

**Case 294. 18-year-old farm hand died when he was engulfed in corn in a 20-foot wide by 64-foot high poured concrete silo.**

An 18-year-old male farm hand died when he was engulfed in corn in a 20-foot wide by 64-foot high poured concrete silo. Fifteen feet of corn harvested in 2009 and 2010 was in the silo. The decedent was a member of a two-person crew. The grain handling equipment (augers) that would normally make entry unnecessary was not operational at the time of the incident. Due to the corn's condition, the corn clumped up and did not flow well and required employees to enter the silo to break up some of the clumps and to keep the corn moving. The entry of the silo had been a routine part of the operation for at least 30 days as a result of the broken auger equipment. The employer was aware that the entry presented a respiratory hazard; he required the employees to open the top hatch of the silo and to keep the bottom hatch open to ventilate it. The employees were given bars to move the grain from the outside of the silo when possible. While his coworker was working by a 24-inch by 18-inch clean out outside of and at the bottom of the silo shoveling the exiting corn into a feed grinder, the decedent entered the silo through an opening located 10 feet above the floor at the side of the silo. The decedent stood on the corn which was even with the entry door. The corn level on the wall opposite the door was higher by at least five feet. It is unknown if the corn gave way while he was standing on it or if he was engulfed by the corn he may have been knocking down from the silo's walls. The decedent's coworker noticed that the corn was coming out of the clean out more quickly and then the bar that the decedent had been using also came out of the clean out. His coworker climbed the fixed ladder to the opening and could not see the decedent. He returned to floor level and went to the access door and started digging in the pile of corn which had come through the clean out. He found the decedent's feet in the corn pile. Due to the weight of the corn, the configuration of the silo cleanout, and the orientation of the decedent, his coworker could not free him. His coworker called the farm owner and informed him of the incident. The farm owner called for emergency response. While waiting for emergency response to arrive, his coworker and the farm owner, who had arrived at the scene, continued to try to free him. The decedent was not responsive when the volunteer fire department arrived on the scene. Additional resources including a confined space rescue team were called for assistance. Recovery efforts were hampered by the silo construction at the clean out. The silo consisted of hardened concrete up to 10 inches thick with rebar every few inches above the clean out. After several hours, the decedent was recovered and declared dead at the scene.

MIOSHA General Industry Safety and Health Division issued the following Serious citation at the conclusion of its investigation.

**SERIOUS:** MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT, ACT 154, P.A. 1974, as amended, section 11(a):

The employer did not furnish to each employee, employment and a place of employment, which was free from recognized hazards that were causing or were likely to cause death or serious physical harm to the employees:

An employee entered a poured concrete silo containing high-moisture corn. The employee entered through an opening in the side of the silo and walked on top of the corn. The grain handling equipment (augers) that would normally make entry unnecessary was not operational at the time of the incident. The entry of the silo had been a continuing part of the operation for at least 30 days as a result of the broken auger equipment. The employee was exposed to the engulfment hazard presented by the corn. The employee who was subsequently engulfed by the corn died as a result.

The employer was aware that the entry presented a hazard as he required the employees to open the top hatch of the silo and the bottom hatch was left open to allow for ventilation. The preferred method to retrieve the corn was from outside of the silo. The employees were given tools (bars) to move the grain from the outside of the silo when possible.

Feasible and acceptable methods of correcting this violation may include, but are not limited to, the following:

- Preventing entry into the silo.
- Providing a means to accomplish feed tasks from outside of the space.
- Implement an effective confined space entry program, including a survey of spaces, hazard identification and evaluation, a written program, mechanical ventilation, training, atmospheric testing, and emergency rescue procedures and services.