Work scope details:

Title: Boost Pressure to Wet Pipe Sprinkler System via FDC with Fire Engine

Work Scope Summary: - The task involves enhancing the water pressure of a wet pipe sprinkler system by using a fire engine's pumping capabilities. This is achieved through the fire department connection (FDC) to ensure the sprinkler system operates effectively.

Key Work Scope Components: - Utilize fire engine's pumping ability - Connect fire engine to fire department connection (FDC) - Boost water pressure in wet pipe sprinkler system - Ensure effective operation of sprinkler system - Coordinate with fire department for connection and operation

Relevant previous events and lessons learned:

Event Title	Event Summary	Lessons Learned	Reference link
TSR Violation - Failure to enter LCO when the Dry Pipe Sprinkler System Wet-up	The failure of an air compressor reduced air pressure in the Building 9215 dry pipe fire suppression system, causing water to enter the system and activating an alarm at the fire department monitoring station. The fire protection engineer and shift manager concluded that the system was still operational because temperatures would not get below freezing. However, a surveillance three days later found the system side air pressure gauge reading 62 psig, above the Technical Safety Requirement's maximum allowable pressure of 50 psig. The shift manager entered the appropriate limiting condition of operations and all hot work in the sprinkler coverage area was stopped.	Facilities with similar systems should ensure that an alternate method of supplying air is available or that timely repairs can be made to air supply systems when problems occur.	Link
SRS Fire Department personnel assisting with a flow test	During a flow test of the standpipes system at 264-H, personnel deployed hoses to discharge water into a storm drain. A leak at the connection point worsened, causing an employee to lose grip of the hose, resulting in an injury. The job was halted until a nozzle with a shut-off handle was obtained. The employee was treated for a contusion.	Ensure proper equipment and secure connections during flow tests to prevent accidents.	Not provided

Aviation Hanger Fire Protection	Two Low-Expansion Foam Deluge Fire Sprinkler Systems at Kirtland Air Force Base were not maintained as required by NFPA 25. During conversion to a High-Expansion Foam and Wet-Pipe Sprinkler system, branch-lines and sprinkler heads were found clogged with corrosion materials.	Regular inspection, testing, and maintenance are crucial to prevent clogging and corrosion in fire protection systems.	Link

Missing Hazards:

Hazard	Missing or Inadequate Mitigation in Current Work Control Document	Recommended Mitigation for Revision	Reference link	SBMS Link
Equipment Failure	Not addressed	Implement preventive maintenance schedules, regular inspections, and training on equipment handling	OSHA Safety Management	Link
Improper Connection	Not addressed	Ensure proper training on electrical connections and regular inspections of electrical systems	Weblio Example	Link
Over-pressurization	Not addressed	Install pressure relief devices and conduct regular system pressure checks	Pumps and Systems	Link
Corrosion and Clogging	Not addressed	Implement regular maintenance and use corrosion-resistant materials	Weblio Example	Link
Communication Failure	Not addressed	Develop a comprehensive communication plan and conduct regular training sessions	OSHA Hazard Communication	Link
Environmental Conditions	Not addressed	Conduct environmental assessments and implement control measures based on identified risks	OSHA Safety Management	Link

Inadequate Training	Not addressed	Develop a detailed training program tailored to specific job functions and potential hazards	OSHA Safety Management	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	Ensure thorough review and approval of permits before work begins
Precautions, step warnings, Hold Points	Precautions not followed	Increased risk of accidents or injuries	Lack of awareness or training	Conduct pre-job briefings and ensure all personnel are trained on precautions
Personal Protective Equipment (PPE)	PPE not used or inadequate	Increased risk of injury	Lack of enforcement or availability	Implement strict PPE compliance checks and ensure availability
Work instructions for information	Instructions not followed or misunderstood	Ineffective operation or safety risks	Poor communication or training	Provide clear, detailed instructions and conduct training sessions
ORNL subject area requirements	Requirements not met	Non-compliance with safety standards	Lack of awareness or oversight	Regular audits and compliance checks
Discuss group/individual responsibilities	Responsibilities unclear	Inefficient operation and increased risk	Poor communication or role definition	Clearly define roles and responsibilities in pre-job meetings
Follow work instructions & safety procedures	Procedures not followed	Increased risk of accidents	Lack of training or oversight	Implement regular safety audits and supervision
Availability/location of materials, tools	Materials/tools unavailable	Delays or unsafe improvisation	Poor planning or inventory management	Conduct pre-job checks to ensure all materials/tools are available
Previous experiences / lessons learned	Lessons not applied	Repeat of past mistakes	Lack of documentation or review	Maintain a lessons learned database and review before similar tasks

Response if work cannot be performed as planned	Inadequate response plan	Increased risk during unforeseen events	Lack of contingency planning	Develop and communicate contingency plans for potential issues
Potential error traps with the job	Error traps not identified	Increased likelihood of mistakes	Lack of foresight or analysis	Conduct thorough risk assessments and error trap identification
Take a minute before work start & leaving work area	Not taking time to assess	Increased risk of oversight or errors	Time pressure or lack of awareness	Encourage a culture of mindfulness and situational awareness
Establish Controls for Manual Material Handling	Controls not established	Risk of injury from improper handling	Lack of training or equipment	Implement ergonomic training and provide lifting aids
Stop Work for unsafe conditions	Unsafe conditions not addressed	Imminent danger persists	Lack of empowerment or awareness	Empower workers to stop work and report unsafe conditions immediately
Emergency Response	Inadequate emergency response	Increased risk during emergencies	Lack of training or planning	Conduct regular emergency response drills and training