

Warehouse Worker Crushed by Forks of Laser Guided Vehicle

INCIDENT FACTS

REPORT #: 71-171-2018s

REPORT DATE: 5/10/2018

INCIDENT DATE: 12/9/2015

VICTIM: 45 years old

Employed at facility for approximately one year

INDUSTRY: Bottled water manufacturing

OCCUPATION: Warehouse dock coordinator

SCENE: Water bottling plant warehouse

EVENT TYPE: Crush



In December 2015, a 45-year-old warehouse dock coordinator at a water bottling company died after he was crushed when the elevated forks of an automatic laser guided vehicle came down on him.

The company used driverless forklifts, known as laser guided vehicles (LGVs), in the warehouse to move pallets of water bottles. LGVs automatically navigated using a system of vehicle mounted lasers and reflectors positioned throughout the warehouse. Each LGV had safety sensors designed to detect objects or workers in the vehicle's path. When a sensor detected an obstacle, the LGV would stop moving and an alarm would sound until a worker removed the obstacle.

The manufacturer's manual required workers to initiate an emergency stop before removing an obstacle detected by the LGV. An LGV would then have to be manually reset before restarting its task. Without initiating an emergency stop, the LGVs would resume automatic function immediately after an obstruction was removed.

The victim was working in the warehouse when an LGV alarm was activated. Shortly after, another worker heard noises over the radio and looked into the warehouse to investigate.

He saw the victim slumped over one of the LGVs. The LGV then started moving again, and the other worker hurried to it and initiated an emergency stop. He could see that the victim had severe injuries to his chest and jaw.

He called for help and called 911. Emergency responders arrived within minutes and transported the victim to a local hospital where he was pronounced dead.

Investigators believe that the victim attempted to remove a piece of plastic from under the elevated forks of the LGV without first initiating an emergency stop. Long strips of plastic wrap often tore off of pallets during loading and unloading and stuck to the forks of the LGVs. If the plastic entered the safety detection field of the LGV, it would be recognized as an obstacle. Other employees said that these plastic “stringers” frequently triggered LGV alarms.

The victim was likely bending or kneeling under the forks outside of the safety sensor field to reach the plastic stringer. Because the LGV was not in emergency stop mode, the system reset when the obstacle was removed, bringing the elevated forks down, crushing him against the wheel cover of the vehicle.

There were warning signs affixed to the vehicle indicating that workers should avoid standing beneath the elevated forks.



Photo of the automatic laser guided vehicle (LGV) involved in the incident.



Example of a plastic “stringer” that would often tear off of the wrapping around the pallets of water bottles during loading and unloading and become caught on LGV forks. Stringers hanging from the forks that entered an LGV’s safety detection field would trigger an alarm and pause automatic movement.



Sticker on the LGV indicating that working underneath elevated forks was prohibited.

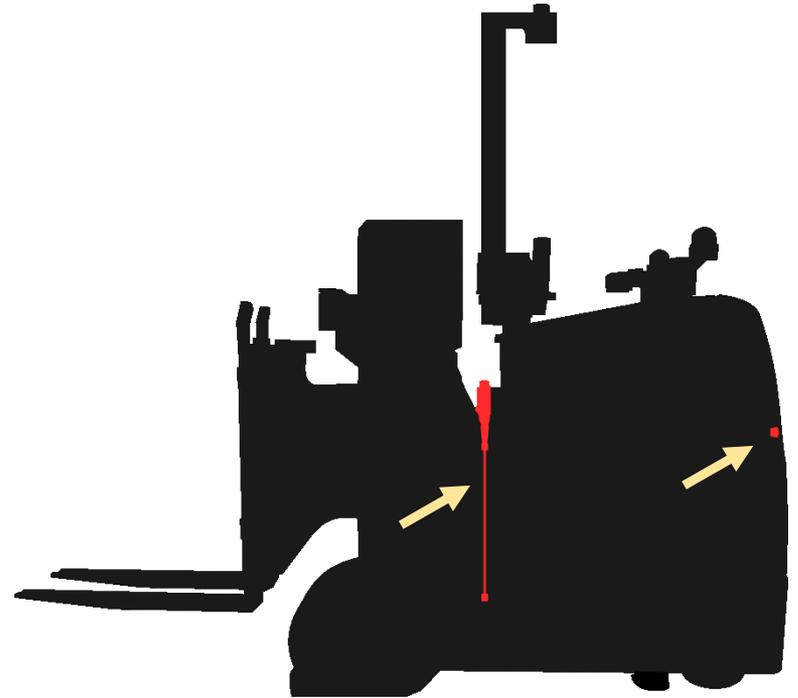


Diagram indicating the location of the emergency stop button and rope pull. An identical set was present on the other side of the LGV.



After the incident, the company trained employees to initiate an emergency stop before clearing an obstacle from an LGV's path, and to use a long-handled snipping tool to remove plastic stringers instead of reaching or bending under the forks of the LGV.

Requirements

Employers must protect workers around PITs (powered industrial trucks), and not allow them under the elevated part of any PIT, whether it is loaded or empty.

See [WAC 296-863-4005\(2\)\(a\)](#).

Recommendations

FACE investigators concluded that, to help prevent similar occurrences, employers should:

Incorporate manufacturer safety requirements into written company safety procedures for automated guided industrial vehicles.

Train workers about the specific hazards associated with automated guided industrial vehicles, like LGVs. Emphasize that workers are expected to follow required safety procedures every time, and ensure compliance through periodic refresher training and spot checks.

This bulletin was developed to alert employers and employees of a tragic loss of life of a worker in Washington State and is based on preliminary data ONLY and does not represent final determinations regarding the nature of the incident or conclusions regarding the cause of the fatality.

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