

Case 135. 46-year-old foreman died when a robot arm activated and he was pinned between the upper and lower die of a press.

A 46-year-old male foreman died when a robot arm activated and he was pinned between the upper and lower die of a press. The decedent entered the cell of a pick and place robot to clean sensors that signal the robot that a part was ready to be removed from the press and placed on a conveyor without locking out the robot or taking the teach pendant with him. He entered the robot envelope at the end of the robot control panel where there were no barriers to prevent unauthorized entry. There was an open keyed access gate with two keys. One key had to be removed from the robot control panel, which placed the robot in manual mode but did not disconnect electrical power. This key then was inserted into the lock and turned before the other key could be turned to open the gate. The system was not functioning properly. The gate could open using the key in the gate without first having to remove the key from the robot control panel. There was no interlock on the gate itself. To reactivate the robot, the key had to be reinserted and then reset from the master control panel before the robot re-entered automatic mode. The press was open and in a hold mode and the robot was in an automatic mode. Upon cleaning the sensors and manipulating a sensor connector, the robot arm began to move forward and it struck the decedent in the back. The press was in the open position and the forward motion of the robot caused the decedent's head to contact the upper die and his lower torso to contact the lower die. His coworkers called 911. When police arrived, another employee stated that a code was needed to use the teach pendant to manually back off the robot and that the decedent was the only individual on the shift who knew the code. This employee placed the robot in manual mode at the control panel until a person who knew the code who worked on another shift arrived and moved the robot using the teach pendant. While awaiting the arrival of the knowledgeable person, the press was blocked and the area was cleared. The teach pendants were located on the opposite side of the gate on top of the control panel. Employees would have to cross the cell area to get the pendants after lifting them over the barrier.

MIOSHA General Industry Safety and Health Division issued the following Serious and Other-than-Serious citations:

SERIOUS:

ACT 154 PA OF 1974, SEC 11(a).

Furnish to each employee employment and a place of employment, which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to employees.

Employer failed to protect employees from the hazard of being caught or struck by intended or unintended motion of the robot.

Among other methods, one feasible and acceptable abatement method to correct this hazard is to provide barrier guards with interlocked gates which, when opened, will stop the hazardous motion of the robot.

SERIOUS:

POWERED INDUSTRIAL TRUCKS, PART 21, RULE 2154(1).

Provide valid operator permit for powered industrial truck operators

No valid operator permit or training.

SERIOUS:

THE CONTROL OF HAZARDOUS ENERGY SOURCES, PART 85, RULE 1910.147(c)(4)(i) ADOPTED BY RULE 8502.

Develop, document and utilize procedures for the control of potentially hazardous energy when employees are engaged in service or maintenance of machines or equipment where unexpected energization, start-up or release of stored energy could occur and cause injury.

Firm failed to develop and ensure utilization of written lockout procedures and/or alternate procedures for safe entry into robot envelope for the purpose of conduction minor servicing necessary to maintain production.

THE CONTROL OF HAZARDOUS ENERGY SOURCES, PART 85, RULE 1910.147 (c)(4)(i) ADOPTED BY RULE 8502.

Provide training to each authorized employee on the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.

No training for authorized employees.

OTHER-THAN-SERIOUS:

- RECORDING AND REPORTING OF OCCUPATIONAL INJURIES AND ILLNESSES, PART OSH 11, RULE 1131(1).
Record work related injuries and illnesses that meet the recording criteria in Rule 408.22112(2)(a) subrules (i), (ii), (iii), (iv), (v), (vi).

Not maintaining injury and illness log.

- THE CONTROL OF HAZARDOUS ENERGY SOURCES, PART 85, RULE 1910.147(c)(6)(i) ADOPTED BY RULE 8502.

Conduct periodic inspection of the energy control procedure at least annually to ensure that the procedure and the requirements of Part 85 are being followed.

No periodic inspection of procedures.

3. THE CONTROL OF HAZARDOUS ENERGY SOURCES, PART 85, RULE
1910.147(c)(7)(iv) ADOPTED BY RULE 8502

Maintain certification that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

No employee certification.