

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 17, 1999

Accident Type:

Electrocution Accident - Overhead Powerlines

Relevant laws, rules and codes may include:

29 CFR 1910.333(a), (c)(3), 29 CFR 1926.20, 29 CFR 1926.21

Case:

A 32 year-old drill truck operator's helper was electrocuted when the mast of a drill rig contacted two 7,200-volt overhead power lines.

Accident Detail:

The victim was assisting the drill rig operator to drill for a local environmental engineering contractor. They were tasked with drilling three monitoring wells for the placement of equipment to collect ground water data.

They had relocated the truck to the front of an industrial lot to drill the last hole. A small flag marked the well's location. The marker was near a fence separating the lot from an adjacent road. Above the marker were four power lines that ran parallel to the road.

The truck was parked at a 90-degree angle (perpendicular) to the fence and the power lines. The distance from the ground (at the truck's location) to the overhead lines was 31 feet. After extending the truck's front outrigger, the operator began raising the drill rig mast to position it over the marker. The victim was standing near the rear of the driver's side of the truck unloading equipment when the mast contacted the high voltage power line.

Two workers employed by the contractor were standing several feet from the driver's side of the truck and heard a noise. They saw the victim and the operator frozen to the drill truck, then collapse away from the truck to the ground.

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:

The investigation revealed that the operator apparently did not consider the height of the mast when assessing for hazards during operation of the drill rig. Recognition of a potential hazard would have prevented the incident.

Per OSHA, any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that a minimum clearance of 10 feet is maintained. While the truck was more than 20 feet below the overhead power lines, the mast entered the danger zone as it was raised to a vertical position.

In this incident, workers either were not aware of the overhead power lines or believed that the lines were an “adequate” distance from the drill rig.

Preventive Safety Measures Include:

- Ensure that a job hazard analysis has been completed to identify all hazardous conditions that may affect operation of equipment.
- Develop and implement guidelines for marking drill sites that include potential hazards and possible alternatives and solutions for drill site selection when within an unsafe distance from overhead power lines.
- Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that a minimum clearance of 10 feet is maintained; additional space or clearance may be necessary depending on the specific operation and voltages.
- Use of a safety checklist included in the written operating procedures prior to the start of any drilling activity to ensure all safe work procedures are completed and in place.
- Communicate to all parties involved in drilling activities the location of both above and below ground utility and electric power supplies.
- Employers should ensure that all operator controls are clearly labeled before placing equipment in use. In the event of an emergency, basic operation or an emergency stop can be done.

Attendance Roster

Reference: This case was reported in the NIOSH Fatality Assessment and Control Evaluation (FACE) Program, Report #1999AK019.

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