Work scope details:

Title: MPEX: TRC Portable Cleanroom Assembly

Work Scope Summary: - The work scope involves the assembly and disassembly of a portable cleanroom located in TRC Building 3700. This task is intended for R&D staff who will assist in the process, utilizing hand and portable power tools, ladders, and engaging in overhead work and material handling. The task also includes connecting and disconnecting exhaust fans.

Key Work Scope Components: - Assembly of the portable cleanroom - Disassembly of the portable cleanroom - Use of hand and portable power tools - Use of ladders and performing overhead work - Material handling and exhaust fan connection/disconnection

Relevant previous events and lessons learned:

Event Title	Event Summary	Lessons Learned	Reference link
Equipment Installation in Glovebox	Create a robust and high throughput pit disassembly tool with a small footprint and only the necessary automation and controls to support existing processes with meeting throughput demand.	Create a robust and high throughput pit disassembly tool with a small footprint and only the necessary automation and controls to support existing processes with meeting throughput demand.	Link
Contamination Discovered in Portable Radiation Survey Instrument at Calibration/Maintenance Facility	On September 22, 2015, Mission Support Alliance instrument calibration personnel discovered alpha contamination while surveying a portable radiological survey instrument after disassembly. The contamination was found inside the probe housing which shielded the contamination from detection. The survey instrument was returned to the Plutonium Finishing Plant.	When an issue is identified there should be a conscious determination to check if there are other similar situations that should be evaluated.	Link
New Equipment Installation	Whenever new equipment is installed, it is imperative that the equipment is entered into the site's Preventive Maintenance (PM) program.	Whenever new equipment is installed, it is imperative that the equipment is entered into the site's Preventive Maintenance (PM) program.	Link

Missing Hazards:

Hazard	Missing or Inadequate Mitigation in Current Work Control Document	Recommended Mitigation for Revision	Reference link	SBMS Link

Material handling	Not addressed	Implement guidelines for assessing hazards, establish controls, and apply hierarchy of controls. Consider team lifting, hoisting, and rigging services.	N/A	Link
Use of ladders and performing overhead work	Not addressed	Implement fall protection requirements and consult with Division Safety Officer for guidance.	N/A	Link
Use of hand and portable power tools	Not addressed	Develop a written accident prevention program and provide training on hand and power tool safety.	OSHA Hand and Power Tools, Power Tools Safety, Portable Tool Safety	Link
Exhaust fan connection/disconnection	Not addressed	Establish a maintenance schedule and review common industrial fan safety hazards.	Industrial Fan Safety, Exhaust Fans Safety, Fan Safety and Compliance	Link
Time pressures and high workload	Not addressed	Implement hazard prevention and control practices to manage pressure-related hazards.	OSHA Hazard Prevention, Pressure-Related Hazards, Safety in High-Pressure Environments	Link
Distractive environment	Not addressed	Apply hierarchy of controls to minimize distractions and improve focus.	OSHA Hazard Prevention, Hierarchy of Controls, OSHA Hierarchy of Controls	Link
First-time evolution and first day back	Not addressed	Develop specific guidelines for managing first-time tasks and transitions back to work.	N/A	Link
Vague guidance and imprecise communications	Not addressed	Develop a written hazard communication program and improve clarity in safety communications.	OSHA Hazard Communication, Safety Human Factors (Chap24-WML-5thEdHandbookHFErev(2021)inpress.pdf), WAC 296-901	Link
Overconfidence	Not addressed	Provide training on maintaining awareness of risks and adhering to safety protocols.	OSHA Hazard Prevention, Hierarchy of Controls, Safety and Overconfidence	Link

Contamination during disassembly	Not addressed	Implement procedures to prevent contamination during disassembly processes.	N/A	Link
New equipment installation without PM	Not addressed	Establish preventive maintenance (PM) schedules for new equipment installations.	N/A	Link

Failure mode analysis:

Current control	Failure mode of the control	Effect of Failure	Cause of Failure	Recommended action
Written permits for the work activity	Permit not obtained or expired	Unauthorized work leading to safety hazards	Lack of awareness or oversight	Ensure permits are reviewed and renewed as necessary before work begins
Precautions, step warnings, Hold Points	Steps not followed or ignored	Increased risk of accidents or equipment damage	Inadequate training or communication	Conduct thorough training and enforce adherence to procedures
Personal Protective Equipment (PPE)	PPE not used or inadequate	Injury to personnel	Lack of PPE availability or awareness	Ensure PPE is available and mandatory for all personnel
Work instructions for information	Instructions not followed or misunderstood	Incorrect assembly/disassembly leading to safety risks	Poor communication or unclear instructions	Provide clear, detailed instructions and verify understanding
ORNL subject area requirements	Non-compliance with requirements	Regulatory non-compliance and potential fines	Lack of knowledge or oversight	Regular audits and training on compliance requirements
Discuss group/individual responsibilities	Responsibilities not clearly defined	Confusion and potential for errors	Poor communication or planning	Clearly define and communicate roles and responsibilities
Follow work instructions & safety procedures	Procedures not followed	Increased risk of accidents	Complacency or lack of training	Reinforce the importance of following procedures through regular training
Availability/location of materials, tools, etc.	Tools/materials not available when needed	Delays and potential safety hazards	Poor planning or inventory management	Implement a robust inventory management system

Response if work cannot be performed as planned	Inadequate response to unexpected issues	Escalation of issues leading to safety risks	Lack of contingency planning	Develop and communicate contingency plans for unexpected situations
Potential error traps (e.g., time pressures, distractive environment)	Errors due to environmental factors	Accidents or quality issues	High workload or poor work environment	Implement measures to reduce stressors and improve the work environment
Emergency Response	Inadequate emergency response	Increased severity of incidents	Lack of training or unclear procedures	Conduct regular emergency drills and ensure clear emergency procedures are in place