# 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:

January 6, 1992

### **Accident Type:**

Steel Sheet Piling Accident - Fall

#### Relevant laws, rules and codes may include:

29 CFR 1926.550 (g)(2), 29 CFR 1926.21(b)(2), ANSI B30.5, Section 5-3.2.3(e)

#### Case:

A 31 year-old dock builder died after falling 35 feet from a section of sheet piling used to construct a wall alongside a highway.

# **Accident Detail:**

The incident occurred at a construction site alongside a highway that was in the process of being widened. The operation first required stabilizing soil embankments alongside the highway by constructing a temporary wall of interconnected steel sheet piles. The sheet piles used were approximately 33 feet long by 4 feet wide, with a thickness of about 1 inch. The sheets are driven into the ground with an 8-ton vibratory hammer.

The work crew consisted of six men; four dock builders and two crane operators.

The crew began work by constructing a steel support frame to hold the first sheet pile. When completed, the crane set the first sheet pile vertically on the ground against the cantilever section. The sheet was not driven into the ground but sank about 18 inches into the dirt under its own weight. The sheet was adjusted for alignment (plumb) and then bolted and welded to the cantilever.

The victim, acting as the "pile monk", hitched a ride to the top of the sheet pile by standing on the ball of the crane line. Using stirrups, he sat on top of the first sheet to guide the next sheet as it was lowered by the crane. Except for the stirrups, the victim did not use any other type of fall protection.

During the operation, the victim had trouble joining the two sheets and rocked and shook the second sheet to align it with the first. While rocking the sheet pile, the bottom kicked out of the ground. As the sheet began to slowly tip over, the victim jumped from the stirrups, falling and striking his head on the supporting frame before landing on 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 indicated that the victim's job required him to sit on a steel sheet pile without the use of effective fall protection.

The first sheet pile was inherently top heavy as the attachment point to the cantilever was only 9 feet from the ground. The sheet was also unstable by not being driven into the ground. When the victim tried to join the sheets, he apparently jostled the sheet he was sitting on and created the imbalance that toppled it.

In this situation, the plans for constructing the wall were not available at the site. The steward and crew used their personal experience to construct the wall, using marker stakes left by the engineers to guide them.

Before the incident, the pile monk rode to the top of the sheet by riding on the weighted ball of the crane line. Although not directly related to the incident, this is a violation of the OSHA Standards and company safety rules.

# **Preventive Safety Measures Include:**

- Whenever possible, employers should provide and require a man-lift for raising and supporting workers when joining sheet piles.
- Ensure that sheet piles are firmly stabilized before workers are permitted to work on them.
- Thoroughly plan all work and perform a Job Safety Task Analysis (JSTA) of the site. The JSTA should be communicated to all
  involved in the operation.
- · Employers should insure that all OSHA regulations and established company safety rules are followed.

Attendance Roster					

Reference: This case was reported in the NIOSH Fatality Assessment and Control Evaluation (FACE) Program, Report #92NJ001.

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