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OWNER: Safety Systems & Services	PPD-EH-1745	REVISION: 7
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PROCESS/PROGRAM DESCRIPTION	CONCURRENCE/DATE: A. J. Reed 10/27/20 [Approval Signature on File]	
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REVISION LOG			
Revision	Effective Date	Description of Changes	Pages Affected
7	11/9/20	Intent change. Updated preface with current scope of work. Updated introduction. Update Section 2.4 to include reference to PROC-EH-2000 and Form-866. Updated title from ETPP PSS to ESWO. Added new procedural references in Sections 3.1, 3.1.8, 3.1.9, and 3.1.12. Clarified guidance in Section 3.1.13, Hot Work. Updated procedural references in Section 3.1.14, Ladder Safety, and 3.1.16, Overhead Power and Communication Lines. Removed reference to expiring MOA in Section 3.2.5, Emergencies. Added program and procedural references in Section 3.4, Pressure Safety. Clarified Section 3.6.4, Chronic Beryllium Disease and Prevention. Clarified guidance for illumination requirements. Added Section 3.6.21, Lasers. Added procedural reference in Section 3.10, Electrical Safety. Updated title of PROC-EH-2001 in Section 5.1. Updated 7.0, References. Added Section 3.6.21 to Appendix A Applicability Matrix. Revised title of PROC-EH-2001 in Appendix A.	4-8, 17-18, 25-26, 29-38, 41-44, 48, 49, 52-55, 64
6	2/13/20	Intent change. Updated UCOR workforce number; modified scope section to reflect current status for projects and facilities. Updated title from ES&H to S&H. Updated reference in Section 2.3.2 on closure facility hazards. Updated Section 3.1.12 to include new procedure references for equipment operations: PROC-FO-1034, PROC-FO-3036, and PROC-FO-1035. Updated Section 3.6.5. on confined space and Reference listing to reflect deletion of ANSI/ASSE Z117.1 consensus standard. Deleted reference to HAZWOPER Applicability Matrix in Section 3.6.12; updated Section 5.1 to include case management. Added PROC-IH-5122, <i>Safe Use of Lasers</i> , to list of applicable procedures.	3-8, 17, 18, 22, 23, 25, 32, 35-38, 40-43, 48, 50, 51, 54
5	1/16/19	Intent change. DOE Technical Amendment 12/18/2017 – UCOR acceptance of the ACGIH TLVs 2017 edition specified for <i>Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices</i> .	3-8, 17, 28, 29, 35, 37-42, 44-46, 50, 51
4	11/8/17	Intent change. Preface updated to reflect changes to facility statuses. Added discussion on flow down of recently promulgated OSHA regulations addressing occupational silica exposures. Deleted reference to discontinued I Care / We Care program.	3-6, 16, 17, 20, 21, 23-25, 27, 29, 30, 37, 39-43, 48, 50, 51, 53, 55, 61, 63, 65-68

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3	10/13/16	Intent change. Added summary statements specific to various facilities recently added to UCOR scope in document PREFACE. Clarified use of ACGIH TLVs; Added use of Industrial Hygiene Work Permits. Clarified controls on flammable and combustible liquids in accordance with Fire Protection professional input. Added explicit reference to UCOR-4633, Closure Facility Hazards & Controls.	3-7, 17, 19, 23-25, 32-39, 42, 50-52, 54
2	11/23/15	Complete re-format; Complete re-write; Intent change. Preface background updated to reflect progress of D&D. Subsection on exposure monitoring was rewritten in an effort to more clearly define the Threshold Limit Values (TLVs) in use as defined in 10 <i>CFR</i> 851.23(a)(9). Various subsections condensed to bring level of detail more in-line with the position of this PPD in the overall document hierarchy. Deleted format differentiation between general and construction safety – without removal of any substantive safety requirements previously detailed. Inserted mention of safety conscious work environment consistent with ongoing DOE emphasis. Numerous other editorial/non-intent revisions to eliminate redundancies and better reflect current UCOR subcontracting strategy.	All
1	8/26/13	Intent change. Removed reference to PROC-EH-2010 (procedure deleted); Other minor updates of references, changes in contractor interfaces and in contracting strategy, revisions to scope and schedule discussion in Preface. Prior references to contract formation teams revised to reflect project-planning teams.	All
0	9/5/12	Initial Issue. Replaces BJC/OR-1745, Revision 9, <i>Worker Safety, and Health Program</i> .	All

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## PREFACE

This Worker Safety and Health Program (WSHP) is applicable to all UCOR, an Amentum-led partnership with Jacobs, self-performed, staff augmentation, and UCOR subcontractors at all tiers. This WSHP follows the core functions and guiding principles of the Integrated Safety Management System (ISMS) established by U.S. Department of Energy (DOE) Policy 450.4A, *Integrated Safety Management Policy*; 10 *Code of Federal Regulations (CFR) Part 851, Worker Safety and Health Program*; and PPD-EH-1400, *Integrated Safety Management System Program Description*. UCOR is committed to fostering a strong safety culture and a safety conscious work environment through leadership, employee/worker engagement, and continued organizational learning. To meet this objective, UCOR fully embraces the core functions and guiding principles of Integrated Safety Management and will continue to fully implement these principles through the following:

- Feedback and suggestions shall be encouraged in order to promote worker involvement in work planning, hazard identification and analysis, development of controls, and work task execution.
- Workers, including subcontractors at all tiers, shall have a clear understanding of the roles, responsibilities, and Operating Experiences / Lessons Learned applicable to their work.
- Hazard assessment and work control documentation (e.g., this WSHP, Project and Subproject Health and Safety Plans [HASPs], Job Instructions, Job Hazard Analysis process, permits) shall be tailored to the work performed.
- Appropriate safety and health standards and procedures shall be evaluated for their applicability to the specific work scope, and then effectively implemented.

This WSHP allows for the development of implementing documents while stipulating consistency with this WSHP and the requirements described in PROC-EH-1012, *Development and Approval of Safety and Health Plans*. Examples of implementing documents include, but are not limited to, Project and/or Subproject HASPs, Construction Safety and Health Plans, Industrial Hygiene Work Permits, and Fall Protection Plans.

The development and subsequent review of this WSHP was a collaborative effort that included active participation of workers, supervision and management, Safety and Health Representatives, and Subject Matter Experts from various disciplines such as Labor Relations, General Counsel, and Procurement. Support and coordination was also provided by the DOE established point-of-contact for the 10 *CFR Part 851 Rule* implementation.

### **Background**

UCOR is a limited liability company, organized around a project structure designed to achieve maximum safety and productivity performance goals to accomplish safe end state closure. The UCOR workforce of more than 1,800 personnel is comprised of a diverse mixture of highly skilled craft and salaried workers with significant experience in remediation and closure of government and commercial environmental sites. UCOR's subcontracting approach maximizes the use of cost-effective and efficient subcontractors to accelerate cleanup. Subcontractors function within the UCOR ISMS structure and this WSHP, while performing work in accordance with specific subcontract scope, requirements, and terms.

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## History and Cleanup Progress

Three major DOE installations on the Oak Ridge Reservation (ORR) began operating in 1942 as part of the World War II Manhattan Project, producing components for the first nuclear weapons. The ORR remains government-owned, although the nature of the work at each installation has changed. UCOR has work operations at each of these installations: the Y-12 National Security Complex (Y-12), the Oak Ridge National Laboratory (ORNL), and the East Tennessee Technology Park (ETTP).

### Y-12 National Security Complex

Until 1992, the primary mission of Y-12 was the production and fabrication of nuclear weapon components. Operated by Consolidated Nuclear Services for the National Nuclear Security Administration, Y-12 plays a vital role in the DOE Nuclear Weapons Complex. Y-12 continues to retrieve and store nuclear materials; fuel the nation's naval reactors; and perform complementary, highly specialized manufacturing work for other government and private-sector entities. UCOR operations at Y-12 currently include Surveillance and Maintenance activities associated with designated facilities and deactivation of select out of commission facilities previously used for Y-12 mission work.

Building 9201-4 (Alpha-4) is a 600,000 sq. ft. facility with three floors and a subbasement located in the protected area of Y-12. Column exchange (COLEX) operations occurred in Alpha-4 from 1953 through 1962. The COLEX process involved an electrochemical and solvent extraction method that required substantial quantities of mercury as a solvent agent to separate the lithium-6 isotope from lithium-7 (in the form of lithium hydroxide). At the end of production, the majority of process materials (including mercury) were drained from the equipment. However, not all systems/components were cleaned, and some recoverable quantities of mercury and lithium hydroxide remain in the equipment and process lines. The COLEX process equipment on the west side of Alpha-4 was deactivated and demolished in 2018. In 2019, UCOR completed the inspection and deactivation of the process equipment on the east side of Alpha-4. Over 4.6 tons of mercury were recovered from old column exchange equipment on the east and west side of Alpha-4 during the deactivation activities. In fiscal year (FY) 2021, deactivation of the Alpha-4 east side process equipment will be completed and demolition initiated. The equipment deactivation on the south side and cleanup of mercury spills within Alpha-4 will also begin.

UCOR is abating asbestos and preparing the Biology Complex Buildings 9207 and 9210 for demolition. The project is part of DOE's Excess Contaminated Facilities Initiative, an effort to reduce risks and stabilize facilities not scheduled for near-term demolition. Like many facilities built in the 1940s, the characterization results showed significant amounts of asbestos and other wastes, such as polychlorinated biphenyls. Workers also found radiological constituents in some buildings. The Biology Complex originally was constructed to recover uranium from process streams. Later, the complex housed DOE's research on the genetic effects of radiation from the late 1940s until the early 2000s. Building demolition is schedule to begin in the first quarter of FY 2021.

UCOR is mobilizing, performing cold and dark, characterization and deactivation activities at Alpha-2, Beta-1, 9401-1, and 9213 facilities.

The Alpha-2 buildings and support facilities were originally constructed in the 1940s to house the alpha cauldrons for uranium enrichment operations. After these uranium enrichment operations ceased in the late 1940s, the buildings were converted to serve as pilot plants for Lithium separation and fusion energy experiments. The majority of the lithium equipment was removed and cleaned with the buildings remaining in shutdown condition since the 1990s. The Beta-1 building and its ancillary facilities were originally constructed in the 1940s to house the beta cauldrons for uranium enrichment operations. In the late 1940s, the enrichment operations ceased and the facilities were converted to laboratory space for fusion research. The 9401-1 facility was built in 1943 as a steam plant but was shut down by 1945. In the 1960s, it was used for dipping uranium parts and later used by ORNL, as a fuel (automotive, jet, etc.) testing facility, until 2002 and used most recently as a storage facility for equipment

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and tools. Building 9213 was constructed in the 1950s as a critical experiment laboratory. The facility operated until the late 1980s and was later used for military training.

These projects are part of DOE's Excess Contaminated Facilities Initiative, an effort to reduce risks and stabilize facilities not scheduled for near term demolition. Like many facilities built in the 1940s and 1950s, the characterization results showed significant amounts of asbestos, radiological contamination and other wastes, such as polychlorinated biphenyls and beryllium contamination in some buildings.

The Environmental Management Waste Management Facility (EMWMF), located west of Y-12 in Bear Creek Valley, is an onsite waste facility that is being used to contain the wastes generated during cleanup of the ORR and associated sites in Tennessee. This engineered landfill consists of six-disposal cells and accepts low-level radioactive and hazardous wastes that meet specific waste acceptance criteria. Waste types that qualify for disposal include soil, dried sludge and sediment, solidified waste, stabilized waste, building debris, scrap equipment, and personal protective equipment. Construction of Cell 6 at EMWMF was completed in the spring of 2011 and marked the final expansion effort for EMWMF, which now has a total disposal capacity of 2,330,000 yd<sup>3</sup>. Since May 2002, projects within the ORR have shipped waste to EMWMF for disposal. The Haul Road, which was completed in 2006, enhances public safety by eliminating the hazards presented by large trucks in transit with passenger vehicles on public roads.

During 2014, Environmental Management (EM) revised a Remedial Investigation/Feasibility Study to include characterization data for a proposed new Environmental Management Disposal Facility (EMDF). In 2015, UCOR provided conceptual design, DOE 413.3B, Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and DOE O 435.1 support to EM for the EMDF. Although a Record of Decision (ROD) was drafted, the submittal of the document for regulator review was delayed pending resolution of a formal dispute between DOE and the U.S. Environmental Protection Agency/the Tennessee Department of Environment & Conservation about potential wastewater discharge limits. Preliminary design of the facility as well as a detailed evaluation of its long-term performance continued using site-specific characterization results to ensure that the disposal facility can be protective in the long-term. In addition to EMWMF, there are also operating solid waste disposal facilities located near Y-12, known as the ORR Sanitary Landfills. The ORR Landfills are engineered facilities used for the disposal of sanitary, industrial, construction, and demolition waste.

### **Oak Ridge National Laboratory**

ORNL was the smallest of the three facilities built in 1942 and 1943 on the 58,575-acre federal reservation. Originally known as Clinton Engineering Works, ORNL was established in 1943 to carry out a single, well-defined mission: the pilot scale production and separation of plutonium for the Manhattan Project. From its beginning as a wartime pilot plant, ORNL has grown to become one of the world's premier scientific research and modern campuses for scientific discovery and materials and chemical sciences, nuclear science, energy research, and super-computing.

UCOR is responsible for surveillance and maintenance in numerous facilities at ORNL, including the Molten Salt Reactor Experiment (MSRE). The MSRE was operated from 1965 through 1969 to investigate the possibility of using molten salt reactor technology for commercial power operations. The MSRE source term reduction efforts currently in progress are intended to reduce the level of surveillance and maintenance effort necessary prior to eventual deactivation and demolition (D&D).

Building 3005, Low Intensity Test Reactor (LITR), is a surplus facility. The LITR was a water-moderated and water-cooled reactor that used enriched uranium as fuel and beryllium as a reflector. The LITR started operation as a 500-kW training reactor in 1951, reached its final 3000-kW level as a test reactor in 1953, and was shut down in 1968. At that time, all fuel and shim-safety rods were removed, the water was drained, and connections were made to the reactor vessel to continuously exhaust the reactor vessel through the modified cell ventilation/normal

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off-gas system to 3039. The LITR has been taken to cold and dark status. Deactivation activities have been initiated with the removal of combustibles, universal waste, and temporary power installation. LITR currently is in the asbestos removal phase for FY2020.

Building 3002 and 3003—Building 3002 is located between the Graphite Reactor outlet air duct and the Fan House (Building 3003). The function of Building 3002 was to halt the release of radioactive particulates (from the stack, 3018) caused by fuel cladding failure. Coolant air was supplied through underground concrete ducts to the inlet manifold where it was routed through the fuel channels to the exhaust manifold. Exhaust air was then passed through underground concrete ducts to a filter house (Building 3002) for High Efficiency Particulate Air filtration prior to exhaust through the fan house (Building 3003) to a 200 ft concrete stack (Stack 3018). UCOR will start characterization and deactivation activities in FY2020.

Building 3042, Oak Ridge Research Reactor (ORRR) was an isotope production and irradiation facility from 1958 through 1987. The facility was permanently shut down in July 1987. The reactor was defueled and chemicals and equipment were removed from the facility. Processes and procedures were put in place to maintain the facility in a safe and stable condition pending final decommissioning. In 2014 and 2015, UCOR undertook similar reduction of risk and of ongoing surveillance costs associated with the former ORRR (Bldg. 3042). During 2015, various highly irradiated components were removed from 3042 as an initial aspect of this risk reduction effort, with the pool subsequently drained. In FY2020 (Building 3042) will be taken to cold and dark, and deactivation activities will begin with the removal of universal waste.

Building 3010 and its support facilities were built in 1951 or soon thereafter. Building 3010 housed both the Bulk Shielding Reactor (BSR) and the Pool Critical Assembly (PCA) in the same pool. The facility was used for isotope production, radiation shielding, material irradiation, and material effect experiments. The BSR was originally a 1 MW reactor, later modified with a forced-cooling system to a power level of 2 MW. The PCA was a low-power (10 KW) reactor used mainly for training. The BSR (Building 3010), another previously defueled pool reactor at ORNL may be similarly transitioned to a dry status depending on funding. UCOR has taken 3010 to cold and dark status, and is currently performing deactivation activities including asbestos removal and universal waste removal.

Building 3026 was a hot cell and laboratory facility that comprised two adjoining facilities, 3026-C, Krypton-85 Enrichment Facility on the west side, and 3026-D, Metal Segmenting Hot Cell Facility on the east side. Building 3026-C was constructed in 1944, and housed laboratories and shielded hot cells. An annex to the building, designated 3026-D, was completed approximately 1 year later. The 3026-D facility housed the East Cell Bank, West Cell Bank, and below-grade Transfer Tunnel. The West Cell Bank includes the Process Sample Area, Sorting Cell, and Storage Cell. The East Cell Bank includes Hot Cell A, Hot Cell B1, and Hot Cell B2. The Transfer Tunnel connects the Storage Cell to Hot Cell A. The reinforced concrete Transfer Tunnel is 4 ft wide × 3.5 ft high × 47 ft long and located 2.5 ft below the pad surface. Three hatches provide access to the Transfer Tunnel—one in the Storage Cell, one in between the West and East Cell Banks, and one in Hot Cell A. Additionally, two 3-in. diameter periscope ports are located on either side of the center hatch for tunnel observation. An electrically powered, rail-mounted transfer cart used to move materials between the two structures remains in the Transfer Tunnel. Currently 3026 has been taken to cold and dark status, combustibles removed, and the tunnel has been grouted. A fabric membrane structure has been constructed to cover the 3026 pad before demolition begins on the west cell bank.

The Fission Product Development Laboratory (3517) contains process hot cells previously used from 1958 until 1989 to recover long-lived fission products from aqueous waste, purification and palletization of radiation source materials, and testing of new procedures for source fabrication. The facility was originally designed and built to recover megacurie quantities of fission products from waste generated in reactor fuel reprocessing operations and the processing and recovery of other reactor produced isotopes. Operations were redirected to other missions in the late 1960s until programmatic operations ceased in 1994 when the facility was transferred to the

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Environmental Management Program for deactivation. The facility remains an inactive nuclear facility and is undergoing surveillance and maintenance and preliminary deactivation activities.

The Experimental Gas Cooled Reactor (EGCR), designated as Building 7600, was conceived by Congress in 1956 to compete with British advances with gas-cooled, graphite-moderated reactors. The facility was designed with two missions – to generate power as part of the TVA prototype program and to research experimental fuel elements. Construction was halted around 1965 at approximately 90% complete due to rapid advances in light-water reactors. EGCR was never fueled. The 200 ft structure has been transitioned into the Excess Contaminated Facilities program and is currently undergoing cold and dark activities. Future scope is anticipated to include asbestos abatement and D&D.

The Homogenous Reactor Experiment (HRE, Building 7500) was an aqueous experimental research reactor that used enriched uranium as fuel. The HRE is undergoing additional stabilization and D&D activities such as asbestos removal. Asbestos abatement was completed at Building 7500 in 2018. The remaining isotopes of concern in the HRE are the long-lived fission products Sr-90 and Cs-137.

Building 3038 and Isotope Row facilities (Buildings 3029, 3030, 3031, 3032, 3033, 3033A, 3034, 3036, 3093, and 3118) are inactive, and all process-related activities have been shut down. The facilities have been transferred from surveillance and maintenance to D&D. Scope for these facilities includes deactivation activities (external to the hot cells) in order to progress the facilities toward demolition ready. Currently, the removal of combustibles has been completed and the cold and dark activities are underway. Building 3038 and Isotope Row facilities contain residual radioactive and hazardous materials.

Waste Disposition Operations (WDO) manages Treatment, Storage, and Disposal (TSD) facilities at ORNL. WDO receives and stores waste from ORR generators. WDO also transports wastes between their TSD facilities, and to/from other ORR facilities. UCOR manages the Liquid and Gaseous Waste Operations Project at ORNL. This scope of work includes collection, treatment, storage, and disposal of liquid and radioactive wastes generated by both ongoing and past activities at the ORNL as well as operation of exhaust systems for the disposition of gaseous waste from ORNL.

### **East Tennessee Technology Park**

UCOR and predecessor contractors have completed the structural demolition of all of the five large gaseous diffusion plant buildings that comprised the uranium enrichment complex at the ETTP. D&D work has wrapped up at the site, but certain remediation efforts continue to address soil and groundwater contamination.

The ETTP Site-Wide Final ROD will address contamination in groundwater and surface water for the protection of human health and the environment when finalized by the Federal Facility Agreement parties. In addition, the Final ROD will determine whether additional source term remediation actions are necessary to protect the environment. Geographic areas included in this decision are Zone 1 (outside the main plant) and Zone 2 (inside the plant fencing).

### **K-25 History Center (ETTP)**

After an extensive renovation project, the second floor of the City of Oak Ridge-owned Fire Station #4 at ETTP has been transformed into the K-25 History Center. This commemorative facility was commissioned through a Memorandum of Agreement to enable the Oak Ridge Office of Environmental Management to complete decontamination, decommissioning, and demolition of historic properties at ETTP. The K-25 History Center features exhibits, artifacts, and audio-visual displays to interpret the significant role of the K-25 site in the Manhattan Project and Cold War and to commemorate the people who worked there.

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Additional funding is expected to enable the start of construction of other planned commemorative facilities. The Equipment Building will be a showcase for representative gaseous diffusion technology contained in the K-25 Building. An enclosed observation deck at the top of the Viewing Tower, standing 70 ft tall, will overlook the K-25 Building footprint and provide a 360-degree view of the site.

### **Zone 1 Interim ROD Remediation (ETTP)**

UCOR will complete any actions required under the ROD for Interim actions in Zone 1, as well as those identified in the Phased Construction Completion Reports, and complete the required documentation for the Remedial Action Report for Zone 1. Zone 1 specifically addresses contaminated soil, buried waste, and subsurface structures (including slabs). UCOR will prepare documentation necessary to support a final ROD.

### **Zone 2 Interim ROD Remediation (ETTP)**

Zone 2 specifically addresses contaminated soil, buried waste, and subsurface structures (including slabs). Major areas/facility groups include:

- Mitchell Branch Area
- K-1401/K-1070-C/D Area
- Administrative/Laboratories Area
- K-25 Area
- K-27/K-29 Area
- K-31/K-33 Area
- EU-19

The remediation process has been completed at the K-29 Pad. Trailers were removed or demolished, and heavy equipment relocated to remove the retaining walls, raised walkway structures, asphalt, and concrete slab. All material was shipped to EMWMF. A grassy field has replaced the pad and is available for future industrial use.

### **Site-Wide Final ROD Remediation (ETTP)**

The actions in this area and a general description of the scope to be performed as part of an approved Site-Wide Final ROD include the following:

- Complete the documentation necessary to produce a Site-Wide Proposed Plan and ROD and complete all the requirements specified in the ROD.
- Complete the site-wide remedial investigations and complete actions required to protect groundwater, surface water, and any additional actions required to protect ecological receptors.

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## ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
ACM	Asbestos-containing material
AHJ	Authority having jurisdiction
ANSI	American National Standards Institute, Inc.
APM	Area project manager
BSR	Bulk Shielding Reactor
CAIRNS	Computerized Accident/Incident Reporting System
CFR	Code of Federal Regulations
CFH	Closure Facility Hazards
CNS	Consolidated Nuclear Services
D&D	Deactivation and Demolition
dba	decibels on the A-weighted scale
DOE	U.S. Department of Energy
EM	Environmental Management
EMDF	Environmental Management Disposal Facility
EMWMF	Environmental Management Waste Management Facility
EPA	U.S. Environmental Protection Agency
ESWO	Emergency Services Watch Office
ETP	Excavation/Trenching Permit
ETTP	East Tennessee Technology Park
FPP	Fire Protection Program
GPP	Ground Penetration Permit
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HMIS	Hazardous Materials Information System
HRE	Homogenous Reactor Experiment
IH	Industrial Hygiene/Industrial Hygienist
ISMS	Integrated Safety Management System
IWCP	Integrated Work Control Program
JHA	Job hazard analysis
LEARN	Local Education Administrative Requirements Network
LITR	Low Intensity Test Reactor
LO/TO	Lockout/Tagout
LSS	Laboratory Shift Superintendent
MSRE	Molten Salt Reactor Experiment
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
ORRR	Oak Ridge Research Reactor
OSHA	Occupational Safety and Health Administration
P-card	Purchasing Card
PAAA	Price-Anderson Amendments Act
PCA	Pool Critical Assembly
PEL	Permissible exposure limit
PP	Penetration Permit
PPE	Personal protective equipment
PSS	Plant Shift Superintendent
ROD	Record of Decision

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RPT	Radiological Protection Technician
S&H	Safety and health
SCWE	safety conscious work environment
SME	Subject Matter Expert
SMP	Safety Management Program
SSC	Structures, systems, or components
STARRT	Safety Task Analysis and Risk Reduction Talk
TDEC	Tennessee Department of Environment & Conservation
TLV	Threshold Limit Value
TPD	Training Position Description
TSD	Treatment, Storage, and Disposal
TWA	Time-weighted average
WDO	Waste Disposition Operations
WSHP	Worker Safety and Health Program
Y-12	Y-12 National Security Complex

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## DEFINITIONS

**Affected worker** – As defined by 10 CFR Part 851, a worker who would be affected by the granting or denial of a variance, or any authorized representative of the worker, such as a collective bargaining agent.

**Closure facility** – A facility that is non-operational and is, or is expected to be permanently closed and/or demolished, or title to which is expected to be transferred to another entity for reuse.

**Closure facility hazard** – A facility-related condition within a closure facility involving deviations from the technical requirements of 10 CFR 851.23 that would require costly and extensive structural and/or engineering modifications to be brought into compliance.

**Compliance order** – An order issued by the U.S Department of Energy (DOE) Secretary to a contractor/subcontractor that mandates a remedy, work stoppage, or other action to address a situation that violates, potentially violates, or otherwise is inconsistent with a requirement of 10 CFR Part 851.

**Construction** – Combination of erection, installation, assembly, demolition, or fabrication activities involved to create a new facility or to alter, add to, rehabilitate, dismantle, or remove an existing facility. It also includes the alteration and repair (including dredging, excavating, and painting) of buildings, structures, or other real property, as well as any construction, demolition, and excavation activities conducted as part of environmental restoration or remediation efforts.

**Contractor** – Any entity, including affiliated entities, such as a parent corporation, under contract with DOE, or a subcontractor at any tier, that has responsibilities for performing work at a DOE site in furtherance of a DOE mission. A contractor, for the purposes of the 10 CFR Part 851 regulation, must have *a contract to perform services*, as opposed to merely providing supplies, in order to come under the scope of 10 CFR Part 851. An individual can be a contractor under 10 CFR Part 851. Where specifically referring to UCOR in this WSHP, the reference will be made to “UCOR” or “CONTRACTOR.”

**Covered workplace** – A place at a DOE site where a contractor/subcontractor is responsible for performing work in furtherance of a DOE mission.

**DOE** – The United States Department of Energy, including the National Nuclear Security Administration.

**DOE site** – A DOE-owned or leased area or location or other area or location controlled by DOE where activities and operations are performed at one or more facilities or places by a contractor/subcontractor in furtherance of a DOE mission.

**Furtherance of a DOE mission** – The contractor/subcontractor is performing work that DOE has authorized.

**Occupational medical provider** – Services provided under the direction of a graduate of a school of medicine who is licensed to practice in the State of Tennessee. Occupational health personnel are licensed, registered, or certified as required by Federal and/or State law.

**Permanent variance** – Relief from a safety and health standard, or portion thereof, to contractors who can prove that their methods, conditions, practices, operations, or processes provide workplaces that are as safe and healthful as those that follow the workplace safety and health standard required by 10 CFR Part 851.

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**Remedy** – Any action (including, but not limited to, the assessment of civil penalties, the reduction of fees or other payments under a contract, the requirement of specific actions, or the modification, suspension or rescission of a contract) necessary or appropriate to rectify, prevent, or penalize a violation of a requirement of 10 CFR Part 851, including a compliance order.

**Safety and Health** – As used in this WSHP, safety and health comprehensively includes all aspects of occupational safety and health programs normally associated with construction and general industrial work practices.

**Safety and health standard** – A standard that addresses a workplace hazard by establishing limits, requiring conditions, or prescribing the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe and healthful workplaces.

**Safety Culture** – An organization’s values and behaviors modeled by its leaders and internalized by its members, which serve to make safe performance of work the overriding value to protect the workers, the public, and the environment.

**SCWE – Safety Conscious Work Environment** – A work environment in which employees are empowered to willingly speak up and identify potential safety concerns without fear of harassment, intimidation, retaliation, or discrimination and where management willingly listens and promptly addresses concerns.

**Stop Work** – The process (formal or informal) used to stop work. May also be described as “suspend,” “pause,” or “cease” work activities. Refer to PROC-EH-2018, *Stop Work*.

**Temporary variance** – A short-term relief from a new safety and health standard when the contractor/subcontractor cannot comply with the requirements by the prescribed date because the necessary construction or alteration of the facility cannot be completed in time or when technical personnel, materials, or equipment is temporarily unavailable.

**Variance** – An exception to compliance with some part of a safety and health standard granted by the DOE Under Secretary to a contractor/subcontractor.

**Worker** – A worker of a DOE contractor/subcontractor who performs work in furtherance of a DOE mission at a covered workplace.

**Workplace hazard** – A physical, chemical, biological, or safety hazard with any potential to cause illness, injury, or death to a person.

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## **EXECUTIVE SUMMARY**

As a codified rule, the requirements of Title 10 Code of Federal Regulations (CFR) Part 851 Worker Safety and Health Program (WSHP), apply to the contractors and subcontractors at all tiers (hereafter referred to as subcontractors) and, comparable to Price-Anderson Amendments Act, subjects them to worker safety and health enforcement action. UCOR, an Amentum-led partnership with Jacobs, has prepared this WSHP to apply to all UCOR self-performed and subcontracted work activities to:

- Ensure a safe and healthful workplace whose safety culture is established with the single, unifying objective of preventing work-related injuries and illnesses;
- Satisfy the requirements of 10 CFR Part 851, Worker Safety and Health Program Rule;
- Enable all UCOR and UCOR subcontractors to address their obligation to comply with the requirements of 10 CFR Part 851 through an established framework with the principal objective of achieving consistency, continuity, and uniformity in the implementation of safety and health requirements across UCOR work operations; and
- Address and build on the collaboration and feedback already provided by the UCOR team through implementation of previous revisions of this WSHP.

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## 1. INTRODUCTION

UCOR is the U. S. Department of Energy (DOE) Oak Ridge Office of Environmental Management's lead environmental cleanup partner. Since August 2011, UCOR has worked to reduce environmental risk by cleaning up legacy facilities from the former Oak Ridge Gaseous Diffusion Plant, allowing DOE to repurpose the land and buildings for use as a multi-purpose industrial park, national park, and conservation area. The company is also cleaning up contaminated facilities that are no longer in use at Oak Ridge National Laboratory (ORNL) and the Y-12 National Security Complex (Y-12), reducing environmental risk and helping the DOE Office of Science and the National Nuclear Security Administration to continue their missions. UCOR is a limited liability company, organized around a project structure designed to achieve maximum safety and productivity performance goals to accomplish safe end state closure. The UCOR workforce of more than 1,800 personnel is comprised of a diverse mixture of highly skilled craft and salaried workers with significant experience in remediation and closure of government and commercial environmental sites.

UCOR believes that all accidents and incidents are preventable, and is fully committed to integrating safety into all aspects of work planning and execution. Safety is a core value to UCOR and always takes precedence over cost and schedule. The accomplishment of this policy requires a robust safety culture and safety conscious work environment (SCWE). It also requires that all work activities conducted for the DOE be guided by an overall company-wide Worker Safety and Health Program (WSHP) and Integrated Work Control Program (IWCP).

This WSHP is a companion document to the *Environmental Compliance and Protection Program* (PPD-EC-1747) and the *Radiation Protection Program Description for URS | CH2M Oak Ridge LLC, Oak Ridge, Tennessee* (PPD-RP-4000), which together address all the major discipline areas of safety. The definition of *safety* embodies the protection of the worker, public health, and environment. These programs will be implemented concurrently with the goal of achieving zero accidents, including zero unplanned releases to the environment, and implementing the Integrated Safety Management System (ISMS) and Environmental Management System.

### 1.1 PURPOSE AND SCOPE

The purpose of this WSHP is to provide workers with a safe and healthful workplace where a safety culture has been established with the single, unified objective of preventing work-related injuries and illnesses. This WSHP serves as a company-level document that applies to all UCOR self-performed and subcontracted work activities performed on the DOE Oak Ridge Reservation (ORR) or in furtherance of a DOE mission.

### 1.2 EXCLUSIONS

The provisions of this WSHP **do not** apply to the following:

1. Work at a DOE site that is regulated by the Occupational Safety and Health Administration (OSHA) or similar State regulatory entity.
2. Radiological hazards or nuclear explosives operations to the extent regulated by 10 CFR Parts 20, 820, 830, or 835.
3. Transportation to or from a DOE site per 10 CFR Part 851.2(c).
4. Vendors, delivery persons, and others who do not have service contracts with DOE.
5. Work at a DOE site that is not in furtherance of a DOE mission.
6. Contractors or subcontractors providing only commercial items, as defined under the Federal Acquisitions Regulations.

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7. Work performed by other DOE prime contractors or their subcontractors (e.g., National Strategic Protective Services, LLC).
8. Work performed by DOE personnel, employees of other government agencies or government corporations (e.g., Tennessee Department of Environment & Conservation [TDEC]).
9. Community Reuse Organization of East Tennessee lessees, or other site tenants, that do not have a contractual relationship with UCOR. Activities and operations conducted by UCOR or UCOR subcontractor personnel in leased facilities are governed by this DOE-approved PPD-EH-1745, *Worker Safety and Health Program*, document. Conversely, any activities/operations conducted by any third party within the leased facilities will be under the authority/jurisdiction of a private entity and will not be the responsibility of UCOR, since no contractual relationship exists between the parties.
10. Municipal Fire Departments, including those with mutual aid arrangements with UCOR or DOE.
11. Persons operating under grants to DOE.

### 1.3 ZERO ACCIDENT PHILOSOPHY AND CULTURE

The UCOR Zero Accident Philosophy is used to shape an enterprise culture that focuses not simply on decreasing accidents, but on eliminating them. The Zero Accident Philosophy is based on the premise that all accidents are preventable. The goal of the Zero Accident Philosophy is to create a SCWE that empowers workers to “take charge” of their own safety and to stop unsafe work practices or conditions without fear of reprisal. UCOR strives to maintain a positive safety culture characterized by encouraging communication founded on mutual trust; ensuring that all employees understand the importance of performing work safely; and confidence in the effectiveness of measures taken to control risks and prevent injuries and illnesses. The safety culture is founded on the following:

- Management leadership and commitment to safety through personal example, worker involvement, work planning, and work control (DOE Safety Culture Focus Area: Leadership).
- Clearly defined roles, responsibilities, accountabilities, and authorities (DOE Safety Culture Focus Area: Employee/Worker Engagement).
- Workplace evaluation through monitoring, analysis, assessment, and feedback systems leading to organizational learning (DOE Safety Culture Focus Area: Organizational Learning).

All workers are accountable for adhering to the requirements specified in this WSHP. Further, each worker is responsible for bringing to the attention of supervision or management for resolution any unsafe or unhealthy conditions that he/she observes.

### 1.4 SUBMISSION FOR APPROVAL

UCOR will submit to the DOE Head of the Field Element an updated WSHP for approval whenever a significant change or addition to the WSHP is made. On an annual basis, UCOR will submit either an updated WSHP for approval or a letter stating that no significant changes are necessary in the current approved WSHP. The UCOR Industrial Safety Manager has responsibility for the preparation, modification, and maintenance of this WSHP.

### 1.5 IMPLEMENTATION

This WSHP implements the safety and health policies contained in 10 CFR Part 851 Rule, and other applicable DOE orders, applicable OSHA regulations found in 29 CFR Part 1910 and 29 CFR Part 1926, contractually applicable consensus standards, PPD-EH-1400, *Integrated Safety Management System Program Description*, and UCOR procedures. The core functions and guiding principles of the ISMS are used to achieve deliberate

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integration of worker safety and health protection into management and work practices at all levels of work. In accordance with the UCOR IWCP (PROC-FS-1001, *Integrated Work Control Program*), the direct involvement of the workers who will perform the work, beginning at the planning stage and continuing through completion of activities, is critical to the successful implementation of this WSHP. ISMS is applicable to all work performed under this WSHP, whether the work is self-performed or subcontracted.

Provisions are made for this WSHP to be tailored to reflect the hazards and controls unique to a subcontracted scope of work. This is accomplished through an Applicability and Responsibility Matrix (see Appendix A for example), that is completed by the UCOR safety and health staff in partnership with Supply Chain Management personnel assigned to obtain services associated with a given scope of work. The Matrix is completed as an attachment to the subcontract proforma documentation entitled Exhibit G, Environmental Compliance and Protection, Radiation Protection, and Worker Safety and Health. The Matrix also provides a mechanism to clearly identify and differentiate between UCOR and subcontractor responsibilities associated with specific subcontracted scopes of work. Completion of the Matrix for self-performed/staff augmentation work is not required; however, the Matrix may be used as an optional tool.

In addition, this WSHP incorporates a graded approach based upon the severity of the hazards associated with the scope of work and associated controls. Where required, a project or subproject-level Health and Safety Plan (HASP), Construction Safety and Health Plan, or other implementing documentation shall be developed per the requirements of PROC-EH-1012, *Development and Approval of Safety and Health Plans*. In all cases, the elements of this WSHP shall be applicable to the lowest task level to assure consistency and coordination among all work groups and subcontractors.

## 1.6 COMPLIANCE

UCOR is responsible for compliance with applicable laws, regulations, and other requirements defined in the contract including Title 48 CFR, Chapter 9, Department of Energy Acquisition Regulation 970.5223-1, Integration of Environment, Safety, and Health Into Work Planning and Execution, December 2000, and DOE Guide 450.4-1C, *Integrated Safety Management System Guide*, dated September 29, 2011. UCOR's work must also comply with safety basis documents and other regulatory permits, agreements, and commitments.

Compliance with 10 CFR Part 851 is achieved through the successful implementation of this WSHP by UCOR and its subcontractors. This WSHP is reflective of the approved UCOR ISMS Program documented in PPD-EH-1400. Subcontract clauses addressing the 10 CFR Part 851 requirements in Exhibit G, and completion of the Applicability and Responsibility Matrix (refer to Appendix A), ensure subcontractor requirements are established and flowed as applicable to lower-tier subcontractors.

## 1.7 COORDINATION AMONG MULTI-CONTRACTOR COVERED WORKPLACES

Clear roles, responsibilities, and processes must be in place to ensure the safety and health of workers at multi-contractor covered workplaces. UCOR has communicated and will continue to communicate with other site residents to ensure coordination of safe work activities. Relationships and organization interfaces with both DOE and other prime contractors are primarily maintained through ongoing face-to-face communications, including periodic meetings between senior UCOR management, UCOR Safety and Health (S&H), DOE management, DOE S&H, and other prime contractors. In addition to these meetings, DOE requirements for performing business at DOE sites and installations are defined in DOE contract language, leases, and other DOE documents. Since other DOE prime contractors and third party tenants co-exist within the boundaries of DOE sites, UCOR fully cooperates with all other contractors and organizations to achieve a safe and healthy work environment.

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Interface agreements have been established to clearly define roles, responsibilities, and expectations of interfacing organizations. Types of interface agreements include:

- Master Agreements for Service,
- Memorandums of Understanding and Agreement,
- Coordination Agreements,
- Interface Agreements – referred to as Work Authorization documents by some ORR prime contractors, and
- Other binding corporate agreements that define divisions of responsibility or liability with other parties outside of UCOR or require UCOR to commit personnel, equipment, or funds that were assigned to UCOR by DOE.

For tasks that are performed on the UCOR scope of work by other DOE prime contractors, the work is performed to meet the applicable safety and health requirements as specified in the interface agreement or other contract vehicle. Such interface agreements are developed in accordance with the requirements of PROC-PCM-1802, *Obtaining Services from Other DOE Contractors*. Interface agreements executed under the Umbrella Master Agreement for Services that includes multiple DOE contractors/prime contractors (UT-Battelle, Consolidated Nuclear Services [CNS] Y-12, and National Strategic Protective Services, LLC), shall follow the applicable safety and health requirements specified in the interface agreements as the *performing subcontractor* for services rendered as project services, technical services, and site services. Loaned personnel will normally follow, and be trained in, the WSHP of the contractor to which they are loaned. For example, CNS Y-12 performs work in accordance with its National Nuclear Security Administration-approved WSHP and implementing procedures, which satisfy CNS Y-12 Standards/Requirements Identification Documents that are approved by DOE if they are the performing contractor and it is specified in the interface agreement that CNS Y-12 is to follow their own procedures. UT-Battelle will perform work in accordance with its DOE-approved WSHP and implementing procedures if they are the performing contractor and if it is specified in the interface agreement.

At the project level, UCOR has established a process by which area project managers (APMs) and their project teams divide the work into subprojects and tasks, and make decisions regarding whether to self-perform or subcontract the defined work scope. Defining the scope of work (ISMS Core Function 1) is key to understanding what, if any, interaction with other primes, contractors, or subcontractors via the work location or other means, shall occur. APMs, in collaboration with their project teams and facility management, are responsible for ensuring that if and when this interaction takes place, it will not result in violation of S&H requirements.

## 1.8 ENFORCEMENT PROVISIONS

UCOR shall report 10 CFR Part 851 noncompliance for self-performed and subcontracted work into the Noncompliance Tracking System database. Thresholds have been developed and published by DOE, and UCOR has incorporated the noncompliance reporting requirements of 10 CFR Part 851 in PROC-PQ-1610, *PAAA, Safety and Security Regulatory Program*. However, all subcontractors remain directly liable for any enforcement that may result from their acts or omissions, regardless of these reporting requirements. The DOE Noncompliance Tracking System database was developed to provide an incentive for prompt reporting and correction of safety problems. Based on prompt reporting and aggressive corrective action, enforcement discretion is exercised in favor of no enforcement action, or mitigation may be granted if enforcement action is taken. Such mitigation considerations are relevant to the Worker Safety and Health Enforcement Program whether the contemplated penalty is a civil monetary penalty or a contract remedy.

Subcontractors shall report issues of a regulatory compliance nature through their Subcontract Coordinator/Subcontract Technical Representative for screening within UCOR, whether nuclear or worker safety and health related, consistent with the current requirements of their subcontract. Issues identified by

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subcontractors and tracked internally are reported to UCOR by a monthly submittal and screened initially by UCOR Quality Assurance professionals, who then transmit issues to the UCOR *Price-Anderson Amendments Act* (PAAA)/Enforcement Coordinator.

All issues entered into the Corrective Actions Management System, including occurrence reports, incident investigation reports, nonconformance reports, or any issues and observations identified by internal and external assessors, are routinely screened by the PAAA/Enforcement Coordinator, and disseminated throughout the UCOR organization, both for awareness of lessons-learned and appropriate management consideration of extent-of-condition.

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## 2. DIRECTIVE ELEMENTS

### 2.1 MANAGEMENT RESPONSIBILITIES

#### 2.1.1 UCOR Management Team

The **UCOR President and Chief Executive Officer** is responsible for managing the company and guiding the management team toward the safe performance of all work. The senior manager for UCOR has ultimate responsibility for safe accomplishment of work and in setting the company standards and expectations for the safety culture and all work under the existing contract between UCOR and DOE. Other senior level company managers such as functional managers, APMs, and Facility Managers work as a team to achieve project integration and safe performance of work. This management team is responsible for compliance with applicable requirements, allocation of resources, integration of project execution and support functions, and continuity of focus on safe project completion.

**Area Project Managers** (APMs) assign leaders to project teams involved with the safe and successful execution of an assigned scope of work. APMs are accountable for the activities of UCOR personnel and project subcontractors in the implementation of this WSHP and other requirements. Project teams are composed of personnel matrixed and/or deployed to the project. The composition of project teams varies depending on the work scope. The typical project team is composed of representatives from disciplines that are necessary to accomplish the specific scope of work. Other functional resources and personnel with task or discipline-specific experience are included on the team as needed. Project teams provide the mechanism for integrating worker safety and health considerations and controls into project activities based on the work scope.

**Functional managers** provide support at the programmatic level and perform programmatic oversight functions, in addition to managing, developing, and deploying the safety and health technical resources to support project teams. The deployed project support resources integrate the actions of the project teams from their discipline perspective, ensuring that work is conducted in accordance with this WSHP.

#### 2.1.2 Facility Managers

Each UCOR facility has an assigned Facility Manager who has been formally qualified and authorized by UCOR management to oversee all activities performed in his/her assigned facility/facilities and ensure they are conducted in a safe manner within the authorization basis of the facility as applicable. Facility Managers are responsible to the APM for authorizing and overseeing the safe execution of all work activities in their facilities in accordance with PROC-FO-515, *Facility Management*, and other relevant project-level procedures. All changes in work scope within a UCOR managed facility shall be discussed with the Facility Manager prior to commencing work. Additionally, any new hazard identified in the facility as a result of planned work shall also be discussed with the Facility Manager. For facilities that have facility safety basis documents, any change in work scope or additional identified hazards will be evaluated by the Facility Manager to the requirements of the approved safety basis. Work will not be performed until the Facility Manager is satisfied that all questions concerning the applicability of the safety basis documents are answered.

#### 2.1.3 Subject Matter Experts

Safety and health subject matter areas have been established and are supported by Subject Matter Experts (SMEs) in accordance with PROC-PQ-1170, *Control of Subject Matter Area Designations and Subject Matter Expert Assignments*.

UCOR SMEs are appointed in numerous safety and health disciplines including industrial hygiene, safety, and medical, as well as some sub-specialties deemed high-risk by UCOR Safety Systems & Services management.

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The SMEs serve as the primary points-of-contact with the appropriate DOE Program Office and as the UCOR interpretive authority for their respective subject areas. For the specialty disciplines of electrical safety and fire protection, the SME designation overlaps with, or is superseded by, the role of Authority Having Jurisdiction (AHJ) as applicable.

The Electrical AHJ provides UCOR personnel with guidance and interpretations of electrical requirements of National Fire Protection Association (NFPA 70), and other codes, rules, and standards that are applicable to electrical safety. In addition, the Electrical AHJ can perform examinations of electrical equipment and installations to assure compliance with applicable electrical requirements. The examinations include those required to accept the use of electrical equipment that is not listed or labeled by a nationally recognized testing laboratory.

The Fire Protection AHJ provides NFPA fire protection code interpretations; determines the applicability of NFPA fire codes and standards to UCOR activities and facilities; recommends for approval by DOE any equivalencies to DOE orders and directives, exemptions, and associated compliance schedule(s) and approves minor field compliance conditions, and equivalent approaches. In addition, the Fire Protection AHJ ensures that determinations (Fire Hazard Analysis documentation of new facilities, equivalent approaches, etc.) are documented and provided to the DOE Oak Ridge Office for review.

#### **2.1.4 Safety and Health Representatives**

Projects obtain technical resources, including S&H Representatives, commensurate with the complexity and risk associated with the scope of work. In this role, project-assigned S&H Representatives interface with other disciplines, as necessary, to support the project’s scope of work. These S&H Representatives actively monitor work practices in the field for self-performed/staff augmentation work activities to provide assurance that work is being performed in accordance with UCOR requirements and expectations in the areas of worker safety and health. The project-assigned S&H Representative may also serve in an oversight capacity for subcontracted scope of work.

Subcontractors may also be required to assign one or more full time S&H Representatives for the duration of their subcontracted scope of work. Subcontracts may or may not require staffing of S&H Representatives. Depending on the nature of the work scope, UCOR may require subcontractors to designate an S&H Representative. The qualifications of such an individual are reviewed and approved by UCOR through the clause entitled “Key Personnel” of the subcontract. The responsibilities and expectations of subcontractor S&H Representatives are established contractually. The subcontractor S&H Representative also interacts with the project-assigned S&H Representative to communicate issues, correct problems, and maintain continuous improvement initiatives during subcontracted activities. Craft Safety Advocates and bargaining unit Safety Representatives also play a pivotal role in maintaining and facilitating open lines of communication on all matters of worker safety and health.

## **2.2 WORKER RIGHTS AND RESPONSIBILITIES**

Whether employed by UCOR or a subcontractor, each worker’s ability and commitment to execute activities in a safe manner represents the cornerstone of the UCOR safety culture. Workers are personally involved in the safe execution of work through the following activities:

- Being adequately trained and qualified.
- Being informed through DOE safety and health publications of their rights and responsibilities by appropriate means, including the posting of the DOE-designated Worker Protection Poster, which is posted on official bulletin boards and in designated break areas where it is accessible to all workers.

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- Participating directly or having an authorized employee representative accompany DOE officials assigned to investigate the nature and extent of compliance with worker safety and health requirements.
- Participating in the regular communication (e.g., pre- and post-job briefings, Safety Task Analysis and Risk Reduction Talk [STARRT] Card participation, safety meetings, bulletins), regarding workplace safety and health matters.
- Being afforded the opportunity to observe monitoring or measuring of hazardous agents and/or be personally sampled as necessary.
- Being notified of the results of their own exposure monitoring as required and when monitoring results may indicate overexposure to hazardous materials or that the workplace controls selection should be reassessed.
- Identifying both unsafe conditions and worker at-risk behaviors through participation in voluntary local safety improvement teams that are worker directed (no blame philosophy).
- Participating in the development and execution of procedures and other work control documents.
- Providing feedback, including Operating Experience/Lessons Learned.
- Having access to information on record keeping logs (OSHA Form 300, 300A) subject to Freedom of Information Act requirements and Privacy Act restrictions.
- Participating directly or having a representative colleague/co-worker involved in incident investigations and self-assessments.

Operating Experiences/Lessons Learned determined to be pertinent to a given scope of work will be reviewed with workers. Applicable Operating Experiences/Lessons Learned will be covered in the initial pre-planning sessions and will be discussed as topics in pre-job briefings, STARRT card briefings, and toolbox meetings. Workers will be encouraged to participate during these reviews. Feedback and suggestions contributed by workers during pre- and post-job briefings will be documented. Immediate actions shall be taken to address those that may impact the S&H of the worker.

As noted in the DOE/UCOR SCWE Policy Statement, all workers possess the authority and personal responsibility to report unsafe conditions or acts and to immediately stop work that they believe endangers themselves, their co-workers, or the environment. Workers are able to stop work without fear of reprisal. No worker will be required to perform a task that he or she believes is unsafe. Other UCOR procedures pertaining to worker concerns include POL-UCOR-020, *Integrated Safety Management System*; PPD-EH-1400, *Integrated Safety Management System Program Description*; PROC-CN-2008, *Employee Concerns Program*; PROC-EH-2018, *Stop Work*; PROC-CT-1515, *Differing Professional Opinion Process*, and UCOR-4087, *Safety and Health Handbook*. Employees have, and are encouraged and expected to use, multiple venues to express safety concerns. These include, but are not limited to, their management chain and Employee Concerns. Safety and health concerns may be brought to the attention of the Supervisor, the craft Safety Advocate, and/or the assigned S&H Representative for further investigation and resolution.

### 2.3 HAZARD IDENTIFICATION AND ASSESSMENT

The UCOR Safety and Health Handbook (UCOR-4087) is provided to employees to communicate those hazards and hazard controls that are ubiquitous to activities undertaken and facilities managed by UCOR for DOE. Similarly, the UCOR Environmental Compliance and Protection Awareness Handbook (UCOR-4088) is distributed to provide employees with brief summaries of hazards to the environment and common physical controls implemented to protect the environment's natural resources. Line management is responsible for identification and analysis of the hazards associated with their facilities and with associated work activities. Workers are involved early in the process to ensure those performing the work are aware of the hazards,

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associated risks, and the purposes of the hazard controls implemented (refer to PROC-FS-1001, *Integrated Work Control Program*).

UCOR Project Teams are comprised of individuals representing various disciplines including S&H. These individuals support hazard analysis and assessment for work activities through a combination of participation in the planning, physical walkdowns of the work area(s), review of historical information and characterization documents, monitoring records, site or project-specific S&H information, review of Operating Experiences/Lessons Learned for applicability to work scope, review and status of submittals/deliverables, and development of work packages. Applicable permits needed, including radiological work permits, are considered at this phase. Depending on the complexity of the work, discipline leads or SMEs are involved in the assessment of S&H impacts, which are then integrated into the work control process. Assigned project industrial hygienists determine and support development of industrial hygiene sampling strategies appropriate to the work scope (refer to Section 3.6 for further discussion of Industrial Hygiene activities).

### 2.3.1 Job Instructions and Job Hazard Analyses

A hazard assessment may either be conducted in concert with the development of the Work Package, Job Instructions or, if warranted, a standalone Form-1027, Job Hazard Analysis (JHA), may be developed in accordance with PROC-FS-1001, *Integrated Work Control Program*, and PROC-FS-1055, *Work Package/Procedure Usage*. Regardless of which tools are used, the hazard assessment must be written at the activity/task level and provide a detailed, job-specific hazard assessment that addresses each step of the work process, the hazards involved, and the controls for those hazards. Workers shall be involved in this process and afforded the opportunity to review and comment on the hazard assessment. UCOR's skilled and experienced craft have the best insight to optimize the combination of hazard controls most applicable to the task. UCOR S&H Representatives shall conduct periodic evaluations of hazard assessment implementation.

### 2.3.2 Closure Facility Hazards and Controls

Closure facilities are defined in 10 CFR Part 851.3 as non-operational facilities that are, or are expected to be permanently closed, demolished, or subject to title transfer to another entity for reuse. UCOR has contractual responsibility for DOE closure facilities at the East Tennessee Technology Park (ETTP), ORNL, and Y-12. Closure facility hazards are those facility-related conditions within a closure facility that represent deviations from 10 CFR Part 851.23, Safety and Health Standards, and that would require costly and extensive structural/engineering modifications to be in compliance. For this reason, closure facilities require flexibility to address hazards efficiently and to implement mitigating strategies. Facilities are evaluated for closure status and for the presence of closure hazards per PROC-FO-1059, *Facility Transition*, and Form-3499, Closure Facility Evaluation. A listing of UCOR Closure Facilities, along with associated Closure Facility Hazards (CFH) and CFH Controls (UCOR-4633), is submitted to the Head of DOE Field Element per 10 CFR Part 851 requirements.

## 2.4 HAZARD PREVENTION AND ABATEMENT

Analogous to the Worker Safety and Health Work Control Execution Flow shown in Fig. 1, UCOR uses an ISMS process to mitigate hazards and risk to workers at both a facility and worker level (see Fig. 2). Once hazards have been identified, controls are established at each level. Identification of controls to eliminate and/or mitigate hazards is accomplished through a variety of means at each step including established regulations, permits, procedures, Job Instructions, JHAs, readiness reviews, internal and external assessments (refer to PPD-EH-5614, *Worker Safety and Health Assessment Program*), training, etc. PROC-EH-2000, *General Safety Requirements*, provides guidance on the "Hierarchy of Controls". The preferred sequence for controlling hazards is: (1) Elimination or substitution of the hazards where feasible and appropriate; (2) Engineering controls where feasible and appropriate; (3) Work practices and administrative controls that limit worker exposures; and (4) Personal protective equipment. Form-866, Job Hazard Identification Worksheet, provides an administrative tool to prompt

elimination, substitution, and engineering hazard mitigation controls during work planning. Workers must comply with regulations, procedures, and work packages that are applicable to their assigned work activities.

## WORKER SAFETY AND HEALTH WORK CONTROL EXECUTION FLOW

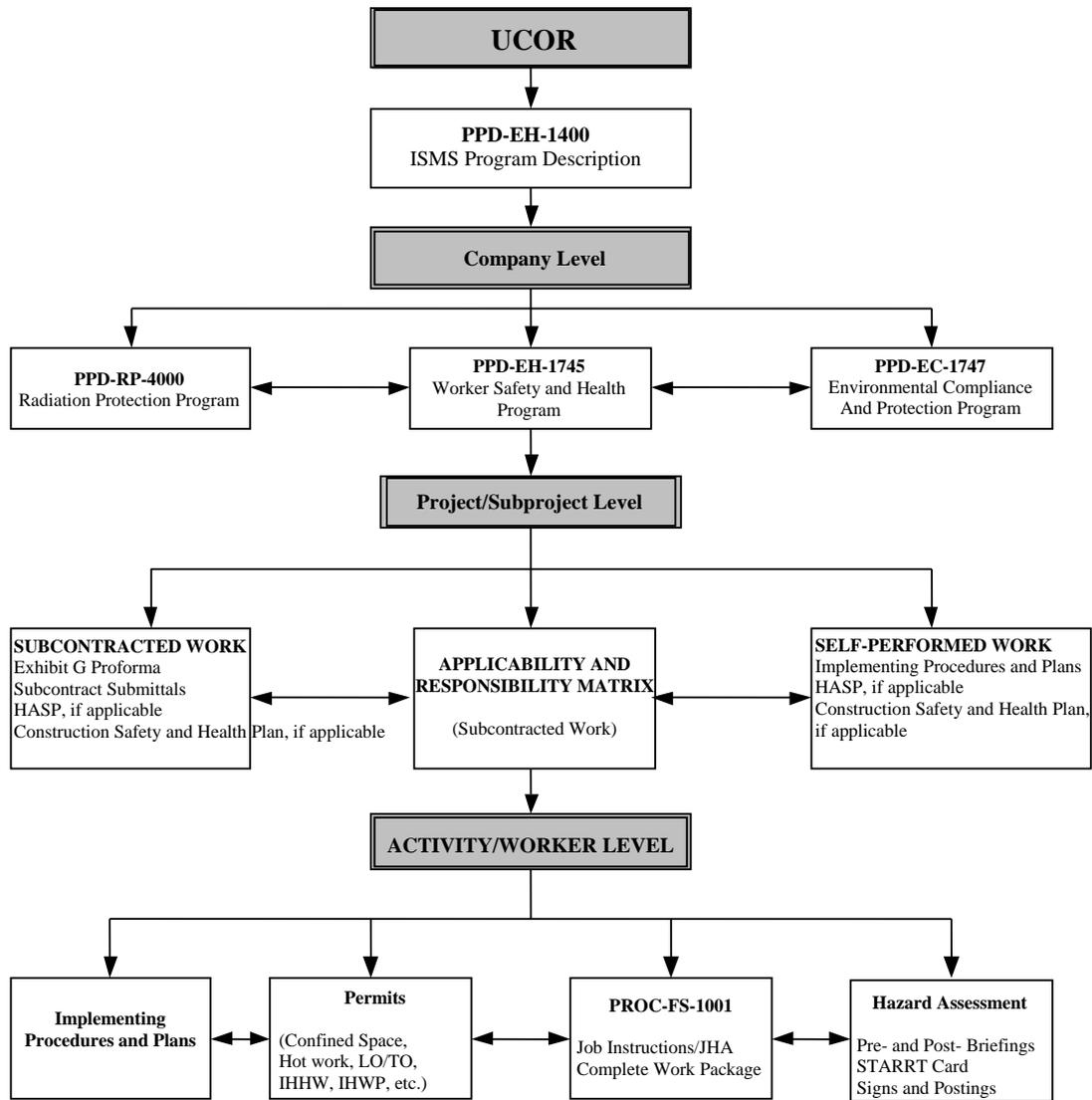
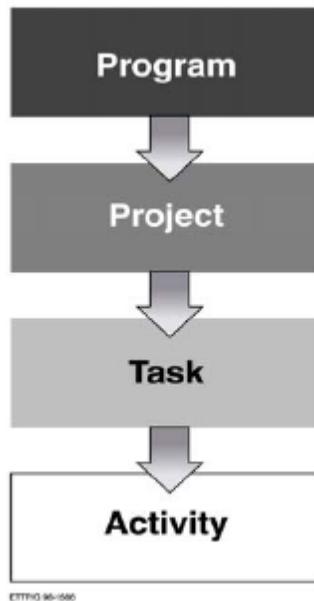


Fig. 1. Worker Safety and Health Work Control Execution Flow Process.

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**Fig. 2. Four-Step Hazard Abatement Hierarchy Process.**

#### **2.4.1 Management of Change**

Any changes in the scope of work planned that could adversely affect worker S&H shall result in stopping work and a re-evaluation of hazards and controls before restart. Work control documentation, including permits, shall be reviewed and revised documents and permits issued to reflect the changes per PROC-FS-1001, *Integrated Work Control Program*.

#### **2.4.2 Evaluation and Control of Physical Hazards**

The directive for determining the degree of abatement of physical hazards in UCOR managed facilities is found in PROC-FO-515, *Facility Management*. Facility Managers authorize work to be performed in their facility in accordance with this procedure.

#### **2.4.3 Procurement of Equipment, Products, and Services**

UCOR Supply Chain Management systems support UCOR project teams and functional organizations by stipulating how equipment, products, and services are obtained to safely support given scopes of work (self-performed or subcontracted). The following Supply Chain Management responsibilities implement critical aspects of this WSHP:

- Maintenance of Subcontract Proforma Documents,
- Lead teams in preparation and formation of all Exhibits in request for proposals,
- Adherence to the qualified bidders list, when applicable,
- Bids, evaluations, awards, and administration of subcontracts/purchase orders,
- Coordination of all communication with subcontractors and suppliers,
- Limitations and prohibitions imposed upon the UCOR procurement system, and
- Limitations and prohibitions imposed upon the Purchasing Card System (P-card).

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Subcontractors are not allowed to mobilize until acceptable programs, evidence of equipment inspections, and other subcontract required documentation are provided to UCOR as either submittals or deliverables in accordance with PROC-DE-1019, *Subcontract Coordinator Requirements*; Exhibit I, Subcontractor Submittal Requirement Summary; PROC-FS-1001, *Integrated Work Control Program*; and PROC-FO-1039, *Construction Equipment Inspection and Maintenance Program*. Subcontractor’s procurement and handling of critical items shall be conducted in accordance with PROC-PQ-1208, *Supplier Quality Assurance Assessment Program*. Subcontractors are required to demonstrate compliance through written programs that UCOR reviews prior to mobilization.

## 2.5 SAFETY AND HEALTH STANDARDS

The applicable safety and health standards, regulations, DOE Orders, and consensus standards required for establishing this WSHP are included in the UCOR/DOE Oak Ridge Accelerated Cleanup Contract Modification, Section J, Attachment A, “List of Required Compliance Documents,” Lists A and B and 10 CFR Parts 851.23 and 851.27. The technical amendment to 10 CFR 851 standards incorporated by reference in December 2017 has updated many of the applicable health and safety standards.

PROC-PQ-1805, *Requirements & Standards Management*, describes the process for standards and requirements identification and revision. In addition, the Safety Management Program (SMP) Matrix, PPD-EH-1400, *Integrated Safety Management System Program Description*, Appendix C, is a tool to demonstrate adequacy of program definition and to support effective implementation at the facility level as a part of the Documented Safety Analyses. The SMP Matrix is intended to identify the minimum complement of requirements and standards that must be implemented in support of the defined SMP. SMEs are accountable for programmatic implementation of the full set of UCOR S&H standards and requirements that are applicable under this WSHP to ensure 10 CFR Part 851 compliance.

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### 3. FUNCTIONAL AREAS

This Section describes the key functional areas addressed in 10 CFR Part 851, OSHA S&H regulations, applicable consensus standards, and best management practices. This Section also includes programmatic areas that are not specifically regulated (e.g., ergonomics, indoor air quality), but are prudent and necessary for inclusion so that the associated hazards are recognized, evaluated, and appropriate controls applied for assurance of worker safety and health (refer to 10 CFR Part 851.12[b]).

#### 3.1 GENERAL SAFETY, CONSTRUCTION (AND DEMOLITION) SAFETY

The UCOR Occupational Safety Program, which encompasses construction safety, establishes roles, responsibilities, and expectations for worker safety through the implementation of industrial and construction safety requirements contained in the OSHA standards. The application of a graded approach shall be used, based on the magnitude of the hazards that can influence the workers' safety and health, to optimize appropriate control measures to mitigate the hazard. The following information represents a summary of hazards that may exist on UCOR projects, but it is not all-inclusive. It is management's responsibility to properly pre-plan the work activities using the hazard identification and work control process outlined in PROC-FS-1001, *Integrated Work Control Program*. PROC-EH-2000, *General Safety Requirements*, also addresses general safety requirements that shall be implemented, as applicable.

Requirements for implementing *Construction Safety* are found in Appendix A of 10 CFR Part 851. Construction S&H Plans will be developed, for both self-performed and subcontracted work activities, as applicable (refer to PROC-EH-1012, *Development and Approval of Safety and Health Plans*). The UCOR S&H organization performs the following:

- Establishes and maintains company level policies, procedures, S&H-related Subcontract Proforma document content.
- Provides oversight and support to senior management and project teams throughout the company to facilitate effective integration of safety into work execution.
- Ensures that work-related injuries and illnesses are reported accurately and consistent with DOE O 231.1B Admin Chg 1, *Environment, Safety and Health Reporting*, and OSHA 29 CFR 1904 through 1904.11, 1904.29 through 1904.33; and 1904.46, Recording and Reporting Occupational Injuries and Illness.
- Reports, investigates, and analyzes accidents, injuries, and illnesses for trends and lessons learned (reference DOE Order 225.1B, *Accident Investigations*).

##### 3.1.1 Accident Prevention Signs, Tags, Labels, and Barricades

Signs shall be properly colored and labeled in accordance with OSHA 29 CFR 1926, Subpart G and/or more recently promulgated industry consensus standards. Signs shall be promptly removed when no longer needed in accordance with facility management authorization. Signs shall also be conspicuously placed to identify the hazard. In addition to signs, the types of barricades used on UCOR projects may include rope, tape, chain, or physical barricades (e.g., guardrails, concrete barriers). If hazard information is not printed on barricades or barriers, then signs or tags shall be used to describe the hazard and augment the barricades/barriers. Stepping over or ducking under barricades is prohibited. Barricades shall be maintained at all times while in use and promptly removed when no longer needed. Refer to PROC-EH-1013, *Accident Prevention Signs, Barricades, and Other Postings*, and PROC-EH-2000, *General Safety Requirements*, for further requirements.

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### 3.1.2 Personal Protective Equipment

Protective equipment shall be provided, used, and maintained in accordance with OSHA 29 CFR 1910, Subpart I, Personal Protective Equipment, and 29 CFR 1926, Subpart E, Personal Protective and Life Saving Equipment (as applicable). Supervisors, in consultation with the Project S&H Representatives, shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). If such hazards are present, or likely to be present, the Supervisor shall have affected workers use the types of PPE that will protect them from the hazards identified in the hazard assessment. Engineering, administrative controls, and work practices shall be used in conjunction with PPE to reduce and maintain worker exposure to as low as reasonably achievable. Each worker who is required to use PPE shall be trained per OSHA requirements. PPE shall be used and maintained in accordance with the manufacturers' instructions and requirements and in accordance with PROC-EH-2000, *General Safety Requirements*, and PROC-EH-2005, *Personal Protective Equipment*.

### 3.1.3 Inclement Weather

Due to the nature of the scope of work being conducted on UCOR sites, workers may be potentially exposed to adverse weather conditions. Work activities that may be affected by adverse weather conditions shall be evaluated by the Supervisor and Project S&H personnel to determine the impact of the weather on workers.

Adverse weather conditions may include high wind, extreme heat or cold, severe thunderstorms, and snow/sleet/ice accumulation. Outside work will not be conducted during the following weather conditions:

- Lightning storms—Outside work will cease when lightning is in the area. Verification may either be by visual verification or by notification from the Emergency Services Watch Office (ESWO) Duty Officer, Plant Shift Superintendent (PSS)/Laboratory Shift Superintendent (LSS), or other reliable source.
- Tornado warnings—If a tornado is sighted, the ESWO Duty Officer/PSS/LSS will make an announcement over all available communication channels to warn of the hazardous condition. Outside workers shall be instructed to cease activities and take shelter in a sturdy nearby building until further notice.

Per DIR-UCOR-503, *Inclement Weather and Other Emergencies*, personnel are provided timely and accurate information in the event of severe weather conditions, or a site or local emergency, or other conditions that may require the site to be closed or have a delayed start and/or early closing.

### 3.1.4 Slip, Trip, and Fall Hazards

Roadways, access ways, aisles, stairways, scaffolds, and ladders, shall be 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 shall be cleaned up or eliminated on walkways, ladders, scaffolds, or other access ways or work areas. If slipping and/or tripping hazards cannot be eliminated, the area shall be barricaded and posted with applicable hazard postings. Access to facility exits shall be maintained clear at all times.

### 3.1.5 Working on or Near Water

Any time personnel shall be required to work on or near waterways such as ponds, lakes, rivers, or near or above liquid containing tanks and water or sewage treatment holding ponds where the potential danger of drowning exists, work shall be in compliance with OSHA 29 CFR 1926.106, Working Over or Near Water.

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### 3.1.6 Compressed Gas Cylinders

Compressed gas cylinders will be handled, used, stored, and transported in accordance with applicable OSHA 29 CFR 1910, Subparts H and Q, 29 CFR 1926, Subpart J, and NFPA 55, *Standard for the Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks*. Workers handling compressed gas cylinders will receive specific training in the safe handling, use, storage, and transport of compressed gas cylinders. PROC-EH-2014, *Compressed Gas Cylinders*, implements the UCOR safety requirements for handling of gas cylinders.

### 3.1.7 Dust Control

During activities requiring dust control, water spraying or other authorized methods will be used to suppress dust emissions to the lowest practicable level. Dust control is required to reduce the airborne release of potentially hazardous contaminants to as low as reasonably achievable. 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 UCOR S&H Representative and Radiological Protection Technician (RPT) will be consulted concerning dust suppression in these areas.

### 3.1.8 Elevated Work/Fall Prevention

All personnel who perform elevated work shall comply with PROC-EH-2006, *Fall Prevention and Protection*, and the applicable requirements of OSHA Standards 29 CFR 1910, Subpart D, and 29 CFR 1926, Subparts L and M. Elevated work/fall prevention requirements apply to the use of ladders, scaffolds, stationary work platforms, telescoping scaffolds, vehicle-mounted elevating and rotating work platforms, and other miscellaneous equipment used in reaching and working at elevated heights. Fall protection requirements also apply to roofs; unguarded platforms, floors, or decks; floor and wall openings; ramps; hoist areas; and excavations/trenches where applicable as specified in PROC-EH-2006. UCOR shall seek ways to mitigate fall hazards by utilizing elimination and engineering controls such as the installation of primary fall protection (e.g., standard guardrails, stairs, walls or other barriers) when feasible.

The erection, use, inspection, and dismantling of scaffolds and the use of portable ladders shall comply with PROC-FO-1015, *Scaffolds and Ladders*. The use of mobile elevated work platforms shall comply with PROC-FO-3036, *Mobile Elevated Work Platform Operation*.

### 3.1.9 Excavation, Trenching, and Penetrations

Operations involving excavation or penetration into the earth surface, concrete, or pavement, and interior penetrations into building walls, floors, and ceilings are subject to various potential hazards (e.g., contact with hazardous or radioactive materials, electrical lines, cave-ins, etc.). These operations require that an Excavation/Trenching Permit (ETP) (Form-147), Ground Penetration Permit (GPP) (Form-3446), or Penetration Permit (PP) (Form-3129) be obtained before the work is initiated. Excavation and penetration activities shall be performed in accordance with PROC-FO-1004, *Excavation/Trenching Permitting*, PROC-FO-3037, *Ground Penetration Permitting*, PROC-FO-3034, *Earth Moving Equipment Operation*, PROC-FO-1072, *Penetration Permitting*, and 29 CFR 1926, Subpart P.

### 3.1.10 Flora/Fauna Hazards Protection

Work at the sites requires working outdoors, maintaining the grounds, excavating, sampling outfalls, cleaning roof drains, etc. Anyone working outdoors may come in contact with stinging and biting insects (e.g., wasps,

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bees, and mosquitoes), bird droppings, poisonous plants (e.g., poison ivy, poison oak), and potentially venomous snakes and spiders. Proper identification and avoidance of these hazards whenever possible is the best prevention. Picking up or handling wildlife by employees is discouraged in favor of utilizing Tennessee Wildlife Resources Agency professionals when necessary.

### 3.1.11 Hoisting and Rigging Operations

All hoisting and rigging activities (e.g., use of overhead and gantry cranes, mobile cranes, derricks, hoists, rigging devices, and forklift trucks, and devices such as wire rope, chain, metal mesh slings, synthetic-web slings, and special below-the-hook attachments and fixtures) shall be conducted in accordance with PROC-FO-1008, *Hoisting and Rigging Operations*.

All inspections and testing of hoisting and rigging hardware shall be in compliance with PROC-FO-1037, *Hoisting and Rigging Hardware Inspection, Testing, and Purchases*.

Crane Operators used for UCOR work shall be qualified in accordance with PROC-FO-1041, *Crane Operator Certification/Qualification*. The purpose of the in-house qualification is to ensure that crane operators meet minimum job qualifications, including specific physical requirements, and that they can demonstrate the knowledge and practical skills required to safely and proficiently operate their assigned cranes. The types of cranes covered by this procedure include both mobile cranes (truck mounted, crawler, wheel mounted, and locomotive) and fixed cranes (overhead and gantry cranes and monorails).

### 3.1.12 Heavy Equipment and Vehicle Operation

All equipment and vehicle operations shall be in compliance with applicable federal, state, and local requirements, including the following.

- Personnel shall not mount or dismount moving vehicles or equipment. Personnel shall not ride in the bed of pickup or flatbed trucks. Vehicles used to transport personnel shall have the seats firmly secured and adequate seating for the number of workers to be carried. The use of seat belts is mandatory when operating or riding in vehicles or equipment.
- Construction and Heavy Equipment usage shall comply with PPD-FO-1037, *Construction and Heavy Equipment Program*.
- Hoisting and rigging activities shall comply with PROC-FO-1008, *Hoisting and Rigging Operations*, and appropriate level of lift plans.
- Earth Moving Equipment (yellow equipment) shall comply with PROC-FO-3034, *Earth Moving Equipment Operation*.
- Aerial lifts, Scissor lifts and other manlifts shall comply with, PROC-FO-3036, *Mobile Elevated Work Platform Operation*.
- Well Drilling Equipment shall comply with PROC-FO-3035, *Well Drilling Operations*.
- Lift truck operations (use of forklifts) shall comply with PROC-FO-1040, *Lift Truck Operation*.
- Spotting of equipment shall follow PROC-FO-1073, *Vehicle/Construction Equipment Spotter*.
- Prior to commencing work, all heavy equipment shall have current inspection certifications available at the site in accordance with PROC-FO-1039, *Construction Equipment Inspection and Maintenance Program*.
- When parked, equipment-parking brake will be set and blades or buckets will be lowered to the ground.

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### 3.1.13 Hot Work

All hot work will be performed in accordance with PROC-FP-2008, *Hot Work*, which incorporates 29 CFR 1926, Safety and Health Regulations for Construction, Subpart J, 29 CFR 1910, Safety and Health Regulations for General Industry, Subparts L and Q, American National Standards Institute (ANSI) Z49.1, Safety in Welding, Cutting, and Allied Processes, and NFPA 51B, *Standard Fire Prevention During Welding, Cutting, and Other Hot Work*. Hot work includes processes such as arc welding, oxy-fuel gas welding and cutting, open-flame soldering, brazing, thermal spraying, oxygen cutting, arc cutting, heat treating, grinding (including abrasive disc cutting), thawing pipes, powder-driven fasteners, hot riveting, and similar applications producing spark, flame, or heat sufficient to cause ignition of combustible materials. Not covered by this term are candles, pyrotechnics, cooking, electric soldering irons, or portable electric/fuel-fired heating equipment. Torch-applied and hot-air gun applied roofing operations are covered in NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*, and incorporated into PROC-FP-2008, *Hot Work*.

#### 3.1.13.1 Fixed Weld Shop Operations

All hot work in fixed welding shops will be performed within the specification of Form-148, Fixed Weld Shop Permit. The fire protection organization shall be responsible for inspecting the proposed fixed weld shop locations for conformance with the requirements set forth in PROC-FP-2008, *Hot Work*, and generating the fixed weld shop permit as per the request of the weld shop Facility Manager. The fixed weld shop permit shall be displayed at the fixed weld shop location.

The fixed weld shop permit has an expiration date, and it is the responsibility of the weld shop Facility Manager to contact the fire protection organization to renew the permit when required or when new fire hazards are discovered or conditions change that warrant further evaluation.

#### 3.1.14 Ladder Safety

Work requiring the inspection and use of a ladder (portable or fixed) shall be performed in compliance with PROC-FO-1015, *Scaffolds and Ladders*, and PROC-EH-2006, *Fall Prevention and Protection*, and OSHA 29 CFR 1910, Subpart D, and 29 CFR 1926, Subpart X, as applicable. Work from a portable ladder will be the exception when no other method is feasible. Feasibility should be driven by assessing total risk and not based on ease or convenience.

#### 3.1.15 Material Handling, Storage, Use, and Disposal

Work requiring material handling, storage, use, and disposal shall be performed in compliance with OSHA 29 CFR 1910, Subpart N, and 29 CFR 1926, Subpart H.

Walkways and aisles shall be kept clear at all times, and lay down areas shall be maintained neat and orderly. Material shall not be stored within 6 ft of hoist ways or floor openings or within 10 ft of roof edges. Poles, pipe, and other stock that may roll shall be wedged to prevent spreading and rolling.

Nails shall be removed from lumber that is to be reused. Nails in scrap lumber that will not be reused shall be removed or bent back. Workers moving material by hand shall use proper lifting techniques and gloves.

Supervisors shall strictly enforce good housekeeping. All material, scrap, tools and toolboxes, and other equipment shall be stored in a neat and orderly fashion. Trash and scrap shall be removed from the work area on a regular basis (e.g., at least daily, before the end of each work shift). Standing water on floors shall be promptly removed where feasible. Material handling and housekeeping controls can be found in UCOR-4087, *Safety and Health Handbook, Oak Ridge, Tennessee*.

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### 3.1.16 Overhead Power and Communication Lines

UCOR sites may have many overhead power and communication lines that could pose a hazard for 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 shall comply with OSHA 29 CFR 1926, Subparts N, O, and CC, as applicable. The following is provided as general guidance:

- The minimum safe separation distances required between power lines and cranes are established by PROC-FO-1008, *Hoisting and Rigging Operations*. All other aspects of UCOR scope proximal to power lines are subject to minimum separation distances established in PPD-EH-2009, *Electrical Safety Program*, Attachment D, and use of Form-3090, Overhead Utilities Pre-Determined Working and Transit Clearances.
- Measures shall be implemented to assure the operators of the affected equipment can maintain the required distances from the lines. The use of spotters, physical barriers, and/or distance markings shall be used as necessary.
- If the appropriate clearance cannot be maintained, the power lines shall be de-energized and grounded in accordance with PROC-ET-3013, *Power Distribution Work Permit*.

### 3.1.17 Sanitation

Potable drinking water and toilet facilities shall comply with OSHA 29 CFR 1910.141 and 29 CFR 1926.51 requirements. In addition to these requirements, single-use cup dispensers shall be provided adjacent to all portable drinking water dispensers. Water shall not be dipped from containers. Water dispensers shall be clearly identified as drinking water. Water dispensers in use shall be cleaned daily. Rest areas shall be kept clean and trash shall be removed from these areas daily. Hand washing stations with hand soap or similar cleansing agents shall be provided at bathroom facilities.

### 3.1.18 Use of Hand and Power Tools

#### 3.1.18.1 General Tool Maintenance

Tools shall be used, inspected, and maintained in accordance with the manufacturers' requirements/owner's manual, and applicable OSHA standards including 29 CFR 1910, Subpart P, and 29 CFR 1926, Subpart I. All tools shall be maintained in good condition and properly stored when not in use. Tools shall not be altered, and they shall be used only for their intended purposes. Tool guards shall not be removed from tools or altered in any way. Refer to PROC-EH-2000, *General Safety Requirements*, for additional UCOR requirements for use of hand and power tools.

#### 3.1.18.2 Tagging of Defective Tools, Materials, or Equipment

Defective tools, materials, and equipment shall not be used. Supervisors shall take defective tools, materials, and/or equipment out of service immediately by tagging, destroying, or removing them from the project site. Supervisors shall remove the tag only when the equipment has been properly repaired and is declared serviceable. General purpose "Danger – Do Not Operate" Accident Prevention tags, meeting the requirements of OSHA 29 CFR 1926, Subpart G, shall be used to tag defective equipment. Tags shall be dated and signed by the person tagging the equipment and shall also contain a brief description of the problem that requires the equipment, tools, or materials to be tagged.

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## 3.2 FIRE PROTECTION

### 3.2.1 Fire Protection Program (FPP)

PPD-FP-2001, *Fire Protection Program Description*, provides a comprehensive fire safety and emergency response program designed to protect worker safety and health. The program includes appropriate facility and site-wide fire protection, fire alarm notification and egress features, and access to a fully staffed, trained, and equipped emergency response organization capable of responding in a timely and effective manner to emergencies. The UCOR FPP conforms to the requirements identified in DOE O 420.1C, Chg 2, *Facility Safety*, and includes documented fire protection criteria and procedures, hazard analysis, hardware and systems adequate to ensure compliance with these requirements. The UCOR FPP is subject to review and approval of the DOE Head of Field Element.

The UCOR FPP is required to meet all applicable building codes and NFPA codes and standards. The Fire Protection SME and AHJ make determinations on the applicability and appropriate implementation of building codes and NFPA codes and standards.

The purpose of the UCOR FPP is to protect facility workers, onsite workers, the public, and the environment from fire and related hazards such as radiological and toxic material releases. The program requirements are implemented by a combination of self-performed work, subcontracted work, and work done by other DOE contractors through site-services agreements. Fire protection for self-performed and subcontracted work activities will follow the requirements of this WSHP; PPD-FP-2001; OSHA 29 CFR 1910, Subpart L; and 29 CFR 1926, Subpart F, as applicable. In addition, remediation and demolition sites shall comply with NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*.

Documented and approved equivalencies associated with the UCOR FPP are available for review from the Fire Protection SME/AHJ for review.

### 3.2.2 Combustible Controls and Housekeeping Measures

Every UCOR project or subcontractor doing work in a UCOR facility shall comply with the requirements of PROC-FP-2006, *UCOR Program for Controlling Combustibles and Ignition Sources*. This includes conducting all work in a manner that minimizes the total quantity of combustible material at a facility and disposes of unnecessary combustible materials in a timely manner. In addition, remediation and demolition sites shall comply with NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*. This includes proper disposal of unnecessary combustible materials at the end of each work shift.

### 3.2.3 Combustible and Flammable Liquids

Every UCOR project or subcontractor doing work in a UCOR facility shall comply with the requirements of PROC-FP-2006, *UCOR Program for Controlling Combustibles and Ignition Sources*. This includes storing and using flammable and combustible liquids in conformance with NFPA 30, *Flammable and Combustible Liquids Code*, and OSHA 29 CFR 1910, Subpart L, and 29 CFR 1926, Subpart F, as applicable. Refueling of equipment and vehicles will take place outside of structures. Where this is not possible, such refueling shall be addressed by detailed Job Instructions or a JHA.

### 3.2.4 Temporary Structures

Where temporary structures are needed, they shall be located such that a fire will not threaten other UCOR facilities or equipment. This can be accomplished by the imposition of separation requirements from NFPA 80A, *Recommended Practice for Protection of Buildings from Exterior Fire Exposures*, by a qualified Fire Protection

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Engineer. All temporary structures, including stairs and decks, shall comply with the egress requirements of NFPA 101, *Life Safety Code*®. Before temporary structures are moved onto a site or relocated within a site or between sites, the new configuration shall be reviewed and approved by the Fire Protection Organization based upon conformance with DOE-STD-1066-2016, *Fire Protection*.

### 3.2.5 Emergencies

The UCOR Emergency Services Baseline Needs Assessment is subject to the review and approval of the DOE Head of Field Element. All workers engaged in UCOR self-performed or subcontracted work activities shall be instructed in how to contact emergency services in the event of fire, medical events, hazardous materials spills, or collapse emergencies. All workers shall comply with directions given by a member of Emergency Services. ETPP emergency services are supported by the City of Oak Ridge Fire Department. Similarly, emergency services required for UCOR scope conducted on the Y-12 or ORNL footprints are provided by the respective prime contractors under a Master Agreement for Services between those contractors and UCOR. Per DIR-UCOR-503, *Inclement Weather and Other Emergencies*, personnel are provided timely and accurate information in the event of severe weather conditions, or a site or local emergency, or other conditions that may require the site to be closed or have a delayed start and/or early closing.

### 3.2.6 Fire Extinguishers

Fire extinguishers located in buildings, trailers, or on equipment are to be inspected and maintained per PROC-FP-2003, *Fire Extinguisher Inspection and Maintenance*. They are to be kept unobstructed and clearly visible at all times. Fire extinguishers are to be maintained in a fully charged and operable condition and kept in their designated places at all times when not in use. They are intended as a first line of defense to cope with incipient fires only. UCOR requires completion of Park Worker Training and Biennial Consolidated Training for general site access. Content of these general employee training modules ensures that all site employees have the fundamental training necessary to safely use fire extinguishers. Where a fire has advanced beyond the incipient stage, it is expected that workers will evacuate the facility and notify emergency services. There is no expectation or requirement for a worker to use a fire extinguisher where he/she believes it is unsafe to do so.

## 3.3 EXPLOSIVES SAFETY

UCOR self-performed or subcontracted work activities pertaining to the use of explosives are covered by OSHA safety requirements under the routine construction provisions and 10 CFR Part 851, Appendix A, Section 3, Explosives Safety. In accordance with those provisions, use of explosives under this WSHP shall conform to all applicable requirements of DOE-STD-1212-2012, *Explosives Safety*, with recognition that the subject requirements document is not specifically oriented toward use of explosives for demolition. Any use, storage or transportation of explosive material shall be in compliance with the applicable requirements of OSHA 29 CFR 1926, Subpart U, Blasting and Use of Explosives; 29 CFR 1910.109, Explosives and Blasting Agents; as well as NFPA 495, *Explosive Materials Code*, and any specific state or local requirements. Detailed hazard assessment with accompanying job instructions shall be required before use of explosives is authorized. When explosive demolition is thus authorized, it will be undertaken using experienced and qualified specialty subcontractor/consultant expertise.

Blasters shall be required to furnish satisfactory evidence of competency in handling explosives and in safely performing the type of blasting required. A competent person should always be in charge of explosives and should be held responsible for enforcing all recommended safety precautions in connection with them. Verification of required training and licensing of personnel handling explosives shall be performed prior to starting work.

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### 3.4 PRESSURE SAFETY

For new design or modifications to structures, systems, or components, PROC-DE-1016, *Design Criteria*, requires that design criteria be developed to ensure that all requirements, including the safety requirements, are documented before the design is completed. This procedure requires that industry codes and standards be considered as sources of design criteria.

Maintenance and inspection of pressure systems is conducted in accordance with PPD-DE-1038, *Pressure Safety Program Description*, and PROC-DE-1041, *Pressure Safety Program Implementation*. Refer to Section 3.1.6 of this WSHP for further requirements associated with the safe use of compressed gas cylinders. To provide for the safety of personnel during construction or maintenance activities that may involve the potential for exposure to hazardous energy sources (hydraulics, water, electrical, steam, stored energy, and pneumatic), such equipment or systems shall be isolated, locked out/tagged out, and verified in accordance with PROC-EH-2002, *Hazardous Energy Control (Lockout/Tagout)*. Authorized and affected personnel will be trained in accordance with the above procedure. Any conflicts with other DOE prime contractors/lessees shall be directed to the UCOR Lockout/Tagout SME for resolution.

### 3.5 FIREARMS SAFETY

This Section of 10 CFR Part 851 is not applicable to UCOR self-performed or subcontracted operations. However, use of powder-actuated tools/anchors in accordance with requirements of Section 3.1.18 of this WSHP does invoke the need for controls distinct from but parallel to the intent of 10 CFR 851 firearms safety requirements.

### 3.6 INDUSTRIAL HYGIENE

The purpose of this Section is to describe the key elements of the UCOR Industrial Hygiene (IH) Program (refer also to PPD-IH-5418, *Industrial Hygiene Program*), including those requirements referenced in 10 CFR Part 851, Appendix A., Section 6., Industrial Hygiene. The summaries provided in this Section focus on the major provisions of the IH Program based on the type and magnitude of hazards identified in UCOR facilities and work scope/activities. The type of hazard determines the generic applicability of certain provisions. PROC-IH-5206, *Generation and Use of Industrial Hygiene Work Permits*, establishes a disciplined process for IH hazard identification, analysis, control selection, and communication to the workforce commensurate with the magnitude of the IH hazard and risk to worker safety and health.

In accordance with 10 CFR 851.22(b), UCOR must implement controls to limit potentially hazardous exposures to acceptable levels based on the following hierarchy: elimination or substitution, engineering controls, administrative controls (work practices), and PPE. The hierarchy of controls will be specified in a hazard assessment that is conducted in accordance with PROC-FS-1001, *Integrated Work Control Program*, and PROC-IH-5206, *Generation and Use of Industrial Hygiene Work Permits*.

#### 3.6.1 Asbestos and Other Fibrous Materials

Based on the widespread use of asbestos in insulation and other building materials, asbestos-containing material (ACM) may be encountered during work activities. ACM that is maintained in good condition in buildings does not pose a health risk to humans, as long as the material is not deemed “friable” and/or is in an “undisturbed” condition. Activities dealing with ACM shall comply with OSHA 29 CFR 1910.1001, 29 CFR 1926.1101, U.S. Environmental Protection Agency (EPA) guidelines, TDEC, Chapter 1200-01-20, *Asbestos Accreditation Requirements*, and PROC-IH-5177, *Asbestos and Other Fibrous Materials*. Personnel monitoring shall be performed on site activities dealing with ACM and shall be in accordance with PROC-IH-5201, *Airborne Asbestos Sampling*; PROC-IH-5203, *Bulk Sampling of Material Suspected of Containing Asbestos*; and PROC-

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IH-5204, *Clearance Criteria for Asbestos Abatement*. Appropriate Asbestos Work Permits will be implemented to address specific scopes of OSHA Class I, II, or III asbestos work by UCOR and UCOR Subcontractors.

As with asbestos, other fibrous material can present an occupational inhalation hazard that must be mitigated. Rock wool, fiberglass, and various other forms of fibrous material are present in DOE facilities managed by UCOR, often in combination with ACM. While protective measures implemented for ACM will typically meet or exceed the necessary occupational controls for other fibrous material, UCOR must also manage and control other fibrous materials in the absence of asbestos fibers.

### 3.6.2 Bloodborne Pathogens

PROC-IH-5135, *Bloodborne Pathogens*, defines the measures for protecting personnel who have the potential for occupational exposure to bloodborne pathogens. Any worker who comes in contact with blood or other potentially infectious material, either accidentally or as a result of their occupation, has the potential for exposure to bloodborne pathogens. Exposure control plans are developed to address specific control measures to protect personnel during cleanup activities. Workers who come in contact with blood or other potentially infectious material as a result of a voluntary action should report the incident to UCOR Health Services for evaluation and appropriate medical treatment.

### 3.6.3 Chemical Safety Management

PPD-IH-3345, *Chemical Safety Management Program*, includes hazardous chemicals as defined in OSHA 29 CFR 1910.1200, that are reportable under 40 CFR 302.4 and the EPA Risk Management System Program (40 CFR Part 68). This program applies to UCOR operations involving the handling, processing, and storing of hazardous materials. Additionally, this program applies to operational facilities and process systems and to those no longer in use, including those in standby or shutdown mode, and those where partial D&D is in progress.

### 3.6.4 Chronic Beryllium Disease and Prevention

Beryllium has been identified as being responsible for the development of sensitization and chronic beryllium disease. All beryllium work activities which fall under the scope of 10 CFR 850, Chronic Beryllium Disease Prevention Program, including handling, processing, and storage of beryllium and beryllium-contaminated equipment as well as handling of beryllium-contaminated wastes and structural materials from beryllium-contaminated structures during decommissioning and demolition shall be performed in compliance with 10 CFR Part 850, Chronic Beryllium Disease Prevention Program, and PPD-IH-5150, *Chronic Beryllium Disease Prevention Program*.

### 3.6.5 Confined Space

UCOR employs a rigorous permit process for confined space entry focused on hazard prevention and control in an area where serious injury or death could result if mistakes are made. If confined space entry is necessary, PROC-IH-5138, *Confined Space Entry*, shall be followed. UCOR is committed to meet or exceed OSHA general standards for confined space entry, 29 CFR 1910.146, Permit-required Confined Spaces, and 29 CFR 1926 Subpart AA, Confined Spaces in Construction.

### 3.6.6 Ergonomics

Recognized as a major contributor to workplace injuries and illnesses, prevention of ergonomic-related hazards is a focus area for UCOR work activities. The interaction of personnel with their working environment may present potential musculoskeletal hazards such as incorrect lifting of heavy loads, equipment vibrations, improper body

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positioning, negotiation of physical obstacles, and office computer workstations. Guidance for preventing musculoskeletal disorders is detailed in PPD-IH-5133, *Ergonomics Program*.

### 3.6.7 Exposure Control Monitoring and Documentation

PROC-IH-5560, *Workplace Industrial Hygiene Sampling*, establishes a uniform method of performing IH sampling to detect and quantify potentially hazardous substances and physical agents that may be encountered in work operations and processes. This may include the collection of samples for dusts, asbestos and other fibrous materials, liquids, gases, vapors, fumes, and physical agents such as noise, heat stress, and non-ionizing radiation.

### 3.6.8 Equipment Calibration Program

PROC-IH-5558, *Industrial Hygiene Equipment Control and Calibration*, details the requirements imposed on IH equipment and instrumentation. IH instrumentation is tracked, repaired, and calibration records are maintained. Pre-use IH calibrations are conducted and validated based upon equipment type/manufacturer instructions/good IH practice. External IH calibrations are obtained from the manufacturer or approved services supplier.

### 3.6.9 Exposure Monitoring, Action Levels, and Laboratory Accreditation

Both real-time monitoring and integrated worker exposure sampling shall be conducted, when feasible, for chemical substances and/or physical agents, in accordance with PPD-IH-5418, *Industrial Hygiene Program*. In addition, if workers report symptoms attributable to a possible exposure or if an incident/release of a chemical nature occurs, appropriate sampling must be performed to document potential exposure levels.

A set of exposure action levels shall be established based on prudent and conservative application of exposure limits mandated in federal and state regulations, industry consensus standards, DOE Orders, and other generally recognized IH resources. The Project IH determines the type, amount, and extent of IH sampling/monitoring needed to adequately protect workers and to meet regulatory requirements. The implementation of engineering or administrative controls and the upgrading/downgrading of PPE shall be based on exposure measurement results. If objective data is used in lieu of additional measurements, accurate records documenting the relevance of that data in assessing exposure levels for current job conditions must be maintained.

In accordance with the requirements of 10 CFR 851.23(a)(9), UCOR will follow the American Conference of Governmental Industrial Hygienists (ACGIH), “Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices,” (at minimum 2016) unless the corresponding permissible exposure limits (PEL) in 29 CFR 1910/1926 are lower (more protective). After due consideration, UCOR has adopted the 2017 Threshold Limit Values (TLVs) in keeping with the continuous improvement process. UCOR will evaluate new editions of the ACGIH TLVs as available for future adoption. When the ACGIH TLVs are used as exposure limits, UCOR will comply with other provisions of any applicable expanded health standards found in 29 CFR 1910 or 29 CFR 1926.

There is one notable exception to the above paragraph affecting the specific occupational hazard of beryllium exposures at UCOR. As noted in Section 3.6.4 of this document, UCOR has been notified that it is DOE’s intent to only apply OSHA’s PEL for beryllium, and that DOE contractors would not be subject to any other beryllium-specific requirements promulgated by OSHA.

The Project IH determines the need for task-specific exposure monitoring and control plans based on the health risk and the complexity of the work. Where appropriate, UCOR IH formalizes monitoring and control strategies within task-specific IH Work Permits in accordance with PROC-IH-5206, *Generation and Use of Industrial Hygiene Work Permits*. Calibrated instrumentation is used to make real-time IH measurements and/or to conduct integrated sampling of the work environment. A laboratory accredited by the American Industrial Hygiene

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Association is used to analyze industrial hygiene-related samples in accordance with the appropriate National Institute for Occupational Safety and Health (NIOSH) or OSHA methodology. Monitoring results shall be reviewed with workers and written results provided in accordance with OSHA standards requiring written notification.

### 3.6.10 Hazard Communication and Carcinogen Control

PPD-IH-5140, *Hazard Communication*, applies to the management of hazardous chemicals used at UCOR facilities. This procedure is part of the UCOR Industrial Hygiene Program to control risks from identified and potential occupational carcinogens and other chemicals. This procedure addresses hazardous chemicals procured and/or generated in the workplace, and includes consumer products used in quantities that exceed those of an average consumer. Projects must ensure that non-carcinogenic substances are used whenever possible. When carcinogens must be used, safe work practices, including adequate ventilation, shall be reviewed and addressed by the Project IH.

### 3.6.11 Hazardous Materials Information System

PROC-IH-5181, *Hazardous Materials Information System*, describes the Hazardous Materials Information System (HMIS) and establishes the responsibilities imposed to ensure the control of hazardous materials. The main purpose of HMIS is to automate the tracking and control of hazardous materials and to ensure safety data sheets are readily available for worker review. Computer access is recognized as being readily accessible. Authorization of use of hazardous materials identified as carcinogenic must be received from the Project IH prior to onsite storage and use. UCOR subcontractors shall not use materials that have been identified as carcinogenic onsite unless no suitable replacement can be identified.

UCOR subcontractors can input data directly into the HMIS database used by UCOR or provide data in a compatible format for downloading into HMIS. Form-1017, HMIS Physical Inventory, is available for use for this purpose.

### 3.6.12 Hazardous Waste Operations and Emergency Response

PROC-IH-5161, *Hazardous Waste Operations and Emergency Response*, applies to the UCOR management of Hazardous Waste Operations and Emergency Response (HAZWOPER) activities. A Flow Chart for Making HAZWOPER Determinations can be used to determine HAZWOPER applicability. The applicability of HAZWOPER to defined scopes of work or activities is a determination made and documented by the Project IH. Subsequent development of project or subproject level HASPs and briefings will be completed, if applicable, per PROC-EH-1012, *Development and Approval of Safety and Health Plans*, and PROC-IH-5161.

### 3.6.13 Hearing Conservation

The operation of equipment, particularly heavy equipment, can create areas where noise levels exceed 85 decibels on the "A" weighted scale (dBA). Exposure to excessive noise levels may lead to temporary or permanent hearing loss. Noise level monitoring and posting shall be performed in accordance with PROC-IH-5121, *Occupational Noise Exposure and Hearing Conservation*. Hearing protection shall be worn by personnel where noise exposures are at or above 8-hour Time-Weighted Average (TWA) of 85 dBA. In the event that a new noise hazard, such as a new piece of equipment, is brought onsite, the supervisor will ask for the equipment with potential hazardous noise levels to be monitored and the Project IH to evaluate the outcome. Areas where noise levels are greater than 85 dBA will be posted. The supervisors/foremen will ensure compliance with posted warnings. Workers with noise exposure at or above an 8-hour TWA of 85 dBA, or determined by noise dosimetry measurements to meet or exceed this threshold, will be included in a Hearing Conservation Program that includes: (1) representative

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noise dosimetry/sound-level surveys, (2) training, and (3) annual audiometric testing administered by licensed healthcare professionals as described in subsequent Section 3.8.5.

### 3.6.14 Heavy Metals Protection

PPD-IH-5190, *Heavy Metals Health Protection Program*, establishes requirements and actions needed to provide a safe working environment during activities that have been identified to contain the potential for airborne concentrations of heavy metals (e.g., lead, inorganic arsenic, cadmium, hexavalent chromium, mercury, nickel, uranium), at or above established action limits. OSHA mandates the development of compliance plans and programs for various substance-specific heavy metals including inorganic arsenic, cadmium, and lead.

Heavy metals such as arsenic, cadmium, and lead are primarily found in painted items and any painted surface (unless demonstrated/documentated otherwise) should be suspected of containing heavy metals. Each work activity that involves the potential for exposure to heavy metals will be evaluated on a case-by-case basis. Appropriate controls and protective measures will be specified in Job Instructions, compliance plans, as required, or other work control documentation developed for this activity.

All activities involving inorganic arsenic, cadmium, hexavalent chromium, and lead shall adhere to OSHA 29 CFR 1910.1018/1926.1118 for inorganic arsenic, 29 CFR 1910.1027/1926.1127 for cadmium, 29 CFR 1910.1026/1926.1126 for hexavalent chromium, and 29 CFR 1910.1025/1926.62 for lead.

### 3.6.15 Illumination

Adequate illumination intensity shall be provided in all active work areas and access ways in accordance with OSHA 29 CFR 1926.26 and 29 CFR 1926.56. Emergency lighting, where required in UCOR-maintained facilities, shall be tested and maintained in accordance with NFPA 101, *Life Safety Code*®, and manufacturers' requirements. During demolition operations, provide audible and visible alarm and emergency lighting for safe evacuation in accordance with NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*.

### 3.6.16 Indoor Air Quality

Various factors such as chemical contaminants, carbon dioxide levels, and microbiological organisms influence the quality of breathing air. Air quality evaluations can be performed using guidelines in PROC-IH-5172, *Indoor Air Quality*. Biological organisms such as molds, mildew, and other fungi and spores can grow rapidly in moist and stagnant environments. The Project IH should be consulted with any indoor air quality concerns or issues.

### 3.6.17 Reproductive Health Protection

UCOR makes every reasonable effort to protect all workers from excessive exposure to reproductive hazards. Details for this program are covered in PPD-IH-5101, *Reproductive Health Protection*.

### 3.6.18 Respiratory Protection

Only respirators, including filtering face-pieces (dust-masks), certified by the NIOSH shall be used. Medical evaluations to determine an employee's ability to safely utilize respiratory protection shall be performed by a licensed healthcare professional. Quantitative fit testing shall be performed in accordance with 29 CFR 1910.134, Respiratory Protection, Appendix A, and PROC-IH-5567, *Respirator Fit-Testing*, annually for individuals who wear negative or positive pressure tight-fitting face-pieces. Training on respirator equipment must be conducted and documented. UCOR personnel will comply with the PPD-IH-5151, *Respiratory Protection Program*, and PROC-IH-5567, *Respirator Fit-Testing*.

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### 3.6.19 Temperature Extremes (Heat Stress/Cold Stress)

Working in hot or cold environments can result in illnesses including heat rash, heat cramps, heat exhaustion, heat stroke, hypothermia, frostbite, and trench foot. In hot environments, personal protective clothing can greatly increase the likelihood of heat fatigue, heat exhaustion, and heat stroke, the latter being a life-threatening condition. Supervisors are responsible for briefing workers on the signs of heat stress when temperature conditions require it. PROC-IH-5134, *Temperature Extremes*, details requirements for working in hot and cold environments.

Many project activities will be performed outdoors and workers will be exposed to the harmful effects of ultraviolet radiation (sunburn). Job instructions, pre-job briefings, and the STARRT card can be used to communicate ultraviolet radiation hazards and mitigation.

### 3.6.20 Respirable Crystalline Silica

PPD-IH-5205, *Airborne Silica Hazard Assessment and Control*, communicates work requirements for identification and control of respirable crystalline silica as required by 29 CFR 1926.1153, Respirable Silica. The UCOR scope of work for the DOE does not encompass any specific work covered by 29 CFR 1910.1053, Respirable Crystalline Silica (General Industry), with the exception of activities that are indistinguishable from work covered by the construction silica standard. Where these tasks are not performed regularly in the same environment and conditions, UCOR will comply with the construction standard to reduce the complexity of the requirements and improve worker safety.

### 3.6.21 Lasers

PROC-IH-5122, *Safe Use of Lasers*, establishes controls and restrictions on laser usage at UCOR. The procedure incorporates the American National Standards Institute's (ANSI) Z136.1 Safe Use of Lasers standard to differentiate laser classifications and controls.

## 3.7 BIOLOGICAL SAFETY

This section of 10 CFR Part 851 is not applicable to UCOR self-performed or subcontracted operations. Biological hazards can be present at UCOR and must be appropriately controlled in implementing this WSHP. However, this section of 10 CFR 851 specifically addresses work with biological etiologic agents. UCOR's scope for the DOE does not encompass any work of this nature.

## 3.8 OCCUPATIONAL MEDICINE

UCOR has established and provides comprehensive occupational medical services to minimize the risk of injury and illness to workers and maintains a medical program that implements the requirements of 10 CFR 851.24 and 10 CFR Part 851, Appendix A, Section 8. Occupational Medicine. POL-UCOR-307, *Medical Care Policy*, and PPD-MD-8003, *Occupational Medical Program*, describe the essential elements of the comprehensive occupational medical services, which include providing: (a) prevention, recognition, and/or treatment of occupational injuries or illnesses; and (b) personal counseling and health education aimed at maintaining an optimal level of worker health. The Site Occupational Medical Director ensures the effective implementation of the program requirements specified in 10 CFR Part 851, Appendix A, Section 8. Occupational Medicine.

These services support the goal of zero accidents through a comprehensive medical evaluation as indicated by job analysis requirements (Form-11, URS | CH2M Oak Ridge LLC Health Services Job Analysis Minimum Physical Requirements and Working Conditions), coupled with pre-employment and periodic examinations and screenings. Form-288, Medical Surveillance and Qualification Programs, (or subcontractor equivalent) is used for addition

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and/or deletion of UCOR employees and staff augmentation as applicable from identified medical surveillance and qualification programs in accordance with their assigned duties and responsibilities.

10 CFR Part 851 also requires medical evaluations for workers onsite for more than 30 days in a 12-month period. This means that even if individuals work in a support zone and typically do not encounter chemical and/or radiological hazards in the course of their work, they are required to have a medical evaluation based on being onsite for more than 30 days in a 12-month period. Subcontractors are responsible for providing occupational medical services to their workers in accordance with 10 CFR Part 851, Appendix A, Section 8. Occupational Medicine, and as specified in the terms and conditions of their contract.

Confidentiality of medical records is maintained, and disclosure of personalized data will only be made upon that worker's request or in accordance with legal requirements. Workers may request the UCOR Site Occupational Medical Director to provide a copy of their medical record or forward to their private physician.

### 3.8.1 Injuries and Illnesses

Work related injuries or illnesses, regardless of how minor, shall be promptly reported by the worker to their immediate supervisor per the requirements of PROC-EH-2001, *Accident/Incident Reporting and Investigation*. If symptoms of a work-related injury or illness occur while away from work, then the worker shall immediately contact their supervisor, UCOR Health Services, or the ESWO Duty Officer/LSS/PSS to report the change in condition.

Workers must meet the requirements of POL-UCOR-308, *Returning to Work Safely*, upon return to work following an occupational injury/illness.

### 3.8.2 Emergency Medical Services

Non-life threatening injuries/illnesses will be evaluated by UCOR Health Services. Any person with a serious injury or illness requiring treatment beyond the capacity of the UCOR Health Services will be transported by emergency services to an offsite medical center for further evaluation and treatment as necessary. Emergency medical consultation/support related to radioactive contamination and/or radiation exposure with potential associated medical consequences is available through the Radiation Emergency Assistance Center/Training Site.

### 3.8.3 Biological Monitoring

Biological monitoring provides a tool for assessing a worker's potential exposure to chemical substances and for determining the effectiveness of PPE and controls. PROC-IH-5110, *Biological Monitoring for Industrial Chemicals*, provides the details regarding how UCOR implements this program. Although only necessary for small worker populations exposed to unique chemical hazards, UCOR has the benefit of vast experience with bioassay administered for radionuclides.

### 3.8.4 Additional OSHA-Specific Medical Monitoring Requirements

UCOR will adhere to the medical monitoring requirements specified in OSHA 29 CFR 1910, Subpart Z, Toxic and Hazardous Substances, and OSHA 29 CFR 1926. There may be additional work practices that require implementation of the above referenced medical monitoring requirements.

### 3.8.5 Audiometric Testing

Site personnel who are exposed to noise levels at or above 85 dBA as an 8-hour TWA, without regard to hearing protection devices, are required to participate in an audiometric testing program that complies with the

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requirements in OSHA 29 CFR 1910.95 and a Hearing Conservation Program per the requirements of PROC-IH-5121, *Occupational Noise Exposure and Hearing Conservation*.

### 3.9 MOTOR VEHICLE SAFETY

#### 3.9.1 Traffic Control

APMs shall be responsible for orderly traffic control on their projects. All traffic control measures on site roadways shall be in accordance with applicable OSHA standards, local, state, and Department of Transportation regulations, and the Manual of Uniform Traffic Control Devices of the Federal Highway Administration. APMs shall require traffic signs or signalmen as necessary to protect workers and the public. Speed limits will be imposed as conditions dictate.

Alterations to or blockages of vehicular or pedestrian traffic routes may interfere with existing or planned activities, fire protection requirements, or emergency response actions. A traffic control plan should be considered whenever streets, parking areas, or pedestrian walkways shall be closed or have restricted access. APMs shall require that notifications be made to the site emergency services prior to implementation of road closures or other traffic modifications having the potential to impact fire, ambulance, or security response.

Traffic control plans should describe the nature of the change, identify the areas affected, and utilize a map to clearly show planned alterations to existing traffic patterns. The plan should list the beginning date and time that changes will be enacted and the duration. The plan should identify whether a flagger will be necessary and describe the types of traffic barricades, channeling devices, and signs to be used. Temporary control zones shall comply with OSHA 29 CFR 1926, Subpart G. Where flaggers are required to control traffic in temporary traffic control zones, they shall comply with applicable UCOR training.

#### 3.9.2 Traffic Safety

Traffic safety requirements will be followed at all times. (Refer to PROC-EH-2000, *General Safety Requirements*, for additional requirements.) All personnel that use government-furnished vehicles are subject to the requirements in PROC-ET-4006, *Use of Government Vehicles*. The requirements of PROC-ET-4006 also apply to the use of Utility Vehicles (e.g., Tiger Trucks, Kawasaki Mules, and Yamaha Golf Carts). Failure to comply with PROC-ET-4006, *Use of Government Vehicles*, including the willful damage of government vehicles, may result in counseling and disciplinary actions up to termination for cause, as appropriate.

Project organizations that use government vehicles are strongly encouraged to post the procedure in a conspicuous location, readily available to all potential users of government vehicles.

### 3.10 ELECTRICAL SAFETY

Electrical hazards that may be present at UCOR sites could include undetected live wires, deteriorating wiring insulation, buried power lines, overhead power lines, transformers, electrical generators, and lighting. Any work on electrical systems/equipment shall be performed in accordance with PPD-EH-2009, *Electrical Safety Program*, applicable requirements of the OSHA Standards, NFPA 70E, and the National Electrical Code (NFPA 70). The UCOR Electrical Safety AHJ shall interpret applicable electrical regulations, codes, standards, and shall also assist project supervision and workers in the application of electrical policies, procedures, regulations, codes, and standards.

To provide for the safety of personnel during construction or maintenance activities that may involve the potential for exposure to hazardous energy sources (high pressure hydraulics or water, electrical, steam, stored energy, pneumatic, caustics, radioactive materials in lines, etc.), such equipment or systems shall be isolated, locked

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out/tagged out and verified in accordance with PROC-EH-2002, *Hazardous Energy Control (Lockout/Tagout)*. Authorized and affected personnel will be trained in accordance with the PROC-EH-2002. Questions on the procedure or requirements shall be directed to the UCOR SME for hazardous energy control lockout/tagout (LO/TO) for resolution. PROC-FO-3033, *Out of Commission Isolation Process for Structures, Systems, and Components*, may be implemented for control of energy sources during construction, renovation, demolition, or abandonment of entire facilities or a clearly defined area of a facility or Structures, Systems, and Components (SSCs).

### **3.11 NANOTECHNOLOGY SAFETY - RESERVED**

This Section of 10 CFR Part 851 is not presently applicable to UCOR self-performed or subcontracted operations.

### **3.12 WORKPLACE VIOLENCE PREVENTION**

In accordance with POL-HR-308, *Workplace Violence Prevention*, UCOR will not tolerate any violence or threat of violence within the work environment. Employees who engage in or threaten violent behavior will be subject to discipline, up to and including termination. Supervisors will be subject to disciplinary action if they fail to report acts of violence or threats of violence brought to their attention. Additionally, UCOR will not tolerate any retaliation or disciplinary action against any employee who reports threats.

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## 4. TRAINING AND QUALIFICATIONS

### 4.1 TRAINING REQUIREMENTS

UCOR ensures that all workers who are exposed or potentially exposed to hazards are provided with the training and information on that hazard in order to perform their duties in a safe and healthful manner. This is accomplished by the UCOR training program, which documents qualifications and certifications (as applicable) for the management, supervision, operations, and support personnel (PROC-TC-0702, *Training Program*, and PPD-TC-0725, *UCOR Training Implementation Matrix for Category 2 and 3 Nuclear Facilities*). The program mandates the identification of initial and continuing training requirements, qualification, and certification requirements, and describes the proficiency, re-qualification, and disqualification processes.

Training requirements for UCOR operations are dictated by applicable Sections of OSHA 29 CFR 1910, 29 CFR 1926, and 10 CFR Part 851. The requirements for worker training are determined by the anticipated role of the worker and the required tasks. Workers are trained in the use of the materials, PPE required, and the emergency procedures associated with the materials they will be expected to use. All personnel shall have access to safety data sheets for all hazardous materials, including carcinogens, for which they encounter in their work.

UCOR training is based on a graded approach to ensure workers and subcontractors are trained and qualified commensurate with their responsibilities. A Training Requirements Matrix (UCOR-4350) is maintained at the company level to address this graded approach to training based on the hazards and anticipated scope of work. Additionally, Training Position Descriptions (TPDs) define principal responsibilities for an assigned position. Training specified on the TPD ensures competency is maintained commensurate with the responsibilities of the assigned position. This required training is documented and tracked in the UCOR Training database, Local Education Administrative Requirements Network (LEARN). Deficiencies are issued for delinquent training and until training requirements are satisfied the worker duties are appropriately restricted or directly supervised by a fully trained person in the area of deficiency.

Training is verified on Site Access Cards as controlled by PROC-TC-0722, *Site Access Requirements and Site Access Cards*. Issues relating to acceptability of training, such as with other DOE prime contractors, are reviewed and accepted per PROC-TC-0711, *Exceptions, Extensions, or Equivalencies*, and requires SME concurrence for the subject area.

Site visitors (elected or appointed officials, media representatives, members of the public, and any other personnel that may visit the site infrequently to do non-intrusive type work) will receive a briefing on the site-specific worker safety and health requirements. The topics covered by this briefing shall include the following:

- Worker responsibility to comply with the Project or Subproject-level HASP (where applicable)
- Description of the hazards onsite
- Locations of controlled areas
- Escort/escorted responsibilities
- Emergency response requirements for visitors

TPDs per PROC-TC-0710, *Training Position Descriptions and Position Assignment Forms*, define and document the positions, minimum education, and experiences required, job knowledge expectations and responsibilities. Qualifications for subcontracted positions, including those necessary for worker safety and health, are explicitly designated in the applicable subcontract.

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## 4.2 TRAINING DOCUMENTATION

Acceptable forms of documentation of worker training include copies of current certificates of training for all completed courses that are required for site access and operations. Print outs from other DOE prime/subcontractor-approved training record tracking system are also an acceptable form of documentation. Training records for UCOR personnel are maintained through a company-tracking database (LEARN) and hard-copy files per PROC-TC-0712, *Training Records Management*.

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## 5. RECORDKEEPING AND REPORTING

Documentation and records generated at the project level will be retained and dispositioned in accordance with PROC-OS-1001, *Records Management, Including Document Control*. Records of a historical nature shall be forwarded to the Environmental Management and Enrichment Facilities Document Management Center for retention. Records may include the following:

- Submittals and deliverables generated in response to the WSHP
- Project and subproject-level HASPs per OSHA 29 CFR 1910.120/29 CFR 1926.65 and other S&H Plans as applicable to the work scope
- Job Instructions and JHAs as part of the Work Control Package
- Records required in UCOR and subcontractor procedures
- Sampling Results, Instrumentation, and Calibration Logs
- Inspection reports
- Worker training records
- Management assessment reports
- Accident/Incident reports
- Completed permits

### 5.1 ACCIDENT/INCIDENT REPORTING AND INVESTIGATION, CASE MANAGEMENT, AND RECORDKEEPING

Supervisors, in collaboration with S&H Representatives, shall investigate and report each accident or incident involving worker injury/illness in accordance with the requirements set forth in PROC-EH-2001, *Accident/Incident Reporting and Investigation*. Form-411, Accident/Incident and Investigation Report, shall be completed by the investigator(s) and provided to the UCOR Industrial Safety Programs Manager. Such reports shall provide a description of the incident, direct and contributing causes, immediate corrective actions taken and suggested measures to prevent recurrence of similar incidents. Self-performed and subcontractor work-related injuries and illnesses shall be reported accurately and consistently with DOE O 231.1B Admin Chg 1, *Environment, Safety and Health Reporting*, and OSHA 29 CFR 1904, *Recording and Reporting Occupational Injuries and Illness*. Case classification and OSHA/Computerized Accident/Incident Reporting System (CAIRS) Recordkeeping are accomplished per PROC-EH-2019, *Case Management*.

The UCOR Industrial Safety Programs Manager maintains a first aid log listing occupational injuries/illness involving UCOR or subcontractor personnel. The UCOR Industrial Safety Programs Manager also analyzes related data for trends and Lessons Learned.

### 5.2 NOTIFICATION AND REPORTING

#### 5.2.1 Occurrence Reporting System

The Occurrence Reporting System may be initiated any time a worker reports problems, concerns, conditions, or events that have or could have an adverse or negative impact on safety, the environment, health, quality, security, or site operations. PROC-PQ-1220, *Occurrence Notification and Reporting*, provides guidance for occurrence reporting.

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### 5.2.2 Incident Notification

Supervisors shall immediately notify UCOR management of any event or condition that adversely affects, or may adversely affect the DOE, UCOR, UCOR subcontractor, the public, or government property. These events may include any accident/incident that results in worker injury/illness, accident precursors that could result in injury/illness or damage to government equipment and facilities and Worker Safety and Health Enforcement actions (10 CFR Part 851), or any other unplanned event that may be viewed negatively by the public or DOE. In situations where an accident or incident has occurred, the scene may not be altered without UCOR management concurrence, unless it is necessary to mitigate an immediate hazard or stop a spill in progress. Incidents having safety significance are addressed using a graded approach commensurate with the issue significance in accordance with PROC-FO-1063, *Issue Review and Investigation Process*.

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## 6. APPLICATION FOR VARIANCES

APMs must ensure the identification, coordination, and submission of any applicable variances for their respective projects per the requirements of Subpart D of the 10 CFR Part 851 Rule. Projects are responsible for the development, review, and final submissions of any variances they believe are needed through the applicable UCOR Project S&H Operations Manager. In addition, SMEs for the specific subject area for which the variance is being requested must concur and validate the variance as written. Refer to PROC-PQ-1170, *Control of Subject Matter Areas Designations and Subject Matter Expert Assignments*. The master list of UCOR designated SMEs is accessible from the UCOR Intranet home page. Appendix B of this WSHP provides the Rule definition of variances, identifies the different types of variances, and distinguishes between equivalencies, exemptions, and variances.

To obtain a variance to the 10 CFR Part 851 Rule for either self-performed or subcontracted work, the “Application for Variance” (also contained in Appendix B), must be completed electronically and returned to the UCOR Safety and Health Services Manager. A fillable “Application for Variance” form is available through the UCOR Safety and Health Services Manager. This will allow for internal review and electronic submission to DOE in accordance with their requirements. Please note that variances can be submitted at any time. More information on variances can be found at the DOE web page, as well as a link to the 10 CFR Part 851 Rule. Variances are also discussed in more detail in DOE G 440.1-1B, Chg 2, *Worker Safety and Health Program for DOE (Including the National Nuclear Security Administration) Federal and Contractor Employees*, which is also available via the DOE web page.

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## 7. REFERENCES

10 CFR Parts 850, Chronic Beryllium Disease Prevention Program

10 CFR Part 851, Worker Safety and Health Program

29 CFR 1910, Occupational Safety and Health Standards

29 CFR 1926, Safety and Health Regulations for Construction

48 CFR 970.5223-1, Integration of Environment, Safety, and Health Into Work Planning and Execution, Department of Energy Acquisition Regulation (DEAR)

American Conference of Governmental Industrial Hygienists. *TLVs and BEIs Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*

American National Standards Institute (ANSI) Z87.1, *Practice for Occupational and Educational Eye and Face Protection*

ANSI Z49.1, *Safety in Welding, Cutting, and Allied Processes*, Sects. 4.3 and E4.3

ANSI/ISEA Z89.1, *Standard for Industrial Protection Helmets*

ANSI Z88.2, *Practices for Respiratory Protection*

National Institute for Occupational Safety and Health (NIOSH), *Criteria for a Recommended Standard, Occupational Exposure to Heat and Hot Environments, Revised Criteria 2016*, Publication No. 2016-106

NIOSH, *NIOSH Pocket Guide to Chemical Hazards*, Publication No. 2005-149

National Fire Protection Association (NFPA) 30, *Flammable and Combustible Liquids Code*

NFPA 51B, *Standard for Fire Prevention During Welding, Cutting, and Other Hot Work*

NFPA 55, *Standard for the Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks*

NFPA 70, *National Electrical Code*

NFPA 70E, *Standard for Electrical Safety in the Workplace*

NFPA 80A, *Recommended Practice for Protection of Buildings from Exterior Fire Exposures*

NFPA 101, *Life Safety Code*®

NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*

NFPA 350, *Guide for Safe Confined Space Entry and Work*

NFPA 495, *Explosive Materials Code*

NFPA 801, *Standard for Fire Protection for Facilities Handling Radioactive Materials*

DOE P 450.4A, *Integrated Safety Management Policy*

DOE O 225.1B, *Accident Investigations*

DOE O 231.1B, Admin Chg 1, *Environment, Safety and Health Reporting*

DOE O 420.1C, Chg 2, *Facility Safety*

DOE/EH-0227P, *OSHA Training Requirements for Hazardous Waste Operations*

DOE Record D-16-05-001, Regulatory Interpretation: American Conference of Governmental Industrial Hygienists Threshold Limit Values for Heat Stress

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

DOE-STD-1212-2012, *Explosives Safety*

DOE G 440.1-1B, Chg 2, *Worker Safety and Health Program for DOE (Including the National Nuclear Security Administration) Federal and Contractor Employees*

DOE G 450.4-1C, *Integrated Safety Management System Guide*

DOE MOA-07-165, Memorandum of Agreement between the U S Department of Energy and the City of Oak Ridge, Tennessee on the East Tennessee Technology Park Fire Protection and Emergency response Services

Tennessee Department of Environment and Conservation, Chapter 1200-01-20, *Asbestos Accreditation Requirements*

MOU-11-244 Rev 1, CA-UTB-2011-001, Coordination Agreement between URS | CH2M Oak Ridge, LLC and UT-Battelle, LLC regarding Implementation of 10 CFR Part 851, *Worker Safety and Health Program*

MOU-13-265, Coordination Agreement between URS | CH2M Oak Ridge, LLC and Wastren Advantage, Inc., regarding Implementation of 10 CFR Part 851, *Worker Safety and Health Program*. [MOU reassigned from WAI to North Wind Solutions via memo dated 11-19-2015.]

MOU-13-266, Coordination Agreement between URS | CH2M Oak Ridge LLC and Golden SVCS, LLC regarding Implementation of 10 CFR § 851, *Worker Safety and Health Program*

MOU-12-251, Coordination Agreement between URS | CH2M Oak Ridge, LLC and CNS Y-12, LLC – Oak Ridge regarding Implementation of 10 CFR Part 851, *Worker Safety and Health Program*

MOU-19-341, Coordination Agreement between URS | CH2M Oak Ridge, LLC and Mutual Telecom Services, Inc., a wholly-owned subsidiary of Tyto, Athlene, LLC Regarding Telecommunications Services at East Tennessee Technology Park

*Manual of Uniform Traffic Control Devices (MUTCD) US Federal Highway Administration*

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## UCOR References and Procedures

*Baseline List of Required Compliance Documents for the Accelerated Closure Contract for the Oak Ridge Sites, Appendix E, Environmental Management Contract No. DE-SC-0004645*

*Fire Protection Program Requirements, Section J, Attachment J., Environmental Management Contract No. DE-SC-0004645*

Exhibit B, Special Conditions

Exhibit G, Environmental Compliance and Protection, Radiation Protection, and Worker Safety and Health

Exhibit I, Subcontractor Submittal Requirements Summary

Exhibit L, Mandatory Contractor Procedures

UCOR-4087, *Safety and Health Handbook, Oak Ridge, Tennessee*

UCOR-4088, *Environmental Compliance and Protection Awareness Handbook, Oak Ridge, Tennessee*

UCOR-4350, *URS / CH2M Oak Ridge LLC (UCOR) Training Requirements Matrix, Oak Ridge, Tennessee*

UCOR-4633, *UCOR 10 CFR 851 Closure Facility Hazard Controls for the East Tennessee Technology Park, Y-12 National Security Complex, and the Oak Ridge National Laboratory, Oak Ridge, Tennessee*

DIR-UCOR-503, *Incident Weather and Other Emergencies*

POL-HR-308, *Workplace Violence Prevention*

POL-UCOR-020, *Integrated Safety Management System*

POL-UCOR-307, *Medical Care Policy*

POL-UCOR-308, *Returning to Work Safety*

PPD-DE-1038, *Pressure Safety Program Description*

PPD-EC-1747, *Environmental Compliance and Protection Program*

PPD-EH-1400, *Integrated Safety Management System Program Description*

PPD-EH-1745, *Worker Safety and Health Program*

PPD-EH-2009, *Electrical Safety Program*

PPD-EH-5614, *Worker Safety and Health Assessment Program*

PPD-FO-1037, *Construction and Heavy Equipment Program*

PPD-FP-2001, *Fire Protection Program Description*

PPD-IH-3345, *Chemical Safety Management Program*

PPD-IH-5101, *Reproductive Health Protection*

PPD-IH-5133, *Ergonomics Program*

PPD-IH-5140, *Hazard Communication*

PPD-IH-5150, *Chronic Beryllium Disease Prevention Program*

PPD-IH-5151, *Respiratory Protection Program*

PPD-IH-5190, *Heavy Metals Health Protection Program*

PPD-IH-5205, *Airborne Silica Hazard Assessment and Control*

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PPD-IH-5418, *Industrial Hygiene Program*

PPD-MD-8003, *Occupational Medical Program*

PPD-RP-4000, *Radiation Protection Program Description for URS / CH2M Oak Ridge LLC, Oak Ridge, Tennessee*

PPD-TC-0725, *UCOR Training Implementation Matrix for Category 2 and 3 Nuclear Facilities*

PROC-CN-2008, *Employee Concerns Program*

PROC-CT-1515, *Differing Professional Opinion Process*

PROC-DE-1016, *Design Criteria*

PROC-DE-1019, *Subcontract Coordinator Requirements*

PROC-DE-1041, *Pressure Safety Program Implementation*

PROC-EH-1012, *Development and Approval of Safety and Health Plans*

PROC-EH-1013, *Accident Prevention Signs, Barricades, and Other Postings*

PROC-EH-2000, *General Safety Requirements*

PROC-EH-2001, *Accident/Incident Reporting and Investigation*

PROC-EH-2002, *Hazardous Energy Control (Lockout/Tagout)*

PROC-EH-2005, *Personal Protective Equipment*

PROC-EH-2006, *Fall Prevention and Protection*

PROC-EH-2014, *Compressed Gas Cylinders*

PROC-EH-2018, *Stop Work*

PROC-EH-2019, *Case Management*

PROC-ET-3013, *Power Distribution Work Permit*

PROC-ET-4006, *Use of Government Vehicles*

PROC-FO-515, *Facility Management*

PROC-FO-1004, *Excavation/Trenching Permitting*

PROC-FO-1008, *Hoisting and Rigging Operations*

PROC-FO-1015, *Scaffolds and Ladders*

PROC-FO-1037, *Hoisting and Rigging Hardware Inspection, Testing, and Purchases*

PROC-FO-1039, *Construction Equipment Inspection and Maintenance Program*

PROC-FO-1040, *Lift Truck Operation*

PROC-FO-1041, *Crane Operator Certification/Qualification*

PROC-FO-1059, *Facility Transition*

PROC-FO-1063, *Issue Review and Investigation Process*

PROC-FO-1072, *Penetration Permitting*

PROC-FO-1073, *Vehicle/Construction Equipment Spotter*

PROC-FO-3033, *Out of Commission Isolation Process for Structures, Systems, and Components*

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PROC-FO-3034, *Earth Moving Equipment Operation*  
 PROC-FO-3035, *Well Drilling Operations*  
 PROC-FO-3036, *Mobile Elevated Work Platform Operation*  
 PROC-FO-3037, *Ground Penetration Permitting*  
 PROC-FP-2003, *Fire Extinguisher Inspection and Maintenance*  
 PROC-FP-2006, *UCOR Program for Controlling Combustibles and Ignition Sources*  
 PROC-FP-2008, *Hot Work*  
 PROC-FS-1001, *Integrated Work Control Program*  
 PROC-FS-1055, *Work Package/Procedure Usage*  
 PROC-IH-5110, *Biological Monitoring for Industrial Chemicals*  
 PROC-IH-5121, *Occupational Noise Exposure and Hearing Conservation*  
 PROC-IH-5122, *Safe Use of Lasers*  
 PROC-IH-5134, *Temperature Extremes*  
 PROC-IH-5135, *Bloodborne Pathogens*  
 PROC-IH-5138, *Confined Space Entry*  
 PROC-IH-5161, *Hazardous Waste Operations and Emergency Response*  
 PROC-IH-5172, *Indoor Air Quality*  
 PROC-IH-5177, *Asbestos and Other Fibrous Materials*  
 PROC-IH-5181, *Hazardous Materials Information System*  
 PROC-IH-5201, *Airborne Asbestos Sampling*  
 PROC-IH-5203, *Bulk Sampling of Material Suspected of Containing Asbestos*  
 PROC-IH-5204, *Clearance Criteria for Asbestos Abatement*  
 PROC-IH-5206, *Generation and Use of Industrial Hygiene Work Permits*  
 PROC-IH-5558, *Industrial Hygiene Equipment Control and Calibration*  
 PROC-IH-5560, *Workplace Industrial Hygiene Sampling*  
 PROC-IH-5567, *Respirator Fit-Testing*  
 PROC-OS-1001, *Records Management, Including Document Control*  
 PROC-PCM-1802, *Obtaining Services from Other DOE Contractors*  
 PROC-PQ-1170, *Control of Subject Matter Area Designations and Subject Matter Expert Assignments*  
 PROC-PQ-1208, *Supplier Quality Assurance Assessment Program*  
 PROC-PQ-1220, *Occurrence Notification and Reporting*  
 PROC-PQ-1610, *PAAA, Safety and Security Regulatory Program*  
 PROC-PQ-1805, *Requirements & Standards Management*  
 PROC-TC-0702, *Training Program*  
 PROC-TC-0710, *Training Position Descriptions and Position Assignment Forms*

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PROC-TC-0711, *Exceptions, Extensions, or Equivalencies*

PROC-TC-0712, *Training Records Management*

PROC-TC-0722, *Site Access Requirements and Site Access Cards*

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**APPENDIX A.  
EXAMPLE APPLICABILITY AND RESPONSIBILITY MATRIX**

**APPENDIX A.**  
**PPD-EH-1745/R7**  
*Worker Safety and Health Program*

Example Applicability and Responsibility Matrix ([click here for a fillable form](#))

**Completed by (Insert Name):**  
**Subcontract Name:**  
**Subcontract No:**

**Position Title:**  
**Project Name:**  
**Project S&H Operations Manager (Insert Name):**

**Date:**

Applicable?		PPD-EH-1745 SECTION NUMBER	UCOR CONTRACTOR RESPONSIBILITY	SUBCONTRACTOR (ALL TIERS) RESPONSIBILITY
Yes	No			
<input type="checkbox"/>	<input type="checkbox"/>	<b>1.0 INTRODUCTION</b>	Comply with Sect. 1.0.	Comply with Sect. 1.0.
<input type="checkbox"/>	<input type="checkbox"/>	1.1 PURPOSE AND SCOPE	Comply with Sect. 1.1.	Comply with Sect. 1.1.
<input type="checkbox"/>	<input type="checkbox"/>	1.2 EXCLUSIONS	Comply with Sect. 1.2.	Comply with Sect. 1.2.
<input type="checkbox"/>	<input type="checkbox"/>	1.3 ZERO ACCIDENT PHILOSOPHY AND CULTURE	Comply with PPD-EH-1400, <i>Integrated Safety Management System Program Description</i> , and requirements in Sect. 1.3.	Comply with Exhibit A, General Condition entitled Environmental, Safety, and Health Requirements.
<input type="checkbox"/>	<input type="checkbox"/>	1.4 SUBMISSION FOR APPROVAL	Comply with Sect. 1.4.	Not Applicable.
<input type="checkbox"/>	<input type="checkbox"/>	1.5 IMPLEMENTATION	Comply with Sect. 1.5.	Comply with Sect. 1.5.
<input type="checkbox"/>	<input type="checkbox"/>	1.6 COMPLIANCE	Comply with Sect. 1.6.	Comply with Sect. 1.6.
<input type="checkbox"/>	<input type="checkbox"/>	1.7 COORDINATION AMONG MULTI-CONTRACTOR COVERED WORKPLACES	Comply with Sect. 1.7.	Comply with Sect. 1.7.
<input type="checkbox"/>	<input type="checkbox"/>	1.8 ENFORCEMENT PROVISIONS	Comply with Sect. 1.8.	Comply with Exhibit B, Special Conditions.
		<b>2.0 DIRECTIVE ELEMENTS</b>		
<input type="checkbox"/>	<input type="checkbox"/>	2.1 MANAGEMENT RESPONSIBILITIES	Comply with PPD-EH-1400, <i>Integrated Safety Management System Program Description</i> and requirements in Sect. 2.1.	Comply with Exhibit A, General Condition entitled Environmental, Safety, and Health Requirements.
<input type="checkbox"/>	<input type="checkbox"/>	2.1.1 UCOR Management Team	Comply with Sect. 2.1.1.	Not Applicable.
<input type="checkbox"/>	<input type="checkbox"/>	2.1.2 Facility Managers	Comply with Sect. 2.1.2.	Comply with Sect. 2.1.2. SUBCONTRACTORS shall understand the hazards and comply with the controls associated with any facility or areas they enter, and must contact the UCOR Facility Manager for information and authorization prior to entering UCOR-controlled facilities.
<input type="checkbox"/>	<input type="checkbox"/>	2.1.3 Subject Matter Experts	Comply with Sect. 2.1.3.	Not Applicable.
<input type="checkbox"/>	<input type="checkbox"/>	2.1.4 Safety and Health Representatives	Comply with Sect. 2.1.4, and PPD-EH-5614, <i>Worker Safety and Health Assessment Program</i> .	Comply with Sect. 2.1.4.
<input type="checkbox"/>	<input type="checkbox"/>	2.2 WORKER RIGHTS AND RESPONSIBILITIES	Comply with Sect. 2.2.	Comply with Sect. 2.2.

**APPENDIX A.**  
**PPD-EH-1745/R7**  
*Worker Safety and Health Program*

Applicable?		PPD-EH-1745 SECTION NUMBER	UCOR CONTRACTOR RESPONSIBILITY	SUBCONTRACTOR (ALL TIERS) RESPONSIBILITY
Yes	No			
<input type="checkbox"/>	<input type="checkbox"/>	2.3 HAZARD IDENTIFICATION AND ASSESSMENT	Comply with Sect. 2.3 and PROC-FS-1055, <i>Work Package/Procedure Usage.</i>	Comply with Sect. 2.3.
<input type="checkbox"/>	<input type="checkbox"/>	2.3.1 Job Instructions and Job Hazard Analyses	Comply with Sect. 2.3.1.	Comply with Sect. 2.3.1.
<input type="checkbox"/>	<input type="checkbox"/>	2.3.2 Closure Facility Hazards and Controls	Comply with Sect. 2.3.2.	Comply with Sect. 2.3.2.
<input type="checkbox"/>	<input type="checkbox"/>	2.4 HAZARD PREVENTION AND ABATEMENT	Comply with Sect. 2.4.	Comply with Sect. 2.4.
<input type="checkbox"/>	<input type="checkbox"/>	2.4.1 Management of Change	Comply with Sect. 2.4.1.	Comply with Sect. 2.4.1.
<input type="checkbox"/>	<input type="checkbox"/>	2.4.2 Evaluation and Control of Physical Hazards	Comply with Sect. 2.4.2.	Comply with Sect. 2.4.2.
<input type="checkbox"/>	<input type="checkbox"/>	2.4.3 Procurement of Equipment, Products, and Services	Comply with Sect. 2.4.3.	Comply with Sect. 2.4.3.
<input type="checkbox"/>	<input type="checkbox"/>	2.5 SAFETY AND HEALTH STANDARDS	Comply with Sect. 2.5.	Comply with Sect. 2.5.
<b>3.0 FUNCTIONAL AREAS</b>				
<input type="checkbox"/>	<input type="checkbox"/>	3.1 GENERAL SAFETY, CONSTRUCTION (AND DEMOLITION) SAFETY	Comply with Sect. 3.1.	Comply with Sect. 3.1.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.1 Accident Prevention Signs, Tags, Labels, and Barricades	Comply with Sect. 3.1.1.	Comply with Sect. 3.1.1.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.2 Personal Protective Equipment	Comply with Sect. 3.1.2, and PROC-EH-2005, <i>Personal Protective Equipment.</i>	Comply with Sect. 3.1.2.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.3 Inclement Weather	Comply with Sect. 3.1.3.	Comply with Sect. 3.1.3.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.4 Slip, Trip and Fall Hazards	Comply with Sect. 3.1.4.	Comply with Sect. 3.1.4.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.5 Working on or Near Water	Comply with Sect. 3.1.5.	Comply with Sect. 3.1.5.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.6 Compressed Gas Cylinders	Comply with Sect. 3.1.6, and PROC-EH-2014, <i>Compressed Gas Cylinders.</i>	Comply with Sect. 3.1.6.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.7 Dust Control	Comply with Sect. 3.1.7.	Comply with Sect. 3.1.7.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.8 Elevated Work/Fall Prevention	Comply with Sect. 3.1.8.	Comply with Sect. 3.1.8.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.9 Excavation, Trenching and Penetrations	Comply with Sect. 3.1.9.	Comply with Sect. 3.1.9.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.10 Flora/Fauna Hazards Protection	Comply with Sect. 3.1.10.	Comply with Sect. 3.1.10.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.11 Hoisting and Rigging Operations	Comply with Sect. 3.1.11.	Comply with Sect. 3.1.11.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.12 Heavy Equipment and Vehicle Operation	Comply with Sect. 3.1.12.	Comply with Sect. 3.1.12.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.13 Hot Work	Comply with Sect. 3.1.13.	Comply with Sect. 3.1.13.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.13.1 Fixed Weld Shop Operations	Comply with Sect. 3.1.13.1.	Comply with Sect. 3.1.13.1.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.14 Ladder Safety	Comply with Sect. 3.1.14.	Comply with Sect. 3.1.14.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.15 Material Handling, Storage, Use, and Disposal	Comply with Sect. 3.1.15.	Comply with Sect. 3.1.15.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.16 Overhead Power and Communication Lines	Comply with Sect. 3.1.16.	Comply with Sect. 3.1.16.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.17 Sanitation	Comply with Sect. 3.1.17.	Comply with Sect. 3.1.17.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.18 Use of Hand and Power Tools	Comply with Sect. 3.1.18.	Comply with Sect. 3.1.18.
<input type="checkbox"/>	<input type="checkbox"/>	3.1.18.1 General Tool Maintenance	Comply with Sect. 3.1.18.1.	Comply with Sect. 3.1.18.1.

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Applicable?		PPD-EH-1745 SECTION NUMBER	UCOR CONTRACTOR RESPONSIBILITY	SUBCONTRACTOR (ALL TIERS) RESPONSIBILITY
Yes	No			
<input type="checkbox"/>	<input type="checkbox"/>	3.1.18.2 Tagging of Defective Tools, Materials, or Equipment	Comply with Sect. 3.1.18.2.	Comply with Sect. 3.1.18.2.
<input type="checkbox"/>	<input type="checkbox"/>	3.2 FIRE PROTECTION		
<input type="checkbox"/>	<input type="checkbox"/>	3.2.1 Fire Protection Program (FPP)	Comply with Sect. 3.2.1.	Comply with Sect. 3.2.1.
<input type="checkbox"/>	<input type="checkbox"/>	3.2.2 Combustible Controls and Housekeeping Measures	Comply with Sect. 3.2.2.	Comply with Sect. 3.2.2.
<input type="checkbox"/>	<input type="checkbox"/>	3.2.3 Combustible and Flammable Liquids	Comply with Sect. 3.2.3.	Comply with Sect. 3.2.3.
<input type="checkbox"/>	<input type="checkbox"/>	3.2.4 Temporary Structures	Comply with Sect. 3.2.4.	Comply with Sect. 3.2.4.
<input type="checkbox"/>	<input type="checkbox"/>	3.2.5 Emergencies	Comply with Sect. 3.2.5.	Comply with Sect. 3.2.5.
<input type="checkbox"/>	<input type="checkbox"/>	3.2.6 Fire Extinguishers	Comply with Sect. 3.2.6.	Comply with Sect. 3.2.6.
<input type="checkbox"/>	<input type="checkbox"/>	3.3 EXPLOSIVES SAFETY	Comply with Sect. 3.3.	Comply with Sect. 3.3, and Exhibit B, Special Conditions, Sect. entitled "Explosives."
<input type="checkbox"/>	<input type="checkbox"/>	3.4 PRESSURE SAFETY	Comply with Sect. 3.4.	Comply with Sect. 3.4.
		3.5 FIREARMS SAFETY	Not Applicable.	Not Applicable.
<input type="checkbox"/>	<input type="checkbox"/>	3.6 INDUSTRIAL HYGIENE	Comply with Sect. 3.6.	Comply with Sect. 3.6.
<input type="checkbox"/>	<input type="checkbox"/>	3.6.1 Asbestos and Other Fibrous Materials	Comply with Sect. 3.6.1.	Comply with Sect. 3.6.1
<input type="checkbox"/>	<input type="checkbox"/>	3.6.2 Bloodborne Pathogens	Comply with Sect. 3.6.2.	Comply with OSHA 29 CFR 1910.1030, Bloodborne Pathogens.
<input type="checkbox"/>	<input type="checkbox"/>	3.6.3 Chemical Safety Management	Comply with Sect. 3.6.3.	Comply with OSHA 29 CFR 1910.1200 / 29 CFR 1926.59, Hazard Communication, and to chemical substances reportable under 40 CFR 302.4 and 40 CFR Part 68.
<input type="checkbox"/>	<input type="checkbox"/>	3.6.4 Chronic Beryllium Disease and Prevention	Comply with Sect. 3.6.4.	Comply with Sect. 3.6.4. Make available to UCOR CONTRACTOR, within 24 hours of a written request, any records and documentation associated with SUBCONTRACTOR's compliance with 10 CFR Part 850. This requirement includes, but is not limited to, medical removal benefits, training program materials, monitoring data, etc., to document compliance as related to beryllium work.
<input type="checkbox"/>	<input type="checkbox"/>	3.6.5 Confined Space	Comply with Sect. 3.6.5.	Comply with Sect. 3.6.5.

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Yes	No			
<input type="checkbox"/>	<input type="checkbox"/>	3.6.6 Ergonomics	Comply with Sect. 3.6.6.	<ul style="list-style-type: none"> <li>Activities with ergonomic risk factors shall be controlled through the implementation of engineering controls and/or administrative controls and identified in Job Instructions and/or JHAs.</li> <li>Where engineering controls are not feasible, administrative controls should be utilized. These can include work/rest cycles, work shifts, production quotas, employee training, and policies and procedures.</li> <li>Engineering and administrative controls shall be re-evaluated periodically to ensure their continued effectiveness in preventing cumulative trauma disorders.</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	3.6.7 Exposure Control Monitoring and Documentation	Comply with Sect. 3.6.7.	SUBCONTRACTOR shall conduct real-time and integrated personal sampling for chemicals or contaminants to which their workers may be potentially exposed to while working onsite and maintain sampling records for contractor review upon request.
<input type="checkbox"/>	<input type="checkbox"/>	3.6.8 Equipment Calibration Program	Comply with Sect. 3.6.8.	Comply with Sect. 3.6.8. Industrial Hygiene sampling/calibration shall be performed in accordance with the OSHA Technical Manual and NIOSH Analytical Methods.

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Applicable?		PPD-EH-1745 SECTION NUMBER	UCOR CONTRACTOR RESPONSIBILITY	SUBCONTRACTOR (ALL TIERS) RESPONSIBILITY
Yes	No			
<input type="checkbox"/>	<input type="checkbox"/>	3.6.9 Exposure Monitoring, Action Levels, and Laboratory Accreditation	Comply with Sect. 3.6.9.	<p>Comply with intent of Sect. 3.6.9.</p> <p>Format and formality of subcontractor task-specific exposure monitoring and control plans is discretionary.</p> <ul style="list-style-type: none"> <li>• SUBCONTRACTOR shall perform exposure calculations (TWA, STEL, Ceiling Concentrations, etc.) on all monitoring within 24 hours of receipt of laboratory analysis, and make this information available for review by the UCOR CONTRACTOR S&amp;H Representative upon request.</li> <li>• SUBCONTRACTOR shall provide to the UCOR CONTRACTOR written determination of an exceedance of an established TWA for personal, area, and/or other monitoring results with 24 hours of the receipt of laboratory analysis.</li> <li>• SUBCONTRACTOR shall submit electronic data monthly for personal, area, and/or other monitoring results to the UCOR CONTRACTOR upon request.</li> <li>• SUBCONTRACTOR monitoring results shall be provided to UCOR CONTRACTOR upon request.</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	3.6.10 Hazard Communication and Carcinogen Control	Comply with Sect. 3.6.10.	Comply with OSHA 29 CFR 1910.1200 and 29 CFR 1926.59, Hazard Communication.
<input type="checkbox"/>	<input type="checkbox"/>	3.6.11 Hazardous Materials Information System	Comply with Sect. 3.6.11.	Comply with Sect. 3.6.11, and OSHA 29 CFR 1910.1200 and 29 CFR 1926.59, Hazard Communication.
<input type="checkbox"/>	<input type="checkbox"/>	3.6.12 Hazardous Waste Operations and Emergency Response	Comply with Sect. 3.6.12.	Comply with OSHA 29 CFR 1910.120 and 29 CFR 1926.65, Hazardous Waste Operations and Emergency Response.

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Applicable?		PPD-EH-1745 SECTION NUMBER	UCOR CONTRACTOR RESPONSIBILITY	SUBCONTRACTOR (ALL TIERS) RESPONSIBILITY
Yes	No			
<input type="checkbox"/>	<input type="checkbox"/>	3.6.13 Hearing Conservation	Comply with Sect. 3.6.13.	Comply with OSHA 29 CFR 1910.95 and 29 CFR 1926.52, Occupational Noise Exposure, and the American Conference of Governmental Industrial Hygienist (ACGIH) Threshold Limit Value (TLV) of 85 decibels, A-weighted (dBA) 8-hour TWA, as the exposure level (based on 3 dB exchange rate).
<input type="checkbox"/>	<input type="checkbox"/>	3.6.14 Heavy Metals Protection	Comply with Sect. 3.6.14.	<ul style="list-style-type: none"> <li>• Comply with applicable OSHA standards for heavy metals and requirements for the development of substance specific compliance plans and training.</li> <li>• Comply with OSHA 29 CFR 1910.1018 and 29 CFR 1926.1118, Inorganic Arsenic, and 29 <i>CFR</i> 1910.1025 and 29 CFR 1926.62, Lead.</li> <li>• Comply with OSHA 29 CFR 1910.1027 and 29 CFR 1926.1127, Cadmium.</li> <li>• Comply with OSHA 29 CFR 1910.1026 and 29 CFR 1926.1126, Hexavalent Chromium.</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	3.6.15 Illumination	Comply with Sect. 3.6.15.	Comply with Sect. 3.6.15.
<input type="checkbox"/>	<input type="checkbox"/>	3.6.16 Indoor Air Quality	Comply with Sect. 3.6.16.	Not applicable.
<input type="checkbox"/>	<input type="checkbox"/>	3.6.17 Reproductive Health Protection	Comply with Sect. 3.6.17.	Not applicable.

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Applicable?		PPD-EH-1745 SECTION NUMBER	UCOR CONTRACTOR RESPONSIBILITY	SUBCONTRACTOR (ALL TIERS) RESPONSIBILITY
Yes	No			
<input type="checkbox"/>	<input type="checkbox"/>	3.6.18 Respiratory Protection	Comply with PPD-IH-5151, <i>Respiratory Protection Program</i> , and PROC-IH-5567, <i>Respirator Fit-Testing</i> .	<p>Comply with OSHA 29 CFR 1910.134, Respiratory Protection.</p> <ul style="list-style-type: none"> <li>• SUBCONTRACTOR is responsible for maintenance, issuance, training, and fit testing for respirator use.</li> <li>• SUBCONTRACTOR shall ensure that adequate corrective actions are implemented to abate any deficiencies discovered during routine inspection and maintenance of respiratory protection equipment. Any deficiencies and corresponding corrective actions shall be documented and made available to UCOR CONTRACTOR upon request.</li> <li>• SUBCONTRACTOR shall ensure that couplings used on airlines for atmosphere-supplying respirators are <i>incompatible</i> with outlets for non-breathable worksite air or other gas systems to prevent inadvertently connecting a respirator to a source other than breathing air.</li> <li>• Personnel wearing respirators shall participate in the SUBCONTRACTOR's medical surveillance program that meets the requirements of OSHA 29 CFR 1910.134, Respiratory Protection.</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	3.6.19 Temperature Extremes (Heat Stress/Cold Stress)	Comply with Sect. 3.6.19.	Comply with thermal stress guidelines contained in the American Conference of Governmental Industrial Hygienists, TLVs, and Biological Exposure Indices (BEIs).
<input type="checkbox"/>	<input type="checkbox"/>	3.6.20 Respirable Crystalline Silica	Comply with Sect. 3.6.20.	Comply with Sect. 3.6.20
<input type="checkbox"/>	<input type="checkbox"/>	3.6.21 Lasers	Comply with Sect. 3.6.21.	Comply with Sect. 3.6.21
		3.7 BIOLOGICAL SAFETY	Not Applicable.	Not Applicable.

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Yes	No			
<input type="checkbox"/>	<input type="checkbox"/>	3.8 OCCUPATIONAL MEDICINE	Comply with Sect. 3.8.	Comply with 10 CFR 851.24 and 10 CFR Part 851, Appendix A, Sect. 8, Occupational Medicine. If SUBCONTRACTOR elects to obtain Occupational Medical Services from UCOR CONTRACTOR, the SUBCONTRACTOR shall enter into a Service Agreement with the UCOR CONTRACTOR to secure these services.
<input type="checkbox"/>	<input type="checkbox"/>	3.8.1 Injuries and Illnesses	Comply with Sect. 3.8.1.	Comply with PROC-EH-2001, <i>Accident/Incident Reporting and Investigation</i> , and 10 CFR 851.24 and 10 CFR Part 851, Appendix A, Sect. 8, Occupational Medicine.
<input type="checkbox"/>	<input type="checkbox"/>	3.8.2 Emergency Medical Services	Comply with Sect. 3.8.2.	Comply with Sect. 3.8.2.
<input type="checkbox"/>	<input type="checkbox"/>	3.8.3 Biological Monitoring	Comply with Sect. 3.8.3.	Comply with Sect. 3.8.3.
<input type="checkbox"/>	<input type="checkbox"/>	3.8.4 Additional OSHA-Specific Medical Monitoring Requirements	Comply with Sect. 3.8.4.	Comply with OSHA 29 CFR 1910, Subpart Z, and 29 CFR 1926.
<input type="checkbox"/>	<input type="checkbox"/>	3.8.5 Audiometric Testing	Comply with Sect. 3.8.5.	Comply with audiometric testing requirements specified in OSHA 29 CFR 1910.95.
<input type="checkbox"/>	<input type="checkbox"/>	3.9 MOTOR VEHICLE SAFETY	Comply with Sect. 3.9.	Comply with Sect. 3.9.
<input type="checkbox"/>	<input type="checkbox"/>	3.9.1 Traffic Control	Comply with Sect. 3.9.1.	Comply with Sect. 3.9.1.
<input type="checkbox"/>	<input type="checkbox"/>	3.9.2 Traffic Safety	Comply with Sect. 3.9.2.	Comply with Sect. 3.9.2.
<input type="checkbox"/>	<input type="checkbox"/>	3.10 ELECTRICAL SAFETY	Comply with Sect. 3.10.	Comply with Sect. 3.10.
		3.11 NANOTECHNOLOGY SAFETY - RESERVED	Reserved.	Reserved.
<input type="checkbox"/>	<input type="checkbox"/>	3.12 WORKPLACE VIOLENCE PREVENTION	Comply with Sect. 3.12.	Comply with Sect. 3.12.
		<b>4.0 TRAINING AND QUALIFICATIONS</b>		
<input type="checkbox"/>	<input type="checkbox"/>	4.1 TRAINING REQUIREMENTS	Comply with Sect. 4.1.	Comply with Exhibit B, Special Conditions, Sects. entitled "Key Personnel" and "Training." Comply with PROC-TC-0722, <i>Site Access Requirements and Site Access Cards</i> .
<input type="checkbox"/>	<input type="checkbox"/>	4.2 TRAINING DOCUMENTATION	Comply with Sect. 4.2.	Comply with Exhibit B, Special Conditions, Sect. entitled "Training." Additionally, comply with OSHA-specific training documentation requirements based on the Scope of Work of this Subcontract.

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<b>Applicable?</b>		<b>PPD-EH-1745 SECTION NUMBER</b>	<b>UCOR CONTRACTOR RESPONSIBILITY</b>	<b>SUBCONTRACTOR (ALL TIERS) RESPONSIBILITY</b>
<b>Yes</b>	<b>No</b>			
<input type="checkbox"/>	<input type="checkbox"/>	<b>5.0 RECORDKEEPING AND REPORTING</b>	Comply with Sect. 5.0.	Comply with Sect. 5.0, and with this Subcontract relating to safety and health (S&H) documents and records generated. These S&H documents and records shall be maintained at the job site (or other appropriate area(s) as authorized by the UCOR CONTRACTOR's Subcontract Coordinator/Subcontract Technical Representative) and made immediately available for inspection by the UCOR CONTRACTOR.

**EXAMPLE**

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Yes	No			
<input type="checkbox"/>	<input type="checkbox"/>	5.1 ACCIDENT/INCIDENT REPORTING AND INVESTIGATION, CASE MANAGEMENT, AND RECORDKEEPING	Comply with Sect. 5.1.	<ul style="list-style-type: none"> <li>• SUBCONTRACTOR is responsible for maintaining required logs and records of worker injuries or illnesses in accordance with OSHA 29 CFR 1904.</li> <li>• SUBCONTRACTOR shall immediately notify UCOR CONTRACTOR's Subcontract Coordinator/Subcontract Technical Representative regarding any accident or incident resulting in employee occupational injury/illness or damage to DOE equipment and facilities.</li> <li>• SUBCONTRACTOR shall conduct an investigation and provide to UCOR CONTRACTOR within five workdays of occurrence (or notice), a completed UCOR <i>Accident Incident and Investigation Report</i> (Form-411) of such accident or incident. The report shall describe the causes, corrective actions, and measures taken to prevent recurrence of similar accidents/incidents, SUBCONTRACTOR shall be responsible for and is required to complete the proposed corrective actions identified in the reports per the established due dates, unless otherwise agreed upon with UCOR CONTRACTOR.</li> <li>• SUBCONTRACTOR shall furnish UCOR CONTRACTOR, on a monthly basis, a completed SUBCONTRACTOR Monthly Injury/Illness Report form provided by the UCOR CONTRACTOR (Refer to Exhibit G, Sect. G.1.2). SUBCONTRACTOR shall include the same SUBCONTRACTOR Monthly Injury/Illness Report information for its sub-tier Subcontractor(s) on the same report. The report shall be submitted in accordance with Exhibit I, on or before, the third working day of each month. The SUBCONTRACTOR Monthly Injury/Illness Report is required throughout the duration of the Subcontract, including periods of no work activity. If the duration of work does not exceed one month, the report shall be submitted upon completion of the work.</li> </ul>

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Yes	No			
<input type="checkbox"/>	<input type="checkbox"/>	5.2 NOTIFICATION AND REPORTING	Comply with PROC-PQ-1220, <i>Occurrence Notification and Reporting.</i>	<ul style="list-style-type: none"> <li>• SUBCONTRACTOR shall assist UCOR CONTRACTOR'S Area Project Managers in the preparation of all reports (including Occurrence Reporting and offsite notifications) related to its operations. As part of assisting in the preparation of these reports, SUBCONTRACTOR shall be responsible for, and is required to complete, the proposed corrective actions identified in the reports per the established due dates, unless otherwise agreed upon with UCOR CONTRACTOR.</li> <li>• Property damage to Government equipment and motor vehicles shall be reported to the UCOR CONTRACTOR's Subcontract Coordinator/Subcontract Technical Representative and UCOR Fleet Manager immediately and shall be documented on DOE 5484.3 forms. SUBCONTRACTOR shall collect and maintain all data and records specified by UCOR CONTRACTOR to accommodate reporting and/or notifications.</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	5.2.1 Occurrence Reporting System	Comply with Sect. 5.2.1.	Comply with Sect. 5.2.1.

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<b>Applicable?</b>		<b>PPD-EH-1745 SECTION NUMBER</b>	<b>UCOR CONTRACTOR RESPONSIBILITY</b>	<b>SUBCONTRACTOR (ALL TIERS) RESPONSIBILITY</b>
<b>Yes</b>	<b>No</b>			
<input type="checkbox"/>	<input type="checkbox"/>	5.2.2 Incident Notification	Comply with Sect. 5.2.2.	SUBCONTRACTOR shall <u>immediately</u> notify the UCOR CONTRACTOR'S Subcontract Coordinator/Subcontract Technical Representative about an event or condition that adversely affects, or may adversely affect DOE, UCOR CONTRACTOR, or SUBCONTRACTOR personnel, the public, property, the environment, or the DOE mission. This may include any accident, incident, near miss (potential occupational injury/illness or damage to DOE equipment or facilities), potential Worker Safety and Health noncompliance, Price-Anderson Amendments Act (PAAA) noncompliance, environmental release, or any other unplanned event that may be a violation of a regulatory requirement or that may be viewed negatively by the public, UCOR CONTRACTOR, or DOE.
<input type="checkbox"/>	<input type="checkbox"/>	<b>6.0 APPLICATION FOR VARIANCES</b>	Comply with Sect. 6.0.	Any potential variances identified by the SUBCONTRACTOR shall be provided to the UCOR CONTRACTOR for consideration.
		<b>7.0 REFERENCES</b>		

EXAMPLE

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## APPENDIX B. APPLICATION FOR VARIANCE PROCESS

Generally, a variance is defined as an exception to compliance with a safety and health standard, or portion thereof, which is granted by the U.S Department of Energy (DOE) to a contractor (e.g., UCOR). There are three types of variances: temporary, permanent, and national defense.

**Temporary variance** – A temporary variance allows a short-term exemption from a standard when the contractor cannot comply with the requirements by the prescribed date because the necessary construction or alteration of the facility cannot be completed in time or when technical personnel, materials, or equipment are temporarily unavailable. Inability to afford compliance costs is not a valid reason for requesting a temporary variance. For further details on the information required in the application for a temporary variance, please refer to 10 CFR Part 851.31(d)(1).

**Permanent variance** – A permanent variance grants an exemption from a standard to contractors who can prove that their methods, conditions, practices, operations or processes provide workplaces that are as safe and healthful as those that follow the workplace safety and health standards required by 10 CFR Part 851.23. When applying for a permanent variance, contractors must let workers know that they have filed the application. To decide whether or not to grant a permanent variance, DOE reviews the written evidence provided and, if appropriate, *may* elect to visit the workplace to confirm the facts as presented in the application. If the request has merit, DOE may grant a permanent variance. For further details on the information required in the application for a permanent variance, please refer to 10 CFR Part 851.31(d)(2).

**National defense variance** – DOE will use national defense variances to grant “reasonable variations, tolerances and exemptions to and from” the requirements of 10 CFR Part 851 “to avoid serious impairment of the national defense.” For further details on the information required in the application for a national defense variance, please refer to 10 CFR Part 851.31(d)(3).

It is important to note that established *equivalencies* do not require submittal as variances. Please refer to the table below for definitions and descriptions that outline the differences between equivalencies and exemptions. The SME associated with the specific variance under consideration by the projects should be of assistance in providing guidance on whether or not a variance is warranted.

EQUIVALENCIES	EXEMPTIONS
Defined as a means of accepting an alternative approach to achieving an equivalent level of protection <b>as defined in a code or standard.</b>	Defined as a release from selected requirements <b>as defined by DOE Orders.</b> This definition may vary in selected orders.
<ul style="list-style-type: none"> <li>• Feature of Consensus Standards (e.g., NFPA 70)</li> <li>• Previously granted equivalencies to consensus standards that include provisions for an authority having jurisdiction (AHJ) with that authority, are still valid and do not require application for variances under 10 CFR Part 851.</li> </ul>	<ul style="list-style-type: none"> <li>• Established in DOE Orders.</li> <li>• Previously granted exemptions to DOE Order 440.1A are no longer valid since Part 851 will replace Order 440.1A. 10 CFR Part 851 does not acknowledge exemptions; therefore, these exemptions would require application for variances under 851 or if a previously granted exemption is also applicable to a consensus standard that contains the AHJ provision, it could be addressed as an equivalency to the standard rather than require application for variance under Part 851.</li> <li>• Previously granted exemptions to DOE Orders, other than DOE Order 440.1A, are unaffected by 10 CFR Part 851, and, therefore, are still valid.</li> </ul>

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## APPLICATION FOR VARIANCE

<i>In accordance with the provisions of Subpart D of 10 CFR Part 851, Worker Safety and Health Program Rule, this variance request is being submitted by:</i>		
<b>1. Company/Contractor Name:</b>		
<b>2. Mailing Address:</b>		
<b>3. City:</b>	<b>4. State:</b>	<b>5. Zip:</b>
<b>6. Contact Names:</b>	<b>7. Contact Information:</b>	
	Phone:	
	E-mail:	
	Phone:	
	E-mail:	
<b>8. Variance Request Identification Number:</b>		
<b>9. Type of Variance Requested:</b> <input type="checkbox"/> Permanent <input type="checkbox"/> Temporary <input type="checkbox"/> National Defense		
<b>10. Location(s):</b> <input type="checkbox"/> All UCOR Sites <input type="checkbox"/> ETPP Site <input type="checkbox"/> ORNL Site <input type="checkbox"/> Y-12 Site <input type="checkbox"/> Other (please specify):		
<b>11. DOE Site:</b>		
<b>12. Mailing Address:</b>		
<b>13. City:</b>	<b>14. State:</b>	<b>15. Zip:</b>
<b>16. DOE Contact:</b>		<b>17. Phone:</b>
<b>18. Applicable code(s) and Sect.(s) of the standard, or portion thereof, from which a variance is being sought:</b>		
<b>19. Specific variance requested:</b>		
<b>20. Description of the conditions, practices, means, methods, operations, or processes used or proposed to be used by the Contractor:</b>		

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## APPLICATION FOR VARIANCE

**21. A statement showing how the conditions, practices, means, methods, operations, or processes used or proposed to be used would provide workers a place of employment which is as safe and healthful as would result from compliance with the standard from which a variance is sought:**

**22. Description of the steps that the contractor has taken to inform the affected workers of the application for a variance request, which must include:**

**Providing a copy to the affected workers authorized representative:**

**Name of Representative:**

**Date Provided:**

**Posting of Variance Application where notices to workers are normally posted (i.e., break areas and official bulletin boards)**

**23. Description of how affected workers have been informed of their right to petition the Chief Health, Safety, and Security Officer (HS-1) or designee for a conference regarding the variance request. (Please see notice below.)**

**Conference Requested:**  YES  NO

### NOTICE TO AFFECTED WORKERS

**This application for a variance is being provided for your review and information. You have a right to petition the Chief Health, Safety, and Security Officer (HS-1) for a conference as provided for in 10 CFR Part 851.34:**

**“A request for a conference... must include:**

- (1) A concise statement explaining how the contractor or worker would be affected by the variance applied for, including relevant facts;**
- (2) A specification of any statement or representation in the application which is denied, and a concise summary of the evidence that would be adduced in support of each denial; and**
- (3) Any other views or arguments on any issue of fact or law presented.”**