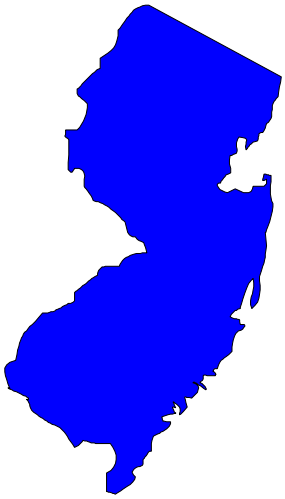
F.A.C.E.
INVESTIGATION REPORT

Fatality Assessment and Control Evaluation Project

FACE #94-NJ-141-01
Farm Mechanic Run Over While Servicing a Tractor



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FROM: Fatality Assessment and Control Evaluation (FACE) Project
New Jersey Department of Health (NJDOH)

SUBJECT: Face Investigation #94-NJ-141-01
Farm Mechanic Run Over While Servicing a Tractor

DATE: April 17, 1995

SUMMARY

On July 16, 1994, a 75 year-old part-time farm mechanic was killed after he was run over by the farm tractor he was servicing. The incident occurred while the mechanic was apparently trying to test a recharged battery before installing it into the tractor. While the exact circumstances of the incident are unknown, the victim may have inadvertently placed the tractor into gear before trying to start it. Standing beside the tractor, the mechanic apparently reached to the front panel to turn the ignition key. The tractor started, lurched forward, and ran over the mechanic's pelvis before stopping against another farm machine. NJDOH FACE investigators concluded that, in order to prevent similar incidents in the future, these safety guidelines should be followed:

o Employers should retrofit older tractors with available safety devices.

o Employers should obtain the owners manuals and service information for heavy farm equipment and machinery.

o Employers should ensure that workers are trained in the safe use of machinery before being allowed to operate it.

o Employers should ensure that all operating controls are clearly marked on farm machinery.

INTRODUCTION

On October 17, 1994, NJDOH FACE personnel received an OSHA 36 (Fatality Data Form) describing a work-related tractor fatality at a farm. After contacting the employer, a FACE investigator conducted an on-site investigation on December 2, 1994. The site visit included interviewing the employer representative who witnessed part of the incident, examining the tractor, and photographing the scene. Additional information was obtained from the police and medical examiner's reports, the OSHA investigation file, and inquiries to other state FACE investigators.

The employer was a farmer who operated seven vegetable farms. The employer owned one farm (the incident site) and rented six other nearby farms. He had been a farmer all his life and had owned the farm for the past eight years. He employed about 35 workers, 20 of which were at the farm where the incident occurred. Although the employer would verbally warn workers of safety hazards, he did not have a formal safety program.

The victim was a 75 year-old male farm mechanic who had been working part-time for the employer for about four months. He was responsible for servicing the farms vehicles, such as switching engines on trucks and doing brake repairs. The victim was a retired construction equipment mechanic and had also been a mechanic in the military. He was a family friend of the employer and was said to be very active and in excellent physical condition.

INVESTIGATION

The incident occurred outdoors at the 90 acre vegetable farm owned by the employer. The day of the incident, a Saturday, was clear and hot. The farm owner started work at 8 a.m. and assigned tasks to his employees. The victim was already on the job working to replace the brakes on a flatbed truck. After sending his employees to work, the farmer attempted to start a tractor close to where the victim was working. This was an early 1960's model Ford 6000 diesel farm tractor equipped with a select-o-matic transmission, a type of transmission that is roughly similar to a car's automatic transmission in that it does not need a clutch to change gears. When the tractor did not start, the victim went over to the farmer and asked what was the matter. The farmer replied that the tractor's battery was bad and he was going to put it on charge. The victim,

saying that it was too far to run the charger wire to the tractor, removed the battery and took it to the nearby barn. After attaching the battery to the charger, the victim went back to work on the truck while the farmer left the farm to do other chores.

No one witnessed the incident. The victim was last seen around noon, taking a soda break in the barn and talking and joking with the other employees. He told them that he was leaving to go fishing and said good-bye, saying that he would see them on Monday. As he left the barn, the victim apparently saw that the battery was still on charge and decided to install it on the tractor. He carried it down to the tractor, leaned the battery against the tractor frame and reconnected the battery cables. Standing to the side of the tractor in front of the left rear tire, the victim apparently reached around to the front panel and turned the ignition key. The tractor (which was in gear) started and moved forward, partly running over the victim before stopping against a planting machine a few feet away. The victim remained pinned underneath the rear tire.

At around 12:30 p.m. the farmer was returning to the farm when he noticed black smoke coming from the tractor in the field. Knowing that this was not right, he drove out to the field and found the victim under the tractor's tire. The tractor was still pushing against the planter, causing the engine to strain and blow black smoke. The farmer immediately boarded the tractor and backed it off the victim, who was conscious and tried to pull himself up. The farmer called 911 while two other workers (who had come to help) stayed with the victim. The police arrived within a few minutes and found the victim in pain with injuries to his pelvis, chest, and arm. The rescue squad and paramedics arrived and called for a medevac helicopter. The victim was moved to a landing zone a few hundred yards away and airlifted to the regional trauma center. He died in surgery at the the trauma center at 8:40 p.m., about eight hours after the incident.

The full circumstances of the incident cannot be known since there were no witnesses. The farmer did have several observations about the tractor and offered a possible explanation of the incident. He stated that almost all farm tractors have two main control levers near the steering wheel: a throttle on the right and a gearshift on the left. Due to the design of the select-o-matic transmission, this arrangement was reversed on this tractor: the gearshift was on the right and the throttle was on the left. The farmer thought that the victim may have wanted to move the throttle up to start the engine. He then inadvertently moved the gearshift, thinking that it was the throttle. This left the tractor in gear when he started it. Inquiries to other state FACE programs regarding the tractor found that select-o-matic transmissions shift very easily, leading to problems with it

being accidentally put into gear by brushing against the lever. It was also noted during the FACE investigation that the levers were not marked.

CAUSE OF DEATH

The county medical examiner attributed the cause of death to massive internal hemorrhage and crushing injuries to the pelvis and right thorax

RECOMMENDATIONS AND DISCUSSION

Recommendation #1: Employers should retrofit older tractors with available safety devices.

Discussion: There are a number of safety devices for tractors that may prevent similar fatalities. These include interlocks that prevent the tractor from being started in gear and devices that lock the gearshift in place until the operator releases it to change gears. Other safety devices such as rollover protection and backup alarms may also be available. Farmers may contact the tractor manufacturer or factory service representatives for information on safety devices.

Recommendation #2: Employers should obtain the owners manuals and service information for heavy farm equipment and machinery.

Discussion: The farmer purchased the tractor at a farm auction about a year prior to the incident. As with most pieces of equipment purchased at auctions, the tractor came "as is" and did not have any documentation, owners manuals, or service information. Employers who service their own machinery should have the service manuals on hand. Manuals can often be obtained by calling the manufacturer or service representative, and may contain updated safety information on the machine.

Recommendation #3: Employers should ensure that workers are trained in the safe use of machinery before being allowed to operate it.

Discussion: Although he had experience with servicing construction machinery, the victim apparently lacked the training necessary to safely operate and maintain this machine. It is recommended that a safety program be developed that requires workers to be trained in the safe

operation of the tractors and other machines before being allowed to use or maintain the equipment. Training should include standard operating procedures and safety practices unique to each piece of equipment.

Recommendation #4: Employers should ensure that all operating controls are clearly marked on farm machinery.

Discussion: The controls on the tractor were not marked, possibly leading to confusion over which lever controlled the throttle. Clearly marking the levers and gauges may prevent moving the wrong lever.

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