Work scope details:

Title: Decontamination of Cell G PaR 2025

Work Scope Summary: - The work plan outlines the procedures and safety measures required to decontaminate the Cell G PaR, aiming to reduce contamination and radiation levels to enable maintenance and repairs. The plan involves removing the PaR from service, positioning it on a maintenance stand, and enclosing it within a containment tent and glove bag for decontamination. The process includes using a solution transfer system and performing decontamination through glove ports or wet methods until acceptable radiation levels are achieved.

Key Work Scope Components: - Removal of Cell G PaR from service due to mechanical issues. - Positioning of PaR on a maintenance stand within a containment tent and glove bag. - Use of a glove bag with transfer sleeves, glove ports, and a drain for decontamination. - Implementation of a solution transfer system with a pump, filter, and catch tank. - Execution of hand decontamination or wet decon methods through glove ports. - Removal of the glove bag once acceptable radiation levels are reached. - Tent repairs and adjustments to contamination barriers and ventilation systems as needed.

Relevant previous events and lessons learned:

Event Title	Event Summary	Lessons Learned	Reference link
Fire Incident at LANL	On November 6, 2023, a fire broke out inside a glove box at Los Alamos National Laboratory (LANL) while employees were pulverizing legacy plutonium materials. No contamination or inhalation of radioactive toxins was found. A week later, another glove box incident involved a worker losing control of a container, cracking safety glass and shattering the radiation shielding window. Nasal swabs suggested possible inhalation of airborne contaminants; the worker was given a bioassay. Nine glove box incidents were recorded at LANL in 2023.		Link
Glove Box Breach in 2020	In June 2020, a glove box breach at LANL's plutonium facility contaminated a worker's protective clothing, hair, and skin, and caused airborne radioactive material in the room. Fifteen workers were tested for radiation exposure, and chelation therapy was administered due to significant radiation found on the affected worker. The breach occurred when the worker pulled out the glovebox gloves after weighing and packaging plutonium oxide powder.		Link
Seal Failure Incident in 2022	In January 2022, a seal failure on an unused glove box sample port at LANL led to the release of weapons-grade plutonium and skin contamination of four workers. There were indications of internal exposure, and one worker received chelation treatment for dose mitigation. This was part of a series of glovebox breaches and failures reported at LANL from 2022 to 2023.		Link

Missing Hazards:

Hazard	Missing or Inadequate Mitigation in Current Work Control Document	Recommended Mitigation for Revision	Reference link	SBMS Link
Glove Box Breach	Not addressed	Implement a Glove Box Integrity Program to identify glove failure risks and mitigation strategies.	Link	Link
Seal Failure	Not addressed	Develop a seal integrity monitoring and maintenance program to prevent failures.	Link	Link
Fire Incident	Not addressed	Implement comprehensive fire safety measures including regular inspections and proper storage.	Link	Link
Time Pressures	Not addressed	Establish a preventive maintenance and scheduling program to manage high-exposure tasks effectively.	Link	Link
Distractive Environment	Not addressed	Implement administrative controls and training to minimize distractions and enhance focus.	Link	Link
High Workload	Not addressed	Prioritize hazard control and workload management using the hierarchy of controls.	Link	Link
First Time Evolution	Not addressed	Use administrative and engineering controls to manage risks associated with new or evolving tasks.	Link	Link
Vague Guidance	Not addressed	Provide clear, detailed job hazard analysis and safety protocols for all tasks.	Link	Link

Overconfidence	Not addressed	Implement training programs to address overconfidence and promote safety awareness.	Link	Link
Imprecise Communications	Not addressed	Develop clear communication protocols and training to ensure precise and effective communication.	Link	Link
Work Stress	Not addressed	Implement stress management programs and monitor workload to prevent stress-related hazards.	Link	Link
Noise from Equipment	Not addressed	Conduct noise assessments and implement engineering controls to reduce noise exposure.	Link	Link
Falling Objects/Tools	Not addressed	Implement safe storage practices and PPE requirements to mitigate risks from falling objects.	Link	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	Administrative oversight or miscommunication	Ensure permit validity and regular audits of permit status
Personal Protective Equipment (PPE)	PPE not worn or inadequate	Increased risk of exposure to contaminants	Lack of training or enforcement	Conduct regular PPE training and enforce compliance checks
Work instructions and safety procedures	Instructions not followed or misunderstood	Unsafe work practices leading to accidents	Inadequate training or unclear instructions	Provide clear, detailed instructions and conduct regular training sessions
Use of lifting aids for manual material handling	Lifting aids not used or malfunctioning	Risk of injury from manual handling	Equipment failure or lack of availability	Regular maintenance of lifting aids and ensure availability

Noise exposure assessment	Inaccurate assessment or monitoring	Hearing damage or stress from noise	Faulty equipment or improper assessment	Regular calibration of monitoring equipment and training for assessors
Radiological Work Permit (RWP)	RWP not followed or expired	Exposure to high radiation levels	Administrative errors or lack of awareness	Regular review and update of RWP and training on compliance
Continuous RCT coverage	RCT not present or inattentive	Unmonitored radiation exposure	Staffing issues or lack of vigilance	Ensure adequate staffing and conduct vigilance training
Use of GFCI for electrical equipment	GFCI not functioning or bypassed	Risk of electrical shock	Equipment failure or intentional bypass	Regular testing of GFCI and strict enforcement of usage policies
Elevated work precautions	Ladders not used properly or inspected	Falls leading to injury	Lack of training or inspection	Conduct ladder safety training and regular inspections