

Kentucky Injury Prevention and Research Center
Bona fide agent for Kentucky Department for Public Health
333 Waller Avenue, Suite 242 • Lexington, KY 40504 • 859-257-5839

REPORT#: 18KY007

REPORT DATE: 11-5-18

INCIDENT HIGHLIGHTS



DATE:
March 02, 2018



TIME:
9:17 pm.



VICTIM:
45-year old police officer



INDUSTRY/NAICS CODE:
Public Administration/92



EMPLOYER:
Police department



SAFETY & TRAINING:
22 weeks of training in the academy & refresher classes



SCENE:
Flooded roadway



LOCATION:
Kentucky



EVENT TYPE:
Drowning



Police Officer Drives into Flood Waters and Drowns

SUMMARY

On March 2, 2018, a 45-year-old police officer was patrolling a county road when he drove his 2015 Ford Explorer into floodwaters from a nearby creek that had overflowed into the road. He radioed for a tow truck and within two minutes, was frantically asking for a rescue.... [READ THE FULL REPORT>](#) (p.5)

CONTRIBUTING FACTORS

Key contributing factors identified in this investigation include:

- Weather
- Lack of physical barrier between road and creek
- Insufficient roadside lighting
- Possible overdriving of the headlights

RECOMMENDATIONS

FACE investigator concluded that, to help prevent similar occurrences:

- County road department should install a roadway sign that warns of quick flooding during rain and close the road as quickly as possible with temporary barricades.
- City government should consider installing streetlights approaching the flood plain.
- Employers should ensure each employee is aware of roadway areas that flood during rainy season.
- Employees should never overdrive their vehicle's headlights.

<http://www.mc.uky.edu/kiprc/face/index.html>



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Fatality Assessment and Control Evaluation (FACE) Program

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This case report was developed by the Kentucky Fatality Assessment and Control Evaluation (FACE) Program. Kentucky FACE is a NIOSH-funded occupational fatality surveillance program with the goal of preventing fatal work injuries by studying the worker, the work environment, and the role of management, engineering, and behavioral changes in preventing future injuries. The FACE program is located in the Kentucky Injury Prevention and Research Center (KIPRC). KIPRC is a bona fide agent for the Kentucky Department for Public Health.

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INTRODUCTION

On Friday, March 2, 2018, a police officer was killed after driving his 2015 Ford Explorer into floodwaters while on patrol. On Monday, March 5, 2018, the Kentucky Labor Cabinet informed the Kentucky Fatality Assessment and Control Evaluation Program of the incident. On March 13, 2018, the Kentucky FACE investigator conducted a site visit. Photographs of the incident site and witness statements were taken at that time.

EMPLOYER

The employer was the city police department, which was established in 1918. The department has five officers, three of which were on duty the day of the incident.

WRITTEN SAFETY PROGRAMS and TRAINING

In order to be eligible to apply to the police department, applicants must be at least 21 years old, have no felony convictions, possess a valid driver's license, and be in good moral standing. Once accepted, officers must complete 22 weeks of training at the police academy. According to the chief of police, once officers have graduated from the academy, new hires receive two weeks of shadowing with the chief and the department sergeant. The chief stated the department utilizes an outside agency to conduct a physical agility test and an exam for both mental and physical health. Candidates must also appear before a panel for interviewing and testing. Drug screens and background checks are performed prior to hiring. The chief of police stated that safety programs and policies concerning basic occupational safety and police-specific safety provided by the Kentucky State Police were in place for the officers to follow were implemented, but did not provide copies to FACE investigators.

WORKER INFORMATION

The victim was a 45-year-old male police officer who was employed with the police department for five months. Prior to his employment, he served as an officer with another police department in a neighboring town for three and a half years. His regular work shift was 7:00 pm to 7:00 am.

INCIDENT SCENE

The scene was a roadway at the edge of the city limits within a subdivision with a posted speed limit of 15 mph. Normally, the road travels through a large field for .2 miles before crossing a bridge over a small creek that feeds a major river approximately 1.25 miles to the west. During the rainy season, the creek quickly floods from the overspill of the river. At this particular location, bank-full – which is the height of water at a given location on the river above where an increase in water will cause the river to overflow the lowest stream bank¹ – is 37 feet. At the time of this incident, the river was at a flood stage of 46.86 feet. The record high at this location was 5/2/2011 when the river reached 54.29 feet².

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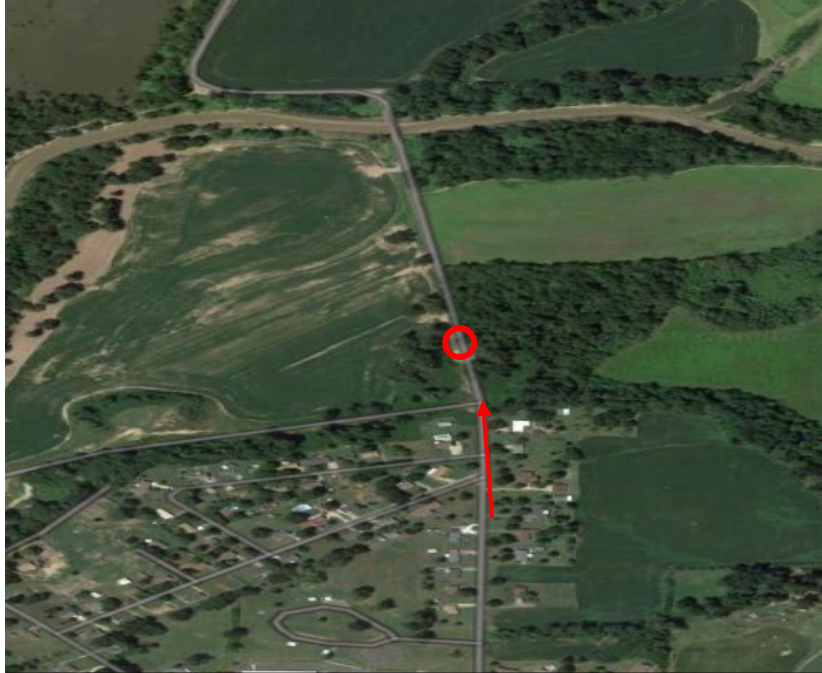


Photo 1. Aerial photo of the scene with creek at normal levels. Arrow indicates direction of travel; circle indicates where the vehicle entered the water. Photo courtesy of Google Earth.



Photo 2. Scene where the victim and his vehicle entered the water.
Photo property of KY FACE.

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Photo 3. The flooded field from which the victim and his vehicle were retrieved. Search and rescue divers located both approximately 150 yards northwest of the marked tree. Photo property of KY FACE.

WEATHER

The weather on the day of the incident was approximately 42 degrees Fahrenheit, 57% humidity, and 4.6 mph average wind speed³. Weather is believed to have been a factor in this incident. For several days prior to the incident, heavy rains inundated the area, causing a major river source that borders the county to overflow and flood a nearby creek that feeds into the river. The cold air and water temperature may have also hindered the officer's ability to swim once he entered the water.

INVESTIGATION

On Friday, March 2, 2018, at approximately 9:17 pm, a police officer (the victim) was patrolling a road near the end of the city limits, when he drove his vehicle into floodwater that had overtaken the road. The officer radioed dispatch that he had driven his 2015 Ford Explorer off the road and needed a tow truck. Dispatch stated the officer was calm as he made the initial request. Two minutes later, at 9:19 pm, the officer placed another call to dispatch, stating that his vehicle was sinking into the water very quickly and that he needed a rescue. The dispatcher stated the officer sounded panicked as he made the second request. A teenage witness who lived nearby stated he saw the officer climb onto the top of his vehicle and that the officer told him to stay back and not to enter the water. Five minutes after the first call, the water completely submerged the vehicle. The witness stated he saw the officer jump from the top of the vehicle and into the water, but never saw him resurface. Strong currents pulled the victim and his vehicle several hundred feet from where he entered the water. At the time of the incident, the victim was wearing his duty belt that weighed

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approximately 30 lbs. and a Kevlar vest weighing approximately 10 lbs. The weight of the officer's equipment as well as the shock of entering the cold water likely added to the difficulty of swimming against the current.

When interviewed, the police chief stated he was not sure why the victim was in that area since it had been flooded for several days due to heavy rain. The victim had worked the night before the incident from 7:00pm to 7:00am, and the chief felt sure that he was aware of the flooding in that area. When interviewed, the incident commander stated that because it was a Friday night, and because teenagers frequented the street to party, the officer might have been patrolling the area to look for underage drinking. As he travelled on the road, the victim crested a hill and drove approximately 500 feet before his vehicle struck and entered the water. As water submerged the vehicle, it slowly drifted towards the driver's side off the road and into the flooded field. Due to the limited light, it is likely the officer was unaware that the terrain he had entered quickly sloped downwards, creating a pool of water approximately 12-15 feet deep.

Additional officers, as well as the Fish and Wildlife rescue dive team were on-site by 9:24 pm, and at 9:33 pm, incident command was established. The Fish and Wildlife dive team entered the water and discovered the vehicle approximately 150-200 yards from where it had entered the water. The vehicle was discovered on its side before swift waters rolled the vehicle onto its top. Due to strong underwater currents, the rescue diver could only dive to a depth of 12 feet at the time, making it difficult to locate the victim. In order to locate the victim, the dive team had to drag the surrounding area. The dive team worked through the night in an attempt to recover the victim. At 5:10 am, the officer was located and brought to shore where the coroner on the scene pronounced him dead.

CAUSE OF DEATH

According to the death certificate, the cause of death was drowning.

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. NIOSH investigators identified the following unrecognized hazards as key contributing factors in this incident:

- *Weather*
- *Lack of physical barrier to flooded area*
- *Insufficient roadside lighting*
- *Possible overdriving of the headlights*

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RECOMMENDATIONS/DISCUSSION

Recommendation #1: County road department should install a roadway sign that warns of quick flooding during rain and close the road as quickly as possible with temporary barricades.

Discussion: When questioned why there were no barriers to prevent vehicles from accessing the area, the chief of police stated the reason was that boaters would use the natural downward slope of the road to launch their boats into the water while the road was flooded, since the permanent dock for launching was under water and inaccessible. At the time of the incident, the only signage warning drivers of floodwaters was a permanent sign stating “Water Over Roadway”; however, since the sign was permanent and not removed during the dry season, it may have been easy for drivers to become complacent and ignore the sign. After the incident, two orange barrels holding a removable sign stating “Road Closed” was placed on the road blocking access to the water. The sign, however, was small and lightweight, and a driver could easily move the sign in order to obtain access to the water. To prevent all vehicles from entering the flooded area, the county road department should consider installing a roadway sign that warns of quick flooding during heavy rains and close the road as quickly as possible with temporary barricades when the road becomes impassible.



Photo 4. Permanent ‘Water Over Roadway’ sign.
Photo property of KY FACE.

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Photo 5. 'Road Closed' sign and barrels added post-incident.
Photo property of KY FACE.

Recommendation #2: City government should consider installing streetlights approaching the flood plains.

Discussion: The area had no streetlights or security lights beyond the subdivision making it difficult to see if water was over the roadway. Local electric companies were contacted and asked what the requirements or guidelines were for installing streetlights. The companies responded that the city government makes the determination for where streetlights are used, and once purchased, they could easily be installed wherever the city deemed necessary. By installing streetlights or security lights on the approach to the flood plain, drivers would be more likely to see if the roadway was flooded. Installation of streetlights or security lights also promotes security and increases the safety of pedestrians, particularly that of children who may live and play in the area⁴.

Recommendation #3: Employers should ensure each employee is aware of areas that flood during rainy season.

Discussion: The chief of police stated he personally took new employees around the area and showed them the fields that are prone to flooding. Annual retraining and pre-shift meetings reminding employees during the rainy months of potential high water areas would refresh employee's awareness of the potential danger during the flooding season and areas to avoid. This is a very small department and the other officers employed are very familiar with the areas that flood during the rainy season. The victim was not from the local area and this was the first rainy season of his employment. The department should consider placing a map of their jurisdiction in a common area of the department that highlights which roads that are closed due to high water and task an officer with updating the map as water levels rise and fall.



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Recommendation #4: Employees should never overdrive their vehicle's headlights.

Discussion: Overdriving headlights is defined: "where a driver is moving at a rate of speed that their stopping distance is farther than their headlights, creating a dangerous driving environment⁵." The speed of this road was 25mph; the officer's actual speed is unknown.

The 2015 Ford Explorer weighs approximately 4,800 pounds, and if using low beams, a driver would have 180 feet of vision. If the officer was using the vehicle's high beams, he would have had 350 feet of vision. At a speed of 25 mph, the vehicle was moving at a rate of 36.67 feet per second. If the officer was travelling at the speed limit, his thinking distance – the distance the vehicle travels in the time it takes the driver to see the hazard, decides to brake and actually apply the brakes and is directly proportional to speed – measured at one second was 37 feet. The officer's braking distance – the distance the vehicle travels while the brakes are applied and is proportional to speed squared, was 31 feet. The equates to a total stopping distance of 68 feet⁶, well within the sight of both the vehicle's high and low beams.

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PROGRAM FUNDING

The Kentucky Fatality Assessment & Control Evaluation Program (FACE) is funded by grant 5U60OH008483-14 from the National Institute for Occupational Safety and Health (NIOSH).

REFERENCES

¹ National Weather Service "High water level terminology". <http://www.weather.gov/aprfc/terminology>

² Historic Data For the Mississippi River

³ "Historical Weather." Archive. Weather Underground. <https://www.wunderground.com/history>

⁴ Street Lighting and Road Safety. <https://www.rosipa.com/road-safety/advice/roads/street-lighting/>

⁵ Over Driving Your Headlights. <https://policedriver.com/articles/page/4/>

⁶ Calculating Stopping Distance. <https://www.random-science-tools.com/physics/stopping-distance.htm>



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INVESTIGATOR INFORMATION

This investigation was conducted by DeAnna McIntosh, Safety Specialist, Fatality Assessment and Control Evaluation, Kentucky Injury Prevention and Research Center, University of Kentucky, College of Public Health.

ACKNOWLEDGEMENT

The Kentucky FACE Program would like to acknowledge the Police Department, Dispatch, the Coroner and the Incident Commander for their assistance with this report.

SURVEY

[Please click here](#) to take a brief, anonymous survey concerning this report. Your feedback and opinions are appreciated.