

Work scope details:

Title: ORNL Bridge Inspection

Work Scope Summary: - The work involves conducting inspections of bridges, culverts, and walkways at the Oak Ridge National Laboratory (ORNL) to assess their condition and ensure safety and compliance with relevant standards.

Key Work Scope Components: - Inspection of bridges at ORNL - Inspection of culverts at ORNL - Inspection of walkways at ORNL - Assessment of structural integrity - Compliance with safety standards

Relevant previous events and lessons learned:

Event Title	Event Summary	Lessons Learned	Reference link
Tree Felling Accident at Oak Ridge Reservation	On August 11, 2023, a tree felling accident occurred at the Oak Ridge Reservation involving a Cortese/Davey crew. Although not directly related to bridges or structures, it highlights safety concerns in work activities within the Oak Ridge area.	Highlight the importance of safety protocols in all work activities, even those not directly related to structural inspections.	Link
ORNL Pipeline Safety Assessment	ORNL has been involved in assessing pipeline safety with the Pipeline and Hazardous Materials Safety Administration (PHMSA), evaluating the effectiveness of special permits for pipelines, which may relate to structural integrity and safety compliance.	Emphasize the need for rigorous evaluation of safety permits and compliance to ensure structural integrity.	Link
ORNL Disaster Mitigation Mapping	ORNL contributed to mapping and modeling for disaster mitigation, such as the Coca River in Ecuador. While not directly related to structural accidents, it highlights the laboratory's involvement in infrastructure and environmental projects.	Recognize the value of comprehensive mapping and modeling in disaster mitigation and infrastructure planning.	Link

Missing Hazards:

Hazard	Missing or Inadequate Mitigation in Current Work Control Document	Recommended Mitigation for Revision	Reference link	SBMS Link

Slips, Trips, and Falls	Not addressed in the current document	Implement regular inspections and maintenance of walking surfaces, provide slip-resistant footwear, and conduct awareness training	Weblio	Link
Structural Failure	Not addressed in the current document	Conduct regular structural integrity assessments and maintenance, establish load limits, and provide training on recognizing structural hazards	Weblio	Link
Inadequate Safety Protocols	Not addressed in the current document	Develop comprehensive safety protocols, conduct regular safety audits, and provide training on hazard recognition and PPE usage	OSHA	Link
Time Pressures and High Workload	Not addressed in the current document	Implement workload management strategies, provide stress management training, and ensure adequate staffing levels	Weblio	Link
Radiological Waste Mismanagement	Not addressed in the current document	Develop a radiological waste management plan, provide training on waste handling, and conduct regular audits of waste disposal practices	Weblio	Link
Inadequate Emergency Response	Not addressed in the current document	Develop and implement an Emergency Action Plan (EAP), conduct regular emergency drills, and provide training on emergency procedures	CDC	Link
Inadequate Training for Elevated Work	Training requirements are specified but may be insufficient	Enhance training programs to include comprehensive safety measures for elevated work, conduct regular competency assessments	HSE Blog	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	Lack of awareness or oversight	Ensure permits are current and verified before work begins
Personal Protective Equipment (PPE)	PPE not used or inadequate	Increased risk of injury or contamination	Lack of training or availability	Conduct PPE training and ensure availability of appropriate gear
Work instructions & safety procedures	Instructions not followed or misunderstood	Unsafe work practices leading to accidents	Poor communication or vague instructions	Provide clear, detailed instructions and conduct briefings
ORNL subject area requirements	Non-compliance with specific hazard controls	Exposure to uncontrolled hazards	Lack of understanding or oversight	Regular audits and training on specific requirements
Discuss group/individual responsibilities	Miscommunication of roles	Confusion leading to unsafe practices	Inadequate briefing or unclear roles	Conduct detailed role briefings and confirm understanding
Availability/location of materials, tools, etc.	Materials/tools not available or misplaced	Delays or unsafe improvisation	Poor planning or inventory management	Implement inventory checks and ensure readiness before work
Response if work cannot be performed as planned	Inadequate response to unforeseen issues	Increased risk of accidents or delays	Lack of contingency planning	Develop and communicate contingency plans for potential issues
Radiological Work Permit	Permit not developed or followed	Exposure to radiological hazards	Lack of coordination or oversight	Ensure permits are developed and strictly adhered to
Managing Waste	Improper waste management	Environmental contamination or regulatory non-compliance	Lack of procedures or training	Develop and enforce waste management protocols
Inspecting Ladders Guide	Ladder inspection not conducted	Falls or injuries due to faulty equipment	Negligence or lack of training	Regular ladder inspections and training on safe use
Time pressures	Rushed work leading to errors	Increased risk of accidents	Poor scheduling or unrealistic deadlines	Implement realistic timelines and stress management strategies

Distractive environment	Loss of focus leading to mistakes	Increased risk of accidents	Poor work environment management	Minimize distractions and enhance focus through environmental controls
High workload	Overburdened workers leading to errors	Increased risk of accidents	Poor workload management	Balance workloads and provide adequate breaks
Vague guidance	Misinterpretation of instructions	Unsafe practices leading to accidents	Poor communication or documentation	Provide clear, detailed guidance and confirm understanding
Overconfidence	Underestimating risks leading to unsafe practices	Increased risk of accidents	Lack of awareness or training	Encourage humility and continuous risk assessment
Imprecise communications	Miscommunication leading to errors	Unsafe practices or delays	Poor communication skills or tools	Implement precise communication protocols and tools
Work stress	Stress-induced errors	Increased risk of accidents	Poor stress management or support	Provide stress management resources and support systems