



The National Institute for Occupational Safety and Health (NIOSH)

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> Fatality Assessment and Control Evaluation(FACE) Program > State FACE Reports



Country Club Maintenance Employee Run Over by a Tractor While Training a New Employee - Massachusetts

Investigation: # 01-MA-020-01
Release Date: June 30, 2003

SUMMARY

On June 20, 2001, a 72-year-old male employee of a country club maintenance department (the victim) was fatally injured while showing a new employee how to operate a tractor. The victim, standing in between the left front and left rear wheels of the tractor had the new employee start the tractor, then reached over the new employee and placed the tractor in what he thought was neutral. The victim then instructed the new employee to take his foot off the clutch, causing the tractor to lunge forward running over the victim. A call was placed for emergency assistance and emergency responders arrived within minutes to the site. The victim, conscious and alert requested to be transported to a local hospital. He was subsequently transported to a larger hospital where he died a few hours later. The Massachusetts FACE Program concluded that to prevent similar occurrences in the future, employers should:

- **evaluate the safety of all company owned tractors and retrofit older models with new safety equipment in accordance with manufacture's specifications**
- **develop, implement, and enforce a standard operating procedure (SOP), which would include but not be limited to, prohibiting employees from standing in-between the front and rear wheels of a tractor while starting the tractor or while the tractor is running**
- **develop, implement, and enforce a standard employee training program for training equipment operators**
- **develop, implement and enforce a written comprehensive health and safety program**

INTRODUCTION

The employer, a private country club, had been in business approximately 37 years at the time of the incident. The country club maintenance department employed 15 workers, including the victim, who all shared a variety of maintenance tasks. The club did not have a designated individual in charge of safety nor a comprehensive health and safety program. Employee training provided by the employer had been based on the Environmental Protection Agency (EPA) Worker Protection Standard, which is limited to the hazards of working with chemicals and pesticides.

The victim, a retired heating repair service technician, had been employed full-time with the country club for approximately five years. His training was primarily on-the-job and his manager was not sure if he had prior experience operating a tractor. There is no union representation at this facility.

INVESTIGATION

The country club, established in 1964, was family owned and operated and had approximately 350 members. The club was comprised of approximately 115 acres and included an 18-hole golf course, swimming pool, banquet facilities, and a pro-shop. The banquet facilities and the pro-shop were not managed by the country club.

The maintenance department was managed by one of the three country club owners. There were no permanently assigned tasks for the maintenance department employees, typically they performed any task that needed to be completed. Training for maintenance department employees had been on-the-job and conducted by the maintenance department manager/owner or senior employees.

The country club owned four tractors, the oldest was involved in the incident, and the other three tractors were manufactured in 2000, 1995 and the early 1970's. The tractor involved in the incident had been purchased used in 1964 and management was not sure of the exact year the tractor had been built, but estimated it to be 1950. The operator's manual that the country club used for the tractor was for a 1957 model, the closest year they could find to the estimated year of manufacture. The tractor was a two-wheel drive model with a four-cylinder gasoline flat head, standard shift engine and dual rear wheels ([Figure 1](#)). The total weight of the tractor was approximately 2100 pounds, which included the tractor's weighted rear wheels, which were 135 pounds per side. The manufacturer designed the tractor with weighted rear wheels to increase the tractor's traction. In addition, the tractor was equipped with a bench style seat. The tractor lacked many newer safety features such as seatbelts, safety neutral start switch, and a roll over protective structure.

The victim had been asked by the maintenance department manager/owner to show a new employee how to mow the roughs. The new employee, a 22-year-old male, had been employed with the country club for approximately four weeks, and, according to the maintenance department manager/owner, he had some previous experience driving a standard shift vehicle.

Mowing the roughs consisted of operating the standard shift tractor while pulling a gang mower ([Figure 2](#)). The gang mower was a two-tiered manual mower with cutting blades that rotated when the mower was being pulled and the blades were engaged.

The victim drove the tractor with the gang mower hitched to it, blades not engaged, to the 10th fairway while the new employee followed in a golf cart. At the 10th fairway, with the tractor turned off, the victim showed the new employee how to engage the gang mower blades. Then the victim, standing on the left side of the tractor in-between its front and rear wheels, had the new employee sit in the operator's seat, depress the clutch and start the engine. The victim then reached over the new employee and "wiggled" the transmission

shift stick to place the tractor in neutral, but mistakenly had placed it in gear (Figures 3 and 4). According to the maintenance department manager, the victim then informed the new employee that the tractor was in neutral and instructed him to let up on the clutch. When the new employee let up on the clutch the tractor lunged forward approximately six feet running over the victim's mid section (torso/hip area) with the weighted left dual rear wheels. The new employee stopped the tractor by pulling out the choke knob.

A call was placed for emergency assistance and emergency responders arrived minutes after the call. The victim, conscious and alert, mentioned that he was experiencing a little pain in his hip and requested to be transported to a small local hospital. Upon arrival, hospital staff realized the extent of his injuries and the victim was transported to a larger hospital where he died a few hours later.

CAUSE OF DEATH

The medical examiner listed the cause of death as multiple trauma.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Employers should evaluate the safety of all company owned tractors and retrofit older models with new safety equipment in accordance with manufacture's specifications.

Discussion: The task of mowing the roughs was performed with the country club's oldest tractor. This tractor, manufactured approximately in 1950, did not have many of the newer safety features such as a neutral start safety switch, rollover protective structure and seatbelts. If a retrofit neutral start safety switch had been installed on the tractor, the tractor would not have been able to start in gear. This would have reduced the possibility of the tractor moving unexpectedly if inadvertently placed or left in gear. Retrofitting older tractors with newer safety technology and training tractor operators how to properly use the safety equipment may reduce the chance of injury.

In addition, if an older tractors lacks multiple newer safety features and can not be retrofitted with new safety technology then the employer should consider removing the older tractor from commission and purchasing a newer tractor that is already equipped with the new safety features.

Recommendation #2: Employers should develop, implement, and enforce a standard operating procedure (SOP), which would include but not be limited to, prohibiting employees from standing in-between the front and rear wheels of a tractor while starting the tractor or while the tractor is running.

Discussion: A standard operation procedure (SOP) should explain the safe and proper way of operating a tractor. In this case the SOP should include that no employee, including tractor operators, should stand in-between the front and rear wheels of a tractor while starting the tractor or while the tractor is running, regardless if there is a person in the operator's seat. The SOP should specifically include but not be limited to that a tractor should only be started when:

- the operator is seated in the operator's seat and
- all individuals are clear of the front, rear and sides of the tractor and any attachments.

Recommendation #3: Employers should develop, implement, and enforce a standard employee training program for training equipment operators.

Discussion: It is common practice in many facilities to have experienced employees show less experienced and new employees how to operate equipment. Before more experienced employees provide training to others they should go through training themselves. Typically, this training is called train-the-trainer. In workplaces that perform tasks where outside train-the-trainer courses are not available, such as a mowing roughs at a country club, employers could develop their own version in the form of a standard employee training procedure for trainers.

In this case, a standard employee training program for training employees on how to operate a tractor and mowing roughs should include hazard identification. For example, the hazards of being located next to a tractor while an inexperienced employee is seated in the operator's seat with the tractor's engine running. In addition, the standard employee training program should include training on the procedures that are to be followed for safe tractor operation such as how to start, operate, use attachments like gang mower, and how to safely shut down the tractor. The SOP for tractor operation discussed in recommendation #2 should be used in combination with the standard employee training program.

Recommendation #4: Employers should develop, implement and enforce a written comprehensive health and safety program.

Discussion: The country club did not have a comprehensive health and safety program nor an individual designated as responsible for employee health and safety. Employers should, with employee input should develop, implement and strictly enforce a written comprehensive health and safety program. This program should identify who is responsible for workplace safety and include written procedures for tasks employees will perform, current health and safety information, and worker health and safety training.

In this case, the health and safety training program should include, but not be limited to, the SOP for safe tractor operation (discussed in recommendation #3) on how to properly train employees in equipment operation. Attached is a summary of OSHA's proposed safety and health program rule for employers, which was developed by OSHA to help minimize the number of job-related fatalities, illnesses, and injuries.

REFERENCES

Code of Federal Regulations, Labor 29 Parts 1928.51 Roll-over protective structures (ROPS) for tractor used in agriculture operations., SubPart C Roll-Over Protective Structures.

Clemson University Cooperative Extension Service, Farm Safety and Health, South Carolina <http://www.clemson.edu/farmsafetyandhealth/tractor.htm> (Link no longer available 4/1/2009)

Code of Federal Regulations, 29 CFR 1900.1 Docket No. S&H-0027 Draft Proposed Safety and Health Program Rule, Government Printing Office, 1998

Equipment Manufacturers Institute, Agricultural Tractor, Chicago, Illinois, 1990



Figure 1 – Victim's location between the front and rear dual weighted wheels



Figure 2 – Tractor and gang mowers



Figure 3 – Tractor operator's area (steering wheel and gearshift)

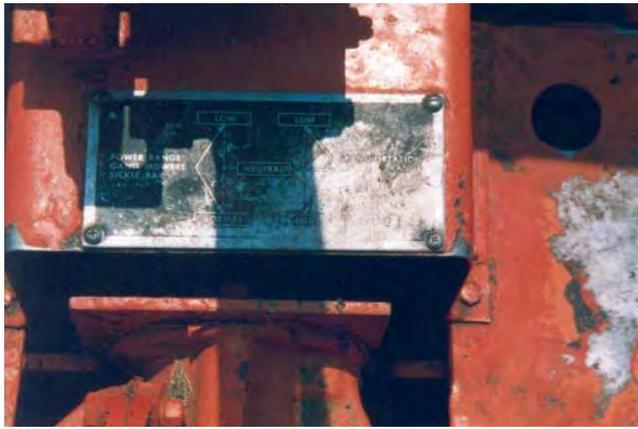


Figure 4 – Tractor gear shift pattern

**SUMMARY OF OSHA'S DRAFT PROPOSED
SAFETY AND HEALTH PROGRAM RULE FOR EMPLOYERS
(29 CFR 1900.1 Docket No. S&H-0027)**

<p>Core elements</p> <ul style="list-style-type: none"> • Management leadership and employee participation • Hazard identification, assessment, prevention and control • Access to information and training • Evaluation of program effectiveness <p>Basic obligations</p> <ul style="list-style-type: none"> • Set up a safety and health program, with employee input, to manage workplace safety and health to reduce injuries, illnesses and fatalities. • Ensure that the safety and health program is appropriate to workplace conditions taking into account factors such as hazards employees are exposed to and number of employees. • Establish and assign safety and health responsibilities to an employee. The assigned person must have access to relevant information and training to carryout their safety and health responsibilities and receive safety and health concerns, questions and ideas from other employees. <p>Employee participation</p> <ul style="list-style-type: none"> • Regularly communicate with employees about workplace safety and health matters and involve employees in hazard identification, assessment, prioritization, training, and program evaluation. • Establish a way and encourage employees to report job-related fatalities, injuries, illnesses, incidents, and hazards promptly and to make recommendations about appropriate ways to control those hazards. <p>Identify and assess hazards to which employees are exposed</p>	<p>Safety and health program record keeping</p> <ul style="list-style-type: none"> • Keep records of identified hazards, their assessment and actions taken or the plan to control these hazards. <p>Hazard prevention and control</p> <ul style="list-style-type: none"> • Comply with the hazard prevention and control requirements of the OSHA standards by developing a plan for coming into compliance as promptly as possible, which includes setting priorities and deadlines for controlling hazards and tracking the progress. <p>Information and training</p> <ul style="list-style-type: none"> • Ensure each employee is provided with safety and health information and training. • If an employee is exposed to hazards, training must be provided on the nature of the hazards to which they are exposed to and how to recognize these hazards. Training must include what is being done to control these hazards and protective measures employees must follow to prevent or minimize their exposures. • Safety and health training must be provided to current and new employees and before assigning a job involving exposure to a hazard. The training should be provided routinely, when safety and health information is modified or a change in workplace conditions indicates a new or increased hazard exists. <p>Program evaluation and maintenance</p> <ul style="list-style-type: none"> • Evaluate the safety and health program at least once every two years or as often as necessary to ensure program effectiveness. • Revise the safety and health program in a timely manner once deficiencies have been identified. <p>Multi-employer workplaces</p>
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| <ul style="list-style-type: none"> • Conduct inspections of the workplace at least every two years and when safety and health information change or when a change in workplace conditions indicates that a new or increased hazard may be present. • Evaluate new equipment, materials, and processes for hazards before introducing them into the workplace and assess the severity of identified hazards and rank those hazards that cannot be corrected immediately according to their severity. <p>Investigate safety and health events in the workplace</p> <ul style="list-style-type: none"> • Thoroughly investigate each work-related death, serious injury, illness, or incident (near miss). | <ul style="list-style-type: none"> • The host employer's responsibility is to provide information about hazards and their controls, safety and health rules, and emergency procedures to all employers at the workplace. In addition, the host employer must ensure that assigned safety and health responsibilities are appropriate to other employers at the workplace. • The contract employer responsibility is to ensure that the host employer is aware of hazards associated with the contract employer's work and how the contract employer is addressing them. In addition, the contract employer must advise the host employer of any previously unidentified hazards at the workplace. |
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Date issued November 23, 1998. Full text available on <https://www.osha.gov/dsg/topics/safetyhealth/nshp.html> [↗](https://www.osha.gov/dsg/topics/safetyhealth/nshp.html)
<https://www.osha.gov/dsg/topics/safetyhealth/nshp.html>. (Link updated 3/20/2013)

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Page last reviewed: November 18, 2015

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