

REPORT#: 16MI109

REPORT DATE: 8/5/2019

INCIDENT HIGHLIGHTS



DATE:
Fall, 2016



TIME:
11:30 p.m.



VICTIM:
Safety Crew racetrack member his 40s



INDUSTRY/NAICS CODE:
Spectator Sports/71



EMPLOYER:
Racetrack Owner



SAFETY & TRAINING:
Verbal



SCENE:
Racetrack



LOCATION:
Michigan



EVENT TYPE:
Struck By

Racetrack Safety Crewmember Struck by Racecar

SUMMARY

In fall 2016, a male racetrack safety crew member in his 40s died when he was struck by a racecar during a Caution notification. A racecar had become disabled on the track in the vicinity of the finish line. Some members of the safety crew were cleaning up spilled oil/fluid and preparing to remove the disabled car. The decedent came out from behind the concrete barrier at Turn 2 and walked onto the track...

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CONTRIBUTING FACTORS

Key contributing factors identified in this investigation include:

- Decedent on track without protection of safety vehicle
- Race car driver did not follow Caution rules
- Decedent did not communicate with other safety team members
- No written safety procedures for track workers

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RECOMMENDATIONS

MIFACE investigators concluded that, to help prevent similar occurrences, employers should:

- Race track owners should utilize National Fire Protection Association (NFPA) 610: Guide for Emergency and Safety Operations at Motorsports Venues to guide development of standard operating procedures for their Safety Crews.
- Any paid or volunteer personnel having an assignment or defined responsibility at a motorsports facility or serving a designated function at a motorsports venue should receive training commensurate with their responsibility.

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MICHIGAN

State **FACE** Program

Fatality Assessment & Control Evaluation

Michigan State University

Department of Medicine • Occupational and Environmental Medicine

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Michigan Fatality Assessment and Control Evaluation (FACE) Program

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SUMMARY

In fall 2016, a male racetrack safety crewmember in his 40s died when he was struck by a racecar while on the track directing traffic under Caution conditions. During the race, a racecar had dropped oil or some other fluid on the track and the Caution was issued (via radio communication to all track personnel, racecar drivers and Safety Crew); also Caution lights (yellow flashing lights) at the entrance of Turns 1 and 3 were lit. When a caution was issued, all racecars were required to line up single file and travel approximately 20-25 mph around the track until the caution is over. The Safety Crew, wearing the required firefighter turnout gear and radio communication, left their station behind the concrete wall near the exit of Turn 2 and drove to the area of the racetrack where the oil/fluid was located to lay down oil-dry and move the disabled racecar off the track. While laying down the oil-dry, the Safety Crew heard through radio communication that the decedent had been struck. The decedent, who was wearing the required firefighter turnout gear and radio communication, left the station near Turn 2 but did not communicate his intentions to the other safety crewmembers. He stood on the outer/elevated portion of the track to direct the racecars to form the single file line and drive along the inner lanes of the track. A witness indicated that as the racecars came out of Turn 2, one of the cars came out of the single file. The driver attempted to avoid striking the decedent and the decedent attempted to get out of the way. The decedent was struck and the car propelled him 20-25 feet to the inner lanes of the track. The race was stopped and all track crewmembers responded to the area. Emergency responders on site treated the decedent, who was airlifted to a nearby airport and then transported to the hospital where he was declared dead in the emergency room.

INTRODUCTION

In fall 2016, a male racetrack safety crewmember in his 40s died when he was struck by a racecar while on the track directing traffic under Caution conditions. MIFACE learned of this death from the MIOSHA fatality reporting system. MIFACE personnel contacted the racetrack owner, who agreed to be interviewed at the racetrack. MIFACE reviewed the death certificate, police and medical examiner's report and the MIOSHA compliance officer file during the writing of this report. Pictures used in the report are courtesy of the responding police department, the MIOSHA compliance officer who was assigned to investigate this case, and the MIFACE researcher.

EMPLOYERS

The employer owned the racetrack. The track had been owned by several families during its 77 years of operation. The employer bought the facility in 2000 and the racetrack had been in operation for 13 racing seasons. The racetrack was a seasonal operation. The racetrack hosted the following classes of racecars: pro late models, modifieds, pure stocks and sportsman. There were six employees on the safety crew, and another four individuals had "eyes" on the race, including a flagman, and medical personnel. The owner had been involved in the racing industry for numerous seasons, including track ownership and operation for three seasons. In addition to racing personnel, the racetrack also had a food service area; in all, 15 individuals were employed at the track at the time of the incident. The work shift started at 3:00p.m. Races ran on Fridays and Saturdays.

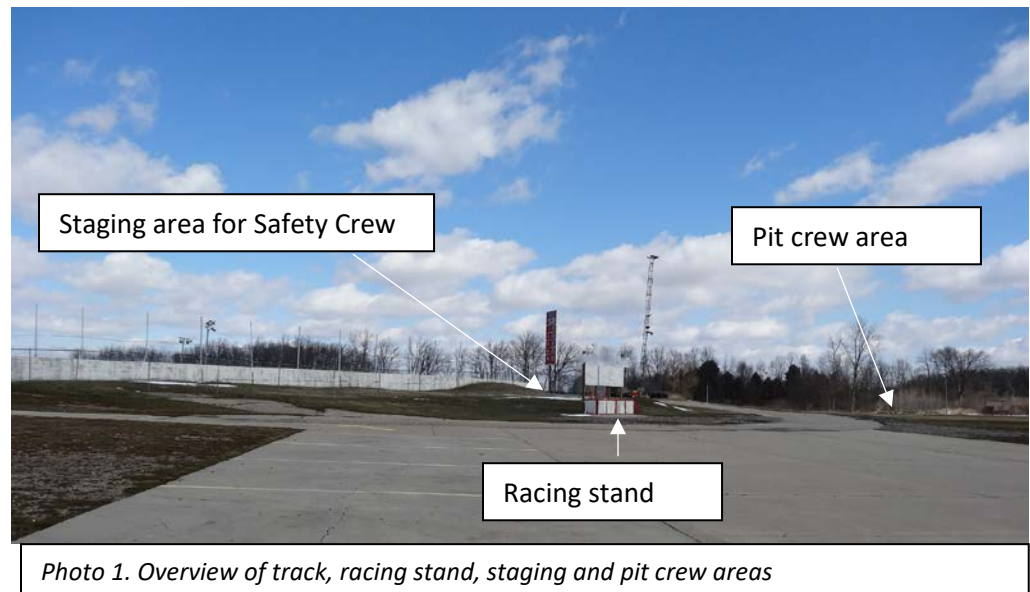
WRITTEN SAFETY PROGRAMS and TRAINING

The firm did not have a written safety program. There were no written documents regarding procedures, job duties/responsibilities for racetrack personnel. There were no written rules on when to be on or when to be off the track or required personal protective equipment to be worn. The employer relied on each crew member to know their own job function, responsibilities and monitor their own personal safety based on previous work history and experience.

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The owner indicated that at the beginning of the racing season, he held safety talks with crew members, although acknowledging that crew members may change during the racing season. During the night and season, safety crew members would talk amongst themselves regarding any issues encountered.

All on-track personnel must sign a waiver holding the track harmless prior to each race day/night. Prior to beginning the day's racing, all race car drivers and safety crew members congregate at the racing stand to receive instruction (See Photo 1). The racetrack had written "General Rules" that mainly applied to drivers. The Race Director and/or the flagman provided a verbal safety briefing for race car drivers. The safety crew was present at this meeting. The safety briefing included an overview of track procedures and general



instructions (including driving under a Caution notification) that the racecar drivers must follow. All drivers have radio communication with the track manager/race director. Drivers were notified of Caution on the track via radio communication and yellow flashing lights at the end of both the front and back stretch of the track. Drivers were instructed to follow the required speed (25 mph) and move to single file while under Caution and to always look/watch out for all Safety Crew on the track. There was a rulebook for racecar drivers – per class of cars delineating rules for car structure, safety features required for the car class, etc.

WORKER INFORMATION

The decedent was a member of the Safety and Track Clean-Up crew, which assisted in removing cars from track after a wreck and cleaning up oil/fluid or debris left on the track. He was paid after each night of service. The decedent had more than 20 years of racetrack safety and fire crew experience and had traveled the Midwest on some of the largest racing circuits. He was very well known and highly regarded on the racing scene/circuit. This was his third time working at this racetrack; he had worked at the racetrack on the two previous nights. The Race Director had known the victim personally and had worked extensively with the decedent for over 20 years. The decedent was a firefighter/EMT and had over 20 years plus of racetrack/safety crew experience, even traveling with the NASCAR ARCA circuit. Decedent was very well trained and knew exactly what he was doing. According to the MIFACE interview, "the decedent had a love and passion for racing and this sport". The track was short-handed for the day and the Race Director asked the decedent to work.

The decedent, as well as all Safety Crew members wear full firefighter turn out gear and have radio communication to contact each member of the safety crew team.

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Additional Track Employees

The Race Director had worked and ran races throughout the Midwest for the past 25 years. He had worked one season at the raceway as Race Director. The Race Director “managed” each race from the infield grass. The Race Director was also a member of the Safety Crew.

The Track Manager set-up the races and ran the Flag-Stand. The Track Manager and Race Director verbalized all instructions and safety briefs before each race.

The Safety Crew Leader had been at the racetrack for two seasons. His job responsibilities were to oversee the medical and on-track safety teams. He was one of a two-man crew for the EMS/Medical and assisted on track with the clean-up crew. He, like other members of the safety crew, was well versed in SOPs/SOGs; many of the crew members were volunteer firefighters/EMTs.

To standardize communication and eliminate confusion amongst the race car drivers, only one racetrack staff individual, the individual working in the tower, communicated with the drivers.

The scorer, who was in the broadcast box, kept track of the order of cars when a Caution was issued.

Medical Team members do not go onto the track unless there is an injury to a driver on the track; they do not perform track clean-up or ride on the Push Truck. They always stay with the on-site medical rig. Medical team members were also responsible for medical response and first-aid for spectators and all track personnel. Medical team members were volunteer fire fighters and/or Medical First Responders.

INCIDENT SCENE

The racetrack was a paved track designed for the racing of motor vehicles. The track itself was oval shaped with 4 turns and approximately ½ mile in circumference. Turn 1 was in the southeast corner, Turn 2 in the northeast corner, Turn 3 in the northwest corner and Turn 4 in the southwest corner. At the time of the incident, racecars were traveling counterclockwise around the track. The decedent was struck in the northeast corner (Turn 2) (Photo 2).

Between a concrete wall at Turn 1 leading to Turn 2 and a wire fence was the staging location of the Safety Crew. There was a concrete entrance to the track at this location and an open area where race cars could exit the track to the Pit area and where the Safety Crew could enter the track to provide safety services to vehicles, drivers and track clean-up.



Photo 2. Entrance to track at Turn #2. Click on photo to view video of track.

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Traffic lights which flashed Yellow under a Caution and Red when the race would stop were located just prior to Turn 1 and Turn 3. The track was clear and dry. There were no visibility issues. The track was well lit by lighting located on the track interior with no blind/dark spots on the track.

Movie 1. Click on picture for a video taken by the MIFACE researcher driving around track. The researcher entered the track at the same location as the decedent.

WEATHER

Weather Underground was utilized to check the weather conditions on the day of the incident. Temperature at the time of the crash was 58.3 degrees. There was 81% humidity and wind speeds of 5.8 mph with a mild overcast skies . [[Weather Underground](#)]

INVESTIGATION

The incident occurred at approximately 10:30 p.m. There were 20-25 racecars on the track that evening for the last race of the day. Sometime during the first 5 laps into the race, a racecar had dropped oil or some other fluid on the track and the Caution was issued (via radio communication to all track personnel, racecar drivers and Safety Crew). Additionally, the Caution lights (yellow flashing lights) at the entrance of Turns 1 and 3 were lit.

When a caution was issued, all racecars were required to line up single file and travel approximately 25 mph around the track until the caution was over.

The four members of the Track Clean Up crew, wearing the required firefighter turnout gear and radio communication, left their station behind the concrete wall near the exit of Turn 2 and drove the Push Truck (Safety Truck) to the front stretch, approximately 50 yards from the finish line to lay down oil dry and move the disabled racecar off the track. While laying down the oil-dry, the Clean Up crew heard through radio communication that the decedent had been struck.

After approximately two to three Caution laps, the decedent, who was wearing the required firefighter turnout gear and radio communication (radio headset), left the staging area behind the concrete barrier near Turn 2. He did not communicate his actions to the rest of the Safety Crew. A witness in the broadcast box noted hm standing on the outer/elevated portion of the track directing the racecars to form the single file line and drive along the inner lanes of the



Photo 3. Safety truck (push truck) for track

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track. This same witness indicated as the racecars came out of Turn 2, one of the cars came out of the single file. The driver unsuccessfully attempted to avoid striking the decedent.

The decedent unsuccessfully attempted to get out of the way. He was struck and the car propelled him 20-25 feet. He came to rest on the inner lanes of the track. The decedent did not have protection from a Safety Vehicle to serve as a barrier between him and the on-coming cars on the track. Radio communication instantly started with the message “man down—Turn 2”. The race was immediately stopped (Red-Flagged) and all cars stopped. Two of the race cars stopped directly in front of where the decedent lay to protect him. All track crewmembers responded to the area. The On-Track medical crew located in the staging area called 911 and was the first crew to reach the decedent. A nurse and medic that were in attendance to watch the racing that evening also responded to assist the injured worker.

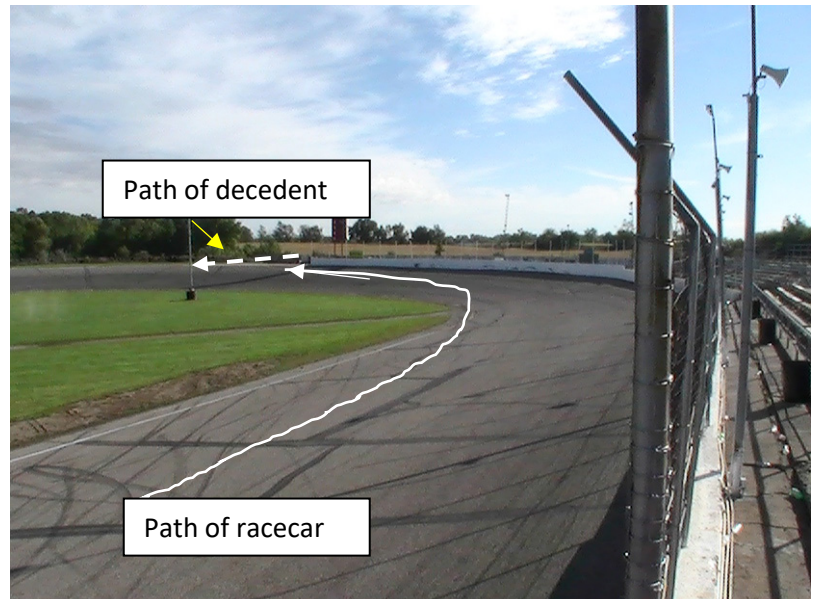


Photo 4. Path of decedent from behind the concrete barrier at Turn #1 and path of racecar

Local fire department/medical first responders arrived to assist. The decedent was alive at this point with a very weak pulse, massive head trauma and agonal respirations. EMS arrived and loaded him into an ambulance. The decedent was transported a short distance away from the track where the medical chopper landing zone was set up by the responding fire department. He was transported to a nearby airport and then taken by ambulance to the hospital where he died early the next morning.

The driver of the race car striking the decedent indicated to the responding police department that he was driving on the track and that a caution alert had been issued. He stated that he continued driving around the track with the other vehicles as they were forming a single file line. As he was coming into Turn 1, he turned his head to the rear to look behind him to see if another car was near him and when he turned his head back to the front, all he saw was the decedent’s body strike his front bumper and bounce over the top of the car. He immediately pulled to the lower side of the track and began to render aid.

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A track medical team member indicated that it was normal for one of the Safety Crew’s to direct traffic during Cautions.

Firm Remediation

After the incident, the track owner instituted the following changes:

- Required everyone to wear a Hi Vis vest over fire turn out gear.
- Added more lights to safety trucks
- Required that no one was allowed on the track by themselves.



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- Required that personnel look for oil from the safety truck and stay within 15 feet of truck during clean up.

MIOSHA Citations

MIOSHA General Industry Safety Division issued the following Serious citations to the employer at the conclusion of its investigation.

SERIOUS: MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT, ACT 154, 408.1011(a): An employer shall furnish to each employee, employment and a place of employment that is free from recognized hazards that are causing, or are likely to cause, death or serious physical harm to the employee.

In that employees are exposed to the hazard of being struck by moving race cars while performing tasks on the track during races. Safety Crewmember was struck by a race car while on the track directing traffic in the Exit of Turn #2 during a race under caution without any protection by Safety Vehicle.

Among others, one feasible and acceptable method to correct this violation is to develop written Standard Operating Procedures for On-Track Safety Crew, including specific Job Functions and Duties, assigned Responsibilities, Personal Protective Equipment and Employee Training; ensure no member of the Safety Crew is on the race track without the protection of the Safety Vehicle during race and/or caution laps.

SERIOUS: MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT, ACT 154, 408.1061(1): An employer shall make, keep, and preserve accurate and timely records and reports of work illnesses and injuries and report the information to the appropriate department in a form and in accordance with rules promulgated by the departments under authority of this act for the purpose of developing information regarding the causes and prevention of occupational illnesses and injuries. The employer shall notify the Department of Consumer and Industry Services within 8 hours of a fatality or any hospitalization of 3 or more employees suffering injury from the same accident or illness from exposure to the same health hazard associated with their employment.

CAUSE OF DEATH

The death certificate listed the cause of death as multiple injuries. Post-mortem toxicological tests identified medications consistent with his emergency treatment as well two prescribed medications which have side effects that could have contributed to his death.

CONTRIBUTING FACTORS

Occupational injuries and fatalities are often the result of one or more contributing factors or key events in a larger sequence of events that ultimately result in the injury or fatality. The following hazards were identified as key contributing factors in this incident:

- *Decedent on track without protection of safety vehicle*
- *Race car driver did not follow Caution rules*
- *Decedent did not communicate with other safety team members*
- *No written safety procedures/protocols for track workers*

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Race track owners should utilize National Fire Protection Association (NFPA) 610: Guide for Emergency and Safety Operations at Motorsports Venues to guide development of standard operating procedures for their Safety Crews.

Discussion: To assist motor sports venues in developing and implementing a system that provides effective emergency operations at motorsports facilities, the National Fire Protection Association (NFPA) developed NFPA 610, *Guide for Emergency and Safety Operations at Motorsports Venues*. The guide addresses planning, training, personnel, equipment and facilities as they relate to emergency and safety operations at motorsports venues.

NFPA 610 recommends that motorsports venue owner/operator work in conjunction with the governmental authority having jurisdiction of the track to develop an incident action plan (IAP). The IAP is a formal written plan that defines roles and responsibilities, identifies potential emergency conditions at the site event and prescribes the procedures and objectives reflecting the overall incident/event strategy, tactics, risk management and member safety to be followed to minimize or prevent loss of life and property. Contained within an IAP, an incident management system is a system that defines the roles and responsibilities to be assumed by responders and the standard operating procedures to be used in the management and direction of emergency incidents and other functions. It is important that the facility when preparing an IAP work closely with the local providers of emergency services to incorporate its plan into their community emergency plan.

Although the crew was reported to work well together and knew their responsibilities, crew coordination and communication did not occur. The SOP should include designating one Safety Crew member to act as a “point person” to coordinate activities of the Safety Crew in communication and conjunction with “race command” when any Safety Crew member(s) are required to go out onto the track to perform their duties.

The track owner indicated that the racetrack did not have written safety rules/standard operating procedures for their track crews. The Safety Crew included personnel performing three different functions including a track/wrecker crew, a medical crew, and a fire crew. Each crew member was required to perform their designated work function while working in conjunction with one another.

Recommendation #2: Any paid or volunteer personnel having an assignment or defined responsibility at a motorsports facility or serving a designated function at a motorsports venue should receive training commensurate with their responsibility.

Discussion: The NFPA 610 recommends levels of training, which should be provided for individuals working at the track, including an Awareness Level training, a Safety Operations level training, a Safety Technician level training, a Safety Specialist level training and a Safety Command Manager level training. NFPA 610 identifies training topics specific to each level to assist motorsport venue owners including definitions of the function of the individual at each level and suggested training for that level.

The document also contains many checklists to help guide owners as well as a sample plan for use ‘as is’ or modified to address the uniqueness of the venue itself. A member of the medical crew indicated that it was not uncommon for crew members to be on the track directing racecar traffic. Without the protection of the push truck, any crew member on the track was at a higher risk of serious injury. Without standard operating procedures/rules regarding who should be on the

track, when they should be on the track and their responsibilities when on the track, safety crew members could take the initiative to assist their fellow workers and be on the track where they place themselves at risk.

After the incident, the employer instituted two work practices to limit exposure of workers to moving vehicles: 1) No one was allowed on the track by themselves and 2) Required personnel looking for oil from the safety truck stay within 15 feet of truck during clean up. The employer should ensure that all on-track personnel follow these instruction to minimize exposure to moving race cars.

Recommendation #3: The racetrack should have written racing rules for drivers to follow and require drivers to sign these rules to indicate they will comply with the rules.

Discussion: Although all of the racecar drivers received verbal instruction regarding driving while under a Caution, the driver, after several laps, had either not been positioned single file in the inner lanes, or had left the single file to change position after he had passed the push truck. Requiring drivers to listen to, then read and sign a form listing safe driving rules would emphasize the importance of their adherence to safe racing/driving practices at the track.

Recommendation #4: Ensure all individuals who sign a waiver form indicate the duties to which they are assigned.

Discussion: All Safety Committee and on-track individuals were required to sign a *Release and Waiver of Liability, Assumption of Risk and Indemnity Agreement* form. At the bottom of this form there was a place for the individuals printed name, their signature and duties. Of the ten individuals signing the form, only one individual listed the duty to be performed. More importantly as part of the SOPs, all individuals should be required to list their duty(ies) for the event so the track owner/point person can ensure that the individual has received the appropriate training.

ADDITIONAL RESOURCES

- National Fire Protection Association. NFPA 610: Guide for Emergency and Safety Operations at Motorsports Venues.
<https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=610>

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REFERENCES

Weather Underground [2014]. Weather history for nearby weather station. The Weather Channel Interactive, Inc.

MIOSHA standards may be found at and downloaded from the MIOSHA, Michigan Department of Licensing and Regulatory Affairs (LARA) website at: www.michigan.gov/mioshastandards. MIOSHA standards are available for a fee by writing to: Michigan Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, P.O. Box 30643, Lansing, Michigan 48909-8143 or calling (517) 322-1845.



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- Michigan Occupational Safety and Health Act, Act 154

ACKNOWLEDGEMENT

The Michigan FACE Program would like to acknowledge the racetrack owner for providing assistance and information for this investigation.