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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 that 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 Day:
August 29, 2006

Accident Type:
Pile Driving Accident - Struck By

Relevant laws, rules and codes may include:
29 CFR 1910.603, 29 CFR 1926. 651, 29 CFR 1926.21 (b)(2)

Case:

A 43-year-old construction foreman was killed when struck by a falling steel I-beam pile.

Accident Detail:

The victim worked for a construction company who on the day of the incident, he and four other workers were in the process of pile driving steel I-beam piles into several pits at the site of a large parking garage.

The victim's job was to stand in the pit and guide the beam that was being hoisted by the pile driver (which functions as a crane and a hammer) to the appropriate position to be hammered.

While the victim was guiding the pile, before it was properly located, the hammer dropped from its upper position. Since the pile was not in the proper location, the hammer struck the pile on its side, instead of the top.

The fatal injury occurred when the beam then fell to the side, striking and crushing the victim.

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 from occurring?

Accident Scene Conclusion:

Investigation indicated that there were two versions of the accident that could have occurred.

#1. The victim was in the pit to manually position the pile. He signaled with two fingers to the crane operator (a two-finger signal indicates “operate the hammer;”, so the crane operator gently lowered the hammer onto the extension pile. The crane inadvertently swung to the right and the victim then instructed the operator to “bump” (nudge) it back to the left. The operator bumped the crane back and at that moment, the extension “spit” out. According to the crane operator, the victim tried to move, but fell.

#2. The setting of the extension proceeded correctly, as per the operator (in above version). The victim was ensuring that the pile was in position. Then the leads of the crane swung causing the beam to tilt over to one side (the victim’s side), positioning the extension pile directly over the victim. According to the spotter, the normal practice would then be to swing the extension back and straighten it out. However, at this point the hammer was inadvertently dropped, and it hit the misaligned extension pile which caused it to fall.

Preventive Safety Measures Include:

- Employers should ensure that pile driver operators are properly trained on the safe operation of pile driving equipment.
- Employers should ensure that pile driver operators are periodically reevaluated on the safe operation of pile driving equipment.
- A safety and health plan based on a Job Safety task Analysis (JSTA) should be developed and followed.
- The safety plan (JSTA) and procedures are communicated to all involved in the operations.
- Employers should incorporate specific excavation procedures into the safety and health plan. In this case, the conditions at the bottom of the pit were muddy and could have hindered the egress of the victim.

Attendance Roster

Reference: This case was reported in the NIOSH Fatality Assessment and Control Evaluation (FACE) Program, Report #06NJ078.

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