

## MIFACE INVESTIGATION REPORT: #06MI135

### **SUBJECT: Unrestrained Custom Spray Applicator Died When Ejected From a Self-Propelled Sprayer After Sprayer Struck an Oncoming Semi-Truck Trailer**

#### Summary



Figure 1. Overturned Sprayer

Figure 2. Trailer struck by sprayer

On July 19, 2006, a 53-year-old male custom applicator for a farm cooperative died when he was ejected from a front-boom, self-propelled sprayer he was operating after the sprayer struck a semi-truck trailer at an intersection. The decedent was the driver of the sprayer and was not wearing a seat belt. The decedent was traveling westbound and ran a stop sign. A semi-truck traveling southbound had the right of way. The sprayer struck the trailer of the truck. After striking the trailer, the decedent was ejected from the sprayer and landed in a ditch by the side of the road's southbound lane. Emergency response was called and transported him to a local hospital where he died an hour later.

#### RECOMMENDATIONS

- Employers should require employees to wear seat belts or seatbelt/shoulder harness restraints when the equipment is equipped with these personal restraint systems.
- Employers should include the seat belt requirement in their safety manual and safety training programs.
- Employers should develop a fleet safety program specific to the vehicles driven on-the-road by employees.
- Each farm cooperative should form a joint Health and Safety (H&S) Committee.

Key Words: Motor Vehicle,  
Sprayer, Struck by, Agriculture

## INTRODUCTION

On July 19, 2006, a 53-year-old male custom spray applicator for a farm cooperative died when he was ejected from a front-boom, self-propelled sprayer he was operating after the sprayer struck a semi-truck trailer at an intersection. MIFACE learned of this incident from a newspaper clipping. On June 26, 2007, the MIFACE investigator interviewed the farm cooperative manager and drove to the incident site. During the writing of this report, the death certificate, medical examiner report and police report and pictures were reviewed. Figures 1, 2, 5, 6, and 7 are courtesy of the responding police department's forensic photographer that were taken at the time of the incident. Figure 3 and Figure 4 were taken by the MIFACE researcher at the time of the site visit.

The company for whom the decedent worked bought, sold, and stored agricultural commodities as well as provided agronomy services. He had been employed by the cooperative for five years as a full time employee. There were 15 individuals employed at the cooperative. He was one of three commercial sprayers. The decedent's work hours were 8:00 a.m. to 5:00 p.m., but his hours would vary during the agricultural growing seasons depending upon work to be performed. The cooperative did not have a formal training program for operating big equipment used at the cooperative, including the sprayer. All big equipment training was conducted on-the-job.

The cooperative had a written health and safety program, a designated safety officer, and documented employee training. The cooperative gave the MIFACE researcher a copy of their written "Safety Rules & Regulations Handbook." A disciplinary procedure was in place for violation of the cooperative's safety policies. Employees are required to sign a form at the end of the manual indicating that they have read, understood, and have had their questions answered to their satisfaction. The cooperative did not have a Health and Safety Committee. The cooperative held monthly safety meetings that were prepared by an outside safety contractor. The use of seat belts was not discussed. On a quarterly basis, the cooperative had a safety inspection. On an alternating quarterly basis, the cooperative was inspected by a different cooperative's branch manager and the outside safety consultant.

## INVESTIGATION

The decedent was driving a Walker "Big Dog" 1200 front-boom, self-propelled, high-clearance sprayer that had been purchased in new condition in 2001 or 2002. The sprayer had a gross vehicle weight rating of 19,260 pounds. The sprayer's operating speed was 14 to 30 mph. According to the site manager, the sprayer was usually operated on the road at a speed of 25 mph. The cab had a wraparound wide-angle windshield, a

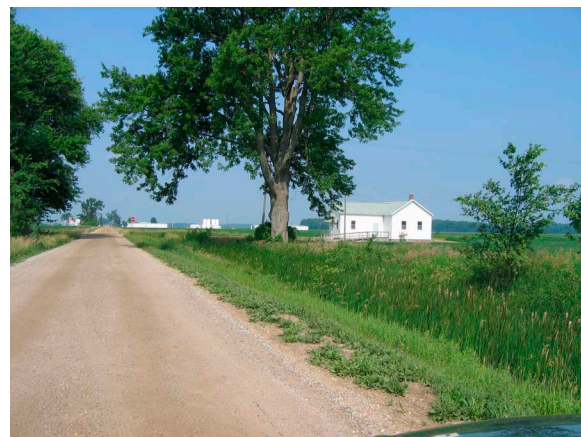


Figure 3. Visibility westbound on road as approaching intersection

radio, and a seatbelt/shoulder harness. The site manager indicated that the sprayer had required only routine maintenance. The sprayer had a hydrostatic drive transmission. To stop the sprayer, the operator would pull back on the lever.

The decedent had arrived at work and obtained his work orders. He conducted a pre-trip inspection and drove the sprayer to the load pad for product. This was his first run of the day. The sprayer was half full. The decedent was familiar with the roadways.

The incident occurred at the intersection of two 2-lane gravel roads with un-posted speed limits of 55 mph (Figures 3 and 4). The day was clear and the road conditions were dry. Crop fields and ditches bordered both roads. At the northeast corner of the intersection was a building that the police report indicated did not contribute as an obstruction at the intersection.

The incident occurred at 9:00 a.m. A semi tractor-trailer, which was hauling grain, was traveling southbound. The semi tractor-trailer had the right of way. The north-south road



Figure 4. View of north/south road as approaching intersection traveling westbound.



Figure 5. View of overturned sprayer



Figure 6. Trailer struck by sprayer and path of spilled grain

did not have a stop sign regulating traffic at the intersection. The decedent was traveling westbound and had a stop sign at the intersection.

The police report indicated that the semi driver, upon seeing that the decedent was not going to stop at the stop sign,

accelerated his vehicle in an attempt to take evasive action to avoid the collision with the sprayer.

The decedent did not stop at the intersection corner and proceeded to enter the intersection and struck the driver's side of the semi trailer. The sprayer was dragged southbound for several yards, then rolled, and slid to a stop. The decedent was ejected to the southeast and came to rest in a drainage ditch along the east edge of the roadway. The semi came to a controlled stop to the south of the intersection. The police noted that there was no pre-impact braking from either vehicle. Emergency response was called and the decedent was transported to a local hospital where he died

## CAUSE OF DEATH

The cause of death as stated on the death certificate was blunt force chest trauma. Autopsy results were negative for alcohol and illicit drugs.

## DISCUSSION/RECOMMENDATIONS

- Employers should require employees to wear seat belts or seatbelt/shoulder harness restraints when the equipment is equipped with these personal restraint systems.

The site manager indicated that employees knew that seat belts must be worn as required by Michigan law when driving a vehicle on public roadways. For this reason, the cooperative did not address seat belt use when employees operated one of the company's implements of husbandry that was equipped with seat belts on public roads. Management may have assumed that because Michigan law requires the use of seat belts when driving on the road, employees would naturally extend the seat belt requirement to implements of husbandry operated on the road.

When an implement of husbandry such as a sprayer is driven on public roads, the Michigan Motor Vehicle Code Rule 257.717(2) requires that a person operating an implement of husbandry follow all traffic regulations. Rule 257.710e(3) of the Michigan Motor Vehicle Code requires that each driver and front seat passenger of



Figure 7. Sprayer interior showing seat belt clasps for each front seat passenger.

a motor vehicle operated on a street or highway in this state shall wear a properly adjusted and fastened safety belt when the equipment is so equipped.

Many pieces of equipment used at a cooperative, such as forklifts, front-end loaders, and sprayers are equipped with either a seat belt or a seatbelt/shoulder harness safety restraint system. Employers should require, regardless of on-road or off-road use, that employees use the safety restraint system supplied by the equipment manufacturer at all times while operating the equipment. Employers should ensure such restraints are in place and in good working condition.

- Employers should include the seat belt use requirement in their safety manual and safety training programs.

The cooperative's "Safety Rules & Regulations Handbook" did not have a written statement regarding the required use of a seatbelt or seatbelt/shoulder harness for equipment equipped with such restraints. The cooperative's safety manual should be revised to reflect that management requires employees to wear the safety restraints provided by the manufacturer.

The cooperative should train all employees about the use of safety belt/harness training that includes information about wearing lap and shoulder belts. The initial instruction should be a part of employee orientation and driver training and should include information about the importance of and reasons for using safety belts.

U.S. Department of Transportation, Federal Motor Carrier Safety Division (FMCSA) has in partnership with safety engineers, trucking companies, safety alliances and insurance companies developed a manual, *Increasing Safety Belt Use in Your Company*. Although the FMCSA manual is aimed at over the road trucking companies, many agricultural employers can benefit from the information contained in the manual. Topics include:

- Corporate Safety Belt Statement and Pledge
- What Drivers Need to Know About Safety Belt Use
- How to Create, Evaluate and Reinforce a Safety Belt Training Program
- Employee Knowledge Tests
- Two-Minute Safety Talks

- Employers should develop a fleet safety program specific to the vehicles driven on-the-road by employees.

The cooperative may have been operating other vehicles, including personal vehicles, on-the-road when cooperative staff traveled to and from cooperative member farms. Fleet safety programs can include qualification, training and supervision of drivers and employees, establishment of safe practices and rules, planned inspection and maintenance of vehicles, reporting, investigation and review of accidents.

All of the sample fleet safety programs MIFACE reviewed on the Internet included a statement about following State traffic laws. The fleet safety program rules could easily

be incorporated into the cooperative's "Safety Rules & Regulations Handbook." A sample fleet safety program may be found at:

<http://www.toolboxtopics.com/Beyond%20Safety%20Meetings/Fleet%20Stuff/Sample%20Fleet%20Safety%20Program.doc>

- Each farm cooperative should form a joint Health and Safety (H&S) Committee.

The cooperative did not have a Health and Safety (H&S) Committee. An H&S Committee, comprised of both management and hourly employees provides a forum for management and employees to regularly discuss health and safety issues in the workplace. An H&S Committee is an important way for employees to help manage their own health and safety and assist the employer in providing a safer, healthier workplace. The formation of the Committee provides a process for open communication on health and safety issues and enhances the ability of employees and management to resolve safety and health concerns reasonably and cooperatively.

Much of the potential value of an H&S Committee can be lost without careful development of the purpose, functions and activities of the Committee. The Committee will function effectively only after the need for the committee is recognized and employees, supervisors and managers welcome its services. At their worst, Health and Safety Committees can be a "negative-minded" group confining their approach primarily to (after-the-fact) placing of blame. However, at their best, they can become an effective tool to help prevent unsafe practices and conditions, reduce the risk of injury and illnesses and to help motivate employees and supervisors to become actively involved.

MIOSHA has several resources that can be accessed for development of an effective Health and Safety Committee. The Good Safety and Health Programs are Built with Good Safety Committees brochure details the advantages of having an effective Health and Safety Committee ([www.michigan.gov/documents/cis\\_wsh\\_cet0140\\_103132\\_7.pdf](http://www.michigan.gov/documents/cis_wsh_cet0140_103132_7.pdf)). The MIOSHA Safety and Health Toolbox contains materials that focus on the major components of a health and safety system. Module 2 of the Toolbox focuses on employee involvement and contains several resources for Health and Safety Committee development ([www.michigan.gov/cis/0,1607,7-154-11407\\_15317-124535--,00.html](http://www.michigan.gov/cis/0,1607,7-154-11407_15317-124535--,00.html)).

The State of Wisconsin "Guidelines for Developing an Effective Health and Safety Committee" ([www.doa.state.wi.us/docs\\_view2.asp?docid=665](http://www.doa.state.wi.us/docs_view2.asp?docid=665)) and the Canadian Centre for Occupational Health and Safety, Occupational Safety and Health Answers: Health and Safety Committees ([www.ccohs.ca/oshanswers/hsprograms/hscommittees/](http://www.ccohs.ca/oshanswers/hsprograms/hscommittees/)) both provide valuable resources and a framework for selection of H&S Committee membership, purpose, function and activities.

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MIFACE (Michigan Fatality Assessment and Control Evaluation), Michigan State University (MSU) Occupational & Environmental Medicine, 117 West Fee Hall, East Lansing, Michigan 48824-1315. Internet Address: <http://www.oem.msu.edu>. This information is for educational purposes only. This MIFACE report becomes public property upon publication and may be printed verbatim with credit to MSU. Reprinting cannot be used to endorse or advertise a commercial product or company. All rights reserved. MSU is an affirmative-action, equal opportunity employer. 1/03/08

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1	2	3	4

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<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
1	2	3	4

<b>Was the report...</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
Objective?	1	2	3	4
Clearly written?	1	2	3	4
Useful?	1	2	3	4

<b>Were the recommendations ...</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>
<b>Poor</b>			
Clearly written?	1	2	3
Practical?	1	2	3
Useful?	1	2	3

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