

CSI Country Wide Case Study Safety Strategy Discussion

Construction Safety Investigator



Instructions:

The objective of this tool is to provide field supervisors with information to proactively engage workers and discuss safety-related concerns they may encounter. Safety discussions should not be limited to the subject above and should pertain to the activities that workers will be involved in that may have the potential for safety-related exposures.

Case Date:

2018

Accident Type:

Struck by Pressurized Pipe

Relevant Laws, Rules, and Codes May Include:

29CFR 1926.20(a)(1); 1926.21(b)(2); Manufacturer Installation Specifications; Contractor Quality Assurance and Control Program – Inspection Requirements; Other Governing authority installation and inspection requirements.

Case:

Pipefitter Struck by Pressurized Pipe

Accident Detail:

A 49-year-old pipefitter was hit in the chest by a pressurized 12-inch diameter polyvinyl chloride (PVC) pipe during a hydrostatic pressure test of a fire suppression system, resulting in his death.

The pipe thrust upward approximately 10 inches toward the worker's chest, striking the impact driver he was using to tighten flange bolts on the end cap of the pipe. The sudden pipe movement was attributed to a pipe joint connection failure in a buried section of the pipeline.

The pipe came loose under pressure because the torque shear bolts on the mechanical joint restraining gland had not been tightened at all. The gland connected the vertical pipe to the flange of a horizontal pipe running parallel to ground level, about 4 feet deep.

Reconstructive Safety Evaluation:

- What are some of the possible causes of the accident being discussed?
- What actions could have been taken that might have prevented this accident?

Accident Scene Conclusion:

- The failed pipe connection had been backfilled prior to the hydrostatic pressure test. A visual inspection by qualified persons was performed prior to backfilling, but inspection documentation was not available.
- The employer had developed a hydrostatic pressure testing (HPT) procedure to control the hazards associated with testing, with the most current revision date 5 years prior to the incident.
- However, the HPT procedure was only made available to upper management and not included in the job safety manual. The site superintendent, foremen, field safety technician or employees at the jobsite where the incident occurred did not have access to a written copy of the HPT procedure. In fact, the excavation/pipe superintendent was not aware of the HPT procedure until after the incident.
- Workers reported mid-project design changes that led to schedule pressure from the primary contractor as a reason for backfilling the work before the pressure test was performed.
- There was no record that the decedent had received training on how to perform the hydrostatic pressure test safely, and no record that the employer's test procedure and checklists were followed on the day of the incident.
- The subcontractor was cited and fined for not ensuring workers that were properly trained and supervised in the safe operation of tools, equipment, processes or practices.

Preventive Safety Measures Include:

- Complete a Job Safety Task Analysis (JSTA) that includes scope of work, anticipated exposures and safety equipment and/or procedures needed to ensure the task is completed successfully and safely.
- Conduct a pre-work meeting to review the JSTA and ensure that workers understand the task to be completed, any safe working procedures, and have the necessary safety equipment.
- Employees should have adequate training on job-specific tasks. Proper training must extend to all workers, including day laborers. Language barriers and communication should also be considered during training.
- Employers should ensure employees do not work on pressurized water systems.
- Pipe systems should be pressure-tested and inspected before pipes are backfilled. Use checklists during tasks and the inspection process to reduce risk of overlooking critical steps that could endanger workers.
- Prime contractors should establish a realistic project schedule in collaboration with subcontractors.
- Prime contractors should develop and follow a communication plan so that subcontractors are made aware of project design modifications in a timely manner and to work out how design changes will impact project schedule, so as not to compromise workplace safety.
- Employers should provide written procedures to employees prior to performing the work, and ensure employees receive adequate training so they understand the hazards and how to execute procedures safely.

Attendance Roster:

Reference: NIOSH FACE Program, State FACE Reports, Oregon – Oregon Case Report#: 2018OR030



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