

Work scope details:

Title: Configuration Change Focusing Guide to Non-Focusing

Work Scope Summary: - The task involves altering the configuration of a guide system from a focusing guide to a non-focusing guide. This requires the removal of the cryostat from the sample environment to facilitate the change.

Key Work Scope Components: - Change configuration from focusing to non-focusing guide - Remove cryostat from the sample environment - Ensure compatibility of new non-focusing guide with existing systems - Verify operational integrity post-configuration change - Document the configuration change process and outcomes

Relevant previous events and lessons learned:

Event Title	Event Summary	Lessons Learned	Reference Link
Management Concern: Over-pressurization of Displex Cryostat	On August 2, 2008, an instrument researcher noticed a sample stick was stuck in a Displex cryostat. After turning off the compressor, a loud popping sound was heard, and a hole was found in the ceiling. The sample stick was not recovered, and cryogenic operations were suspended.	Ensure proper handling and monitoring of cryogenic equipment to prevent over-pressurization incidents.	Link
Configuration Change after Research Equipment Relocation Causes Smoke	A high temperature convection oven at PNNL was moved, and during testing, a haze and discoloration of duct sealing paste were noticed. The furnace operator turned off the heating elements and notified security.	Proper testing and monitoring are essential after equipment relocation to identify potential hazards.	Link
Incomplete Configuration of Management for an On-Going Project	On November 5, 2015, a change request was not completed before construction activities for a project. This led to a suspension of activities for review.	Ensure all change requests are completed and approved before proceeding with construction activities.	Link
Lab Accident at UC Berkeley	A graduate student was seriously injured due to over-pressurization of a glass reactor involving toxic/flammable gas and a pyrophoric reagent.	Highlight the importance of safety protocols when handling hazardous materials.	Link
Injury Related to Handling Cryoblocks in a Cryostat	A post-doc was cut while removing a razor blade from a metal cryotome attachment.	Emphasize the need for proper safety measures and training when handling sharp objects and cryogenic equipment.	Link
Attempt to Repair Malfunctioning Cryostat Results in Cut Finger	An accident at UCLA occurred when repairing a cryostat, resulting in a cut finger.	Ensure proper training and caution when repairing equipment to avoid injuries.	Link

Missing Hazards:

Hazard	Missing or Inadequate Mitigation in Current Work Control Document	Recommended Mitigation for Revision	Reference link	SBMS Link
Over-pressurization of cryostat	Not addressed	Implement pressure relief systems and regular inspections	Link 1 , Link 2 , Link 3	Link
Improper handling of cryogenic equipment	Not addressed	Provide training on safe handling and use of protective clothing	Link 1 , Link 2 , Link 3	Link
Incomplete configuration change	Not addressed	Establish a configuration management process with verification steps	Link 1 , Link 2 , Link 3	Link
Equipment malfunction post-relocation	Not addressed	Develop a preventive maintenance program and relocation checklist	Link 1 , Link 2 , Link 3	Link
Sharp object handling during cryostat repair	Not addressed	Use protective equipment and provide training on safe handling	Link 1 , Link 2 , Link 3	Link
Time pressures and high workload	Not addressed	Implement workload management strategies and stress reduction programs	Link 1 , Link 2 , Link 3	Link
Distractive environment	Not addressed	Design workspaces to minimize distractions and provide focus areas	Link 1 , Link 2 , Link 3	Link
Lack of proper safety protocols	Not addressed	Develop comprehensive safety protocols and conduct regular training	Link 1 , Link 2 , Link 3	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 incorrect	Unauthorized work leading to safety hazards	Miscommunication or oversight in permit process	Implement a checklist for permit verification and approval
Personal Protective Equipment (PPE)	PPE not used or inadequate	Increased risk of injury or exposure	Lack of awareness or availability	Conduct mandatory PPE training and ensure availability before work starts
Work instructions for information	Instructions not followed or misunderstood	Incorrect execution of tasks leading to system failure	Ambiguity in instructions or lack of training	Simplify and clarify instructions; conduct pre-job briefings
ORNL subject area requirements	Non-compliance with hazard controls	Increased risk of accidents or system damage	Lack of understanding or oversight	Regular audits and compliance checks; provide training on requirements
Discuss group/individual responsibilities	Responsibilities unclear or ignored	Ineffective teamwork and increased risk of errors	Poor communication or lack of leadership	Define roles clearly and conduct team briefings
Follow work instructions & safety procedures	Deviations from procedures	Safety incidents or operational errors	Time pressure or lack of supervision	Implement strict adherence protocols and supervision
Availability/location of materials, tools	Materials/tools not available or misplaced	Delays and potential safety risks	Poor inventory management or planning	Improve inventory tracking and planning systems
Response if work cannot be performed as planned	Inadequate response to unforeseen issues	Escalation of risks or project delays	Lack of contingency planning	Develop and train on contingency plans for common issues
Potential error traps with the job	Error traps not identified or mitigated	Increased likelihood of mistakes	Lack of experience or foresight	Conduct error trap analysis and mitigation strategies
Take a minute before: work start & leaving work area	Failure to pause and assess	Increased risk of oversight and accidents	Rushing or lack of awareness	Encourage mindfulness and situational awareness practices
Hoisting and Rigging	Improper lifting techniques	Equipment damage or personal injury	Lack of training or supervision	Provide training and enforce lift plan protocols
Manual Material Handling	Incorrect handling methods	Musculoskeletal injuries or material damage	Lack of ergonomic practices or training	Implement ergonomic training and use of lifting aids

Exposure Assessment	Inaccurate risk classification	Uncontrolled exposure to hazards	Inadequate assessment methods	Conduct thorough risk assessments and regular monitoring
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