CSI Country Wide Case Study Safety Strategy Discussion

Construction Safety Investigator

CHUBB®

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:
April 12, 1989

Accident Type:
Fall Accident - Bridge Construction

Relevant laws, rules and codes may include:
1926.21(b)(2), 1926.500

Case:

A 31 year-old male laborer was killed when he fell 80 feet through a section of a bridge road surface which broke under him.

Accident Detail:

The victim was part of a 10-man crew removing the deck from a 50 year-old bridge so that a new roadway could be installed. Workers used concrete saws to cut the deck into pieces so each could be removed. Cuts through the asphalt and concrete layers were made parallel to, and about 4 inches to the outside edge of steel support beams underneath the deck.

The slab then had 4 holes drilled through it, with pins being inserted for lifting. When the slab was ready to be picked up, two laborers would cut the steel pieces joining the slab to the adjacent decking then the slab would be picked up by a hydraulic crane and placed on a flatbed truck for removal from the bridge.

The victim had cut the steel along the length of the slab. He was wearing a safety belt and a 6- foot lanyard that was attached to an eyebolt on an 8-foot spreader beam which was used to lift the slabs. After the victim had made his cuts, he reached up and disconnected his lanyard from the spreader beam so that he could step clear while the slab was being lifted. Before he could step off the slab, it broke in two, opening like a trap door. The victim fell through the slab to the debris-covered ground 80 feet below.

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:

It was discovered that at the areas where the slab had separated, a repair had been made in the past (time unknown). Apparently the deck pan, reinforcing bar, and deck grid had deteriorated at some point in time, allowing the concrete to fall out. The concrete had been replaced using a cardboard form to hold a cement mixture in place. No reinforcing steel was installed in this repaired area that could be seen during inspection of the failed section.

Preventive Safety Measures Include:

- Implement a 6 foot, 100 percent (tie off) fall protection policy and procedures specific to each task so workers do not have to disconnect their lanyards and are protected at all times during operations.
- Ensure proper training of personnel in the fall protection policy and procedures.
- Alternative methods of supporting the slab while lifting it from the bridge floor to the truck should be considered.

Attendance Roster

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Reference: This case was reported in the NIOSH Fatality Assessment and Control Evaluation (FACE) Program, Report #1989-31.