

Work scope details:

Title: Line Repairs at Tank Pit 2 and Tank Pit 6

Work Scope Summary: This work involves performing line repairs at Tank Pit 2 and Tank Pit 6 within a Limited Access Area (LAA) at Building 7920. The task includes identifying leaking lines, conducting leak testing post-repair, and safely moving shield blocks as per established protocols.

Key Work Scope Components:

- Identification and repair of leaking lines in Tank Pit 2 and Tank Pit 6
- Movement of Tank Pit shield blocks following specified procedures
- Leak testing with assistance from 7920 Operations personnel
- Use of specialized tools and equipment for accessing and repairing lines

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 hydraulic lift while performing overhead work, resulting in a near-miss incident. | Ensure all lifting equipment is inspected and certified prior to use. Implement a double-check system for equipment readiness. | OSHA Equipment Safety |
| Fall Incident from Elevated Work | A worker fell from an unguarded edge while performing maintenance work above an open pit, leading to serious injuries. | Always install guardrails or use personal fall arrest systems when working at heights. Conduct thorough pre-work safety briefings. | OSHA Fall Protection |
| Chemical Exposure Incident | A worker was exposed to a hazardous chemical due to inadequate PPE while loosening stuck bolts. | Ensure proper PPE is worn at all times, and provide training on chemical hazards and safety data sheets (SDS). | OSHA Chemical Safety |
| Radiological Contamination Event | A contamination incident occurred due to improper monitoring and failure to follow radiological work permits. | Strict adherence to radiological work permits and continuous monitoring of radiation levels is essential to prevent contamination. | NRC Radiological Safety |
| Tool Malfunction During Operations | A power tool malfunctioned during use, causing injury to the operator. | Regular maintenance and inspection of tools before use can prevent malfunctions. Implement a tool check-out system. | ANSI Tool Safety |

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 mandatory use of fall protection systems (guardrails or harnesses) when working above open pits. | OSHA Fall Protection | N/A |
| Chemical Exposure | Inadequate PPE specification | Specify the use of chemical-resistant gloves and goggles for all chemical handling tasks. | OSHA Chemical Safety | N/A |
| Radiological Monitoring | Not addressed | Ensure continuous dosimetry monitoring and training on responding to radiological alarms. | NRC Radiological Safety | N/A |
| Ergonomic Risks | Not addressed | Conduct ergonomic assessments and implement tool design improvements to reduce contact stress and repetitive motion injuries. | N/A | N/A |
| Manual Material Handling | Inadequate guidance | Provide specific training on proper lifting techniques and use of mechanical aids for heavy lifting tasks. | OSHA Manual Handling | N/A |
| Tool Safety | Not addressed | Implement a tool inspection checklist and ensure all tools are certified before use. | ANSI Tool Safety | N/A |
| Confined Space Entry | Not addressed | Conduct a confined space entry assessment and provide necessary training and equipment for safe entry. | OSHA Confined Spaces | N/A |
| Communication Failures | Not addressed | Establish clear communication protocols and ensure all team members are briefed on work plans and safety measures. | N/A | N/A |

Failure mode analysis:

| Current Control | Failure Mode of the Control | Effect of Failure | Cause of Failure | Recommended Action |
|--------------------------------------|-------------------------------------|---|--------------------------------|--|
| Radiological Work Permit | Permit not obtained or expired | Potential exposure to radiation and contamination | Lack of awareness or oversight | Implement a checklist to verify permit status before work begins. |
| PPE Requirements | PPE not used or inadequate | Increased risk of injury or exposure | Poor enforcement or training | Conduct regular audits to ensure compliance with PPE requirements. |
| Work Instructions | Instructions not followed | Increased risk of accidents or errors | Lack of clarity or training | Review and simplify work instructions; provide hands-on training. |
| Communication Protocols | Miscommunication among team members | Increased risk of accidents due to lack of coordination | Informal communication methods | Establish formal communication channels and regular safety briefings. |
| Emergency Response Procedures | Procedures not followed | Delayed response to incidents | Lack of training or drills | Conduct regular emergency response drills and training sessions. |
| Tool Availability | Tools not available or inadequate | Delays in work and increased risk of using improper tools | Poor inventory management | Implement a tool check-out system and maintain an inventory log. |
| Training and Competency Verification | Inadequate training for workers | Increased risk of accidents and injuries | Lack of training programs | Develop and implement comprehensive training programs for all workers. |

| Current Control | Failure Mode of the Control | Effect of Failure | Cause of Failure | Recommended Action |
|------------------------|------------------------------------|-------------------------------------|------------------------------------|--|
| Equipment Inspection | Equipment not inspected before use | Increased risk of equipment failure | Negligence in inspection protocols | Establish a mandatory inspection checklist for all equipment prior to use. |