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:

June 26, 2003

Accident Type:

Crane Accident - Unstable Soil Conditions

Relevant laws, rules and codes may include:

29 CFR 1926.550, 29 CFR 1926.750, Crane Manufacturer's Operating Manual / Specifications

Case:

A 28-year-old male crane operator was fatally injured when his crane overturned.

Accident Detail:

Upon arrival to the worksite, a crane operator set up the rubber tired, 150-ton hydraulic carrier-mounted telescopic boom crane in preparation for the lifting task. The task was described as a one-day job and entailed offloading a water/oil separator from a flatbed truck and placing it onto a ground level cement pad. The setup included extending the boom approximately 150 feet up and over the rear of the crane with no load attached to the hook.

The operator set up the crane by fully deploying all four outriggers directly onto the ground and leveling the crane.

The operator was outside of the crane's cab when he noticed that the crane was moving. In an attempt to stop the crane, the operator started to climb up to the cab. The crane overturned onto its right side, the same side the victim was on, crushing the lower half of his body.

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?



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Accident Scene Conclusion:

Investigation indicated that the location where the task was to be performed was the company's tank farm, which was situated on a plot of coastal land. The ground conditions where the crane was positioned to perform the lift appeared, on visual observation, to be level ground with a layer of crushed stone.

Once leveled and stabilized, the crane was solely supported on its outriggers. Then the crane's right rear outrigger sank approximately nine feet into the ground, causing the crane to overturn onto its right side.

After the incident, OSHA discovered that the soil had been saturated by ground water from the ocean tides, heavy rains, and onsite surface runoff. This excessive water caused pooling and muddy conditions prior to the incident. The oil company had placed the crushed rock at the site several weeks prior to the incident to try and alleviate the water and mud problems.

Preventive Safety Measures Include:

- Ensure that ground conditions are inspected by a competent person and/or soil engineer prior to setting up cranes.
- Ensure only qualified crane operators are used. Crane operators should be licensed and/or certified for the type of crane they will be operating.
- Ensure that outrigger floats are routinely set onto proper blocking when deployed.
- Project owners and contractors should inform crane operators of any known or potentially unsafe soil conditions located at the site.

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Reference: This case was reported in the NIOSH Fatality Assessment and Control Evaluation (FACE) Program, Report # 03MA030-01.

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