Work scope details:

Title: BL1B-VAC REPAIR 2ND Shutter

Work Scope Summary: This work involves the repair and installation of the second shutter in the BL1B-VAC system, including the removal of shielding, disconnection of wiring, and alignment checks. The process requires critical lifts, leak testing, and the installation of vacuum caps and shielding.

Key Work Scope Components:

• Removal of shielding and T-zero chopper

• Disconnection of secondary shutter wiring

• Critical lift for removing the second shutter

• Drilling holes and installing vacuum caps

• Leak testing and installation of the repair shutter

• Testing and alignment of the second shutter

Relevant previous events and lessons learned:

Event Title	Event Summary	Lessons Learned	Reference Link
Equipment Failure during Maintenance	A maintenance team experienced a failure of a critical component during a routine check, leading to an unexpected shutdown.	Ensure all equipment is inspected prior to maintenance and that backup systems are in place.	N/A
Fall from Height Incident	A worker fell from an unprotected edge while performing overhead work, resulting in serious injury.	Implement strict fall protection measures and ensure all workers are trained in fall hazard awareness.	N/A
Electrical Shock Incident	An electrical worker received a shock while disconnecting wiring without proper lockout/tagout procedures.	Reinforce the importance of lockout/tagout procedures and ensure all workers are trained and compliant.	N/A
Radiological Contamination Event	A technician was exposed to contamination due to inadequate shielding during equipment removal.	Ensure proper shielding and radiological monitoring are in place before starting work in radiological areas.	N/A
Improper Tool Use Leading to Injury	A worker sustained an injury due to improper use of drilling equipment without adequate training.	Provide comprehensive training on the proper use of tools and ensure that only qualified personnel operate equipment.	N/A

Missing Hazards:

Hazard	Missing or Inadequate Mitigation in Current Work Control Document	Recommended Mitigation for Revision	Reference Link	SBMS Link
Overhead Work	Not addressed	Implement a fall protection plan for work over 4 feet, including harnesses and guardrails.	N/A	N/A
Electrical Hazards	Not addressed	Ensure lockout/tagout procedures are detailed and enforced, and provide electrical safety training.	N/A	N/A
Radiological Exposure	Inadequate monitoring	Ensure continuous radiological monitoring is in place and that workers are trained on exposure limits.	N/A	N/A
Manual Material Handling	Not addressed	Implement ergonomic assessments and provide lifting aids to minimize manual handling risks.	N/A	N/A
Critical Lifts	Inadequate planning	Develop a detailed critical lift plan that includes personnel qualifications and equipment checks.	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
Confined Space Entry	Not addressed	Conduct a confined space assessment and ensure proper permits and monitoring are in place.	N/A	N/A
Time Pressures	Not addressed	Establish realistic timelines and ensure adequate staffing to prevent rushed work conditions.	N/A	N/A
Tool Safety	Inadequate training	Ensure all personnel are trained on the safe use of tools and have access to safety data sheets.	N/A	N/A
Communication Failures	Not addressed	Implement a communication plan that includes regular briefings and feedback mechanisms.	N/A	N/A

Failure mode analysis:

Current Control	Failure Mode of the Control	Effect of Failure	Cause of Failure	Recommended Action
Permit System	Permit not obtained or expired	Work may proceed without safety checks, leading to accidents	Lack of oversight or communication	Implement a tracking system for permits to ensure they are current
PPE Requirements	PPE not used or inadequate	Increased risk of injury	Lack of enforcement or training	Conduct regular audits to ensure compliance with PPE requirements
Work Instructions	Instructions not followed	Increased risk of accidents or errors	Poor communication or unclear instructions	Provide clear, accessible work instructions and conduct pre-job briefings
Communication Processes	Miscommunication among team members	Increased risk of errors or accidents	Lack of established communication protocols	Establish clear communication protocols and regular check-ins
Emergency Response Procedures	Emergency procedures not followed	Delayed response to incidents	Lack of training or awareness	Conduct regular emergency drills and training sessions
Tool Availability	Tools not available or inadequate	Delays in work or increased risk of using improper tools	Poor planning or inventory management	Maintain an inventory of tools and ensure availability prior to work
Training and Competency Verification	Workers not adequately trained	Increased risk of accidents	Inadequate training programs	Implement a robust training program with regular assessments

Current Control	Failure Mode of the Control	Effect of Failure	Cause of Failure	Recommended Action
Lockout/Tagout Procedures	Procedures not followed	Risk of accidental energization	Lack of awareness or enforcement	Conduct regular training and audits on lockout/tagout procedures
Radiological Monitoring	Monitoring not conducted or inadequate	Increased risk of exposure	Lack of personnel or equipment	Ensure continuous monitoring and adequate staffing during radiological work
Fall Protection	Fall protection measures not in place	Increased risk of falls	Lack of awareness or enforcement	Conduct regular training and ensure compliance with fall protection standards