**National Fire Fighter Near-Miss Reporting System**
**Reports Related to Preventing Rollover Accidents**

**Report Number:** 06-453
Report Date: 08/31/2006 1648

**Demographics**
Department type: Paid Municipal
Job or rank: Battalion Chief / District Chief
Department shift: 24 hours on - 24 hours off
Age: 52 - 60
Years of fire service experience: 30+
Region: FEMA Region VI
Service Area: Urban

**Event Information**
Event type: Vehicle event: responding to, returning from, routine driving, etc.
Event date and time: 08/31/2006 0845
Hours into the shift: 0 - 4
Event participation: Told of event, but neither involved nor witnessed event
Weather at time of event:
Do you think this will happen again?
What were the contributing factors?

- Communication
- Human Error
- Situational Awareness
- Decision Making

What do you believe is the loss potential?

- Lost time injury
- Property damage
- Life threatening injury

**Event Description**
An engine company, with the chief following, was responding to a box alarm on a reported house fire. The weather was hot and the streets were dry with light traffic conditions. The officer was getting dressed and not wearing a restraint as the company responded. All other members were in restraints. As the engine approached the on ramp of a freeway the captain told the driver to stay on the access road. The driver over compensated by pulling the steering wheel to the right. This caused the engine to go up on two wheels to the right. As the driver tried to compensate for this he pulled to the left, causing the opposite effect. The engine struck the curbing on the access road with the left front bumper, turning the engine on its side. It slid for several yards, narrowly missing a concrete light bulk head and coming to rest next to the retaining wall. Three of the crewmembers were treated and released from an area hospital while the officer suffered broken bones in his neck and arm.

**Lessons Learned**
The driver will be re-trained in handling heavy apparatus and reminded of the importance of safety while responding to incidents. While the responsibility may be shared with the officer, ultimately, it is the driver that has control of the apparatus and must make the right decision.

All members will be made aware of this incident and the use of restraints will be re-enforced.

**Report Number:** 08-370
Report Date: 08/08/2008 2255

**Demographics**
Department type: Combination, Mostly paid
Job or rank: Fire Fighter
Department shift: 24 hours on - 48 hours off
Age: 34 - 42
Years of fire service experience: 0 - 3
Region: FEMA Region III
Service Area: Urban

**Event Information**
Event type: Vehicle event: responding to, returning from, routine driving, etc.
Event date and time: 08/08/2008 1737
Hours into the shift:
Event participation: Involved in the event
Weather at time of event: Clear and Dry
Do you think this will happen again?
What were the contributing factors?

- Human Error

What do you believe is the loss potential?

- Property damage
- Lost time injury
- Life threatening injury

**Event Description**
Driving [an apparatus] Tower on emergency response: Entered turn at appropriate speed. However, turn was lateral downgrade, less than five degrees toward outside of turn. Upon re-acceleration (with front wheels fairly straightened out), the rear wheels were still steering in coordinated mode and tracking toward the outside of the turn. This caused enough centrifugal force, combined with the inherent "top-heaviness" of the apparatus, to raise the inside rear wheels off the roadway. Corrective reaction prevented a possible rollover from occurring. Information in [squared brackets] has been edited by the reviewer.

**Lessons Learned**
Extra caution must be exercised when approaching a turn with an outside downgrade. When driving a [type deleted] apparatus, re-acceleration should be delayed or reduced until the apparatus has mostly completed tracking the turn. This will minimize the rear wheels accelerating toward the outside of the turn, increasing the centrifugal force toward the outside.

[Reviewer note: Manufacturer contacted for follow-up. Reply will be posted to the Resources Page when received.]

**Report Number:** 08-509
Report Date: 10/10/2008 1554

**Demographics**
Department type: Paid Municipal
Job or rank: Fire Fighter
Department shift: 24 hours on - 48 hours off
Age: 34 - 42
Years of fire service experience: 11 - 13
Region: FEMA Region VII
Service Area: Suburban

**Event Information**
Event type: Vehicle event: responding to, returning from, routine driving, etc.
Event date and time: 08/30/2008 1430
Hours into the shift:
Event participation: Involved in the event
Weather at time of event: Clear and Dry
Do you think this will happen again?
What were the contributing factors?

- Decision Making
- Teamwork
- Situational Awareness

What do you believe is the loss potential?

- Minor injury
- Life threatening injury
- Lost time injury
- Property damage

**Event Description**
My unit, which was assigned to a fund-raising activity at the time, was dispatched to a reported grass fire. As we responded to the call, we were involved in an accident with a civilian vehicle. The apparatus involved was our rescue squad, equipped with a pump, 350 gallon tank, and medical supplies.

While responding from an urban setting north into the county, traveling north along a two-lane paved street, Squad [1] encountered moderate traffic traveling north as well. After slowing for a set of railroad tracks, I communicated to my lieutenant that no traffic was coming southbound and proceeded north in the south-bound lane of travel. Through training and experience, I understood the importance of civilians acknowledging my response as we traveled north on the civilian vehicles left. I assumed that by applying brakes and pulling to the right, the driver was indicating it was OK to overtake the vehicle and pass them. As we approached a neighborhood street which was on the west side of the street, I noted a green, four- door car that had applied its brakes and started to slow as I approached, sirens and lights activated. As I began to overtake this vehicle, I noted the left turn signal of this civilian vehicle was activated. I saw two, maybe three blinks and exclaimed to my lieutenant, "We are going to hit them!" Immediately, this car made a sharp left (west) turn directly in front of Squad [1]. At this moment I looked down and noted my speed of 43 mph. I made a decision

to attempt to turn west with this vehicle to minimize impact as we have an 8k lb winch mounted on the front bumper of the squad. As impact was made, I maintained control of the squad attempting to drive it through a grass ditch on the west side of the street of travel, avoiding an 18" telephone pole during the process. As I navigated the squad through the ditch, telling my lieutenant, "OK, we got this, we are gonna be OK", we encountered standing water which caused the rear of the squad to lose traction and rollover.

The last thing I remember was rolling over onto the driver's side (my side) with rushing mud and water coming into the cab. The next thing I know my lieutenant was holding my head, while we are hanging upside down by our seatbelts, yelling at me "[name omitted] Are you OK!?" over and over again. My lieutenant had cleared my airway and removed some rocks and mud from my eyes and nose. I just said to him, "Why are you yelling at me?", as we hung there upside down. SEATBELTS SAVE LIVES!!! It was now the realization that we needed to gain radio communication and advise them of our mayday situation. The antennas for the mobile radio in the squad were severely damaged, and were buried in the mud beneath us as we were on our top. The booster tank that was mounted in the back of the squad had broken free and emptied its water in the ditch, which filled up the inside of the passenger compartment in which we were hanging. Radio communication was established with difficulty, as an alarm for an apartment fire was going on at the same time. Numerous stations and apparatus heard the mayday traffic and responded immediately to our aid and to the aid of the five people in the civilian vehicle as well. The 1st engine company on the scene was from our own station, Engine [1] which contained a senior captain, a four- year firefighter, and a probationary firefighter. The captain established incident command, as many units were en-route to assist us. Our firefighter and probie did a phenomenal job in the face of great adversity and stress. Calling upon their training and maintaining situational awareness, they checked on all parties involved and established patient priority.

[Reviewer's Note: Photos related to this report can be found on the Resources Page. The file is referenced by the report number (08-0000509).]

**Lessons Learned**

As the driver of this apparatus, this situation was unavoidable. Sheriff's department personnel that were on-scene came to the ER to check on us. They reported that direct impact on the civilian car would have most likely killed the driver and possibly one of three kids in the back seat. My lieutenant and I both had our seat belts fastened. Without seat belts, we could have been sucked out of the broken windows as we rolled over, suffered crushing injuries, or even drowned in the water filling the ditch. My sincere thanks go to my lieutenant and the men and women of our public safety entities that responded and assisted with this event.

[Reviewer's Note: Photos related to this report can be found on the Resources Page. The file is referenced by the report number (08-0000509).]

**Report Number:** 09-139
Report Date: 02/05/2009 1930

**Demographics**
Department type: Other: Paid, Township
Job or rank: Fire Fighter
Department shift: 24 hours on - 48 hours off
Age: 25 - 33
Years of fire service experience: 4 - 6
Region: FEMA Region V
Service Area: Suburban

**Event Information**
Event type: Vehicle event: responding to, returning from, routine driving, etc.
Event date and time: 04/05/2008 1830
Hours into the shift:
Event participation: Told of event, but neither involved nor witnessed event
Weather at time of event: Clear with Frozen Surfaces
Do you think this will happen again?
What were the contributing factors?

- Situational Awareness
- Weather
- Communication

What do you believe is the loss potential?

- Life threatening injury

**Event Description**
A two man engine crew was responding to a reported motor vehicle collision. The driver hit a patch of black ice, rolling the vehicle several times. Both the driver and officer had seat belts in place. The vehicle was a total loss. Minor injury to driver requiring stitches.

**Lessons Learned**
Lessons learned were to increase weather awareness for the crew. Weather radios in the station could have alerted crew to weather conditions, or police and communications could have advised of bad weather.

**Report Number:** 09-319
Report Date: 03/26/2009 2233

**Demographics**
Department type: Volunteer
Job or rank: Assistant Chief
Department shift: Respond from home
Age: 25 - 33
Years of fire service experience: 0 - 3
Region: FEMA Region IV
Service Area: Rural

**Event Information**
Event type: Vehicle event: responding to, returning from, routine driving, etc.
Event date and time: 07/02/2008 1500
Hours into the shift:
Event participation: Told to and submitted by safety officer
Weather at time of event: Clear and Dry
Do you think this will happen again?
What were the contributing factors?

- Training Issue
- Procedure
- Human Error
- SOP / SOG
- Decision Making

What do you believe is the loss potential?

- Property damage
- Minor injury
- Lost time injury

**Event Description**
Our department experienced a tanker rollover. While decelerating a hill and in preparation of making a right hand turn, the tanker operator did not reduce the apparatus speed to safely make the turn. The water in the baffled tank of this 2,000 gallon tanker shifted to the point that the vehicle became uncontrollable, lifting two wheels off the roadway.

This lack of control and surface contact resulted in a shift in the center of gravity of the vehicle causing a rollover and sustaining significant structural damage. Fortunately, the driver/operator was belted into the vehicle and was not severely injured only sustaining superficial wounds. The outcome could have been much worse as our department could have seen their first Line of Duty Death.

**Lessons Learned**
Tanker operations are the most dangerous in the fire service. Some discussions within the department to prevent recurrence are to remove the lights and siren from the tanker and only allow it to respond "non-emergency". Additional training and operator drive time experience in dealing with the heavier apparatus are pivotally important. Training, training, training are the key to preventing this event in the future.

**Report Number:** 09-336
Report Date: 03/31/2009 1848

**Demographics**
Department type: Paid Municipal
Job or rank: Lieutenant
Department shift: 24 hours on - 48 hours off
Age: 34 - 42
Years of fire service experience: 7 - 10
Region: FEMA Region IV
Service Area: Suburban

**Event Information**
Event type: Vehicle event: responding to, returning from, routine driving, etc.
Event date and time: 08/15/2006 1710
Hours into the shift:
Event participation: Involved in the event
Weather at time of event: Clear and Dry
Do you think this will happen again?
What were the contributing factors?

- Human Error
- Situational Awareness

What do you believe is the loss potential?

- Lost time injury
- Property damage
- Minor injury
- Life threatening injury
- Other

**Event Description**
While responding on Squad 1 to the report of a structure fire with entrapment, I was involved in an apparatus rollover. As we were cresting a hill south of [name deleted], a civilian vehicle suddenly appeared in our lane heading directly for us. Despite my instruction to maintain course, my driver jerked the wheel to the right, taking us onto the soft shoulder. After regaining some control, I instructed him to slowly brake and steer back onto the road. He jerked the wheel left, grabbing the asphalt. He then heavily applied the brakes and sent us sliding out of control to the other side of the road and we overturned in a ditch.

**Lessons Learned**
Be vigilant when driving, cresting hills, and oncoming traffic...not just lateral traffic. Know the handling weight and driving/stopping characteristics of your vehicle. It only takes a split second of not paying attention to cause a tragedy.