



# ANNUAL REPORT 2008

An exclusive supplement to *FireRescue* magazine



# National Fire Fighter Near-Miss Reporting System

[www.firefighternearmiss.com](http://www.firefighternearmiss.com)

ELSEVIER



**FIRE RESCUE**

# National Fire Fighter Near-Miss Reporting System 2008 ANNUAL REPORT

## Dear Colleagues:

We are pleased to present the 2008 National Fire Fighter Near-Miss Reporting System Annual Report. Near Miss marked several milestones in 2008. Each of those milestones is a credit to the thousands of firefighters like you who took the time to submit a report, subscribe to the Report of the Week, attend a presentation at a conference, tell another firefighter about the program or spend time on the Web site. Some of these milestones include:

- A stakeholders' symposium with representatives from all parts of the fire service was held in February 2008. The symposium provided the framework for the program's strategic vision.
- In April, the Web site experienced a facelift that has been well received. Staff responded to your comments and made the site more interactive and user-friendly. Your suggestions continue to be welcomed.
- 2008 was also witness to the system's 2,000<sup>th</sup> report posting. Appropriately, an additional reviewer was added to the staff to help with report intake and workload.
- A train-the-trainer program is being piloted in partnership with Commissioner Ed Mann and the Pennsylvania State Fire Academy. This will enable the near-miss message to reach more people on the regional level.
- Finally, as further proof that the system is flourishing, continued funding was approved by the U.S. Department of Homeland Security's Assistance to Firefighters Grant Program. The National Fire Fighter Near-Miss Reporting System would not be sustainable without the Fire Act's continued support.

Firefighternearmiss.com continues to gain recognition in the fire service through the dedication and hard work of members across a lengthening list of fire service organizations.

As you evaluate the material in this year's report, we would like to leave you with two thoughts. First, we encourage you to visit the Web site at least weekly as we continue this journey to a safer fire service. Second, we urge you to take the time to submit a report. This issue of *FireRescue* magazine includes a tear-out reporting form that you can fill out and mail to us. Or you can download one from the Web site.

Reducing the impact of error in our industry is paramount to improving firefighter safety. We can make progress on this front by reporting near misses and committing to memory the lessons from near-miss reports. With fire and emergency medical services personnel hitting the streets every second of every day, waiting to submit your near miss is tantamount to allowing the firefighter or paramedic riding next to you to respond to an incident with their seatbelt unbuckled. Let's do everything we can to ensure we protect each other—and ourselves.

Fraternally,



*Larry J. Grorud*

**Larry J. Grorud, CFO, MIFireE**  
President, IAFC  
Fire Chief, Janesville (Wis.) Fire Department



*Dennis Smith*

**Dennis Smith**  
Chair, National Fire Fighter Near-Miss Reporting System Advisory Board  
CEO, First Responders Financial

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The 2008 Near-Miss Annual Report is an editorial supplement sponsored by the International Association of Fire Chiefs (IAFC) and published by Elsevier Public Safety, 525 B Street, Ste. 1900, San Diego, CA 92101-4495; 800/266-5367 (Fed. ID #13-935377). Copyright 2009 Elsevier Inc. and the IAFC. No material may be reproduced or uploaded on computer network services without the expressed permission of the publisher and/or the IAFC.



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**Smoke Photo** Craig Durling



# NEAR-MISS FAQ

## What is a near miss?

A near-miss event is defined as an unintentional, unsafe occurrence that could have resulted in an injury, fatality or property damage. Only a fortunate break in the chain of events prevented this from happening. Near-miss events include everything from Report No. 08-620, where a firefighter almost fell 5 feet off a ladder, to Report No. 08-001, where an aerial portion of a ladder truck became entangled in electrical wires.

## What is the near-miss reporting system?

The National Fire Fighter Near-Miss Reporting System is a free, voluntary, confidential, non-punitive and secure tool you can use to learn from other firefighters' experiences and to share your own. The mission of the program is to provide data and case studies for efforts related to the prevention and reduction of firefighter injuries and fatalities.

*Search:* Visitors to [www.firefighternearmiss.com](http://www.firefighternearmiss.com) can search reports by keyword or by specific parameters, such as event type, department type and contributing factors. This is an invaluable tool for creating drills and raising awareness on topics prevalent in your station or department.

*Learn:* The Resources page offers free training tools, such as presentations, grouped reports, videos and more. The 2009 Training Calendar and corresponding training modules are also located on the Resources page.

*Share:* Anyone can submit a near-miss report by visiting [www.firefighternearmiss.com](http://www.firefighternearmiss.com). There are 16 questions and two open text boxes for the event description and the lessons learned. The entire process takes approximately 10–15 minutes.

## What happens when I submit a report?

Once a report is submitted, report reviewers (fire-service colleagues) analyze the report and remove any identifying information, such as department names, company numbers and individual names. When contact information is provided, report reviewers collect additional information through callback interviews. The report is then posted to [www.firefighternearmiss.com](http://www.firefighternearmiss.com) (and the contact information is destroyed). For more information on the program and its history, visit [www.firefighternearmiss.com](http://www.firefighternearmiss.com).

## How can I find out what near misses have occurred in my department?

You are not able to search reports by department name because that information is not collected. In fact, when you search reports by state, you are actually searching reports in your FEMA region. This is done to protect the identity of the report submitter.

On the Search Reports page, you can search by parameters such as department type, shift, service area, etc., to identify near-miss events occurring in departments similar to yours. This proactive approach allows preventive measures to be implemented or highlighted before a near miss or injury occurs.

## What if I don't want to submit a report electronically?

The Web site is secure, and all reporter information is deleted from the database when the report is posted. However, if you don't want to submit a report electronically, you can download a paper reporting form at [www.firefighternearmiss.com](http://www.firefighternearmiss.com). The form includes the mailing address and fax number to which you can send the report. You can also request paper reporting forms for your station or department by calling 703/537-4848 or e-mailing [info@firefighternearmiss.com](mailto:info@firefighternearmiss.com).

## Is this program only for firefighters?

No. The National Fire Fighter Near-Miss Reporting System is an all-hazards reporting system. Anyone in the fire and emergency service is encouraged to submit a report when they experience, witness or learn of a near-miss event. Reports have been submitted by paramedics, hazardous materials specialists, helicopter pilots, fire investigators, fire police and others. There are important lessons that can be learned regardless of your title, rank, position, department type or location.

## Why should I take the time to submit a report?

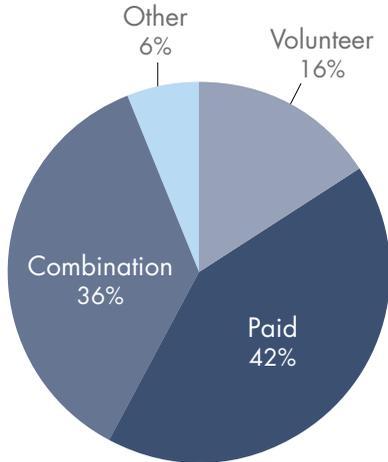
During callback interviews, report reviewers ask reporters why they submitted the report. The No. 1 reason given: to help another firefighter. Taking 10–15 minutes to submit a report to help another firefighter is time well spent.

## Acknowledgements

The National Fire Fighter Near-Miss Reporting System is generously funded by the U.S. Department of Homeland Security's Assistance to Firefighters Grant Program (DHS/AFG). DHS/AFG along with Fireman's Fund Insurance Company provided funds for the creation of the program. The IAFC administers the program in consultation with the National Fire Fighter Near-Miss Reporting System Advisory Board. Thank you to the leadership of the IAFC, especially Chief Larry J. Grorud and Executive Director Mark Light. Thank you to the members of the Advisory Board, especially Dennis Smith, for their leadership, guidance and encouragement. The program's success comes from its partnerships with other fire service organizations. A special thank you is extended to the International Association of Fire Fighters, particularly Lori Moore, Rich Duffy, Patrick Morrison and Jim Brinkley. To the report reviewers who maintain the utmost confidentiality and professionalism, thank you for being the backbone of this program. And most importantly, to everyone who submitted a report in 2008, thank you for taking the time to help your fellow firefighters. Your contribution to firefighter safety is applauded.

# REPORTER DATA

**Note:** The statistics in the 2008 Annual Report are from reports received Jan. 1–Dec. 31, 2008. 590 reports were received in 2008 for a total of 2,149 reports posted to the Web site since its launch in August 2005. For comparisons of reports received in previous years, download the 2006 and 2007 Annual Reports from [www.firefighternearmiss.com/resources](http://www.firefighternearmiss.com/resources).

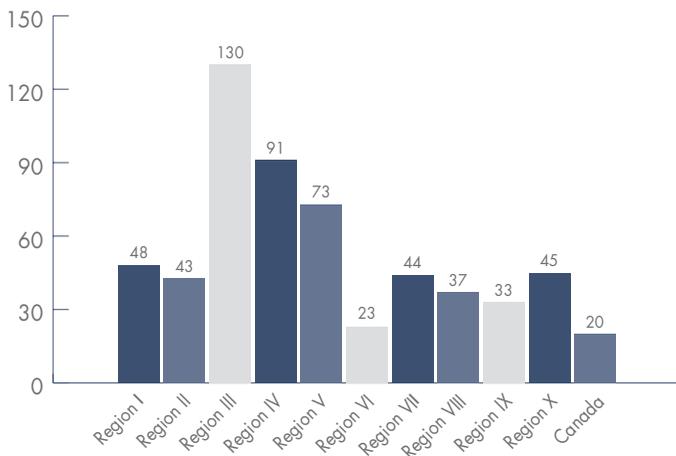
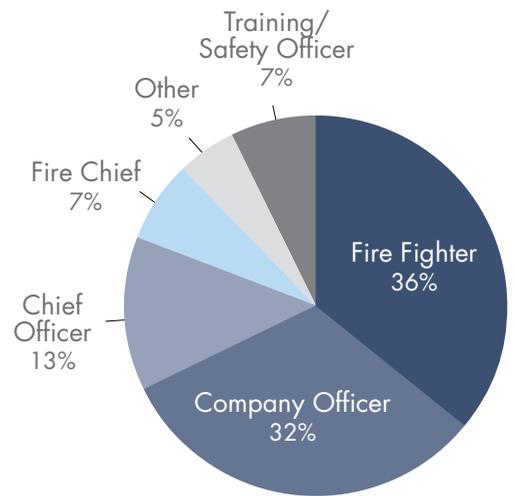


## Department Type

Reporters select the type that best describes their department. If the department doesn't fit any of the descriptions, they can select "Other" and enter a description.

## Job/Rank

Reporters select their job/rank. If the job/rank doesn't appear, they can select "Other" and enter a description.

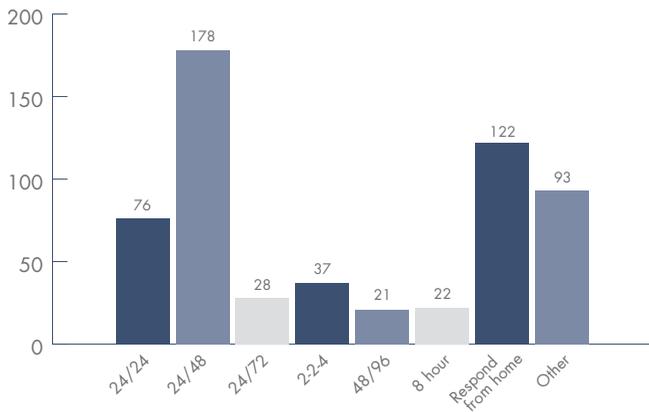
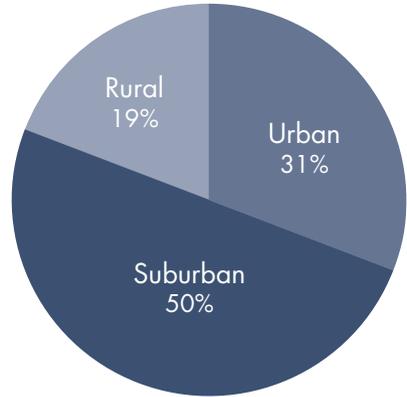


## FEMA Region

Reporters select their state when submitting a report. Only the FEMA region is posted on the Web site. In 2008, reports were received from 46 U.S. states and 5 Canadian provinces.

### Service Area ▶

Reporters self-declare the area their fire department serves.

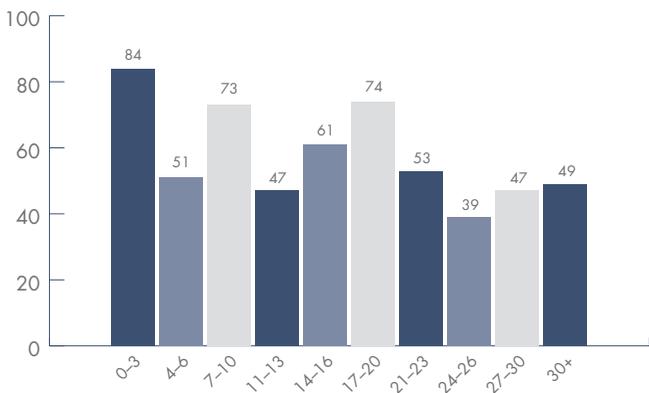
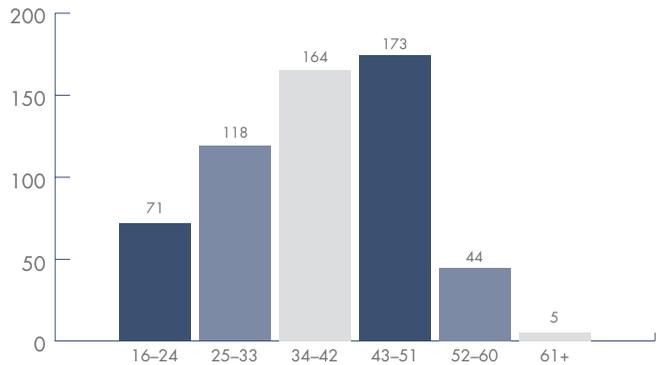


### ◀ Department Shift

Reporters select the work shift in their department. This category applies to career departments (hours on/hours off; days/nights; consecutive days) and volunteer departments (stand-by, duty night and respond from home). If a reporter cannot find the appropriate shift, they can select "Other" and provide more detail in the text box.

### Age at Time of Event ▶

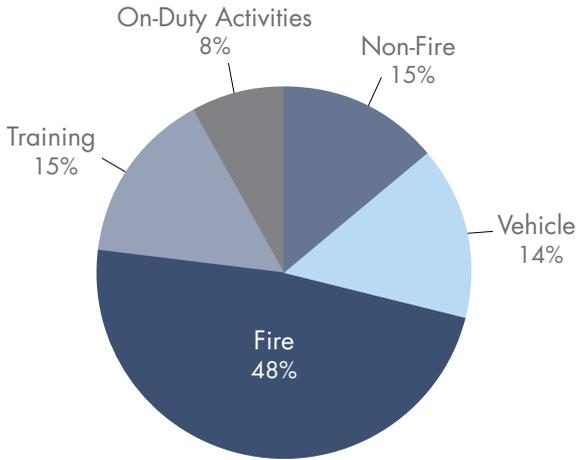
Reporters select their age range.



### ◀ Experience at Time of Event

Reporters select their fire service years of experience. The experience levels are based on the traditional career cycle of a firefighter.

# EVENT DATA

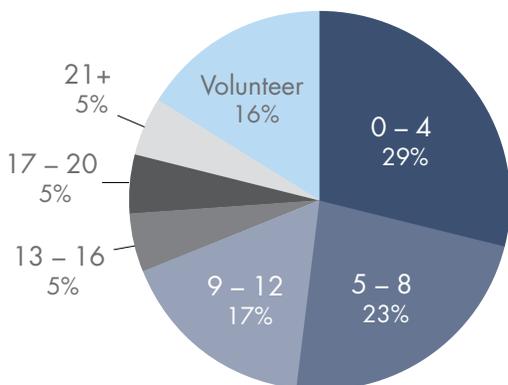
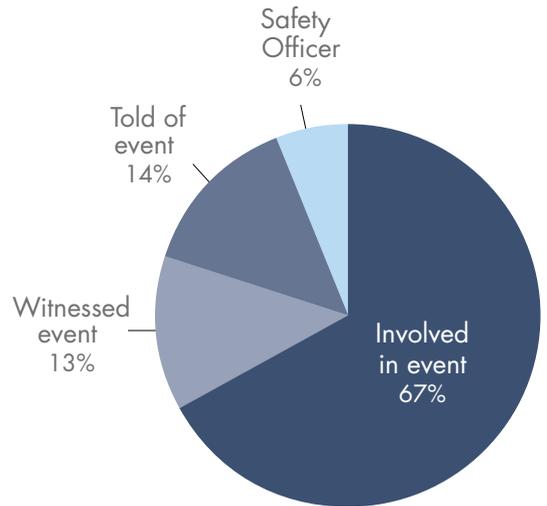


## ◀ Event Type

Reporters select from five categories, plus an “Other” choice. The categories mirror the five main categories where statistics indicate firefighters suffer injuries and fatalities.

## Event Participation ▶

Reporters identify their level of involvement in the event.

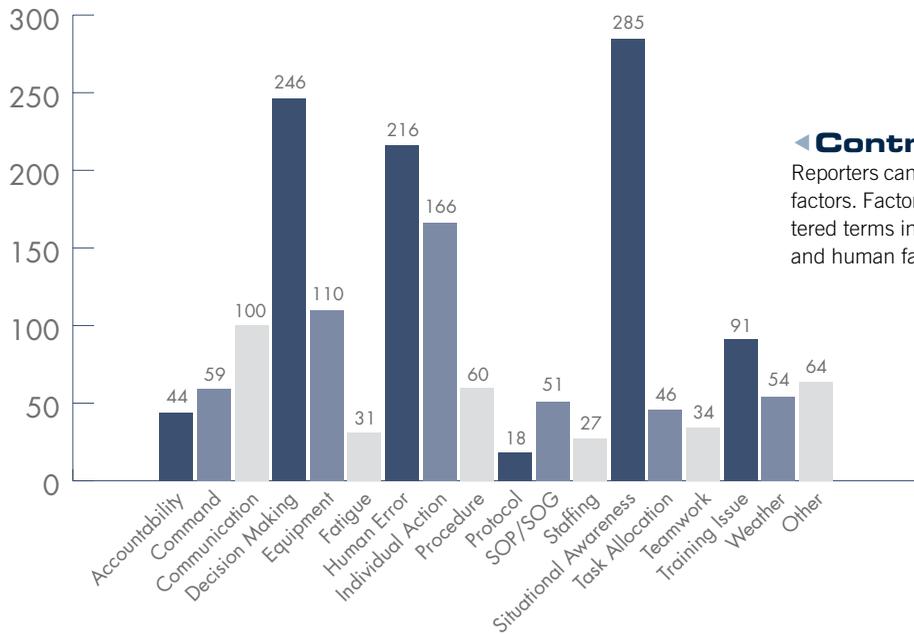
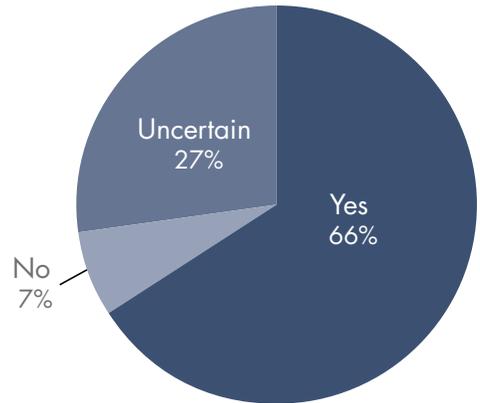


## ◀ Hours into Shift

This data reflects the number of hours into a shift prior to the event occurring.

### Could This Happen Again? ▶

This question provides reporters an opportunity to state whether the near miss was an isolated incident or could possibly reoccur. Reoccurrence could be an indicator of a need for a systemic change in a procedure, technology or culture.

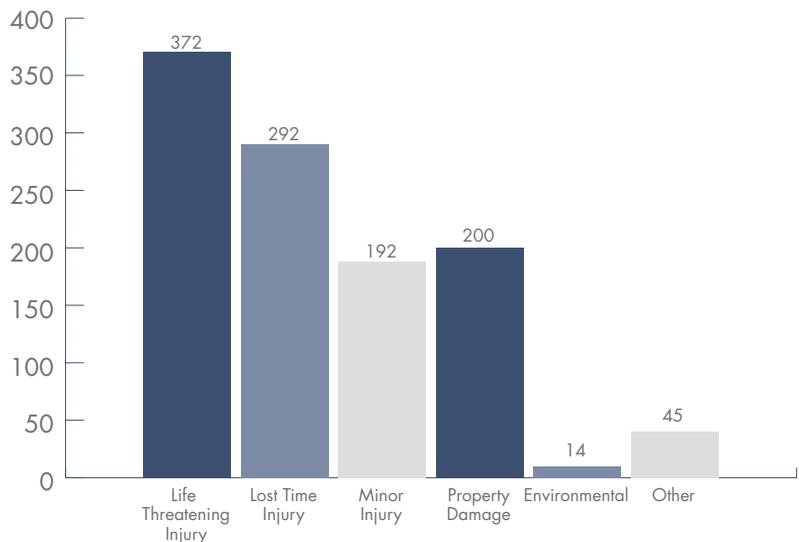


### ◀ Contributing Factors

Reporters can select up to five of 20 contributing factors. Factors are based on frequently encountered terms in standard injury reporting systems and human factors research.

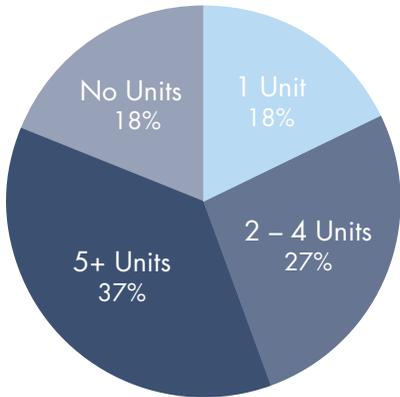
### Loss Potential ▶

Reporters can select up to five of seven critical loss items. Report reviewers stated that reporters frequently cited the life-threatening potential as a compelling reason for filing a report.



# CALLBACK DATA

Callback interviews are conducted as needed when reporters provide contact information. Reports can be submitted without contact information; however, about 90 percent of reports do include contact information. Contact information is deleted from a report when it is posted to [www.firefighternearmiss.com](http://www.firefighternearmiss.com). The statistics on these pages were collected by the report reviewers during the callback interviews or ascertained from the narrative sections of the report by the reviewers.

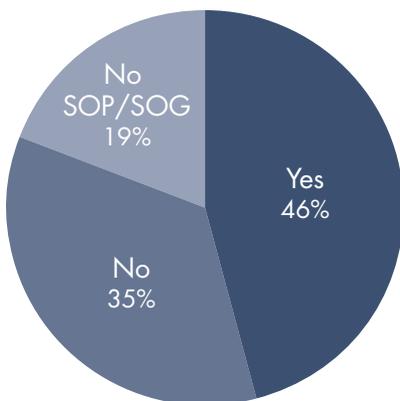
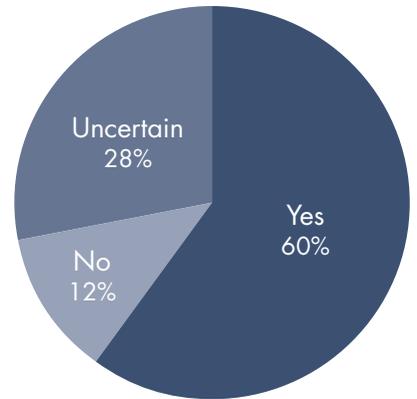


## ◀ Command & Control at Fire Emergency Events

This field refers to the number of units operating at an emergency event.

## Use of ICS ▶

If the narrative is not clear on whether an incident command system (ICS) was in place, the reviewer will ask the question during the callback.

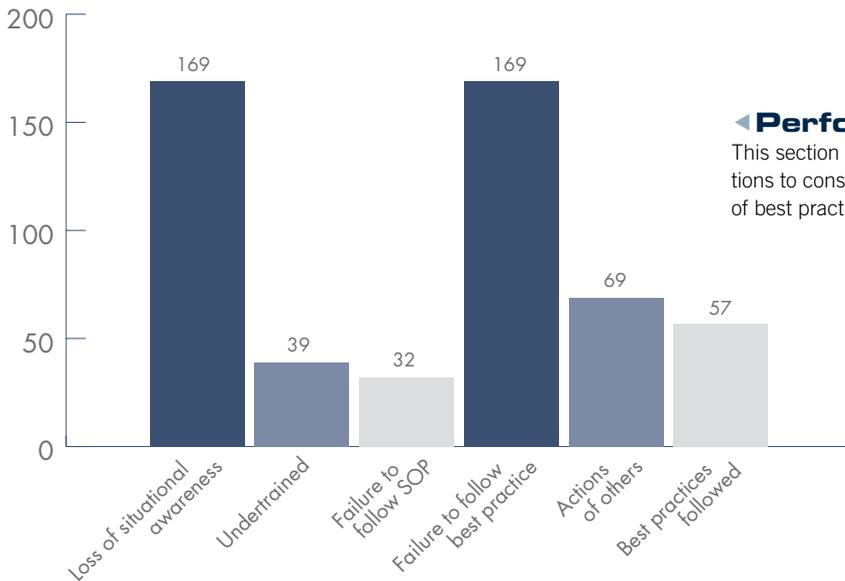
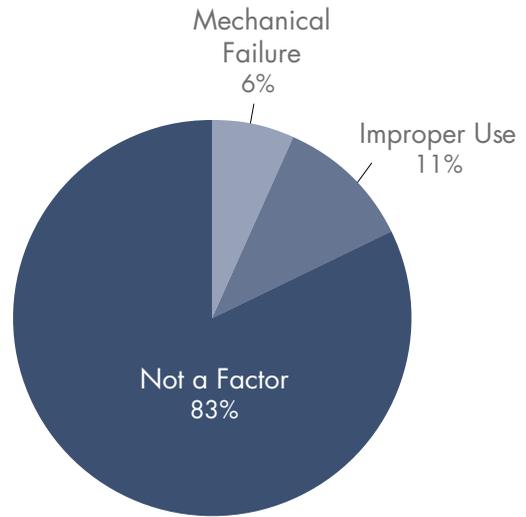


## ◀ Following SOPs/SOGs?

This question addresses whether a department has rules in place that address the situation and whether the members involved in the near miss followed these rules. This provides a tool for leadership to reinforce the value of following best practices or the need to develop and implement new policies.

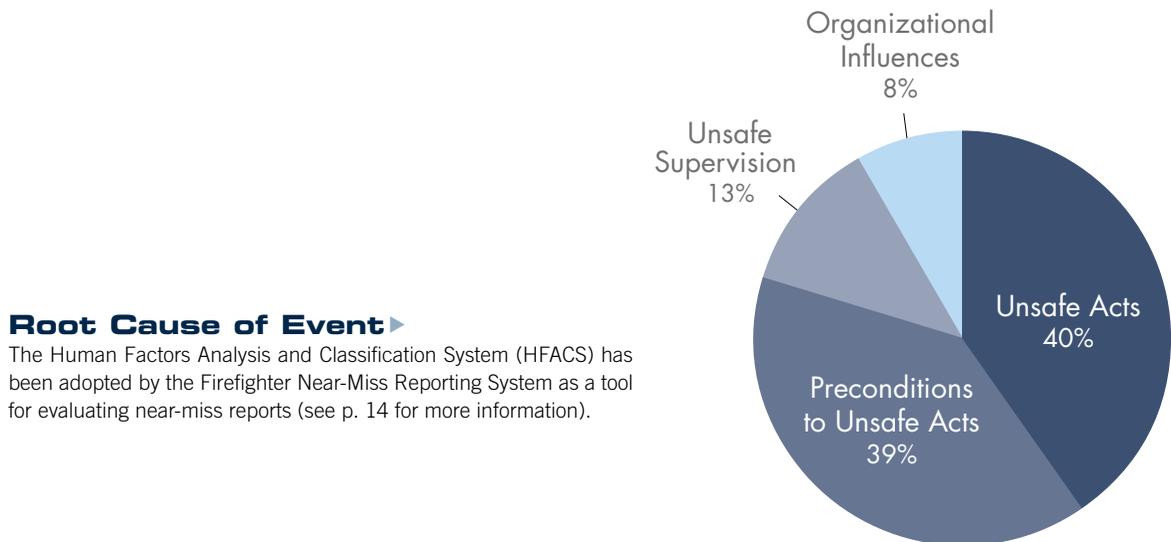
### Equipment ▶

Reviewers determine, either through the report narrative or callback, if equipment was a factor in the near miss.



### ◀ Performance

This section provides reviewers a series of selections to consider when evaluating the application of best practices in the near-miss report.



### Root Cause of Event ▶

The Human Factors Analysis and Classification System (HFACS) has been adopted by the Firefighter Near-Miss Reporting System as a tool for evaluating near-miss reports (see p. 14 for more information).

# ANALYSIS



## Background

In August 2008, a working group of firefighters and officers met in Denver at Fire-Rescue International to analyze grouped near-miss reports. Two analysis tools were used: Crew Resource Management (CRM) and a customized version of the U.S. Navy's Human Factors Analysis and Classification System (HFACS). HFACS was the analysis tool used for the previous two annual reports. The analysis conducted was not intended to be a thorough review of all reports received on these topics. The goal of this analysis was threefold:

1. To receive insight and expertise on select topics from a cross-section of the fire and emergency service;
2. To illustrate an analysis mechanism that can be duplicated at the station, company or department level; and
3. To provide suggestions for modifications to analysis tools for future use.

The analysis tools can be found at [www.firefighternearmiss.com/resources](http://www.firefighternearmiss.com/resources) under "2008 Annual Report."

## Crew Resource Management

CRM is the effective practice of using all resources to reduce the adverse effects of error. The five principles of CRM are:

- Communication;
- Situational awareness;
- Decision making;
- Teamwork; and
- Task allocation.

"Debrief" is often listed as the sixth principle, but because this component is seldom included in near-miss reports, it was not included in the CRM analysis tool. Visit [www.firefighternearmiss.com/resources](http://www.firefighternearmiss.com/resources) for a guidebook on CRM.

The analysis worksheet identifies characteristics, benefits and pitfalls for each of the CRM principles. Led by trained facilitators, the working group members addressed a series of questions related to a specific principle.

## Human Factors Analysis & Classification System

The U.S. Navy's Human Factors Analysis and Classification System (HFACS) was developed in 2001 by Doug Wiegmann and Scott Shappell. In August 2006, a modified version of HFACS was developed to conduct peer reviews of near-miss reports. HFACS evaluates an event on four levels of individual and organizational performance:

- Unsafe acts;
- Preconditions to unsafe acts;
- Unsafe supervision; and
- Organizational influences.

For an in-depth introduction to HFACS, download the 2007 Annual Report, also found on the Resources page.

## Reviewing Reports

Reviewing near-miss reports is an invaluable tool for individuals, crews, departments, training schools and curriculum developers. It's important to note that reviewing reports is not intended to assign fault or pass judgment on the individuals involved in the near miss. Rather, it is important to understand all the factors involved in the near-miss event and discuss how the event might have been avoided.

Photo credits: Left: Johnston County (N.C.) Fire & EMS Department; Middle: Villages (Fla.) Public Safety Department; Right: Jason R. Henske/Fyrfoto.com

## 2 Web Sites, 1 Goal: Firefighter Safety, Health & Survival

Firefighternearmiss.com and FirefighterCloseCalls.com have strengthened their partnership by making it easier for firefighters to submit to both sites at once. When someone submits a close call to FirefighterCloseCalls.com, they can now click a box and have the option of submitting the same event to Firefighternearmiss.com. Advisory Board members and founders of FirefighterCloseCalls.com, Deputy Chief Billy Goldfeder and Gordon Graham, have supported the National Fire Fighter Near-Miss Reporting System since its inception, a true testament to their unending efforts for firefighter safety, health and survival.



"We use firefighternearmiss.com and firefighterclosecalls.com in our 'Tailboard Training' sessions for our firefighters. These programs provide us what would take the average firefighter a career to gain on their own. It is core to our risk-reduction efforts."

— Augie Ghio  
San Miguel Consolidated Fire Protection District  
San Diego County, Calif.

# TOOL # 1 : CRM

Crew Resource Management (CRM) includes five key principles—communication, decision making, situational awareness, task allocation and teamwork. The reports analyzed using CRM either mentioned one of these principles in the event narrative or listed one in the contributing factor data field. Here’s what the analysis uncovered:

- Sender and receiver errors dominated communication;
- Underestimating and misinterpreting critical incident factors dominated decision making;
- Distraction, fixation, complacency and unresolved discrepancies were the leading factors listed in reports involving situational awareness;
- Task allocation issues involved the worker being uneducated, undereducated or untrained for the event/incident; and
- Multiple leadership/followership factors affected teamwork.

By analyzing reports alongside a CRM principle, we can develop strategies and recommendations for changes in practice and behaviors.

CRM Principle	Definition
Communication	Formulating, sending, receiving and interpreting messages.
Decision Making	Evaluating information from a variety of stimuli so strategies, tactics, tasks and other actions can be taken.
Situational Awareness	Maintaining attentiveness to an event while keeping in mind the effects of perception, observation and stress on self and individuals.
Task Allocation	Selecting the right person for the job based on their experience, skill and knowledge, regardless of seniority.
Teamwork	Working together to achieve a common goal. Teamwork comprises two subsets: leadership and followership.

## ► COMMUNICATION

The working groups looked at reports where communication played a pivotal role in the outcome of the near-miss event. Communication comes in many forms—verbal, non-verbal, written and symbolic—however, in the majority of the analyzed reports, it was a lack of any form of communication that was central to the near miss.

In the case study below, there were both sender and receiver errors, as is common in most near-miss reports. Barriers to communication included rapidly deteriorating conditions, the need for rapid egress, background noises, and the lack of training and experience of recruits. These characteristics are prevalent in many fire events.

This near miss occurs at a training fire (a controlled environment) where conditions should promote communication at its best. However, the training ends with several instructors and recruits making a hasty retreat because of a miscommunication on the fireground.

What can we learn from this? Communication exercises should be included in training drills on a regular basis. For examples of communication drills, visit [www.firefighternearmiss.com/resources](http://www.firefighternearmiss.com/resources) and check the list under 2008 Annual Report.

► **CASE STUDY #08-100:** Communication problems lead to firefighters getting burned during a live-fire exercise.

► **EVENT DESCRIPTION:** “We were doing live-fire exercises in an abandoned building. A small fire was set in the walk-up attic of this building. I was the officer/instructor on the truck company

and led my two-person crew up the narrow stairs.

I saw a small fire burning in the corner of the room at the top of the stairs and a little smoke. I went left into the room at the top of the stairs and had my crew start a left-hand search while the engine company behind me was to go straight to the fire and extinguish it. There was an outside vent crew in place to vent the area for us.

As my crew and I proceeded with our search, I heard yelling and screaming from back, near the stairwell. Suddenly, the heat began to rise in the room and the screaming got louder. I knew something was wrong but did not know what, so I grabbed my two recruits and told them to crawl as fast as they could to the front of the building, because I knew there was a ladder to the window in the front.

When we reached the window we found that the shutters had been nailed shut and the heat and smoke were rising rapidly. Keeping my recruits pinned to the floor, I reached up with my Halligan and vented the window, at which time a ball of fire rolled over our heads and out the window. The temperature dropped some, and I had my crew exit via the ladder.

Once they were out, the temperature returned to more normal levels, and I still heard a lot of action near the top of the stairs. I went back to find the problem and found the back-up line crew extinguishing the fire. The first engine crew was hurt, as was the instructor. There had been a problem at the top of the stairs in which the instructor lost ability to stay with the nozzleman who fell on the nozzle at the top of the stairs. A communication error occurred, and the outside vent crew failed to vent when they should have. We had just suffered a flashover.”

## ► DECISION MAKING

Firefighters' decision making in the reports was evaluated against both internal and external factors. Of the internal factors, underestimating and misinterpreting critical incident factors were selected in five reports analyzed. Critical incident factors include fire behavior, smoke production, fire travel and resource assessment.

► **Case Study #06-260:** A raised aerial was struck by lightning during a storm.

► **Event Description:** "Our department was conducting defensive fireground operations at a large commercial structure. The building was a non-sprinklered, concrete tilt-wall construction, approximately 20,000 square feet in size, with 50 percent involvement. Tenant space involved was a flooring business with carpet showroom and storage.

Approximately 30 minutes into fireground operations, our area was placed under a severe thunderstorm warning, and this warning was later upgraded to a tornado warning. Doppler weather radar indicated a possible tornado 15 miles west of our location, moving east.

The leading edge of the storm was producing heavy rain and lightning and had reached our location. Incident Command was in place, and our command staff was in constant contact with local emergency management officials on the impending weather. Weather conditions and the threatening tornado made fireground operations unsafe.

The incident commander (IC) made the decision to suspend all fireground operations and advised personnel to seek shelter in the business next door. Two firefighters were positioned in the platform when the order was given. They exited the platform by climbing down the ladder, leaving the ladder in the raised position. Within 30 seconds after the last firefighter had dismounted the ladder and was seeking shelter, the platform was struck by lightning.

Our personnel forced entry into the business next door, and more than 30 firefighters were moved to interior hallways for protection. While sheltered in the building, emergency management officials advised us that trained weather spotters had spotted a funnel cloud a half-mile east of our location.

After it was safe to resume fireground operations, we found that our ladder was inoperable after the lightning strike and stuck in the raised position. It has since been returned to the manufacturer for repairs.

Had the IC not made the decision to suspend operations, we would have had at least two firefighters seriously injured as a result of the lightning strike."

## ► SITUATIONAL AWARENESS

Situational awareness can be defined as the level of understanding and attentiveness one has regarding the reality of a set of conditions. When situational awareness is high, there are rarely surprises. When situational awareness is low or absent, "unexpected" events occur. Simply put, situational awareness is the relationship between what one perceives is happening and what is really happening.

The set of conditions that affects situational awareness can be broken down into three divisions: a lack of information, a lack of knowledge and a lack of cognition. These three divisions are made up of their own unique factors, including misinterpreting conditions or surroundings, not recognizing factors or cues, gathering incomplete information, being narrow-focused and being impaired.

The report below provides a sample case study involving two factors that are often unknown in the size-up: how long the fire has been burning and what type of structural material is burning. It's easy to see how these factors relate to situational awareness: You may not have all the information regarding how long the fire has been burning, and you may not know how to recognize lightweight trusses.

When it comes to structural building materials, lightweight trusses need less burn time to fail than their full-dimensioned predecessors. The message to take from this report: We must be aware of both the presence of trusses and the fact that we simply do not know when they will fail.

► **Case Study #08-277:** Trusses + fire involvement + unknown burn time = Early collapse.

► **Event Description:** "A fire in a 2,200-square-foot, single-story, masonry-construction, single-family dwelling results in second-degree burns to a career firefighter. Undetermined burn time results in the early collapse of a lightweight truss system.

First-arriving units found fire through the roof in the B/C section of the structure. With the presence of multiple vehicles, time of day at 0906 HRS, no smoke conditions in the dwelling and neighbors stating that the occupants should be home, the incident commander ordered an attack crew with 1 ¾" line and rescue crew to enter the structure.

The supply line was hand-jacked 100 feet, and they made entry and were met with rapidly changing conditions that included heavy smoke. All firefighters who entered the building were properly wearing all recommended personal protective equipment.

Between 6 and 8 minutes of the on-scene time, a mayday was declared as the portion of the roof and truss system collapsed on the rescue crew conducting the search. They were separated by the debris and able to self-rescue. One was not under the debris and exited to the exterior by the rear door; the other was under the rubble and was able to free himself and exit the front door. His air-pack was damaged, and his helmet and hood were dislodged.

A mayday was called and reaction by all on scene was per IMS manual. Each search team firefighter was quickly accounted for, the entire structure was evacuated, and PAR was conducted to confirm."



Photo Midwest City (OK) Fire Department



“Near-miss reporting is an excellent path toward enhancing firefighter safety & enhancing the safety culture within the fire & emergency service.”

—Report Submitter #08-148

## ► TASK ALLOCATION

Fitting the right person to the right job sounds like an employment-service commercial. But if performance is to be optimized, you need the right people with the right skills. Task allocation is an undercurrent in all CRM principles because it has a direct effect on all aspects of the incident scene. Assigning the responder with the greatest combination of knowledge, skill and ability to a specific task improves the odds of a successful outcome.

Task allocation requires that leaders be keenly aware of their crewmembers' individual qualifications, and alert for pitfalls that can get in the way of their own task execution. One of these pitfalls is task saturation. Everyone has a limited number of actions they can perform and a limited amount of information they can process at any given time.

In case study No. 08-06, the reporter is 5 hours into a wildland incident when a task force arrives and is assigned a radio they're not familiar with. Later, the task force is the only group not to hear an evacuation order and they end up fighting for their lives as a fire front overtakes them. In addition, the incident commander is alone as he faces the most challenging facets of a wildland fire—the first several hours.

How do you know if you're the right person for the job assigned to you? You know how to use all of your equipment and you're familiar with the individual tasks that make up the assignment. If you're handed something you're not familiar with, ask for additional clarification on use. This puts you in line for deepening your experience level and improving your knowledge. From the command perspective, building a command team quickly reduces the impact of task saturation by dividing duties and providing extra sets of focused eyes and tuned ears.

The Lessons Learned section of the highlighted report discusses the task allocation elements worthy of a closer look.

► **Case Study #08-061:** Saturated command post and possible user error puts strike team at risk.

► **Lessons Learned:** “1. Use every method possible to ensure all units operating on an incident are able to communicate on incident radio frequencies. The common practice of having an entire strike team of engines rely on one person (the leader) with a radio on the incident radio frequencies creates a situation in which communication failure is almost inevitable.

2. Use extraordinary caution when personnel are given a new piece of complex equipment, such as a 800-MHz portable radio, in a high-pressure situation with little time for training or familiarization.

3. Command personnel on complex incidents should have aides or assistants. The task of fire command of a rapidly evolving situation, combined with the rapid infusion of resources to the incident (often without face-to-face communications), combined with high-volume radio traffic, makes resource accountability a major headache. It can't hurt to have an extra set of eyes and ears to assist with radio traffic, accountability and recordkeeping.

4. When tactical decisions to withdraw and redeploy resources are made, extra effort must be expended to ensure that all units are accounted for. In the structural arena, we would do a PAR; a similar approach should be applied in this situation.”

## ► TEAMWORK

Every facet of fire and emergency service involves teamwork. Emergency service teams function at high levels when there is good communication, frequent training, shared goals and experiences and down-time spent together. In many scenarios, emergency teams are composed of a single leader and a group of followers, while certain fire and emergency service teams are only composed of two members (i.e., arson squads, understaffed fire companies and EMS units). Teams benefit from leaders who are articulate, fair and competent.

The *Teamwork* case study recounts a situation involving a person dealt with by nearly every provider who has ridden in an ambulance: the combative drunk patient. One of the many lessons learned from this situation is the value of teamwork and familiarization with each other.

The EMS crew responds to assist the police with transporting an unruly patient. We see the crew's teamwork in their quick, coordinated reaction when the situation becomes hostile. The reporter mentions in the Lessons Learned section that his organization prepares for this type of incident due to its frequency. He states, “In our system we deal with drunks a lot .... I believe in my system, we are well trained in how to be aware of potential dangers and how to handle these problems. As a result of our training, we tend to take some additional risks that others might not take in other systems.”

The full account of this report is available on [www.firefighternearmiss.com](http://www.firefighternearmiss.com). When using the Search Reports feature, type in any of the following keywords to find this report and others like it: drunks, intoxicated, fight, combative or police.

► **Case Study #08-047:** Good teamwork controls unruly patient.

► **Event Description:** “We were called to a police station to pick up an intoxicated person for transport. We arrived at the cell to find a very intoxicated patient who became verbally combative, but nothing more.

My partner and I began to escort/walk the patient (who was able to walk) to the rig, with each of us holding the patient's arms in a lock as a precaution, and without police escort (standard practice for us). We both felt he could become potentially combative.

As we were loading him, I let go of the patient in order for him to step up while my partner held onto him. He then began to fight with us. My partner was able to pull him to the ground while I jumped on top. I immediately used the radio to call for emergency backup from police, and they arrived quickly. My partner and I were both very aware of the patient's ability and willingness to fight us. My partner only received minor scratches. We took precautions as we escorted him out for transport by holding his arms in a lock and were able to take him down when he became physically combative.”

# TOOL #2: HFACS

The modified version of the U.S. Navy's Human Factors Analysis and Classification System (HFACS) evaluates the trail of events that led to a near miss. The working groups were given an introduction to HFACS and then asked to use this tool to review reports on particular topics. This type of analysis highlights the importance of looking at the entire chain of events, rather than just the near-miss event itself. *Remember:* HFACS evaluates an event on four levels of individual and organizational performance: unsafe acts; preconditions to unsafe acts; unsafe supervision; and organizational influences.

HFACS Level	Definition
Unsafe Acts	There are two categories of unsafe acts: errors and violations. Errors are unintentional acts that can be decision-based, skill-based or perception-based. Violations are intentional acts and can be routine or exceptional.
Preconditions to Unsafe Acts	This level includes substandard conditions (i.e., adverse mental states, psychological states and physical limitations) and substandard practices (i.e., personal readiness and failure to use principles of CRM).
Unsafe Supervision	Unsafe supervision includes inadequate supervision, allowing inappropriate operations, failure to correct known problems and supervisory violations.
Organizational Influences	This level examines resource management and organizational climate. This is the most difficult level to analyze because the information is not included in the report.

## ▶ TOPIC # 1: POWER SAWS

▶ **Case Study: Report #08-165:** Firefighter's facepiece nearly comes in contact with rotary saw.

▶ **Event Description:** "At the scene of a fully involved two-story house fire, an experienced firefighter was preparing to open a second-floor exterior wall to gain access to the main body of fire. The roof was too unstable to ventilate. The firefighter removed the [brand removed] rotary saw from the ladder truck and was kneeling over the saw preparing to start it. The saw had a wood-cutting

blade installed. The firefighter was wearing his SCBA, but had the facepiece dangling from the regulator (over his shoulder).

As the firefighter prepared to pick the running saw off of the ground, he leaned over it and the net from his SCBA facepiece came very close to the spinning blade. I yelled to him, as I imagined the netting getting caught on a tooth of the spinning blade, pulling him face-first into the saw blade. The firefighter stood up to look at me before the facepiece could contact the blade's teeth. I pointed out my concern and he acknowledged. The rest of the fire went without incident or injury."

▶ **Lessons Learned:** "Pay attention to what you're doing! Pay attention to what others are doing, and if you see something wrong, correct it immediately. Also, facepieces are not designed to be hung from regulators. They should be clipped to the shoulder strap. Special care should be taken with dangerous equipment (i.e., saws or other sharp things or equipment with moving parts)."

▶ **Analysis:** The first step in HFACS is to determine if the act that triggered the near miss was an error (unintentional act) or violation (intentional digression from policy or best practice). The peer groups that examined the power saw reports found several commonalities. They determined that the majority of power saw issues were skill-based errors generally related to technique or attention lapses. There are remedies for these lapses, including more intense initial training, more frequent re-training and closer supervision.

In the preconditions category, lapses were related to complacency, haste, loss of situational awareness, channelized attention and distraction. What the preconditions identify in the power saw near misses are behavior-related shortfalls. Some of the corrective actions are training-related and others are rooted in technological improvements.

The supervisor's role is critical in a near miss. With regard to

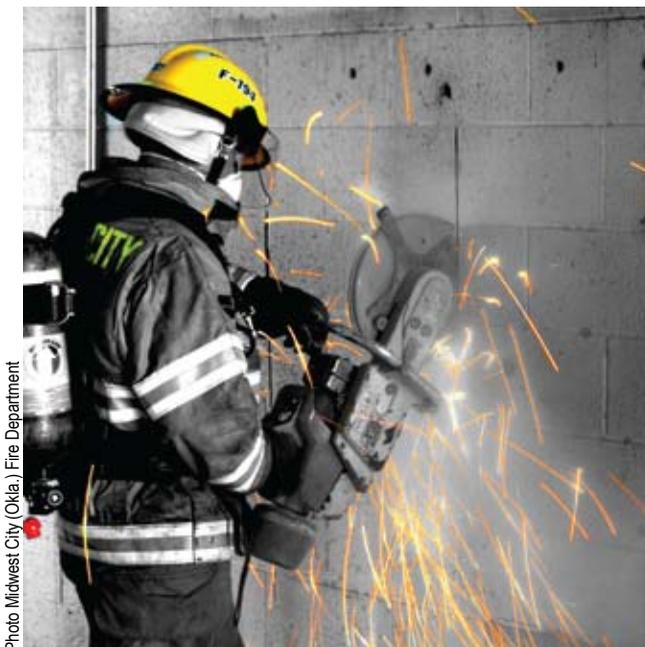


Photo Midwest City (Okla.) Fire Department

power saw reports, supervisory breakdowns fell into three categories: inadequate supervision, inappropriate operations permitted by the supervisor, and failure to correct a known problem.

The peer groups classified the inadequate supervision as a result of a failure on the supervisors' part to provide oversight, guidance or training. Where inappropriate operations were permitted, the supervisors were determined to have failed to correct an inappropriate behavior, failed to adequately brief the member or allowed an operation to be conducted with inadequate personnel. There were also determinations that members did not follow a supervisor's direction. This conclusion was most often noted when the near miss was the result of a violation. Failing to correct a known problem was generally found to be a failure on the supervisor's part to provide training to an under-qualified member.

The resource management and organizational climate of the fire department comprise the organizational influences category. The power saw reports pointed to several organizational contributors to the near miss. These contributors appear as inadequate staffing per NFPA 1710 and 1720, lack of adequate funding and failure of the organization to provide adequate training.

The peer groups were also asked for recommendations to prevent the near miss from reoccurring and improvements to the near-miss report process.

- Recommendations for firefighters: Take personal ownership of properly wearing PPE and training on equipment.
- Recommendations for company officers: Enforce existing rules and policies. Provide adequate training and stay abreast of current best practices. Take responsibility for your role in your crew's safety.
- Recommendations for chief officers: Provide the appropriate time and resources for adequate training. Ensure that near-miss events are shared inside and outside the fire department.

## ► TOPIC # 2: HYDRAULIC RESCUE TOOLS

► **Case Study: Report #08-231:** Hydraulic tool disconnected while pressurized.

► **Event Description:** "During weekly check of hydraulic extrication equipment, we were having difficulty attaching the first tool. After some troubleshooting and problem solving, it was discovered that the last person to use the tool had turned off and disconnected the tool while the system was pressurized."

► **Lessons Learned:** "The individual checking the tool learned how to relieve pressure with the screw relief tool. To prevent similar events, everyone needs to pay attention to what they are doing and not try to rush procedures. To correct the situation, members will receive a refresher on hydraulic safety tools."

► **Analysis:** Hydraulic rescue tools develop forces in excess of 57,000 lbs., making them among the most-coveted and dangerous tools the fire service uses. A variety of companies make hydraulic rescue tools for fire service applications. All are ruggedly built and have good performance records. Given the pressures and forces involved, there can be little tolerance for violating manufacturers' recommendations for use, storage and maintenance.



Photo Jason R. Henske/Fyrfoto.com

The case study presents some noteworthy comments on which the peer groups concentrated. The first point they focused on was the need for personnel to "pay attention to what they are doing and not try to rush procedures," which was mentioned in the Lessons Learned section. This comment suggested to the group that the firefighters involved in the near miss knew the correct procedures but were taking short cuts in their haste to complete equipment check out.

The statement that all personnel would receive refresher training indicates a recognition on the part of leadership to do more than accept the incident as "business as usual." Stating corrective action led the peer group to observe that the department had a strong chain of command, had traditional values with some state-of-the-art practices, contained a deliberate operations tempo, and had documented procedures that were not always followed. The group recorded the near miss as the result of a violation.

## ► TOPIC # 3: VIOLENT EMS CALLS

► **Case Study: Report #08-281:** Violent bystander threatens medic.

► **Event Description:** "Our career unit tour ended at 1800 HRS and I stayed at the station for another half-hour or so doing paperwork and station duties. After 1800 HRS, volunteer crews are responsible for coverage. If a medic-level call goes out after 1800 HRS, and no volunteer crews are available, we're expected to respond while still at the station.

At 1820 HRS, a call goes out in the first due where I was stationed as a medic on a medic transport unit. The call was for a middle-aged female, unresponsive, not breathing, and CPR instructions were being given by dispatch. At that time, no other duty crews were marked on duty.

My partner (also a medic) could not respond with me at the time, so I took the medic ambulance by myself and marked with

dispatch as responding medic only. Three other station volunteers (basic-level providers) were en route to the scene by POV.

I was the first one to arrive, responding in 11 minutes. I took the cardiac monitor and jump bag into the house with me. I entered the living room to find the patient in the arms of her husband on the floor and the husband was obviously very upset. He looked up at me (the phone was on the floor beside him still connected to dispatch), and the husband started screaming at me 'She's dead! She's dead! And they want me to do CPR?' I tried my best to calm him down. I tried approaching the patient to start care and the situation quickly escalated.

At that time, one of the EMTs arrived at the house. The husband was becoming much more aggressive, threw the phone against that wall and was screaming more. I had somehow backed myself into the corner of the living room and began to look for alternative exits. The other EMT saw the situation and signaled to me, and we both exited out the front door. I immediately checked with dispatch on the location of the sheriff's deputies who were en route, and told them to expedite and gave them a situation report.

The EMT and I went to the front yard and, at that time, the other two EMTs arrived. The husband came flying out the front door, screaming at me to get back in the house and take care of her (the patient). I spoke calmly to him, asking him to step away from the front door and telling him that he needed to calm down before anyone went back in the house. One of the FF/EMTs on scene was able to talk to him and get him into the front yard while the other two and I went back into the house. We worked the code for 25 minutes before time of death was called by medical command. At some point, the sheriff's deputy did arrive and was able to control the scene."

► **Lessons Learned:** "We often take for granted that the scene is safe on medical calls and that being a first responder arriving by yourself (without any back up to 'save the world') is also safe. People experiencing extreme forms of grief can react very unpredictably and become aggressive or threatening. The husband also had firearms accessible in the house and, coupled with his state of mind, this became a very unsafe scene. I should have recognized how unsafe I was sooner, exited the premises completely, and waited for more manpower or deputies to arrive."

► **Analysis:** Three peer groups that reviewed this report agreed that the unsafe act was responding alone. This act was tied to the

reporter's decision making. Reversing the examination process for this analysis, the groups noted that organizational influences played a significant role in the near miss because of the operating procedures in place. Inadequate staffing was a significant contributing factor in the reporter's decision to respond on the incident alone. The peer groups acknowledged that responding alone with other personnel arriving POV was not their department's protocol. They also opined that the practice was not optimal for crew continuity, crew resource management or member safety. The peer group further suggested that the understaffing situation could possibly be tied to inadequate funding.

At the Unsafe Supervision level, permitting inadequate staffing was the top selection by the peer groups. This determination places even further onus on the organization's leadership to find ways to establish more reliable staffing plans to prevent members from being placed in harm's way.

Coupling the Unsafe Act with the Preconditions to Unsafe Acts, the groups found that the personal responsibility for the reporter revolved around channelized attention and complacency. As the reporter points out, taking his safety for granted placed him in jeopardy. Regardless of the incident type, personnel should always consider the possibility of an incident turning violent, especially on EMS calls where high emotions can run very high.

## ► Topic #4: Water Supply

► **Case Study Report #08-009:** Supply line dragged, injuring firefighters.

► **Event Description:** "Fire companies had been working in the cold for about 6 hours at a dwelling fire. The temperatures during the operation ranged from 19 to 26 degrees F with wind chills dropping those temperatures by about another 10 degrees. Winds were gusting to about 25 mph. The water supply was provided via tanker shuttle and portable pond for the majority of the operation.

Near the end of the operations, a tanker was hooked to the supply pumper directly via 5" supply hose to allow the breaking down of the ponds. The tanker ran out of water and was leaving the scene to re-fill. The driver did not complete a circle of safety and failed to disconnect the 5" supply line from the tanker. When pulling away from the scene, the driver dragged the supply line, taking out three firefighters in the process. None were seriously hurt but some experienced minor knee pain. There was significant damage to the pump of the tanker and minor damage to the supply engine."

► **Lessons Learned:** "1. Driver fatigue after working long hours driving tankers for shuttle operation was a contributing factor. Changing from the portable drafting pond to a direct hose connection with the tanker and the changing of the 'routine' of dumping water and returning to the fill site may have contributed to the near miss. 2. Follow SOPs for completion of a circle of safety prior to moving any vehicle; this would have prevented the near miss. 3. Additional driver training and annual review of all driver SOPs with all drivers is necessary to bring awareness to safety concerns while driving fire apparatus."

## Training Curriculum: Coming Soon

Currently under production are training curriculums (instructor guides and student guides) for near-miss reporting and Crew Resource Management. These free training tools will be available at [www.firefighternearmiss.com/resources](http://www.firefighternearmiss.com/resources) in late spring/early summer. E-mail [info@firefighternearmiss.com](mailto:info@firefighternearmiss.com) if you would like to be notified when they're released.



“Near-miss reporting has been needed for a long time. Thanks to all involved for ‘delivering’ Life Safety Initiative No. 9, calling for the review of near misses. There is a great potential in the study of our history so we do not repeat it.”

—Michael Petroff  
Director, FDSOA

*Regional Advocate Region VII Life Safety Initiative Program*

► **Analysis:** Peer groups focused on the driver’s decision-based and skill-based errors. They found that the poor decision resulted from the driver not performing a safety check prior to leaving the pumper. The skill-based errors involved the tanker driver’s failures of attention, memory and technique. All of these were linked to the driver’s fatigue. Fatigue sets the stage for the roles played by preconditions, supervision and organization.

There were a number of substandard conditions that affected the tanker driver at the preconditions level. The adverse mental state was partially due to channelized attention. After several hours of shuttling water, the fatigued tanker driver moves to a different water supply model; however, the monotonous shuttling action he was involved in for the previous hours is imprinted on his brain. When the tanker runs out of water, the driver—complacent, distracted and probably in a hurry to get home—pulls away from the pumper, potentially injuring the three firefighters.

Regarding the supervisory level, the peer reviewers suggested that the driver had not received adequate training. The suggestion here is that after 6 hours of operations in poor weather, officers on the scene should have briefed the tanker driver selected to supply the pumper so the driver would completely recognize the change of practice. Organizational influences were limited to opinions on the culture/norms of the department, operations tempo and process/procedures. Peer groups believed the department was a traditional department operating at a slow pace as the fire was scaling down.

A variety of factors came to light in the other water-supply-related reports. Primarily steeped in error, the remaining reports displayed preconditions that ranged from insufficient reaction time to overconfidence. Two of the most frequently cited preconditions were channelized attention and distraction. These two factors continue to surface in a variety of near-miss report analyses, suggesting that the bombardment of stimuli experienced on the emergency scene is sometimes too much for emergency responders to handle at once.

## ► Topic #5: Hoseline Management

► **Case Study: Report #07-1132:** Firefighter burned during solo search operations at structure fire.

► **Event Description:** “I was part of a tower ladder crew dispatched to a working house fire with people trapped. Once I arrived on the scene, I saw that it was a two-story, occupied house with heavy fire on the first floor. Several of the crewmembers refused to go inside due to the amount of fire. Realizing that time would make the difference, I donned my SCBA and, without a hoseline, entered the house through the front door, making my way to the rear bedrooms to do a search.

When I entered the room in the rear, I felt a tremendous amount of heat. Realizing conditions were deteriorating very rapidly, I did a quick sweep of the room and was unable to locate a

victim. I knew that the room was going to flash at any second. I searched for a window. I finally located a window and started to break the window out with my helmet. No sooner had I cleared out the glass, when the entire room flashed and I dove headfirst out the window.

Once outside I realized my gear was burned very badly. I received second-degree burns to my back and buttocks and was transported to the local burn center. My running coat and bunker pants, along with my leather helmet, were all condemned from the amount of fire and heat damage and sent back to the factory.”

► **Lessons Learned:** “The lesson learned that day was that when it’s time to perform your job duties, you should never refuse to do your job as a firefighter. The only way to prevent this type of incident from ever happening again is for the team of firefighters that are part of a crew to perform their duties. By not following orders, those firefighters who refused to go inside jeopardized the

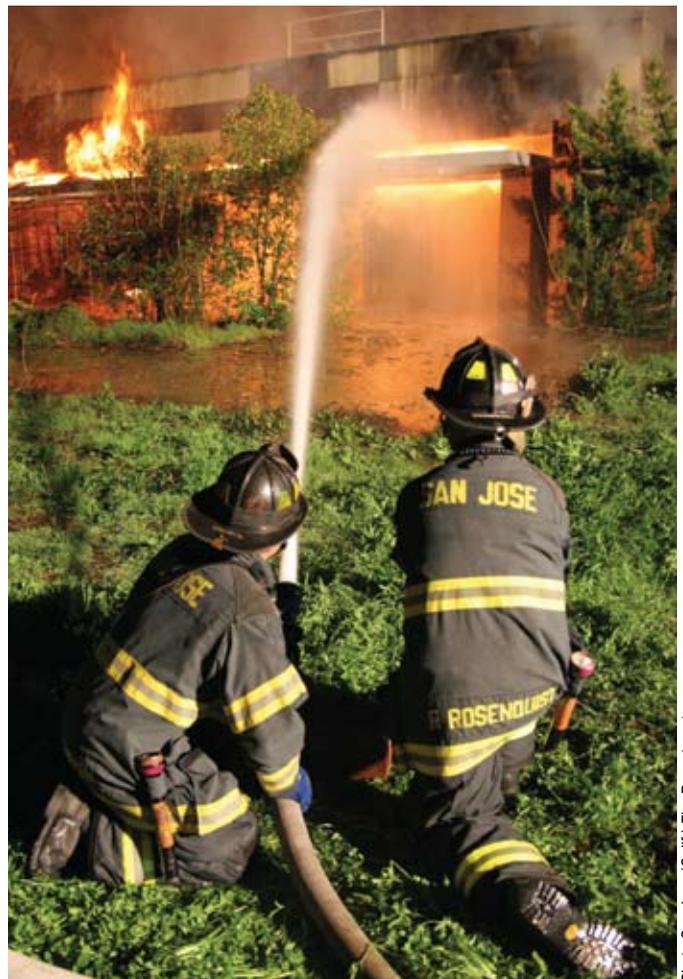


Photo San Jose (Calif.) Fire Department



Photo San Jose (Calif.) Fire Department

life of a single fireman. Several of these crewmembers were later charged with failure to do their job requirements. When firefighters refuse to fulfill their job, it puts other firefighters at great risk because they are now working with a limited number inside and are often put in a situation that could easily kill them because no one else is there to help them search, and to have a hoseline with the crew at all times.”

► **Analysis:** This report generated a significant amount of conversation due to the controversial nature of the incident. The consensus of the peer groups was the decision to enter the structure without a hoseline or other firefighters (given the conditions described) placed the reporter at a risk greater than the reward. Ambient room temperatures where firefighters in full PPE and SCBA note a “tremendous amount of heat” through their protective envelope are

incompatible with life for anyone trapped in the structure. The search effort in this incident yields no victim, and the firefighter is forced to dive out a window. He sustains burns and his PPE is heavily damaged. The report doesn’t mention a victim ever being found, but the peer groups reasoned that, given the damage to the PPE, any victim would not have survived.

Applying HFACS to this incident takes on a different light when the incident is viewed in its entirety. Rather than looking at the conduct of the firefighters who would not enter the structure, the analysis is applied to the firefighter who entered a less-than-marginal condition without a hoseline or other member. The working groups that evaluated the report believed the firefighter who entered the structure committed a violation of best practices by not taking a hoseline or partner. Under the preconditions, there was misplaced motivation and channelized attention. At the unsafe supervision level, there was opinion that the firefighter was essentially freelancing when he entered the structure without hoseline, supervision or partner.

Given that the rest of people on scene did not enter the structure, but were disciplined, the peer evaluation team was undecided on the culture/norms. There was discussion that, at best, the culture could be termed “traditional.” It’s possible there was a risk management and safety program in place, but the firefighter who entered the building did not subscribe to the programs. The culture and norms created some additional discussion since the reporter mentions the other firefighters were disciplined.

## 2009 Calendar

If you didn’t get your 2009 Near-Miss Calendar in the November issue of *FireRescue* magazine, contact [info@firefighternearmiss.com](mailto:info@firefighternearmiss.com) for your complimentary copy while supplies last. Visit the Resources Page for monthly drills from leading firefighter safety experts like Ron Moore, John Salka and Mike Wilbur. Topics include interior fire attack, structural collapse and roadway safety.

# EQUIPMENT UPDATE

The majority of posted near-miss reports cite situational awareness as a contributing factor (see page 7); however, some reporters state that equipment failure was a contributing factor in a near-miss event.

Report reviewers notify program administrators of an equipment-related report, and the reviewers follow standard protocols for report reviewing. The report is posted in a timely manner without manufacturer and equipment model identification. Program administrators, working in consultation with a review committee, notify the manufacturer of the report and request a response. The report is amended with a note stating that the claim of equipment failure is under inquiry and the inquiry results are posted on [www.firefighternearmiss.com/resources](http://www.firefighternearmiss.com/resources).

There is a three-tiered system for alerting the fire and emergency service community of equipment-related reports. This system includes Alert Bulletins for a specific, potentially injury-causing problem, FYI Bulletins for warnings on conditions to be aware of, and Safety Inquiries that request information about certain events/conditions.

To date, there have been five equipment-related reports, and manufacturers have been responsive, knowledgeable and cooperative in their response. Many times the manufacturer was already aware of the incident and was working on a resolution.

For detailed information about equipment-related reports and the outcomes of the inquiries, visit [www.firefighternearmiss.com/resources](http://www.firefighternearmiss.com/resources). Below are samples of some of the equipment-related reports and the manufacturers' responses.

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#### ► **Report #06-029: Apparatus door opens during response when latch handle is bumped.**

"During a response to a call, I sat in the forward-facing fold-down seat and applied my seatbelt. We left the station house and took an immediate left-hand turn. My body slid in the seat, and my hip struck the handle of the door. This door handle is lever-actuated, releasing the latch if turned up at 90 degrees or down at 90 degrees. When my hip struck the handle, the door opened and the upper half of my body ended up leaning out of the apparatus while the vehicle continued to move."

► **Manufacturer Response:** This report was the first equipment report received, and the apparatus manufacturer set the bar for rapid and proactive response to near-miss inquiries. The manufacturer had already issued a Product Safety Bulletin to all of its customers in 1997 regarding the issue described in Report No. 06-029. The company quickly provided program administrators with a copy of the Product Safety Bulletin regarding lever-style interior cab door latch handles. The bulletin pertained to cabs manufactured in the late 80s to early 90s that incorporated interior lever-style door handles. The rig in the report had apparently been moved to a reserve fleet and was overlooked when the bulletin was released. A copy of the Product Safety Bulletin is posted on [www.firefighternearmiss.com/resources](http://www.firefighternearmiss.com/resources).

#### ► **Report #06-180: Nozzle comes apart during fire operations.**

"A break-apart nozzle on the end of a bundle failed during a structure fire. When the nozzle operator attempted to adjust his water flow pattern, the entire outer portion of the nozzle came off in his hand."

► **Manufacturer Response:** This report involved a popular nozzle made by a major manufacturer. When program administrators notified the manufacturer, they were already working with the fire department that submitted the near-miss report. The manufacturer developed a product bulletin with recommendations on actions necessary to prevent reoccurrence, and provided the bulletin for posting on [www.firefighternearmiss.com](http://www.firefighternearmiss.com). A regional manager for the company followed up by providing several additional training tools that are also posted on [www.firefighternearmiss.com](http://www.firefighternearmiss.com).

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#### ► **Report #08-533: Hydraulic rescue tool housing ruptures.**

"When the tool opened to approximately 4 inches, the spreader ruptured the length of the housing. The firefighter received a blast of mineral oil-based hydraulic fluid in the face, knocking his helmet off and hitting him in the eyes and cheek. When the tool was analyzed, the report stated that the tool had over-pressurized due to an incorrect connection on the return hose couplings. The tool had just been run the night before in the same manner. The dealer has since replaced all the couplings with bleeder-style couplings. The report also stated that the relief valve had opened, but could not keep up to the pressure, and that is why the tool ruptured. The firefighter received emergency care with a follow-up doctor and eye doctor appointment. No long-lasting effects were reported. Had this been an actual incident, the pump would have been at full throttle and would have been much worse."

► **Manufacturer Response:** The manufacturer quickly provided an explanation for the event and recommendations to prevent a future occurrence. In this instance, after-market couplers incompatible with the engineering standards of the OEM (original equipment manufacturer) had been installed on the tool's hoselines. Substituting after-market parts is not recommended without first consulting the manufacturer for compatibility. The OEM also used this event as a platform to remind all hydraulic rescue tool users to wear eye protection as well as a face shield when operating hydraulic tools.

## Safety, Health & Survival Week

The 2009 Fire/EMS Safety, Health and Survival Week is June 14–20. According to Billy Goldfeder, chairman of the IAFC Safety, Health and Survival Section, this year's focus will involve taking personal responsibility. "It is clearly up to the LOCAL fire chiefs, officers, firefighters and EMTs to take LOCAL action." For more information, visit the IAFC Safety, Health and Survival Section Web site at [www.iafcsafety.org](http://www.iafcsafety.org).

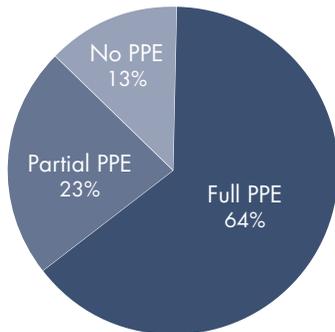
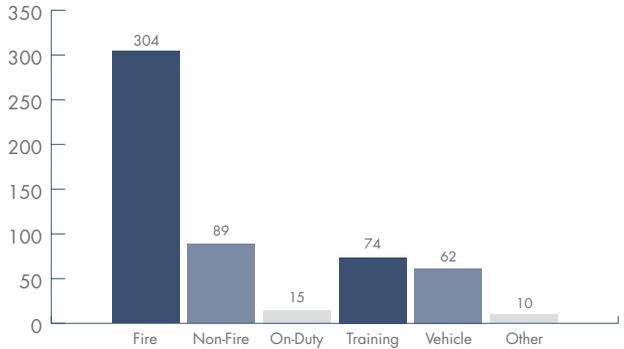
# FOCUS ON PPE

The data presented on the following two pages demonstrates how the information collected can be used to identify patterns of behavior, suggest changes or provide additional positive reinforcement for following best practices.

544 reports involving personal protective equipment (PPE) were collected from May 2005 to January 2008. For a list of these reports with the analysis worksheet, visit the Annual Report section of [www.firefighternearmiss.com/resources](http://www.firefighternearmiss.com/resources).

## Event Type ▶

It's not surprising that the majority of reports involving PPE would be fire-emergency events, as the majority of all reports collected fall into that category. What is useful to note, though, is the frequency of near-miss reports in the other categories. Proper use of PPE is stressed during fire operations, but this is often not the case during non-fire events. Strategies should be re-examined at the department level to ensure the proper use of PPE during all events, including training events; after all, the habits formed in training eventually become practices on the fireground, so there is never a time to be lax about PPE usage.



## ◀ PPE Worn

Firefighters wore full PPE in 64 percent of the reports analyzed—a statistic that certainly begs further examination, perhaps during a company drill or on training night. Possible questions: What level of PPE is required or recommended for the particular event? Did the level of PPE impact the intensity of the near-miss event? Is there a legitimate reason why the firefighter was only wearing partial PPE or no PPE? In addition, applying tools such as HFACS or CRM to analyze these incidents can help departments create a roadmap for correcting deficient behaviors or reinforcing best practices.

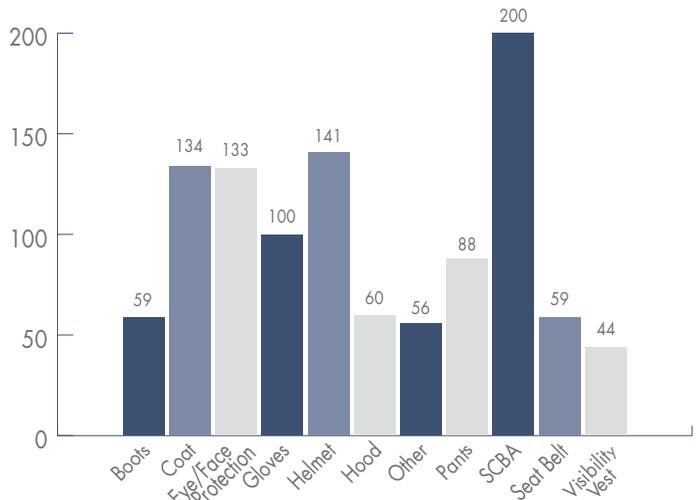
## Equipment Affected ▶

The piece of PPE most frequently cited in reports is SCBA.

SCBA issues fell into three categories:

1. SCBA donned and used properly.
2. SCBA not used, but should have been.
3. SCBA malfunctioned.

Reports that cite the proper donning and use of SCBA provide a wealth of information that company officers, training officers and safety officers can use as they implement a non-punitive approach to error. One of the tenets of this non-punitive approach is a more focused use of reinforcing safe practices. Showing firefighters how using best practices can avert injuries will have the same effect it has had in other industries: fewer injuries, better performance and higher morale.

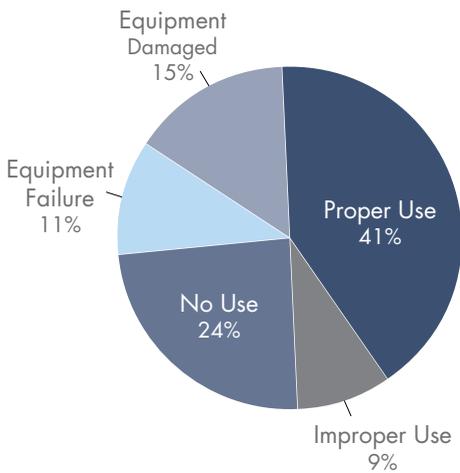


In reports where SCBA was not used but should have been used, the majority of reporters called for best practices to be followed—a message that cannot be highlighted enough. Examining reports where a firefighter says, “I should have ...” in reference to any PPE issue supports positive reinforcement of wearing PPE. This method of teaching a lesson while emphasizing the positive is a trademark for improved safety performance in other industries.

SCBA malfunctions were determined to be the result of user error in most cases. This excerpt from Report #07-777 describes one incident where there was a true equipment failure:

“We had made entrance and extended the hoseline to the rear bedroom on the B/C corner of the residence. We knocked down the fire in that room, backed out and extended the line to the bedroom on the C/D corner and extinguished the fire there. We backed out and extinguished a small fire in the middle bedroom on the C division. While working in the hallway, I noticed I could see into the attic where the pull-down access stairs were located. We had achieved fire knockdown and were holding our positions to evaluate the structure and mop up any remaining hotspots. I was standing approximately 8 feet inside the front door when the low-pressure hose on my SCBA failed and blew out. I was still able to breathe air, although with less volume, so I advised the guys I was evacuating the structure. I exited the structure and removed my SCBA to see what had happened. The SCBA was examined by the engineer and also others on scene. We all realized that apparently an ember had fallen on the pack frame near the low pressure hose due to the damage present on the pack frame. This allowed a failure of the low-pressure hose to occur. Upon further evaluation at the station, we also found that there was no way to supply air to a firefighter in this situation through the use of the EBSS features. The only way was to share a low-pressure line with another firefighter as we both evacuate. If the low-pressure line had melted completely, I would have experienced a complete loss of air while inside the structure.”

For the remaining reports, the direction to keep SCBA in top operating condition was repeated over and over.



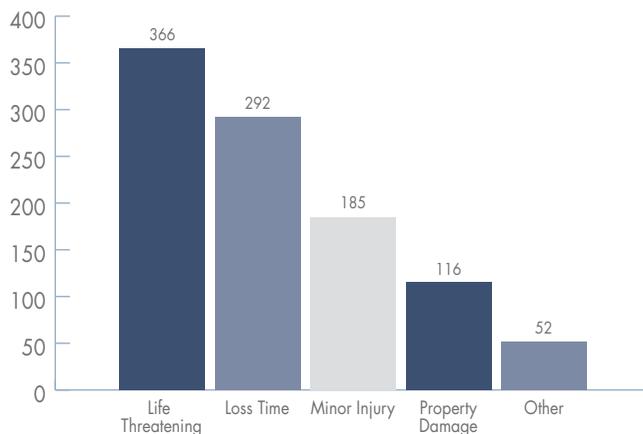
### ◀ Equipment Usage

Only 41 percent of the firefighters in the PPE reports were properly wearing either all or some of their PPE ensemble—a statistic that clearly identifies a need to redouble efforts to enforce proper PPE use. Additionally, reports that cite damaged equipment or equipment failure lend themselves to the following questions:

1. Did the damage/failure occur because of design flaw, use in an environment not anticipated, or misuse by the firefighter?
2. Did the firefighter fully understand the design characteristics/limitations of the equipment?
3. How did the firefighter get into the situation that led to the damage/failure?

### Loss Potential ▶

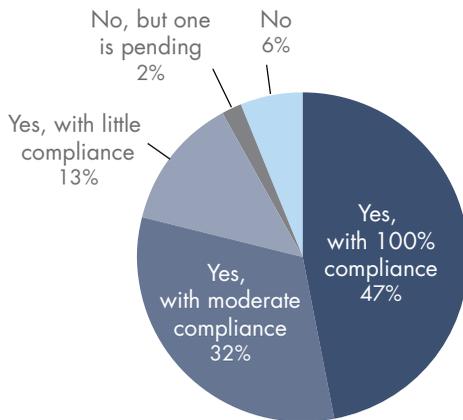
During the report-submission process, reporters can select up to five probable outcomes of the near-miss event. In more than half of the PPE-involving reports, firefighters believed they were in life-threatening situations. The role PPE played in these situations varies from report to report. In the extreme, a firefighter in full PPE and using SCBA who falls through a floor could be deemed life-threatening by one reporter and lost time by another. The perceived loss potential of the reporter is purely subjective, but can be used as a reinforcing point for PPE.



# NEAR-MISS POLLS

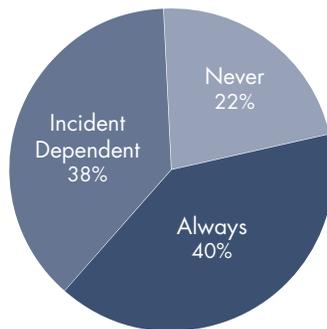
When [www.firefighternearmiss.com](http://www.firefighternearmiss.com) re-launched in April 2008, we added a new feature in conjunction with the Report of the Week. Each week, we use the Report of the Week as the basis for a poll question posted to the Web site. The responses offer insight into the safety culture of today's fire and emergency service. To view all of the poll questions, visit [www.firefighternearmiss.com](http://www.firefighternearmiss.com), submit your response to the current poll question and then link to previous weeks' poll questions.

## ROTW 05/30/08—Does your department have a mandatory seatbelt regulation?



**Report No. 08-135:** "... We had a driver and officer in the front seats and two firefighters in the rear jump seats. No seatbelts were worn ... The driver and officer were attempting to see the fire scene, and the driver dropped the rear wheel off the left side of roadway. The driver overcorrected and caused sway and instability of the engine. The engine rolled completely over two times and came to rest on its wheels facing the opposite direction of original travel."

## ROTW 06/13/08—Do you don your PPE while responding to an incident?



**Report No. 07-1115:** "I was riding in the officer's seat, responding to a fire alarm; bunker pants and coat in place. As we approached an intersection, I shifted in my seat while putting my arm through the SCBA strap. This action caused the pocket of my bunker pants to catch the door latch, and the door to open while the apparatus was still in motion. I was able to close the door with no further incident; fortunately, I was wearing my seatbelt which decreased my chance of injury."

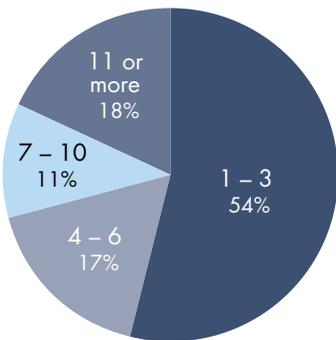
## Report of the Week

Sign up for the ROTW, a free weekly e-mail that details a submitted report, analyzes the incident and provides training questions. E-mail ROTW@[firefighternearmiss.com](mailto:firefighternearmiss.com) with "Subscribe-AR08" in the subject line.

## Near-Miss & FDSOA

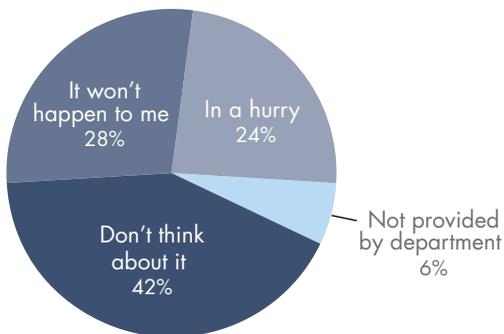
The National Fire Fighter Near-Miss Reporting System partnered with the Fire Department Safety Officers Association (FDSOA) to provide practical applications of the Firefighter Life Safety Initiatives, specifically initiatives 5 and 9. FDSOA will award two continuing education units (CEUs) for each set of review questions answered from the Report of the Week. For additional details regarding this program or for information regarding certification as Incident Safety Officer or Health and Safety Officer, contact the FDSOA at [www.fdsOA.org](http://www.fdsOA.org).

### ROTW 09/25/08—How many evasive maneuvers have you made in the last 3 years while driving emergency vehicles?



**Report No. 08-429:** “While returning from the alarm activation, we were going north on a road toward the station. As we were approaching the entrance to an apartment complex, a bicyclist was coming out of the complex toward the road. She was wearing headphones and riding a bicycle with no brakes. She did not hear the truck approaching and she made no attempt to stop prior to getting to the road and pulled out in front of us. The driver/operator was able to avoid an accident by braking and swerving into the south-bound lane of the road.”

### ROTW 11/13/08—Why do you think firefighters are lax about wearing eye protection?



**Report No. 08-122:** “The vehicle involved in the MVA was a late-model SUV that was resting on the shoulder on the driver's side. I had put on my PPE when the police officer asked me to tend to the victim. I approached the vehicle and sized up the situation. There was no fire or smoke, and a slight amount of antifreeze had leaked. I was able to make contact with the victim by the rear tailgate. The victim was in no immediate distress. I backed away from the vehicle, and the police officer moved me to the front of the car to point out a possible entry point. As I approached the area, I made contact with the vehicle antenna, marginally missing my left eye, but it made a mark on my skin near the eye socket. This was a near miss by about 2 to 3 mm.”

# ANNOUNCING THE THIRD ANNUAL NATIONAL FIRE FIGHTER NEAR-MISS AWARD

How does your department demonstrate its commitment to firefighter safety by using the National Fire Fighter Near-Miss Reporting System or the "Report of the Week"?

Any member of your department can submit an essay of 1,000 words or less that answers the questions:

- How was the program implemented in your department?
- How has the program contributed to the safety culture in your department?
- What challenges were overcome to gain acceptance of the program?

The deadline for submission is June 26, 2009.

E-mail your essay to [nearmiss@iafc.org](mailto:nearmiss@iafc.org) or mail it to Near-Miss Program, 4025 Fair Ridge Drive, Fairfax VA 22033.



For more information, call Amy Hultman at 703-537-4848 or e-mail [ahultman@iafc.org](mailto:ahultman@iafc.org).

*Firefighterwroteit.com is funded by a grant from the U.S. Department of Homeland Security's Assistance to Firefighters Grant program. Funding dollars were also provided by Fireman's Fund Insurance Company. The project is supported by FirefighterCloseCalls.com in total dedication to firefighter safety and survival.*