

MIFACE INVESTIGATION REPORT: #08MI171

SUBJECT: Laborer Died During Test Drive of Four-Wheel All Terrain Vehicle (ATV)

Summary

In the fall of 2008, a 23-year-old male laborer in an automobile repair shop died when both he and the Kawasaki Tecati Model XF 250 four-wheel all-terrain vehicle (ATV) he was test driving in the parking lot struck a concrete wall (Figure 1). The decedent was not wearing a helmet or other protective equipment. The ATV did not have a seat when it was brought into the shop. The decedent drove the ATV to the west end of the building parking area. He then turned around at the west end, and rode to the east side of the lot. As he was traveling eastbound, he attempted to turn the ATV to the left (north) as he was approaching the east end of the parking area. He put his right foot down on the ground at which time it was run over by the ATV's rear tire. The decedent lost control of the ATV and it flipped onto its right side and rotated counterclockwise. Both the ATV and the decedent struck a concrete wall at the east end of the parking area. The ATV owner and the decedent's employer began CPR, and called for emergency response. The decedent was transported by ambulance to a local hospital where he was pronounced dead.



Figure 1. ATV involved in incident

RECOMMENDATIONS

- Employers should ensure that no employee test drives/rides an ATV without appropriate ATV safety training and demonstrated competency to ride safely.
- Employers should ensure employees wear, as a minimum, all protective equipment required by State law.
- Employers should ensure all ATV components are present prior to a test drive.
- Employers should have measures that contribute to a drug-free work environment, including the development and implementation of an alcohol- and drug-free workplace program, particularly for jobs related to machine and motor vehicle operation.

INTRODUCTION

In the fall of 2008, a 23-year-old male automobile mechanic died when the four-wheel ATV he was driving crashed into a concrete wall. On August 7, 2009, the MIFACE researcher interviewed the owner of the automobile repair shop who employed the decedent. During the course of writing this report, the police report, death certificate, and the medical examiner's death scene investigation report were reviewed. The pictures used in Figures 1 and 3 were taken by the responding police department at the time of the incident. Pictures used in Figures 2 and 4 were taken by the MIFACE researcher at the time of the MIFACE investigation. Pictures have been modified to remove identifiers.

The business owner had acquired the business approximately nine months prior to the incident date. The business performed general automobile and truck repair. The decedent had been employed for approximately seven months. He was paid a fixed salary per week. His job duties included performing general labor, odd jobs, and acting as an assistant to the owner. He worked full time, eight-hour days. His work shift began at approximately 9:00 a.m.

The firm did not have a written safety and health program or a health and safety training program.

INVESTIGATION

The ATV involved in the incident was a Kawasaki Tecati Model XF 250. The seat was not present. The ATV had foot pegs upon which the rider's feet rest. The ATV did not have a heel guard. The ATV belonged to a friend of the decedent's employer. The ATV would go into gear but would not move. The friend tried to repair the ATV at his home, but was unsuccessful. Mentioning his problem to the decedent's employer, the shop owner told him to bring it to the shop and he would take a look at it. The friend brought the ATV into the shop and the owner diagnosed the problem. The ATV owner repaired the ATV and then left the ATV at the shop. A couple of days later, the ATV owner returned to the shop to place oil into the transmission.



Figure 2. View of parking lot, looking west to east

The ATV owner took his ATV for a test ride in the parking lot and when he came back, the decedent, who had been working on a car, wanted to take it for a test ride. The decedent's employer indicated that the decedent was not an experienced ATV rider. As the business owner and a customer came out of the business office, the decedent got on the ATV and proceeded to ride it to the west end of the parking area (Figure 2). The decedent, who was not given permission to ride the ATV, was not wearing a helmet or eye protection as required by law.

The decedent reached the west end of the parking lot and stalled the ATV. After restarting it, he rode the ATV eastbound. He was traveling an estimated 30 mph. As he was approaching the east end of the parking lot, he began to slow down (Figure 3). It appears he was making an attempt to turn the ATV to the left (north) to an approximately 59-foot wide parking area located at the east end of the building (Figure 4). To balance as he was making the turn, the decedent right foot came off of the foot peg and landed on the ground. His foot may have landed between the peg and the right rear tire. The ATV's right tire ran over his foot, dislodging his shoe. The decedent lost control of the ATV and it flipped onto its right side and rotated counterclockwise. Both the ATV and the decedent struck a concrete wall at the east end of the parking area (Figure 3, location of X near wall). The decedent landed on the right side of his body, sustaining head and rib injuries.

The ATV owner and the decedent's employer went to his aid. The employer called for emergency response. The decedent was transported by ambulance to a local hospital where he was pronounced dead.



Figure 3. Path of ATV as decedent slowed and attempted to turn north into parking area to the east of the building



Figure 4. Parking area into which the decedent was attempting to turn

The responding police department identified the following factors contributing to the death: a) the decedent's careless operation of the ATV, b) cannabinoids in his system, c) the operation of the ATV without a seat, d) not wearing a helmet, and e) excessive speed.

CAUSE OF DEATH

The cause of death as listed on the death certificate was multiple blunt force injuries. Toxicology revealed measurable levels of cannabinoids in his blood.

RECOMMENDATIONS/DISCUSSION

- Employers should ensure that no employee test drives/rides an ATV without appropriate ATV safety training and demonstrated competency to ride safely.

The decedent's job description did not include riding an ATV. The employer did not make it clear to the decedent that he was not permitted to test drive the ATV. It appears that the decedent was not an experienced rider, nor did he have ATV safety training. If an employee is required to ride/test drive an ATV, employers should ensure that the employee has appropriate ATV safety training and has demonstrated competency that he/she can ride safely.

The ATV Safety Institute's publication "Tips and Practice Guide for the All-Terrain Vehicle Rider" (http://www.atvsafety.org/InfoSheets/ATV_Riding_Tips.pdf) states in Section 2 that "ATV's are not designed to be used on paved surfaces because pavement may seriously affect handling and control." Even experienced riders are subject to "bicycling" on pavement. Other factors that may affect ATV control on pavement are the tire tread type and the differential; a locking differential can cause a "leap" when turning on a hard surface. An ATV's handling characteristics vary depending upon its basic design and how it is equipped. For example one ATV may have an automatic transmission with an automatic clutch, while another ATV may have a hand-operated clutch. Some ATVs are foot-shifted, while others are hand-shifted. The differences between ATVs in their controls and the location of their controls could pose a risk to an operator who may be familiar with one type of ATV and its operating characteristics, but may not be familiar with another brand and its unique characteristics.

Employers whose employees must ride an ATV as a requirement of his/her job descriptions should ensure the employee has received appropriate ATV safety training and demonstrates competency to ride safely. The employer could establish an in-house ATV safety training program, which should include a written examination and a driving test, or enroll the employee in a certified ATV safety training course.

The Michigan Department of Natural Resources (DNR) regulates motor driven off-road recreation vehicles (ORVs) under the Natural Resources and Environmental Protection Act, Act 451 of 1994. One of the DNR's responsibilities under the Act is to "implement a comprehensive ORV information, safety education and training program that shall include the training of operators and the preparation and dissemination of information

and safety advice to the public.” ATV safety training information may be found on the Michigan DNR website (<http://www.michigan.gov/dnr>). While on the DNR homepage, click on the link Recreation, Camping and Boating, and then click on ORV/ATV. ORV safety training classes can be accessed using by clicking on the Safety Education drop down menu.

Another option for employers is a course provided by the ATV Safety Institute. Adult and Adult and/or Teen ATV safety training classes are held throughout Michigan. The class schedule can be found on the ATV Safety Institute’s training page <https://online.svia.org/Training/Default.aspx>.

- Employers should ensure employees wear, as a minimum, all protective equipment required by State law.

The decedent was not wearing a crash helmet or protective eyewear. State law requires an ATV rider to wear a crash helmet and protective eyewear approved by the U.S. Department of Transportation. The exception to this requirement is if the ORV is equipped with a roof that meets or exceeds standards for a crash helmet and the operator and each passenger is wearing a properly adjusted and fastened safety belt. Additionally, employers should consider requiring operators wear over-the-ankle boots with low heels to prevent the operator’s feet from slipping off of the foot pegs.

- Employers should ensure all ATV components are present prior to a test drive.

The seat was missing from the ATV at the time of the incident. Negotiating a turn from a crouched position rather than a sitting position could make it more difficult for a rider, especially an inexperienced rider like the decedent. When an employee performs a test drive of an ORV, all essential parts, such as the seat, should be present.

- Employers should have measures that contribute to a drug-free work environment, including the development and implementation of an alcohol- and drug-free workplace program, particularly for jobs related to machine and motor vehicle operation.

The decedent had measurable levels of tetrahydrocannabinol (THC), the active ingredient in marijuana in his bloodstream at the time of his death. It is difficult to establish a relationship between a person’s THC blood or plasma concentration and performance impairing effects. Concentrations of the parent drug and its metabolite are very dependent on the pattern of use as well as the amount <http://www.nhtsa.dot.gov/People/injury/research/job185drugs/cannabis.htm>. Marijuana has been shown to affect many skills required for safe driving: alertness, the ability to concentrate, coordination, and reaction time. These effects can last up to 24 hours after smoking marijuana. Marijuana use can make it difficult to judge distances and react to signals and sounds on the road.

Employers should design and implement an appropriate drug- and alcohol-free workplace program that matches the needs of their organization. Currently, there is no specific MIOSHA standard on this issue. Employers can create a drug- and alcohol-free workplace policy for their business by utilizing the U.S. Department of Labor's Drug-Free Workplace Adviser (<http://www.dol.gov/elaws/drugfree.htm>). The Advisor has 13 sections with questions that are completed by the employer. At the conclusion of the Advisor, a drug- and alcohol-free workplace policy is created based upon employer selections. The Department of Labor strongly recommends that a legal consultant, such as a labor/employment attorney, review the created policy prior to distribution and implementation. Employers may also find it useful to research how similar businesses and industries in their local area have addressed this issue.

REFERENCES

- All-Terrain Vehicle (ATV) Safety Institute. <http://www.atvsafety.org/>
- Michigan Department of Natural Resources. <http://www.michigan.gov/dnr>
- Drugs and Human Performance Fact Sheets. National Highway Traffic Safety Administration. Cannabis/Marijuana (Δ^9 – Tetrahydrocannabinol, THC). <http://www.nhtsa.dot.gov/People/injury/research/job185drugs/cannabis.htm>
- Drug-Free Workplace Advisor. U.S. Department of Labor <http://www.dol.gov/elaws/drugfree.htm>
- National Business Aviation Association (NBAA) Ground Damage Prevention. <http://www.nbaa.org/ops/safety/hangar/aircraft-ground-damage-prevention.ppt>

Key Words: ATV, ORV, Drug Policy, Motor Vehicle

MIFACE (Michigan Fatality Assessment and Control Evaluation), Michigan State University (MSU) Occupational & Environmental Medicine, 117 West Fee Hall, East Lansing, Michigan 48824-1315; <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 institution.

1/27/10

MIFACE

Investigation Report #08 MI 171

Evaluation

To improve the quality of the MIFACE program and our investigation reports, we would like to ask you a few questions about this report:

What was your general impression of this MIFACE investigation report?

Excellent	Good	Fair	Poor
1	2	3	4

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

<i>Were the recommendations ...</i>	Excellent	Good	Fair	Poor
Clearly written?	1	2	3	4
Practical?	1	2	3	4
Useful?	1	2	3	4

How will you use this report? (Check all that apply)

- Distribute to employees/family members
- Post on bulletin board
- Use in employee training
- File for future reference
- Will not use it
- Other (specify) _____

Thank You!

Please Return To:

MIFACE
Michigan State University
117 West Fee Hall
East Lansing, MI 48824
FAX: 517-432-3606

Comments:
