CSI Country Wide Case Study Safety Strategy Discussion

Construction Safety Investigator

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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:
January 30, 2006

Accident Type:
Crane Accident - Pinned By Boom

Relevant laws, rules and codes may include:
29 CFR 1926.550 (a)(1)(5); 1926.21 (b)(2)

Case:

A 37-year old male Hispanic carpenter helper (victim) was fatally injured, while assisting a crane operator in dismantling the lattice boom section of a truck-mounted crane.

Accident Detail:

The crane operator and the victim were working together removing pins that secured a 40-foot center boom section.

The incident site was a bridge overpass, which was part of a state funded highway project. The truck-mounted crane involved in the accident had an 80-foot lattice boom and was used to set 20 new bridge girders. The next task involved unloading and placing concrete decking onto the girders, which required a longer boom. A 70-foot section of additional boom had to be assembled and inserted onto the crane to provide 150-foot of overall boom length.

Work began at 7:00 a.m. on the day of the accident. The crew was told that a truck carrying concrete bridge panel decking was on its way to the site and that the decking needed to be offloaded and placed on the bridge that afternoon.

The site superintendent, crane operator and two carpenter's helpers assembled the 70-foot section of boom. After the boom section was assembled, the site superintendent left the area to take care of another task.

The crane operator was left in charge of the crane assembly and disassembly. He asked the victim to help disassemble the boom so that they could insert the additional 70-foot section of boom. The operator lowered the 80-foot boom, resting the peak of the end boom section on the ground. The 40-foot center section was about four feet above the ground. The crane operator then asked the victim to help him remove the pins that secured one section of the boom to another section. There were 4 pins that secured

the sections to each other, two upper and two lower pins. The operator knocked out the first lower pin easily but the second lower pin would not budge. The victim went under the boom section and used the knocked out pin as a punch for the operator to knock out the second pin. The crane operator pounded on the pin 4 times with a sledge hammer and the second pinned popped out. The boom hinged on the top two pins and the boom section fell on the victim's back, pinning him to the ground. The accident happened around 8:30 a.m.

Within 5 minutes of the accident a hydraulic crane located nearby was positioned next to the lattice boom. The operator rigged a strap to the boom, attached it to the hook of the crane and lifted the boom section off the victim. EMS arrived at the scene within minutes of receiving the emergency call and attempted to resuscitate the victim without success. The victim was transported to the hospital and pronounced dead at 9:15 a.m.

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:

Medical Examiner's office reported that the cause of death was traumatic asphyxiation due to blunt force trauma.

- The crane operator had limited experience in disassembly and assembly of booms and had never taken the lead in disassembling a boom prior to the day of the accident
- Crane manufacturer disassembly procedure recommended blocking tightly under the pin connection before removing the pins
- The crane operator involved in the accident indicated that this procedure would be too time consuming for the task
- Victim positioned himself under the boom while pins were being removed
- Pendants were not reconnected behind pins being removed to support the boom
- The victim was not trained specifically in the safety hazards associated with disassembling booms in English or Spanish and had never helped disassemble a crane boom before
- No pre-planning meeting was held prior to the activity focusing on procedures to perform the task or specific hazards associated with the task

Preventive Safety Measures Include:

- Employers must ensure that manufacturer's safety recommendations for proper blocking and support procedures to prevent movement of the boom sections are implemented when disassembling cranes.
- Employers must ensure that all workers assigned to disassemble or assemble cranes are trained on correct procedures and hazards in a language and literacy that they understand.
- Employers must ensure that pre-work safety meetings are conducted each day to review work to be performed, identify potential safety hazards and implement safe work procedures to control the hazard.

Attendance Roster

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Reference: This case was reported in the NIOSH Fatality Assessment and Control Evaluation (FACE) Program, Report #2006-01.

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