

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 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:

Spring 2018

Accident Type:

Highway Work Zone Accident

Relevant Laws, Rules, and Codes May Include:

29CFR 1926.20(a)(1); 29 CFR 1926.20(b)(2); 29 CFR 1926.20(b)(4); 1926.20(f)(2); 1926.21

- US Manual of Uniform Traffic Control Devices (MUTCD)
- Michigan Vehicle Code (MVC)
- Michigan Manual of Uniform Traffic Control Devices (MMUTCD)
- Michigan Maintenance Work Zone Traffic Control Guidance (MMWTCG)

Case:

Struck by Vehicle in Active Roadway

Accident Detail:

A field manager for underground-equipment-locating operations died when he was struck by a vehicle while taking a drilling depth measurement in an active roadway.

The roadway had two traffic lanes with a middle (center) lane. At a nearby intersection, the southbound roadway widened to two lanes and the northbound two-lane wide roadway narrowed to one lane.

The posted speed limit was 50 mph and there was no reduction of speed in the work zone.

There had been a water tap break on the west side of the roadway. The Department of Public Works (DPW) foreman instructed two workers to place temporary traffic control signs (“Work Zone Ahead” and “Work Zone Begins”) on each side of the roadway. Channelizing devices were placed on the east and west fog lines of the roadway in the work zone; both the northbound and southbound travel lanes were open to active traffic.

A DPW subcontractor dug an excavation on the west side of the roadway and then dug a second excavation on the east side of the roadway. A directional boring machine was set up on the west side. The plan was to bore under the roadway, west to east, pull the new water pipe through and then make the connection.

While the boring took place, the location and depth of the bore were monitored. The decedent and a coworker, who worked for a company that developed, manufactured, and marketed instruments for underground locating were at the site to demonstrate their new locating equipment. The decedent and his coworker placed sensors on both sides of the road to assist with locating the boring head.

Throughout the boring operation, the decedent had walked back and forth across the open traffic lanes, assessing the depth and location of the bore head, demonstrating the new underground locating equipment.

Checking the bore depth one last time, the decedent took an older piece of equipment into the northbound travel lane. He placed the equipment on the roadway and bent over to read the results. A vehicle travelling in the open lane at approximately 55 mph neared the work zone.

A worker ran toward the vehicle yelling and waving his hands and hard hat. The vehicle struck the decedent, propelling him in the air. He landed on the asphalt. Emergency response arrived and transported the decedent to a nearby hospital. He died several days later from the injuries sustained at the time of the crash.

The decedent was wearing a Class 2 high-visibility vest at the time of the incident.

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?

Agency's Accident Scene Conclusion:

- There was one supervisor and two workers from Township DPW at the worksite. The township DPW workers had received work zone training conducted by the DPW supervisor in early 2018
- Routinely, when the DPW is responsible for setting up the work zone, a drawing and/or copy of the appropriate temporary traffic control is given to the workers; on the date of the incident, no drawing or copy was made
- The decedent routinely worked in roadways and spent a significant amount of time in construction activities, and he was wearing a Type 2 high-visibility vest at the time of the incident
- The decedent's employer health and safety program primarily addressed the office/manufacturing segment of the business, not the construction segment (providing customer support on construction sites)
- The firm relied on the field techs/managers to keep themselves safe in the field. Field employees coordinated and received their training from a third party however the firm did not confirm the training was performed or if it pertained to the work operation and did not have knowledge of or documentation regarding the type or content of the decedent's training
- The Firm did not have knowledge of MIOSHA Construction Safety and Health regulations/requirements, nor the requirements of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD) or Michigan's Maintenance Work Zone Traffic Control Guidelines (MWZTCD)
- Employees in the field did not receive training on the Michigan or federal Manuals of Uniform Traffic Control Devices. Employees were not provided training regarding the hazards associated with working at construction sites and the application of the MMUTCD/MWZTCD at construction areas
- Within the work Zone amber lights on top of the stake truck were not activated. The truck's four-way flashers were not activated

Key contributing factors identified in this investigation include:

- Lack of hazard recognition
- Temporary traffic control not appropriate for roadway speed limit, traffic volume, and work being performed
- Worker in active roadway without a dedicated spotter or flagger

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