



The National Institute for Occupational Safety and Health (NIOSH)

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21-Year-Old Electrocuted While Moving Grain Auger in Indiana

FACE 86-22

Introduction:

The National Institute for Occupational Safety and Health (NIOSH), Division of Safety Research (DSR) is currently conducting the Fatal Accident Circumstances and Epidemiology (FACE) Project, which is focusing primarily upon selected electrical-related and confined space-related fatalities. The purpose of the FACE program is to identify and rank factors that influence the risk of fatal injuries for selected employees.

On April 7, 1986, two employees for a local grain company were attempting to move a grain auger when the accident occurred. One worker was using a tractor to pull the auger away from the grain storage bin while the other worker (the victim) was on the ground guiding the auger when it contacted two phases of a 12,470 volt distribution system (see [Figure 1](#)). The worker on the ground was electrocuted.

This is the third auger related incident investigated by DSR in the last six months. These incidents have resulted in a total of six electrocutions.

Contacts/Activities:

Officials of the Occupational Safety and Health Program for the State of Indiana notified DSR of this electrocution and requested technical assistance. This case has been included in the FACE Project. A site visit was conducted by the FACE Project Director where information was collected from the plant manager, the driver of the tractor, and the plant owner. Interviews were conducted with comparison workers and the plant foreman. Photographs were taken of the accident site and outside plant area.

Background/Overview of Employer's Safety Program:

The local grain company is a family owned business that started in 1944. This is the first occupationally-related fatality for the grain company. The company has 40 employees, which include the office staff (2), owners (2), plant manager (1), foremen (2), truck drivers, warehousemen, and general laborers. The company has no written safety policy except for the small booklet that is given to all new employees that states "Safety is everyone's responsibility." Training of new employees is done on the job by a supervisor or an experienced employee. The owners appear to be conscientious and want to do

whatever possible to provide a safe work environment. The owner stated "If something doesn't work or appears to be unsafe, then the employee is to notify him (owner), the plant manager, or the foreman and report the condition immediately."

Synopsis of Events:

On April 7, 1986, after lunch two workers for the grain company were given orders to go to one of the grain storage areas (approximately 10 miles from the plant) and bring back a truck load of grain for processing. The two workmen (a truck driver and a warehouseman) proceeded to the grain storage area to load the grain from the storage bin into the truck for transport to the plant. The truck driver had been working for the grain company for one month. The warehouseman had worked for the grain company for seven months. Neither worker had transferred grain at this location previously.

When the workmen arrived at the site (around 3:00 p.m.), the auger (61' long) was in the loading position (upright) against the grain bin. Both workmen had commented on the overhead power lines when they arrived at the site and were aware of the hazard while moving the auger. To unload the bin, it was necessary to pull the auger away from the grain bin, lower the auger, and turn the auger 180° so the lower end would be at the bottom of the bin. The workmen attempted to pull the auger back by hand but were unsuccessful. Attempts to lower the auger were also unsuccessful, since the auger had been in the upright position for some time and could not be lowered. The workers attached a chain between the tractor and the auger and started to pull the auger back away from the grain bin. The truck driver was operating the tractor, and the warehouseman was on the ground guiding the auger. The chain between the auger and tractor was adjusted and the workmen decided to turn the auger in the upright position. As the tractor pulled the auger back, the warehouseman guided the auger with both hands. The auger contacted two phases of a 12,400 volt distribution system, electrocuting the warehouseman on the ground. The driver on the tractor saw the man on the ground fall, he immediately jumped off of the tractor, and was shocked (briefly stunned) when he hit the ground. The truck driver then flagged down a passing vehicle and requested the driver call for help. The rescue squad arrived shortly thereafter, and the warehouseman was pronounced dead at the scene.

Cause of Death:

No autopsy was performed. The cause of death was listed as "Electrocution." The victim had entry burns on both hands and an exit wound through the left foot.

Recommendations/Discussion:

Recommendation #1: Employers should identify safety hazards that may be encountered at the plant and off site work locations.

Discussion: A survey that identifies safety hazards of the plant and off site work locations should be completed. These hazards (i.e., the location of overhead power lines, etc.) should be discussed with the employees. Necessary precautions should be stressed to all personnel.

Recommendation #2: Employers should stress safe movement of grain augers.

Discussion: Grain augers that are moved to different locations at the plant or off site work locations may present a safety hazard, especially when moved under power lines. Augers should be lowered to a safe transporting position before being moved from one location to another.

Recommendation #3: Employers should affix a safety warning sign to each auger that warns the user – LOWER BEFORE TRANSPORTING, AND LOOK UP FOR OVERHEAD POWER LINES.

Discussion: The grain auger is a portable piece of farm equipment that has the ability to be raised to heights above 25 feet. This capability makes the piece of equipment dangerous in two ways; first, it can tip over if being moved in the upright position, and secondly, when elevated it is high enough to contact high voltage lines. Therefore, a warning sign affixed to the auger alerts workers to the overhead danger – powerlines.

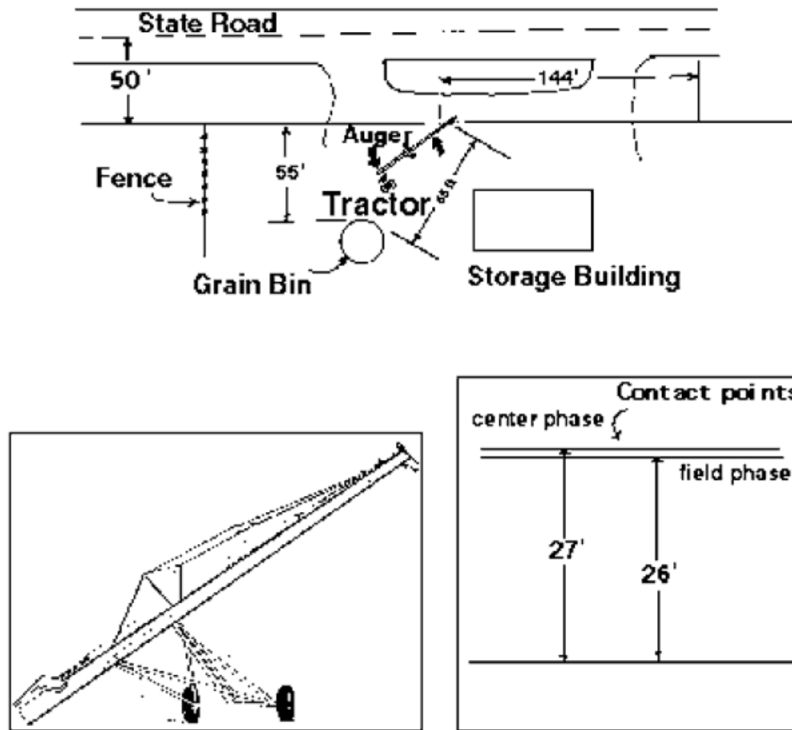


Figure. The Accident Scene

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Partly

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