

Work scope details:

Title: Baker ADX Chopper Motor & Coil Test

Work Scope Summary: - This document outlines the guidelines for testing chopper motors and coils using the Baker ADX System. The purpose of these tests is to collect trend data, which aids in motor troubleshooting and is part of the Predictive Maintenance plan.

Key Work Scope Components: - Testing chopper motors - Testing coils - Utilizing the Baker ADX System - Collecting trend data - Supporting motor troubleshooting

Relevant previous events and lessons learned:

Event Title	Event Summary	Lessons Learned	Reference link
Advanced Test Reactor (ATR) Rod Clutch Coil (RCC) Power Supply Failure	On May 13, 2016, the Advanced Test Reactor Control Room received a Rod Clutch Coil (RCC) power supply over/under voltage alarm and a plant protective system channel D alarm. Investigation revealed the presence of an acrid odor in the area of the RCC power supply cabinet. Both power sources to the power supply cabinet were secured, and the RCC power supply was declared out-of-service. A maintenance work request was submitted to troubleshoot and repair the RCC power supply actuator. Management was notified.		Link
Motorist Crash into Trench	On December 20, 2024, a 33-year-old motorist crashed into a 40-foot-deep trench along Highway 290 after missing a turn toward the frontage road, leading to serious injury and requiring helicopter (chopper) airlift to the hospital.		Link
AGC Study on Highway Work Zone Crashes	The 2025 Associated General Contractors of America (AGC) study reports that 60% of highway contractors in the U.S. experienced crashes in their construction work zones over the last year, with 13% reporting worker fatalities, 30% reporting worker injuries, and incidents often involving contractors using predictive maintenance and trend data collection for heavy equipment.		Link
No Recent Events on Coil Testing or Baker ADX System	No recent, verifiable events specifically documenting accidents involving coil testing, the Baker ADX System, or trend data collection/predictive maintenance in national laboratories or industrial workplaces found in current online records.		

Missing Hazards:

Hazard	Missing or Inadequate Mitigation in Current Work Control Document	Recommended Mitigation for Revision	Reference link	SBMS Link
Electrical Shock	Not specifically addressed	Implement specific controls for electrical shock, such as proper grounding and use of GFCIs.	Link 1	Link

Improper Grounding	Not specifically addressed	Ensure all electrical equipment is properly grounded and regularly inspected for grounding issues.	Link 2	Link
Tripping Hazard	Not specifically addressed	Conduct regular site inspections to identify and mitigate tripping hazards.	Link 3	Link
Electromagnetic Interference	Not specifically addressed	Implement shielding and filtering techniques to minimize EMI in sensitive areas.	Link 4	Link
Time Pressure	Not specifically addressed	Develop time management strategies and ensure adequate staffing to reduce time pressure.	Link 5	Link
Distractive Environment	Not specifically addressed	Implement policies to minimize distractions, such as designated quiet zones and clear communication.	Link 6	Link
High Workload	Not specifically addressed	Monitor workloads and provide resources or adjust tasks to prevent excessive workload.	Link 7	Link
First Time Evolution	Not specifically addressed	Provide thorough training and supervision for tasks being performed for the first time.	Link 8	Link
Overconfidence	Not specifically addressed	Implement regular training and assessments to ensure realistic self-assessment of skills.	Link 9	Link
Vague Guidance	Not specifically addressed	Develop clear and detailed procedures and guidelines for all tasks.	Link 10	Link

Imprecise Communication	Not specifically addressed	Establish clear communication protocols and regular briefings to ensure accurate information flow.	Link 11	Link
Work Stress	Not specifically addressed	Implement stress management programs and provide access to mental health resources.	Link 12	Link
Heavy Equipment Crashes	Not specifically addressed	Conduct regular training and certification for heavy equipment operators and enforce safety protocols.	Link 13	Link
Equipment Failure	Not specifically addressed	Implement a preventive maintenance program and regular inspections to ensure equipment reliability.	Link 14	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	Oversight in permit management	Implement a digital permit tracking system with alerts for expiration
Precautions, step warnings, Hold Points	Steps not followed or ignored	Increased risk of accidents or equipment damage	Lack of awareness or training	Conduct regular training sessions and audits to ensure compliance
Personal Protective Equipment (PPE)	PPE not used or inadequate	Increased risk of injury to personnel	Lack of enforcement or availability	Enforce strict PPE policies and ensure availability of appropriate PPE
Work instructions for information	Instructions not followed or misunderstood	Incorrect testing leading to equipment failure	Poor communication or documentation	Simplify instructions and use visual aids; conduct briefings before work

ORNL subject area requirements	Non-compliance with safety standards	Legal and safety repercussions	Lack of knowledge or oversight	Regularly update and communicate standards; conduct compliance checks
Group/individual responsibilities	Roles not clearly defined	Confusion and inefficiency in task execution	Poor communication or planning	Clearly define and communicate roles; use a responsibility matrix
Availability/location of materials, tools	Tools/materials unavailable or misplaced	Delays and potential safety risks	Poor inventory management	Implement a tool/material tracking system and conduct regular checks
Previous experiences/lessons learned	Lessons not documented or shared	Repeated mistakes and inefficiencies	Lack of a feedback system	Establish a lessons learned repository and review it regularly
Response if work cannot be performed as planned	Inadequate contingency planning	Project delays and increased costs	Lack of foresight or planning	Develop and communicate contingency plans for common issues
Potential error traps	Unidentified error traps	Increased likelihood of errors	Lack of risk assessment	Conduct thorough risk assessments and implement error-proofing measures
Work Hand-off/Turnover	Poor communication during hand-off	Misunderstandings and errors	Lack of structured hand-off process	Implement a standardized hand-off protocol with checklists
Time pressures	Rushed work leading to errors	Compromised safety and quality	Unrealistic deadlines or poor planning	Set realistic deadlines and monitor workload distribution
Distractive environment	Loss of focus leading to errors	Safety incidents and reduced quality	Poor work environment management	Minimize distractions and create a focused work environment
High workload	Overburdened staff leading to errors	Burnout and increased error rates	Poor resource allocation	Balance workload and provide support where needed
First time evolution	Lack of experience leading to errors	Increased risk of mistakes	Inadequate training or preparation	Provide additional training and supervision for new tasks

Vague guidance	Misinterpretation of instructions	Errors and inefficiencies	Poor documentation or communication	Ensure clarity in instructions and provide examples where possible
Overconfidence	Underestimating risks leading to errors	Safety incidents and non-compliance	Lack of awareness or feedback	Encourage a culture of safety and continuous improvement
Imprecise communications	Misunderstandings leading to errors	Safety incidents and inefficiencies	Poor communication skills or channels	Use clear, concise communication and confirm understanding
Work stress	Stress-induced errors	Reduced performance and safety	High pressure or poor work-life balance	Promote a healthy work environment and provide stress management resources