water*, and 29 CFR 1926.106, *Working Over or Near Water*.

6.16 Environmental Hazards [10 CFR 851.21]

- A.** It is the policy of FBP to conduct the PORTS D&D Project in a safe, compliant, and cost-effective manner that protects human health and the environment. FBP will achieve this by integrating environmental requirements and best management practices for waste minimization and pollution prevention into its work planning and execution; taking actions to minimize the environmental impacts of its activities. FBP establishes and communicates environmental responsibilities, provides environmental training to its workforce, and implements controls to mitigate environmental hazards. FBP has developed FBP-EP-PDD-00008, *Environmental Management System Description*, to address environmental concerns.
- B.** In addition, work at PORTS requires working outdoors, maintaining the grounds, excavating, sampling outfalls, cleaning roof drains, etc. Anyone working outdoors might come in contact with stinging and biting insects (wasps, bees, and mosquitoes), bird droppings, poisonous plants (poison ivy, poison oak), venomous snakes, and spiders. Identification of these hazards and avoidance whenever possible will be employed by FBP personnel.
- C.** Many project activities will be performed outdoors and employees will be exposed to the harmful effects of ultraviolet radiation (sunburn). Job Hazard Analyses, and worker safety and health briefings will be utilized to communicate these hazards and the associated mitigation to the employees.

6.17 Hazardous Waste

- A.** In accordance with 29 CFR 1910.120(b), WSHPs developed and implemented to meet other federal, state, or local regulations are considered acceptable in meeting this requirement if they cover or are modified to cover the topics required in this paragraph. An additional or separate safety and health program is not required by this paragraph.
- B.** This program, FBP-OS-PDD-00001, *Worker Safety and Health Program*, meets the intent of this requirement.

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6.18 Tagging of Defective Tools, Materials, or Equipment [10 CFR 851.23 and 10 CFR 851.24]

FBP implements the controls necessary to ensure defective tools, materials, and equipment are not used by employees through compliance with FBP-OS-PRO-00014, *Accident Prevention/Equipment Control Tags*. Defective tools, materials, and/or equipment are removed from service immediately by tagging, destroying, or removing them from the project site.

6.19 Housekeeping [10 CFR 851.23]

- A. Supervisors implement good housekeeping practices, in accordance with 29 CFR 1910.22, *General Requirements*; 29 CFR 1926.25, *Housekeeping*, and FBP-OS-PRO-00041, *Housekeeping*, through implementing requirements from facility/project FHAs or TFHAs (FBP-FP-PRO-00006, *Fire Hazard Analysis*). The removal and disposal of any trash, litter, and residue remaining from any work or non-working activity, storage of cleaning materials, and cleanliness of food storage and preparation equipment will be established to the extent that the nature of the work allows in order to maintain safe operations. Walkways and aisles are kept clear at all times, and storage/laydown areas are maintained so that accumulation of material does not constitute a tripping hazard. Good housekeeping is enforced as an attribute through the management walk-down process. The requirements for performing housekeeping are outlined in FBP-OS-PRO-00041.
- B. Eating, drinking, chewing gum, and use of tobacco products will be permitted only in designated areas of the work site. Smoking is not permitted indoors or in government-owned/leased vehicles. The consumption of food, liquid, or use of tobacco products is typically not allowed in Radiological, HAZWOPER, and other designated areas. However, radiological procedures do permit designated drinking areas be established in radiological areas under special circumstances when specific controls are in place.

6.20 Drinking Water [10 CFR 851.23]

Potable drinking water and toilet facilities are provided in all active work areas according to 29 CFR 1910.141, *Sanitation* and 29 CFR 1926.51, *Sanitation*.

6.21 Illumination [10 CFR 851.23]

Illumination of work areas and access areas must be according to 29 CFR 1926.56, *Illumination*. In addition, emergency lighting is maintained to meet requirements of 29 CFR 1910 Subpart E, *Means of Egress*; NFPA 101, *Life Safety Code*, and 10 CFR 851.

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6.22 Tools [10 CFR 851.23 and 10 CFR 851.24]

All tools are used and maintained according to the manufacturer's instruction and applicable OSHA standards. Manufacturer recommendations for inspection criteria (frequency, substance, documentation) are only considered as guidance and are not mandatory. Steps are to be taken to ensure the following:

- All tools are maintained in good condition and properly stored when not in use.
- Tools shall not be altered in any way and tool guards shall not be removed from tools.
- All tools are inspected by the user before each use.
- All electric power tools will be double-insulated or equipped with appropriate grounding.
- Power tools shall be equipped with constant pressure switches that will shut the tool off when the switch is released. These tools may also be equipped with a lock-on control provided that turnoff can be accomplished by a single motion of the same finger (i.e., pressing and releasing the pressure/power switch.
- Where feasible, power tools shall have a Dual Push Safety Switch function with a starting action to require operator to do a dual switch/trigger press action to activate the blade/wheel.
- All bench-mounted and floor-mounted tools are secured against movement or displacement.
- Hand tools with cracked, splintered, or taped wooden handles are not to be used.
- Impact tools are free of mushroomed heads and cracks.
- Ground-Fault Circuit-Interrupters (GFCIs) are used where required by applicable standards.
- GFCIs are required when employees are outdoors and using cord-and-plug-connected equipment supplied by 125-volt; 15, 20, or 30 ampere circuits.

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6.23 Signs and Barricades [10 CFR 851.23]

All signs are properly colored and labeled according to 29 CFR 1926, Subpart G, *Signs, Signals, and Barricades*, and 29 CFR 1910, Subpart J, *General Environmental Controls*, and are promptly removed when no longer needed. The types of barricades on FBP projects may include rope, tape, chain, or physical barricades (guardrails, jersey type barriers, etc.). If hazard information is not printed on barricades or barriers, then signs or tags are used to describe the hazard. Stepping over or ducking under barricades is prohibited. These requirements are implemented according to FBP-OS-PRO-00029, *Construction and Work Zone Barricades and Signs*.

6.24 Ionizing Radiation [10 CFR 851.21 and 10 CFR 851.23]

10 CFR 835 provides requirements for radiation protection. FBP addresses this subject in FBP-RP-PL-00002, *Radiation Protection Plan Portsmouth Gaseous Diffusion Plant Piketon, Ohio*. Procedures flow down the requirements, such as for documentation of Radiological Work Permits (RWP), pre-job briefings, ALARA reviews, radiation, contamination, and airborne surveys, etc.

6.24.1 Laser Safety

The requirements for safe use of lasers and laser systems are provided in FBP-IH-PRO-00027, *Laser Controls*. This procedure was developed using the safety and health requirements of ANSI Z136.1, *American National Standard for Safe Use of Lasers*.

7.0 DEFINITIONS/ACRONYMS

7.1 Definitions

None

7.2 Acronyms

- A. **ACGIH** – American Conference of Governmental Industrial Hygienists
- B. **ACM** – Asbestos Containing Material
- C. **AQ** - Augmented Quality
- D. **CEST** – Company Employee Safety Team
- E. **dBA** – Decibels on the A-weighted Scale
- F. **ERO** – Emergency Response Organization
- G. **EST** – Employee Safety Team
- H. **FBP** – Fluor BWXT Portsmouth LLC
- I. **FHA** – Fire Hazard Analysis

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- J. HAZWOPER** – Hazardous Waste Operations and Emergency Response
- K. JIC** – Joint Information Center
- L. RFP** – Request for Proposal
- M. SDS** - Safety Data Sheet
- N. SPD** – Site Project Director
- O. SWG** – Safety Work Group
- P. TFHA** – Transitional Fire Hazard Analysis
- Q. USW** – United Steel Workers
- R. WSHP** – Worker Safety and Health Program

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Appendix A
REGULATORY REQUIREMENTS FLOW DOWN

10 CFR 851, *Worker Safety and Health Program*