

# CSI Country-Wide Case Study Safety Strategy Discussion

## Construction Safety Investigator



### Instructions:

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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 typically pertain to all activities that workers will be involved in that may have the potential for safety related exposures. This case study is based on facts and materials developed and first published by the agency/organization identified in the section below entitled Source of Case Study Investigative Information.

#### **Case Day:**

June 2020

#### **Accident Type:**

Excavator Quick Coupler Bucket Accident – Worker Struck By

#### **Relevant Laws, Rules, and Codes May Include:**

29CFR 1926.20(a)(1); 29 CFR 1926.20(b)(2); 1926.20(f)(2); 1926.21.

California Division of Occupational Safety and Health – Title 8 regulations – Subchapter 7. General Industry Safety, Group 2. Safe Practices and Personal Protection. Article 7. Miscellaneous Safe Practices.

California Division of Occupational Safety and Health – Title 8 regulations - Subchapter 4. Construction Safety Orders. Article 4. §1504. Definitions. Article 6. Excavations -§1541. General Requirements.

Preventing Injuries When Working with Hydraulic Excavators and Backhoe Loaders (NIOSH Publication No. 2004-107)

### Case:

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Worker in a trench, died when he was struck by an excavator bucket that detached from a quick coupler

### Accident Detail:

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A pipefitter, working in a trench, died after being struck by an excavator bucket that detached from a quick coupling device (quick coupler) that was attached to the end of the boom.

The incident scene was an outdoor construction site for new homes. The employer was installing underground sewer pipes and had been at this worksite for six weeks prior to the incident. The only two people onsite the day of the incident were the victim and the employer who was also the operator of the excavator.

At the time of the incident, the excavator operator was digging an additional trench next to existing underground sewer pipes. The new trench was going to accommodate more pipes that would be tied into the current sewer system. Per the investigation, the victim was likely in the trench acting as a spotter to signal to the operator where to move the bucket so that it would not damage existing pipe already in the trench.

After digging a portion of the trench, the operator began curling the bucket when it suddenly detached from the quick coupler and struck the victim.

The operator called 911 and used a chain attached to the excavator boom to remove the bucket from the victim. Emergency response personnel arrived on scene and removed the victim from the trench. Despite life saving measures, the victim was pronounced dead at the scene.

## Reconstructive Safety Evaluation:

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- 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?

## Agency's Accident Scene Conclusion:

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The CA/FACE investigator determined that:

- The employer did not have a written safety program
- Safe operation of excavators and other heavy equipment was accomplished through on-the-job training (OJT) by supervisory personnel in both English and Spanish. There was no documentation that safety training included struck-by incidents, falling objects, or safety issues related to quick couplers
- There was no competent person onsite the day of the incident
- The bucket detached from the quick coupler during operation, suggesting that there was an equipment malfunction. Although it is unknown why the bucket detached, the operator stated that the quick coupler had recently been repaired. It is unknown if the operator performed an inspection of the quick coupler prior to use
- The victim was in the trench and likely within the radius of the boom when the excavator was in operation
- Per the investigation findings, if there had been a competent person onsite, the victim would most likely have not been underneath the boom swing radius and elevated load and struck by the bucket when it detached, thereby preventing this fatal incident

## Preventive Safety Measures Identified by the Investigating Agency Include:

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- Maintain and inspect quick couplers to prevent malfunctions that may cause an unintended release of the excavator's bucket. Employers using hydraulic excavators with quick couplers can prevent release of attachments by:
  - Inspecting all quick couplers to determine if they are subject to unexpected release hazards
  - Using newer models of quick couplers that have been specifically designed to prevent the unintended release of attachments
  - Following the manufacturer's recommendations for maintenance and inspection of quick couplers
  - Training workers in the proper use of quick couplers, including making visual inspections, proper procedures for engaging attachments, and methods for testing connections
  - Requiring workers to use proper procedures for engaging excavator attachments and incorporating the procedures into the company's safety and health program.
- Ensure that a competent person is onsite to identify hazards and determine all necessary safety precautions, including preventing workers from walking/traversing beneath an excavator boom swing radius or elevated load
  - When employees are required to work in trenches deeper than five feet, a competent person is required to be onsite to perform the necessary daily inspections of excavations, and the precautions that are necessary and required
  - Employers should designate a competent person to conduct a Job Hazard Analysis (JHA) to identify high risk jobs and to determine appropriate employee training on recognized hazards and safe work procedures. This training should include trenching safety, operations in safe zone/danger zone, and inspection of equipment

## Additional Commentary on Preventive Safety Measures from Chubb Include:

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- Conduct a pre-work meeting to review the JSTA and ensure workers understand the task to be completed, any safe working procedures and have the necessary safety equipment
- Employees should have adequate training on job-specific tasks. Proper training must extend to all workers, including day laborers. Language barriers and communication should also be considered during training

## Attendance Roster

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## Source of Case Study Investigative Information:

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This case study is based on facts and materials developed and first published by the following agencies during their investigation of the applicable incident:

- U.S. Centers for Disease Control and Prevention (CDC) and National Institute for Occupational Safety and Health Office of the Director (NIOSH)

The source material is otherwise available on the agency website for no charge. Chubb's use of information sourced from these or any other governmental agency does not constitute endorsement or recommendation of Chubb by these governmental agencies.

### Source and Links to Relevant Material:

California State FACE Program Case Report 20CA002;  
<https://www.cdc.gov/niosh/face/stateface/ca/20ca002.html>

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