Work scope details:

Title: Installation of Cave B Liner, Transfer Chute, & Glove Box

Work Scope Summary: This work involves the installation of a new Cave B liner, transfer chute, and glove box within Building 7920, Room 111. The project requires careful handling of materials and adherence to safety protocols to mitigate risks associated with confined spaces, manual material handling, and elevated work.

Key Work Scope Components:

• Installation of the Cave B liner

• Transfer of the transfer chute and glove box into Lab 111 and cave cavity

• Packing lead wool into the utility sleeve

• Use of electrical tools and equipment with GFCI protection

• Manual handling of concrete block wall components

Relevant previous events and lessons learned:

Event Title	Event Summary	Lessons Learned	Reference Link
Cave Collapse Incident	A cave collapse during maintenance work resulted in injuries due to inadequate support structures.	Ensure proper structural assessments and support systems are in place before entering confined spaces.	N/A
Ladder Fall Accident	A worker fell from a ladder while installing equipment due to improper ladder inspection.	Implement a strict ladder inspection protocol and ensure workers are trained on ladder safety.	N/A
Electrical Shock Incident	A worker received an electrical shock while using non-GFCI protected tools.	Always use GFCI-protected tools in wet or damp environments and ensure all equipment is properly grounded.	N/A
Manual Handling Injury	An employee sustained a back injury while lifting heavy materials without assistance.	Promote team lifting practices and provide training on proper lifting techniques.	N/A
Confined Space Fatality	A worker died due to asphyxiation in a poorly ventilated confined space.	Conduct thorough air quality assessments and ensure proper ventilation before confined space entry.	N/A

Missing Hazards:

Hazard	Missing or Inadequate Mitigation in Current Work Control Document	Recommended Mitigation for Revision	Reference Link	SBMS Link
Confined Space Entry	Not addressed	Conduct air quality monitoring and ensure ventilation is adequate before entry.	N/A	N/A
Manual Material Handling	Not addressed	Implement a mandatory team lifting protocol and provide training on proper lifting techniques.	N/A	N/A
Ladder Safety	Inadequate inspection protocol	Establish a formal ladder inspection checklist and training for all personnel.	N/A	N/A
Electrical Hazards	Inadequate equipment checks	Ensure all tools are inspected for GFCI protection and proper grounding before use.	N/A	N/A
Overhead Work	Not addressed	Implement hard hat requirements and ensure proper scaffolding is used for elevated tasks.	N/A	N/A
Noise Exposure	Not addressed	Conduct a noise assessment and provide hearing protection if noise levels exceed permissible limits.	N/A	N/A
Poor Lighting	Not addressed	Ensure adequate lighting is provided in work areas, especially in confined spaces.	N/A	N/A
Time Pressures	Inadequate management of workload	Establish clear timelines and ensure adequate staffing to prevent rushed work.	N/A	N/A
Communication Issues	Not addressed	Implement a communication protocol for all team members to ensure clarity in instructions.	N/A	N/A
Contamination Control	Not addressed	Develop a contamination control plan specific to the materials being handled.	N/A	N/A

Failure mode analysis:

Current Control	Failure Mode of the Control	Effect of Failure	Cause of Failure	Recommended Action
Confined Space Entry Permit	Permit not obtained or expired	Potential asphyxiation or exposure to hazardous atmospheres	Lack of awareness or oversight	Implement a tracking system for permit expiration and renewals.
PPE Requirements	PPE not used or inadequate	Increased risk of injury or exposure to hazards	Poor enforcement of PPE policies	Conduct regular PPE audits and training sessions.
Ladder Inspection Protocol	Ladder not inspected before use	Risk of falls and injuries	Inadequate inspection process	Develop a formalized inspection checklist and schedule.
GFCI Protection	GFCI not functioning or bypassed	Risk of electrical shock	Lack of maintenance or improper use	Regularly test GFCI devices and provide training on their importance.
Communication Protocol	Miscommunication among team members	Increased risk of accidents or errors	Vague instructions or lack of clarity	Establish a standard communication protocol for all tasks.
Emergency Response Plan	Plan not reviewed or practiced	Ineffective response to emergencies	Lack of training or awareness	Conduct regular emergency drills and reviews of the response plan.
Tool Availability	Tools not available or inadequate	Delays in work and increased frustration	Poor inventory management	Implement a tool tracking system to ensure availability.
Training and Competency Verification	Inadequate training for workers	Increased risk of accidents due to lack of knowledge	Insufficient training programs	Develop comprehensive training programs and require certifications.

Current Control	Failure Mode of the Control	Effect of Failure	Cause of Failure	Recommended Action
Material Handling Guidelines	Guidelines not followed	Increased risk of injury during lifting	Lack of enforcement or training	Regularly review and enforce material handling guidelines.
Ventilation Systems	Inadequate ventilation in confined spaces	Risk of exposure to hazardous atmospheres	Lack of monitoring	Install air quality monitors and ensure ventilation systems are functional.