Firefighter Fatality
Retrospective Study

April 2002/FA–220
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Retrospective Study

April 2002

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for
Federal Emergency Management Agency
United States Fire Administration
National Fire Data Center

This publication was produced under Order No. EME-2000-DO-0396 by TriData Corporation for the Federal Emergency Management Agency, United States Fire Administration
UNITED STATES FIRE ADMINISTRATION
MISSION STATEMENT

As an entity of the Federal Emergency Management Agency (FEMA), the mission of the United States Fire Administration (USFA) is to reduce life and economic losses due to fire and related emergencies, through leadership, advocacy, coordination, and support. We serve the nation independently, in coordination with other federal agencies, and in partnership with fire protection and emergency service communities. With a commitment to excellence, we provide public education, training, technology, and data initiatives.
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PREFACE

On September 11, 2001, terrorists attacked New York City’s World Trade Center and the Pentagon in Arlington, Virginia. Following the initial attack, both towers of the World Trade Center collapsed, killing thousands of civilians, dozens of police officers, and hundreds of firefighters. Among fatalities from the Fire Department of the City of New York (FDNY) were the Chief of the Department, First Deputy Commissioner, Chief of Special Operations, and one of the Department’s Chaplains.

The World Trade Center disaster represents the largest loss of firefighters in a single incident in the United States since 1947, when 27 firefighters perished in fires and explosions aboard two Texas City ships.

According to Harold Schaitberger, president of the International Association of Fire Fighters, ‘‘This was the darkest day in the history of the firefighters of the world. It will change every one of our lives forever.’’

The men and women of America’s fire service who responded to these attacks have brought honor upon themselves and the entire fire service community through their heroic actions and commitment to duty. For those that made the supreme sacrifice in the course of their actions, may their souls rest in peace.

This report is dedicated to the families of all firefighters who have died while on duty. Through the lessons learned from their passing, it is hoped that future lives will be saved.
ACKNOWLEDGMENTS

This study of firefighter fatalities would not have been possible without the cooperation and assistance of many members of the fire service throughout the United States. Additionally, the staffs of the National Fallen Firefighters’ Foundation (NFFF), Public Safety Officer’s Benefit (PSOB) program, and National Fire Protection Association (NFPA) provided data and other information that were invaluable in the preparation of this report. We thank them for their contributions to this project.

TriData Corporation conducted this analysis under contract EME–2000–DO–0396 for FEMA, USFA.
EXECUTIVE SUMMARY

Each year in the United States and its protectorates, approximately 100 firefighters are killed while on duty and tens of thousands are injured. Although the number of firefighter fatalities has steadily decreased over the past 20 years, the incidence of firefighter fatalities per 100,000 incidents has actually risen over the last 5 years, with 1999 having the highest rate of firefighter fatalities per 100,000 incidents since 1978.

Introduction and Objectives

In the last decade, several high-profile incidents involving firefighter fatalities have brought national attention to the issue of firefighter mortality in the United States. While the attention from the national media has been fleeting, the awareness of the continued high level of fatalities has changed the fabric of the fire service and prompted many organizations and fire departments to initiate programs to protect firefighters.

This analysis sought to identify trends in mortality and examine relationships among data elements. To this end, data were collected on firefighter fatalities between 1990 and 2000. (For further information, see the “Methodology” section or the Appendix.) Using this analysis, better targeted prevention strategies can be developed in keeping with the USFA’s goal to reduce firefighter deaths 25 percent by 2005. In contrast to the annual USFA firefighter fatality reports, this analysis allowed for comparisons over time to determine any changes in firefighter mortality, with a depth of scrutiny not present in earlier analyses.

Ultimately, some forces and circumstances that lead to firefighter fatalities are simply beyond human control. However, through research, study, training, improved operations, development of new technologies, the appropriate use of staffing, and other factors, it should be possible to significantly reduce the number of firefighters killed each year.

Findings

Nature of Fatal Injury—The leading nature of fatal injuries to firefighters is heart attack (44 percent); trauma, including internal and head injuries, is the second leading type of fatal injury at 27 percent. Asphyxia and burns combined account for 20 percent of fatalities. More firefighters die from trauma than from asphyxiation and burns combined.

Firefighters under the age of 35 are more likely to be killed by traumatic injuries\(^1\) than they are to die of medical causes (e.g., heart attack, stroke). After age 35, the proportion of deaths due to traumatic injuries decreases, and the proportion of deaths due to medical causes rises steadily.

\(^1\)Traumatic injury means a wound or the condition of the body caused by external force, including injuries inflicted by bullets, explosives, sharp instruments, blunt objects or other physical blows, chemicals, electricity, climatic conditions, infectious diseases, radiation, and bacteria, but excluding stress and strain [Ref. 1].
Age—Approximately 60 percent of firefighter fatalities were over the age of 40 when they were killed, and one-third were over 50. Nationally, firefighters over the age of 40 comprise 46 percent of the fire service, with those over 50 accounting for only 16 percent of firefighters. Although older firefighters possess a wealth of invaluable knowledge and experience, they are killed while on duty at a rate disproportionate to their representation in the fire service. Also, these older firefighters tend to be affiliated with volunteer agencies. About 40 percent of volunteer firefighters are over the age of 50, compared to only 25 percent of career firefighters.

Affiliation—The majority of firefighter fatalities (57 percent) were members of local or municipal volunteer fire agencies (including combination departments, which are comprised of both career and volunteer personnel). Full-time career personnel account for 33 percent of firefighter fatalities; they comprise only approximately 26 percent of the American fire service. Numerically more volunteer firefighters are killed than career personnel, yet career personnel are killed at a rate disproportionate to their representation in the fire service.

Emergency Medical Services (EMS) Fatalities—In many fire departments, EMS calls account for between 50 and 80 percent of emergency call volume. These incidents result in only 3 percent of firefighter fatalities. Trauma (internal/head) accounts for the deaths of 50 percent of firefighters who were involved in EMS operations at the time of their fatal injury; another 38 percent involved in EMS operations died from heart attacks.

Type of Duty—Of those firefighters killed while en route to an incident, 85 percent were volunteers. For firefighters killed performing in-station duties, 69 percent were career personnel; the majority of those deaths were the result of heart attacks. These variations can be attributed to differences between career and volunteer agencies. Generally, unless they are on a call or other fire department business, career personnel are required to be in the fire station for the duration of their shift, which is generally between 10 and 24 hours long. As a result, volunteers are more likely than career firefighters to die while responding.

Motor Vehicle Collisions (MVCs)—Since 1984, MVCs have accounted for between 20 and 25 percent of firefighter fatalities annually. One quarter of firefighters who died in MVCs were killed in private/personally owned vehicles (POVs). Following POVs, the apparatus most often involved in fatal collisions were tankers, engines/pumpers, and airplanes. More firefighters are killed in tanker collisions than in engines and ladders combined.

About 27 percent of fatalities killed in MVCs were ejected from the vehicle at the time of the collision; only 21 percent of firefighters were reportedly wearing their seatbelts prior to the collision.

Most volunteer departments do not require personnel to stand by in the fire station; members are allowed to respond directly to incidents from their homes or workplaces, often in their POVs. As a result, volunteers are more likely than career firefighters to be killed in POV collisions. Moreover, they are more likely to be involved in collisions involving tankers, which are predominantly used in rural areas without hydrants or other readily available sources of water. Such areas are almost exclusively protected by volunteer fire departments.
**Training**—In the last decade, approximately 6 percent of firefighter fatalities occurred during training activities, a larger proportion than in the previous decade. Over time, the leading type of training activity resulting in fatalities has remained physical fitness, followed by equipment/apparatus drills and live fire exercises.

**Multiple Firefighter Fatality Incidents**—Between 1990 and 2000, 8 percent of fatal incidents involved the death of more than one firefighter; these incidents accounted for 18 percent of firefighter fatalities. About 14 percent of firefighters were killed in incidents that resulted in the deaths of two or three firefighters. Incidents involving the death of more than four firefighters are rare, and accounted for only 3 percent of fatalities. These findings represent an increase from an earlier USFA study that found that between 1982 and 1991, only 4 percent of incidents involved the death of more than one firefighter; those incidents accounted for 13 percent of firefighter fatalities.

Approximately 90 percent of firefighters killed in multiple-fatality incidents die of traumatic injuries. In contrast, only 37 percent of those killed in single-fatality incidents die from traumatic injuries.

**Prevention and Resources**

Some circumstances that lead to the deaths of firefighters are simply beyond human control. Generally, however, most firefighter fatalities are the result of a chain of events, which, if detected early, has the potential be broken and prevent many, or even most, fatalities.

Prevention strategies discussed include increased emphasis on physical fitness, dietary changes, behavior modification, changes in operational strategies and tactics, and more stringent adherence to standard operating procedures (SOPs).

Resources are available from a variety of federal, state, local, and private agencies. Information and contacts are included for specific programs designed for fire departments that experience a firefighter fatality and the firefighter’s surviving family.
INTRODUCTION

The deaths of firefighters profoundly affect not only the families they leave behind, but also the communities in which they lived, the firefighters with whom they served, and the fire service as a whole. Each year in the United States and its protectorates, approximately 100 firefighters are killed while on duty and tens of thousands are injured. As depicted in Figure 1, the incidence of firefighter fatalities has trended downward (38 percent) over the past 25 years, from a high of 171 in 1978 to a low of 77 in 1992.

The number of firefighter fatalities annually differs slightly depending on the criteria used to define an on-duty fatality. It is possible that a firefighter fatality could be declared eligible as an on-duty death some years after the firefighter’s injury. As a result, it is not uncommon to find fluctuations of from one to five fatalities annually, depending on the methodology used to compile the report.

In the last decade, several high-profile incidents involving firefighter fatalities have brought national attention to the issue of firefighter mortality in the United States (e.g., six firefighters killed in Worcester, Massachusetts, in 1999 and 14 killed at Storm King Mountain, Colorado, in 1994). Also, the events of 9/11 have dramatically highlighted the heroic activities of the United States’ fire service community. A growing awareness of the continued level of fatalities has changed the fabric of the fire service and prompted many fire departments and fire service organizations to initiate programs to protect firefighters. Fire departments throughout the country are adjusting their tactics to promote firefighter safety and reduce firefighter deaths and injuries. One such adjustment is the designation of rapid intervention teams/crews (RITs/RICs) for working fires. (These teams or crews stand by outside of a structure and are deployed immediately to initiate a rescue attempt after a firefighter calls for help or is declared missing.)

Also to reduce firefighter mortality, organizations such as the International Association of Fire Fighters (IAFF), International Association of Fire Chiefs (IAFC), National Volunteer
Fire Council (NVFC), and the United States Fire Administration (USFA) have begun to develop additional programs or new initiatives intended to promote firefighter health, safety, and well being. Similarly, efforts are underway to develop training programs to teach firefighters how to rescue themselves and their fellow firefighters in the event they become trapped or disoriented in a fire.

Ultimately, through research, study, training, improved operations, development of new technologies, the appropriate use of staffing, and other factors, it should be possible to substantially reduce the number of firefighters killed each year.

**Goals and Objectives**

This analysis sought to identify trends in mortality, examine relationships among data elements, and aid in targeting prevention strategies for the USFA’s goal to reduce firefighter deaths 25 percent by the year 2005 [Ref. 2].

In contrast to the annual USFA firefighter fatality reports, this analysis allowed for comparisons over time to determine any changes in firefighter mortality, with a depth of scrutiny not present in earlier analyses. Examples of questions explored included:

- Given the increase in emergency medical services (EMS) call volume over the past 20 years, has the number of firefighter fatalities associated with EMS calls also increased?
- Has the introduction of technologies such as PASS devices and integrated PASS/SCBA affected the trends in firefighter deaths?

Examples of relationships in the data explored in this analysis include changes to death rates (or the magnitude of deaths) due to enhancements such as Self-Contained Breathing Apparatus (SCBA) or Personal Alert Safety System (PASS). The analysis also considered patterns in the deaths of career vs. volunteer firefighters and the relationship among age and gender and the cause of firefighter deaths.

The report includes a “Resources” section for fire department reference in the event of a firefighter fatality and for firefighters’ surviving spouses and children. These benefits are available through federal, state, local, and private sources, including labor organizations. The goal is to provide the fire service with resources for developing a plan to deal with on-duty fatalities as well as an understanding of what is available and where to turn for help following the death of a firefighter.

**Future Analyses**—Analysis of the current database provides a broad perspective on historical trends in firefighter fatalities; however, there are some areas where the data are not currently available to perform quality analyses. For example, in 1999 the Occupational Safety and Health Administration (OSHA) revised its standard on respiratory protection (29 CFR 1910–134), known as Two-In/Two-Out. It is not yet clear how the policy’s modification will affect firefighter deaths. Similarly, training program improvements, the development of health and wellness initiatives, and the use of RITs may also affect future trends in firefighter injuries and deaths.
As the database is expanded and updated, it should become possible to more clearly determine the effects of these changes and trends in the fire service. These issues will be addressed by future USFA publications.
METHODOLOGY

Data Sources

The report is based on data from a number of sources. The primary sources are USFA files from the National Fire Data Center (NFDC), the National Fallen Firefighters’ Foundation (NFFF), and the Public Safety Officer’s Benefit (PSOB) program.

The NFDC describes the nation’s fire problem, proposes possible solutions and national priorities, monitors resulting programs, and provides information to the public and fire organizations. The NFDC files contain detailed lists of firefighter fatalities, individual files on some fatalities, and annual reports with summary data for firefighter fatalities in a given year. Although the NFDC files are extensive, they are not complete; not all firefighter fatalities are enumerated and files contain varying levels of information. In particular, information on firefighter fatalities in the early part of the 1990s is sparse; the level of detail increases toward the end of the decade.

The NFFF collects data on firefighter fatalities to determine if the fatality meets the criteria for inclusion on the National Fallen Firefighter’s Memorial at the National Emergency Training Center (NETC) in Emmitsburg, Maryland. Eligible firefighters include those who meet PSOB guidelines (whether or not the firefighter’s next of kin complete the application process) or deaths from injuries, heart attacks, or illnesses directly attributable to a specific emergency incident or training activity. Private firefighters such as those in industrial brigades are included, provided the deaths meet certain standards. Some types of fatalities are excluded (e.g., deaths attributable to suicide, alcohol, or substance abuse). These excluded cases account for a very small fraction of firefighter fatalities.2

Files maintained by the PSOB program provided another significant source of information on firefighter fatalities. The PSOB program is administered by the Department of Justice and provides a monetary benefit to the survivors of a public safety officer who dies while on duty. Public safety officers are defined as career (full time) or volunteer (part time) firefighters, law enforcement officers, and emergency medical workers. To qualify for benefits, the circumstances surrounding the death must be traumatic in nature (e.g., smoke inhalation, structural collapse, motor vehicle collision, gunshot wound). Deaths that are nontraumatic in nature (e.g., heart attacks, strokes) do not generally qualify for the PSOB benefit. To process a claim, PSOB requires the officer’s surviving family and employer to submit certified documents supporting their application. Required documents that were collected for this report include a detailed description of the circumstances surrounding the officer’s death, a copy of the autopsy and toxicology reports, and a copy of the agency’s incident report. These files are quite comprehensive for traumatic firefighter fatalities; however, they contain extremely limited information regarding nontraumatic fatalities.

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2These eligibility requirements were determined at a meeting on June 18, 1997, which included representatives from the major fire service organizations who unanimously agreed to adopt the new criteria as listed here retroactive to January 1, 1997.
Summaries of each fatal incident from 1994–2000 were considered in the analysis. However, given their collective length, they were not included in the text of the report. Rather, they will be made available on the Internet by the USFA at http://www.usfa.fema.gov.

Other sources of data included trade journals, news reports, fatality investigations by the National Institute for Occupational Safety and Health (NIOSH), journal articles, and Internet sites.

**Development of Database**

A key product of the research process was the development of a multiyear, relational firefighter fatality database. The database comprises seven tables. For further information, see the Appendix.

**Inclusion Criteria**

Firefighter fatalities whose injuries occurred between January 1, 1990, and December 31, 2000, in the 50 states, District of Columbia, or U.S. protectorates were included in the database and the analysis. The following definitions delineate who qualifies as a firefighter and what constitutes an on-duty fatality.

**Who Is a Firefighter?**

For the purpose of this study, the term firefighter covers all members of organized fire departments in all states, the District of Columbia, and the territories of Puerto Rico, Virgin Islands, American Samoa, Commonwealth of the Northern Mariana Islands, and Guam. Included are career and volunteer firefighters; full-time public safety officers acting as firefighters; state, territory, and federal government fire service personnel, including wildland firefighters and the military; and privately employed firefighters, including employees of contract fire departments and trained members of industrial fire brigades, whether full time or part time. It also includes contract personnel working as firefighters or assigned to work in direct support of fire service organizations.

The study includes not only local and municipal firefighters, but also seasonal and full-time employees of the U.S. Forest Service, the Bureau of Land Management, the Bureau of Indian Affairs, the Bureau of Fish and Wildlife, the National Park Service, and state wildland agencies. The definition also includes prison inmates serving on firefighting crews, firefighters employed by other governmental agencies such as the Department of Energy, military personnel performing assigned fire suppression activities, and civilian firefighters working at military installations.

**What Constitutes an On-Duty Fatality?**

On-duty fatalities include any injury or illness sustained while on duty that proves fatal. The term on duty refers to involvement in operations at the scene of an emergency, whether it is a fire or nonfire incident; being en route to or returning from an incident; performing other officially assigned duties such as training, maintenance, public education, inspection, investigations, court testimony, and fundraising; and being on call, under orders, or on standby duty, except at the individual’s home or place of business.
These fatalities may occur on the fireground, in training, while responding to or returning from alarms, or while performing other duties that support fire service operations. A fatality may be caused directly by accident or injury, or it may be attributed to an occupational-related fatal illness. A common example of a fatal illness incurred on duty is a heart attack. Fatalities attributed to occupational illnesses also include a communicable disease contracted while on duty that proved fatal, where the disease could be attributed to a documented occupational exposure.

Accidents that claim the lives of on-duty firefighters are also included in the analysis, whether or not they are directly related to emergency incidents. Injuries and illnesses are included where death is considerably delayed after the original incident. When the incident and the death occur in different years, the analysis counts the fatality as having occurred in the year that the incident occurred.

It is difficult to identify an occupational illness as a causal factor in particular firefighter fatalities because of the limitations in the ability to track the exposure of firefighters to toxic hazards, the often delayed long-term effects of such exposures, and the exposures firefighters may receive while off duty.

**Completeness of the Census**

This analysis is based on as complete a census of on-duty firefighter fatalities as could be constructed for the 1990s. With any census, there will likely be an undercount. Despite significant research, it is not possible to claim with 100 percent assurance that all eligible firefighters are included in the analysis. In some cases, firefighters killed while on duty are not reported to the USFA nor do their survivors apply for PSOB benefits. These cases are considered to be rare, so the potential undercount should be minuscule. Thus, this census should be considered as complete as possible.

**Adjustments for Unknowns**

Some desired information was either unavailable or reported as “unknown” on the reports associated with each fatality. To compensate for this problem, the report cites “adjusted percentages” or percentage of valid responses or entries. The unknown items are assumed to be in the same proportion as those with known characteristics. This methodology is used by the USFA and other analysis organizations analyzing fire data. Tables and graphs note both the sample size of the valid entries and the “unknown” or unavailable entries.
FINDINGS

This section presents a statistical summary of the principal analyses undertaken in this study. Aggregate data are presented for most data elements; where possible, the information is presented graphically for clarity. Since this study sought to identify trends over time, multiyear data are also presented. In some instances, comparisons to previous firefighter fatality studies by the USFA and National Fire Protection Association (NFPA) are included.

Trend in Firefighter Fatalities

The incidence of firefighter fatalities has declined significantly over a long-term period, as shown in Figure 2. The number of fatalities annually has fluctuated from a high of 171 in 1978 to a low of 77 in 1992; overall, since 1977, firefighter fatalities have trended downward 38 percent.

![Figure 2. Firefighter Fatalities (1977–2000)](image)

*Source: USFA.*

During the 11-year study period, 1,085 firefighters lost their lives while on duty. (As discussed on page 4, this number differs slightly depending on the source of the data and the criteria used to define an on-duty fatality.) Despite the overall decline in firefighter fatalities since 1977 and a sharp decline in firefighter fatalities between 1991 and 1992, the incidence of on-duty firefighter fatalities has trended upward 7 percent since 1990.

Type of Incident

Figure 3 illustrates the types of incidents that results in firefighter fatalities during the study period. Not all firefighters were involved in an emergency incident at the time of their fatal injury (e.g., physical fitness, administrative duties). The two leading types of incident (structural fire/explosion and wildland/brush fire) account for 67 percent of firefighter fatalities.

Figure 4 shows the rate of firefighter fatalities per 100,000 reported fire incidents. Despite wide fluctuations, the overall trend in this rate declined 15 percent between 1983 and 2000. Over the study period itself, however, fire-related firefighter fatalities per 100,000
Structural Fire/Explosion
Wildland/Brush/Grass Fire
Motor Vehicle Crash
Training
Nonstructural Fire/Explosion
EMS
Fire Alarm
Water Rescue
False Call

Sample size: 1,085
Valid entries: 870
Invalid entries 215

Figure 3. Types of Incident Resulting in Fatalities (1990–2000)

Note: These data include only firefighters who were reportedly engaged in response to/return from an incident, fire extinguishment/incident neutralization, or suppression support activities at the time of their deaths.

Source: USFA and NFPA.

Figure 4. Fire-incident-related Firefighter Fatalities per 100,000 Incidents (1977–2000)

reported incidents has risen approximately 25 percent, with 1999 having the second highest rate since 1988. By sharp contrast, the trend in fire incidence declined 15 percent over the study period [Ref. 3].

Affiliation of Firefighter Fatalities and Type of Agency

Figure 5 illustrates the distribution of firefighter fatalities by affiliation. The majority of firefighter fatalities, 57 percent, were members of local or municipal volunteer fire agencies (including combination departments, which are comprised of both career and volunteer personnel). Full-time career personnel account for 33 percent of firefighter fatalities; however, they comprise only 26 percent of the American fire service. Therefore, although numerically more volunteer firefighters are killed than career personnel, career personnel are killed at a
rate disproportionate to their representation in the fire service. In part, this disproportion may be attributable to disparities in the call volume and types of calls to which career personnel typically respond. Further, career departments protect more of the U.S. population than do volunteer agencies (59 percent vs. 41 percent), which also affects the volume and types of calls to which personnel respond [Ref. 4].

Wildland firefighters (full- and part-time wildland firefighters, contract personnel, and prisoners), account for 8 percent of firefighter fatalities during the study period.

Figure 6 illustrates the distribution of career and volunteer firefighter fatalities during the study period. Although there has been some fluctuation from year to year, the general distribution has not changed significantly over time with about one-third of fatalities volunteer and approximately 55 percent career. The remainder of personnel were part-time, wildland,
military, or contract personnel. (In 1994, the distribution was significantly altered by the deaths of 14 wildland firefighters at Storm King Mountain.)

Nationally, 73 percent of fire department agencies are all volunteer, 21 percent are combination, and 6 percent are all career. [Ref. 4]. As with individual affiliation, career fire departments experience a disproportionate number of firefighter fatalities. Figure 7 illustrates the types of agencies that have experienced firefighter fatalities. Fifty-six percent of firefighter fatalities were associated with volunteer organizations, 9 percent with combination departments, and 28 percent with career departments. (Wildland agencies are not specified separately here; rather, such agencies are distributed among career and federal agencies, as well as private contractors.)

![Figure 7. Type of Agency with Firefighter Fatality (1990–2000)](image)

**Rank of Firefighter**

The majority of firefighter fatalities (60 percent) held the rank of firefighter at the time of their death (Figure 8). Company officers (captains, lieutenants, and sergeants) account for 15 percent of fatalities; chief officers (fire chiefs, deputy chiefs, assistant chiefs, and battalion chiefs) account for another 13 percent of firefighter fatalities. The relative risk to chief and company officers is greater than that faced by line firefighters. This is an area that merits further research.

Figure 9 illustrates, by rank, the type of duty the firefighter was involved in at the time of injury. Although all firefighters are more likely to be killed while engaged in emergency activities, battalion chiefs, recruit/probationary firefighters, fire marshals, and inspectors are more likely to be killed while performing non-emergency functions. They may be involved in administrative duties, training, or physical fitness activities. Of those killed while performing emergency functions, firefighters and company officers are more likely than chief officers to be actually engaged in fire suppression or incident mitigation—32 percent of firefighters, 45 percent of lieutenants, and 33 percent of captains as compared to 13 percent of assistant/deputy chiefs and 17 percent of fire chiefs.
Several states, including Pennsylvania, New York, and New Jersey, have enacted legislation that allows volunteer fire departments to assign specially trained firefighters limited law enforcement powers while operating on the scene of an emergency incident.

**Figure 8. Firefighter Fatalities by Rank (1990–2000)**

**Figure 9. Rank of Firefighter vs. Type of Duty at Time of Fatal Injury (1990–2000)**
Gender

Consistent with the demographics of the American fire service, the vast majority of firefighter fatalities are male; only 3 percent are female (Figure 10). As more women become career and volunteer firefighters, females will likely comprise a higher proportion of firefighters killed while on duty.

Age

Figure 11 shows the age distribution of firefighter fatalities. Fifty-nine percent of firefighters were over the age of 40 when they were killed, and one-third were over 50. Nationally, however, firefighters over the age of 40 comprise 46 percent of the fire service, with those over 50 accounting for only 16 percent of firefighters [Ref. 4]. Older firefighters possess a wealth of invaluable knowledge and experience, but they are killed while on duty at a rate disproportionately high to their representation in the fire service. Also, these older firefighters tend to be affiliated with volunteer agencies. About 40 percent of volunteer firefighters are over the age of 50, compared to only 25 percent of career firefighters.

Figure 10. Gender of Firefighter Fatalities (1990–2000)

Table 1 illustrates the variations in nature of fatal injury by age and shows the distinct difference in nature of fatal injury after age 35. Firefighters under the age of 35 are more likely to be killed by traumatic injuries, such as internal trauma and burns, than they are to die of medical causes (e.g., heart attack, stroke). After age 35, the proportion of deaths from traumatic injuries decreases, and the proportion of deaths from heart attacks and other medical causes rises steadily. An interesting pattern emerges for firefighters between the ages of 36
Table 1. Leading Nature of Fatal Injury by Age (1990–2000)

<table>
<thead>
<tr>
<th>Age</th>
<th>Burns/Asphyxiation</th>
<th>Medical</th>
<th>Trauma</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 21</td>
<td>23%</td>
<td>5%</td>
<td>70%</td>
<td>2%</td>
<td>100%</td>
</tr>
<tr>
<td>21–25</td>
<td>33%</td>
<td>6%</td>
<td>52%</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>26–30</td>
<td>46%</td>
<td>11%</td>
<td>43%</td>
<td>1%</td>
<td>100%</td>
</tr>
<tr>
<td>31–35</td>
<td>30%</td>
<td>17%</td>
<td>48%</td>
<td>5%</td>
<td>100%</td>
</tr>
<tr>
<td>36–40</td>
<td>30%</td>
<td>34%</td>
<td>33%</td>
<td>4%</td>
<td>100%</td>
</tr>
<tr>
<td>41–45</td>
<td>23%</td>
<td>47%</td>
<td>23%</td>
<td>6%</td>
<td>100%</td>
</tr>
<tr>
<td>46–50</td>
<td>10%</td>
<td>59%</td>
<td>22%</td>
<td>8%</td>
<td>100%</td>
</tr>
<tr>
<td>51–55</td>
<td>9%</td>
<td>66%</td>
<td>20%</td>
<td>5%</td>
<td>100%</td>
</tr>
<tr>
<td>56–60</td>
<td>3%</td>
<td>76%</td>
<td>19%</td>
<td>2%</td>
<td>100%</td>
</tr>
<tr>
<td>61+</td>
<td>4%</td>
<td>78%</td>
<td>16%</td>
<td>2%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Sample size: 1,085  
Valid entries: 1,052  
Invalid entries: 33

and 40. In this age group, medical causes, burns/asphyxiation, and trauma each account for approximately one-third of fatalities.

Figure 12 shows the variance in type of duty by age of the firefighter. Younger firefighters were more likely than older firefighters to be engaged in incident mitigation or training than response or suppression support at the time of their fatal injury.

Table 2 illustrates, by age group, whether a firefighter was engaged in emergency or non-emergency duties at the time of his or her death. Firefighters of all ages were more likely to be engaged in emergency duties at the time of their death.

Figure 12. Type of Duty by Age of Firefighter (1990–2000)
Table 2. Emergency vs. Non-Emergency Duties by Age of Firefighter (1990–2000)

<table>
<thead>
<tr>
<th>Age</th>
<th>Emergency Duties</th>
<th>Non-Emergency Duties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 21</td>
<td>81%</td>
<td>19%</td>
</tr>
<tr>
<td>21–25</td>
<td>81%</td>
<td>19%</td>
</tr>
<tr>
<td>26–30</td>
<td>83%</td>
<td>17%</td>
</tr>
<tr>
<td>31–35</td>
<td>84%</td>
<td>16%</td>
</tr>
<tr>
<td>36–40</td>
<td>81%</td>
<td>19%</td>
</tr>
<tr>
<td>41–45</td>
<td>78%</td>
<td>22%</td>
</tr>
<tr>
<td>46–50</td>
<td>68%</td>
<td>32%</td>
</tr>
<tr>
<td>51–55</td>
<td>78%</td>
<td>22%</td>
</tr>
<tr>
<td>56–60</td>
<td>77%</td>
<td>23%</td>
</tr>
<tr>
<td>61+</td>
<td>86%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Type of Duty

Figure 13 illustrates the types of duties firefighters were engaged in at the time of their fatal injury. Prior to 1990, the largest share of fatal firefighter injuries have happened either on the fireground\(^3\) or en route to an incident [Ref. 5]. Continuing this trend, during the study period the leading activity at the time of injury was extinguishing fire/neutralizing the incident (30 percent), followed by responding to the scene (18 percent) and suppression support.

Extinguishing Fire/Neutralizing Incident: 29.9
En Route/Responding: 18.0
Suppression Support: 11.9
Training: 6.9
Other Duties on Emergency Scene: 5.9
Rescue: 5.1
In-Station Duties: 4.9
Returning/Non-Emergency: 4.1
EMS: 4.0
Traffic Control: 3.3
Administrative: 2.6
Maintenance: 1.2
Physical Fitness: 1.0

![Figure 13. Type of Duty at Time of Fatal Injury (1990–2000)](image_url)

\(^3\)For this analysis, it was not possible to isolate firefighter fatalities on the fireground from those that occurred elsewhere. Instead, the analysis considered whether the firefighter was engaged in emergency or non-emergency duties at the time of his or her fatal injury. These categories are defined later in this section.
(12 percent), which includes forcible entry, ventilation, salvage and overhaul, and raising ground ladders.

**Emergency Medical Services (EMS)**—In many fire departments, EMS calls account for between 50 and 80 percent of emergency call volume. Yet such incidents result in only 3 percent of firefighter fatalities. Moreover, 4 percent of fatally injured firefighters were performing EMS duties at the time of their deaths. That is, some firefighters were performing EMS functions while operating on a non-EMS call/incident (e.g., a motor vehicle collision). Trauma accounts for the deaths of 50 percent of firefighters who were involved in EMS operations at the time of their fatal injury; another 38 percent involved in EMS operations died from heart attacks. The higher ratio of deaths due to trauma may be a result of collisions while transporting patients, a category heading not included in the database.

**Emergency vs. Non-Emergency**—Figure 14 groups the duties in Figure 13 in two categories: emergency and non-emergency. Emergency duties include extinguishing/neutralizing the incident, responding, suppression support, rescue, EMS, and other duties at the scene. Non-emergency duties are training, physical fitness, administrative, maintenance, and other in-station activities. Most firefighter fatalities (79 percent) are involved in the mitigation of an emergency incident or response to an emergency at the time of their injury; 21 percent do not involve emergency duties.

**Training**—Since 1990, approximately 6 percent of firefighter fatalities occurred during training activities, a larger proportion than in the previous decade.\(^4\) Over time, the leading type of training activity resulting in fatalities has remained physical fitness, followed by apparatus/equipment drills and live-fire exercises. During training activities, the leading nature of fatal injury is heart attack (54 percent), followed by trauma (31 percent).

Figure 15 groups training fatalities by type of training activity. The high incidence of deaths during physical fitness is troubling. The dangers of live-fire exercises are well known and awareness is generally high, but it may be a surprise that more firefighters are killed during equipment/apparatus drills than in live-fire training.

**Motor Vehicle Collisions**

Since 1984, motor vehicle collisions (MVCs) have accounted for between 20 and 25 percent of firefighter fatalities annually [Ref. 7]. During the study period, MVCs accounted for 22 percent of firefighter fatalities. One quarter of firefighters who died in MVCs were killed in private/personally owned vehicles (POVs) (Figure 16). Following POVs, the apparatus most often involved in fatal collisions were tankers, engines/pumpers, and airplanes. More

\(^4\)Between 1978 and 1987, however, training accounted for less than 5 percent of firefighter fatalities [Ref. 6].
Figure 15. Leading Types of Training Activities Associated With Fatalities (1990–2000)

Fatalities occur in tanker collisions than in engines and ladders combined. Approximately 27 percent of fatalities in MVCs were ejected from the vehicle at the time of the collision; only 21 percent of these firefighters were reportedly wearing their seatbelts prior to the collision.

Most volunteer departments do not require personnel to stand by in the fire station. Rather, members are allowed to respond directly to incidents from their homes or workplaces, often in their POVs. As a result, volunteers are more likely than career firefighters to be killed in POV collisions. Moreover, they are more likely to be involved in collisions involving tankers, which are predominantly used in rural areas without hydrants or other readily available sources of water. Such areas are almost exclusively protected by volunteer fire departments.

Tankers that are overloaded or whose tanks lack proper baffling can be unstable, making them more difficult to control. The shifting of water in the tank, even at low speeds, can dramatically affect the ability of the apparatus operator to control the vehicle. Water weighs approximately 8.4 pounds per gallon. An average tanker holds between 2,000 and 3,000 gallons of water, which adds between 16,800 and
25,200 pounds to the weight of vehicle. The incidence of tanker collisions is an area that merits further investigation.

Figure 17 shows the locations of firefighters in the vehicle prior to the fatal collision. The majority were driving the apparatus prior to their death, as would be expected for incidents involving POVs or tankers, which often respond to calls with only a driver.

Immediate Cause and Nature of Fatal Injury

The causes of fatal firefighter injuries are illustrated in Figure 18. The leading cause, overexertion/strain, is consistent with the high incidence of deaths from heart attacks (discussed later in this chapter) and accounts for nearly half of firefighter deaths. Other leading causes of firefighter injuries are being trapped, caught, or lost in a structure; fire apparatus collisions; and being struck by an object (e.g., vehicle, apparatus, falling debris in a structure).

These are only the immediate causes of injury; there is almost always a chain of events that leads to fatalities. For example, the reason a firefighter gets trapped and dies may be because of a lack of adequate situational awareness by the incident commander, a dangerously weakened structure that went undetected, the lack of a way to find the trapped firefighter quickly enough, a shift in wind conditions on a wildland fire, or poor judgment on risk taking.

The leading nature of fatal injuries to firefighters is heart attack (44 percent), as shown in Figure 19. Trauma, including internal and head injuries, is the second leading type of fatal injury at 27 percent. Asphyxia and burns combined account for 20 percent of fatalities. Thus, more firefighters die from trauma than from asphyxiation and burns combined.
Figure 19. Nature of Fatal Injury (1990–2000)

Figure 20 shows the trend in percent of deaths due to heart attack from 1984–2000. Despite fluctuations, the trend in the proportion of firefighter fatalities from heart attacks has remained constant over the past 16 years.

Where reported by the family or discovered at autopsy, the most common pre-existing condition found for heart attack fatalities was arteriosclerosis, followed by prior heart attack(s) and hypertension.


Figure 20. Percent of Heart Attack Deaths by Year (1984–2000)

Arteriosclerosis is the progressive hardening of the arteries over time.
Firefighters are more likely to suffer a heart attack in the course of performing suppression support duties on the fireground, while in the fire station, or during training exercises. In contrast, deaths due to traumatic injuries are more likely to occur while mitigating or responding to an incident (Figure 21).

**Comparison to Other Fatality Rates**

Table 3 compares heart attack rates for firefighters with other occupational categories that require significant physical labor (e.g., construction) or have similar periods of downtime followed by intense activity (e.g., police officers). Although the term used here is *occupation*, the firefighter category includes all categories of affiliation (career, volunteer, wildland, etc.). Firefighters, as a group, are more likely than other American workers to die of a heart attack while on duty.
Table 3. Comparison of Heart Attack Fatalities by Occupation (1990–2000)

<table>
<thead>
<tr>
<th>Occupation*</th>
<th>Percent of Deaths Due to Heart Attacks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firefighters</td>
<td>44**</td>
</tr>
<tr>
<td>Guards (including supervisors)</td>
<td>25</td>
</tr>
<tr>
<td>Police and Detectives</td>
<td>22</td>
</tr>
<tr>
<td>All Occupational Fatalities</td>
<td>15</td>
</tr>
<tr>
<td>Construction Trades</td>
<td>13</td>
</tr>
<tr>
<td>Construction Laborers</td>
<td>10</td>
</tr>
</tbody>
</table>

Sample size: 1,085  
Valid entries: 1,075  
Invalid entries: 10

* As defined by the Bureau of Labor Statistics.

** Based on data collected for this analysis.


Time of Injury

The overall distribution of firefighter fatalities by time of day is illustrated in Figure 22 and Table 4. Nearly half of firefighters are injured between noon and 2000; the most common time of fatal injury was 1600. This distribution is dramatically different than that of civilian fire victims, who are most likely to be killed between midnight and 0600, when they are likely to be asleep and unable to escape from a fire.

Figure 23 compares the distribution of heart attack and trauma deaths by hour of the day. Both types of fatalities are more likely to occur during the day than at night.

---

Figure 22. Percent of Injuries by Time of Day (1990–2000)

*For this particular analysis, only deaths coded as trauma (internal, head, etc.) were considered.
### Table 4. Time of Injury (1990–2000)

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Percent of Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000–0359</td>
<td>13</td>
</tr>
<tr>
<td>0400–0759</td>
<td>10</td>
</tr>
<tr>
<td>0800–1159</td>
<td>14</td>
</tr>
<tr>
<td>1200–1559</td>
<td>23</td>
</tr>
<tr>
<td>1600–1959</td>
<td>23</td>
</tr>
<tr>
<td>2000–2359</td>
<td>18</td>
</tr>
</tbody>
</table>

Sample size: 1,085  
Valid entries: 726  
Invalid entries: 359

### Figure 23. Percent of Trauma vs. Heart Attack Deaths by Hour of the Day (1990–2000)

**Fixed Property Use**

Despite recent firefighter fatality incidents involving abandoned structures (e.g., Worcester, Massachusetts, 1999) and highrises (e.g., New York City, New York, 1998), each of these properties account for only approximately 3 percent of fatalities. Twenty-eight percent of firefighter fatalities are killed during incidents on residential properties, as shown in Figure 24. For civilian fire casualties, between 75 and 85 percent occur on residential properties. The prominence of outdoor properties is a result of the high incidence of wildland fires. Further research is needed to determine the relationship between the dangers posed by particular properties and the incidence of firefighter fatalities.
Figure 24. Fixed Property Use of Incident Where Injury Occurred (1990–2000)

Of those firefighters killed while en route to an incident (179 cases), 85 percent were volunteers. However, for firefighters killed performing in-station duties, 69 percent were career personnel; the majority of those deaths were the result of heart attacks. These variations can be attributed to differences between career and volunteer agencies. Generally, unless they are on a call or other fire department business, career personnel are required to be in the fire station for the duration of their shift, which is generally between 10 and 24 hours long. Volunteers, on the other hand, are not usually required to stand by at the station, so they can respond from their homes or places of work. As a result, career personnel are more likely than volunteers to die in a fire station.

For other property types, the ratio of volunteer to career firefighter fatalities is approximately equal. As would be expected, wildland, contract, and inmate firefighters who are killed are outdoors (including those in aerial missions).

Cause of Fire

As illustrated in Figure 25, in firefighter fatality incidents where a fire is involved, the most common fire cause is incendiary/suspicious (arson) at 37 percent. Other leading causes of fatal fires include electrical distribution, natural, and open flame. For civilian fire casualties, the leading causes of fatal fires are smoking, arson, and heating [Ref. 8].

Explanations for the differences in cause associated with firefighter vs. civilian fire fatalities are varied. For example, in arson fires, the use of accelerants contributes to rapid fire spread and growth and can lead to a fire that causes substantial structural damage in a short amount of time. Moreover, since they may not be detected and reported for some time after being set, arson fires may have the opportunity to advance more than other types of fires before the arrival of the fire department. Additionally, wildland and other outdoor fires are

---

7Cause categories are based on the Priority Cause Grouping Code used in NFIRS, but were assigned based on incident reports submitted by fire departments or as reported in the media.
Incendiary/Suspicious (Arson) 37.0
Electrical Distribution 15.9
Open Flame, Ember, Torch 8.7
Natural 8.2
Heating 7.2
Other Equipment 5.3
Children Playing 3.8
Other Heat 3.4
Cooking 3.4
Smoking 3.4
Appliances, AC 2.9
Exposure 1.0

Figure 25. Cause of Fire, If a Fire Incident (1990–2000)

more likely to be caused by open flame or natural causes than are residential structure fires (where the majority of civilian fatalities occur). The relationship between fire cause and the incidence of firefighter fatalities is an area that merits further research.

Geographical Distribution of Firefighter Fatalities

Generally, firefighter fatalities are associated with the state where their agency is located. Table 5 illustrates the incidence of firefighter fatalities by state and compares the incidence of fatalities per capita by the state of the firefighter’s affiliation versus the state where he or she was actually injured. This difference is particularly notable for Colorado where 14 wildland firefighters were killed in 1994. However, of those 14, most were affiliated with agencies based in other states, including Oregon, South Carolina, and Idaho.

Figure 26 graphically illustrates the incidence of firefighter fatalities nationally.

Figure 27 illustrates the firefighter fatalities involved in wildland, MVC, and structural incidents per capita. Figure 28 illustrates the distribution of fatalities affiliated as career, volunteer, or wildland firefighters per capita. Firefighter fatalities in structural incidents are more common in the densely populated East; firefighter fatalities in wildland incidents predominantly occur in the West. MVC fatalities have no defined pattern.

Volunteer firefighter fatalities are fairly well distributed throughout the Midwest and eastern United States. A similar distribution is seen in career firefighter fatalities. As would be expected, wildland firefighter fatalities (including contract employees and prisoners) are mostly concentrated in the western states.

Large population states generally have more fatalities than those with smaller populations. However, Florida has a relatively high population and a low rate of firefighter fatalities per 10 million population. There are other surprises. New York and Pennsylvania have many more fatalities than California and Texas, even though California and Texas have higher populations. In fact, Texas and New York have comparable average populations, yet New York has more than twice as many fatalities as Texas. Also surprising is that the state with the
Table 5. Firefighter Fatalities by State and Per 10 Million Population (1990–2000)*

<table>
<thead>
<tr>
<th>State</th>
<th>Average 1990–2000 Population</th>
<th>Total Fatalities</th>
<th>Average Fatalities per 10 Million Population by Affiliation</th>
<th>Average Fatalities per 10 Million Population by Incident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>4,243,844</td>
<td>20</td>
<td>47.1</td>
<td>47.1</td>
</tr>
<tr>
<td>Alaska</td>
<td>588,488</td>
<td>2</td>
<td>34.0</td>
<td>34.0</td>
</tr>
<tr>
<td>Arizona</td>
<td>4,397,930</td>
<td>15</td>
<td>34.1</td>
<td>34.1</td>
</tr>
<tr>
<td>Arkansas</td>
<td>2,512,063</td>
<td>14</td>
<td>55.7</td>
<td>55.7</td>
</tr>
<tr>
<td>California</td>
<td>31,815,835</td>
<td>75</td>
<td>23.6</td>
<td>21.7</td>
</tr>
<tr>
<td>Colorado</td>
<td>3,797,828</td>
<td>7</td>
<td>18.4</td>
<td>52.7</td>
</tr>
<tr>
<td>Connecticut</td>
<td>3,346,341</td>
<td>20</td>
<td>59.8</td>
<td>59.8</td>
</tr>
<tr>
<td>Delaware</td>
<td>724,884</td>
<td>3</td>
<td>41.4</td>
<td>41.4</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>695,250</td>
<td>4</td>
<td>57.5</td>
<td>57.5</td>
</tr>
<tr>
<td>Florida</td>
<td>14,460,152</td>
<td>22</td>
<td>15.2</td>
<td>15.2</td>
</tr>
<tr>
<td>Georgia</td>
<td>7,332,335</td>
<td>21</td>
<td>28.6</td>
<td>28.6</td>
</tr>
<tr>
<td>Hawaii</td>
<td>1,159,883</td>
<td>4</td>
<td>34.5</td>
<td>34.5</td>
</tr>
<tr>
<td>Idaho</td>
<td>1,150,351</td>
<td>10</td>
<td>86.9</td>
<td>69.5</td>
</tr>
<tr>
<td>Illinois</td>
<td>11,924,948</td>
<td>32</td>
<td>26.8</td>
<td>36.9</td>
</tr>
<tr>
<td>Indiana</td>
<td>5,812,322</td>
<td>44</td>
<td>75.7</td>
<td>55.1</td>
</tr>
<tr>
<td>Iowa</td>
<td>2,851,540</td>
<td>14</td>
<td>49.1</td>
<td>49.1</td>
</tr>
<tr>
<td>Kansas</td>
<td>2,582,996</td>
<td>14</td>
<td>54.2</td>
<td>54.2</td>
</tr>
<tr>
<td>Kentucky</td>
<td>3,863,533</td>
<td>25</td>
<td>64.7</td>
<td>64.7</td>
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<tr>
<td>Louisiana</td>
<td>4,344,475</td>
<td>12</td>
<td>27.6</td>
<td>25.3</td>
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<tr>
<td>Maine</td>
<td>1,251,426</td>
<td>7</td>
<td>55.9</td>
<td>55.9</td>
</tr>
<tr>
<td>Maryland</td>
<td>5,038,977</td>
<td>29</td>
<td>57.6</td>
<td>57.6</td>
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<tr>
<td>Massachusetts</td>
<td>6,182,761</td>
<td>27</td>
<td>43.7</td>
<td>43.7</td>
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<tr>
<td>Michigan</td>
<td>9,616,871</td>
<td>22</td>
<td>22.9</td>
<td>22.9</td>
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<tr>
<td>Minnesota</td>
<td>4,647,289</td>
<td>6</td>
<td>12.9</td>
<td>12.9</td>
</tr>
<tr>
<td>Mississippi</td>
<td>2,708,937</td>
<td>18</td>
<td>66.4</td>
<td>66.4</td>
</tr>
<tr>
<td>Missouri</td>
<td>5,356,142</td>
<td>24</td>
<td>44.8</td>
<td>44.8</td>
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<tr>
<td>Montana</td>
<td>850,630</td>
<td>4</td>
<td>47.0</td>
<td>58.8</td>
</tr>
<tr>
<td>Nebraska</td>
<td>1,644,824</td>
<td>6</td>
<td>36.5</td>
<td>36.5</td>
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<tr>
<td>Nevada</td>
<td>1,600,045</td>
<td>5</td>
<td>31.2</td>
<td>37.5</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>1,172,519</td>
<td>4</td>
<td>34.1</td>
<td>34.1</td>
</tr>
<tr>
<td>New Jersey</td>
<td>8,072,269</td>
<td>37</td>
<td>45.8</td>
<td>45.8</td>
</tr>
<tr>
<td>New Mexico</td>
<td>1,667,058</td>
<td>12</td>
<td>72.0</td>
<td>66.0</td>
</tr>
<tr>
<td>New York</td>
<td>18,483,456</td>
<td>126</td>
<td>68.2</td>
<td>68.2</td>
</tr>
<tr>
<td>North Carolina</td>
<td>7,833,975</td>
<td>25</td>
<td>34.1</td>
<td>34.1</td>
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<tr>
<td>North Dakota</td>
<td>640,500</td>
<td>3</td>
<td>46.8</td>
<td>46.8</td>
</tr>
<tr>
<td>Ohio</td>
<td>11,100,128</td>
<td>36</td>
<td>32.4</td>
<td>32.4</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>3,298,120</td>
<td>21</td>
<td>63.7</td>
<td>63.7</td>
</tr>
<tr>
<td>Oregon</td>
<td>3,131,860</td>
<td>19</td>
<td>60.7</td>
<td>28.7</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>12,081,349</td>
<td>97</td>
<td>80.3</td>
<td>81.9</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>1,025,892</td>
<td>4</td>
<td>39.0</td>
<td>39.0</td>
</tr>
<tr>
<td>South Carolina</td>
<td>3,749,358</td>
<td>19</td>
<td>50.7</td>
<td>48.0</td>
</tr>
<tr>
<td>South Dakota</td>
<td>725,424</td>
<td>2</td>
<td>27.6</td>
<td>27.6</td>
</tr>
<tr>
<td>Tennessee</td>
<td>5,283,234</td>
<td>24</td>
<td>45.4</td>
<td>45.4</td>
</tr>
<tr>
<td>Texas</td>
<td>18,919,165</td>
<td>60</td>
<td>31.7</td>
<td>31.7</td>
</tr>
<tr>
<td>Utah</td>
<td>1,978,010</td>
<td>6</td>
<td>30.3</td>
<td>30.3</td>
</tr>
<tr>
<td>Vermont</td>
<td>585,793</td>
<td>8</td>
<td>136.6</td>
<td>136.6</td>
</tr>
<tr>
<td>Virginia</td>
<td>6,632,937</td>
<td>22</td>
<td>33.2</td>
<td>33.2</td>
</tr>
<tr>
<td>Washington</td>
<td>5,380,407</td>
<td>15</td>
<td>27.9</td>
<td>22.3</td>
</tr>
<tr>
<td>West Virginia</td>
<td>1,800,911</td>
<td>16</td>
<td>88.8</td>
<td>88.8</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>5,127,722</td>
<td>14</td>
<td>27.3</td>
<td>27.3</td>
</tr>
<tr>
<td>Wyoming</td>
<td>473,685</td>
<td>6</td>
<td>126.7</td>
<td>84.4</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>3,665,324</td>
<td>3</td>
<td>8.2</td>
<td>8.2</td>
</tr>
</tbody>
</table>

Affiliation Sample size: 1,085
Valid entries: 1,085
Invalid entries: 0

Incident Sample size: 1,085
Valid entries: 1,076
Invalid entries: 9

*Calculations are based on the average number of fatalities per average population.
The highest per capita rate (per 10 million population) of firefighter fatalities is Vermont. Given Vermont’s relatively low population, however, even one firefighter fatality would result in a rate of 17 firefighter fatalities per 10 million population. As such, Vermont’s seemingly high rate of firefighter fatalities is not conclusive. Rather, it is possible that the rate is abnormally high due to the analytic metric being used. Using comparisons based on other data (e.g., the population of firefighters in Vermont and the composition of the state’s fire service) could result in a very different rate. The state with the lowest rate of firefighter fatalities per 10 million population is Minnesota. Again, however, the limitations of this analytic metric make it difficult to determine the validity of this estimate. Further study is necessary to overcome the issues created by the use of population data.

To explore some of the reasons for the differences in the patterns of firefighter fatalities by state, the tables in this section compare the experience of firefighter fatalities in various states throughout the country. The experiences of various states are highlighted to determine possible reasons for their dissimilar experiences with regard to firefighter fatalities. However, much additional work is required to definitively determine the reasons for the different patterns associated with firefighter fatalities by state.

The states compared in this section were chosen for their geographic location, population, and climate. Minnesota, Wisconsin, and Michigan are viewed as a single entity to bring their total population in line with the comparison group. These states have similar climates and are all located in the upper Midwest. The hypothesis being that since population alone does not explain variances between states, other factors must exert varying degrees of influence. These factors include climate, housing stock, life/safety codes, age of firefighters, types of fires to which the fire department responds, and distribution of personnel (career,
Figure 27. Firefighter Fatalities, by Affiliation Per 10 Million Population

*Reflects incidents where the firefighter fatality was involved in an MVC.
Figure 28. Firefighter Fatalities, by Type of Incident Per 10 Million Population
volunteer, etc.). As an example, although there are clearly substantial climatic differences from one state to another, whether there is a correlation between weather patterns (e.g., precipitation, temperature, humidity, etc.) and firefighter fatalities is not readily apparent. Also, although stricter codes and building regulations can substantially affect the types of fires a state experiences (since these codes are usually enforced at the local level), their impact on the experience of an entire state is not known.

**Type of Incident**

Although structure fires are generally the leading type of incident associated with firefighter fatalities, this is not the case in California where wildland/brush fires are the leading incident type (Table 6). Similarly, wildland/brush fires play a more significant role in firefighter fatalities in Texas and Florida. Also, EMS calls are responsible for a larger proportion of firefighter fatalities in Florida than elsewhere. Currently, it is not possible to fully explain these differences. Anecdotally, the difference between structure and wildland fires can be explained by climate and fire experience; it is logical that California and Florida experience wildland fires more often than New York. Moreover, fire departments in Florida generally experience a higher proportion of EMS calls than do departments elsewhere in the country, which may explain why such calls account for a higher proportion of firefighter fatalities. These are theories that require additional research and data collection/analysis in order to be proved.

**Affiliation of Personnel**

As shown in this report, the experiences of career and volunteer firefighter fatalities differ. As expected, there are variations in the affiliation of firefighter fatalities by state (Table 7). Only two states, California and Florida, have a higher proportion of career firefighter fatalities than volunteer. Again, it is not possible to determine the reasons for these variances without additional research. One could argue that the experience of firefighter fatalities is similar to the composition of the state’s fire service, but there is currently no method to prove this theory without future analyses that include data on the distribution of fire service personnel by state.

**Nature of Fatal Injury**

As shown in Table 8, the nature of fatal injury by state also differs by state. California experiences a particularly low rate of fatalities due to cardiac arrest. In part, this may be because only 4 percent of the state’s firefighter fatalities are over the age of 60 (compared to about 14 percent of firefighter fatalities generally). The higher proportion of wildland firefighters is also consistent with a higher ratio of deaths due to traumatic injuries. On the other hand, for the MN/WI/MI group, 15 percent of firefighter fatalities are over the age of 60, and that group of states experiences a much higher ratio of deaths due to cardiac arrest. Ultimately, however, California’s per capita rate of firefighter fatalities is still higher than that of Michigan, Minnesota, and Florida.
### Table 6. Type of Incident by State (1990–2000)

<table>
<thead>
<tr>
<th>Type of Incident</th>
<th>New York</th>
<th>Pennsylvania</th>
<th>California</th>
<th>Texas</th>
<th>Minnesota, Wisconsin, Michigan</th>
<th>Florida</th>
<th>Ohio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>18,483,456</td>
<td>12,081,349</td>
<td>31,815,835</td>
<td>18,919,165</td>
<td>19,391,882</td>
<td>14,460,152</td>
<td>11,100,128</td>
</tr>
</tbody>
</table>

**PERCENT***

<table>
<thead>
<tr>
<th>Type of Incident</th>
<th>New York</th>
<th>Pennsylvania</th>
<th>California</th>
<th>Texas</th>
<th>Minnesota, Wisconsin, Michigan</th>
<th>Florida</th>
<th>Ohio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Fire/Explosion</td>
<td>56</td>
<td>60</td>
<td>20</td>
<td>37</td>
<td>68</td>
<td>40</td>
<td>47</td>
</tr>
<tr>
<td>Wildland/Brush/Grass Fire</td>
<td>2</td>
<td>1</td>
<td>52</td>
<td>25</td>
<td>9</td>
<td>27</td>
<td>10</td>
</tr>
<tr>
<td>Nonstructural Fire/Explosion</td>
<td>7</td>
<td>4</td>
<td>0</td>
<td>17</td>
<td>3</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Fire Alarm</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Motor Vehicle Collisions</td>
<td>20</td>
<td>16</td>
<td>10</td>
<td>10</td>
<td>9</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>EMS</td>
<td>3</td>
<td>9</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>20</td>
<td>10</td>
</tr>
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<td>Water Rescue</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Confined Space/Trench Rescue</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>False Call</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Training</td>
<td>7</td>
<td>3</td>
<td>11</td>
<td>8</td>
<td>6</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

*Column totals may not add to 100 due to rounding.

### Table 7. Affiliation by State (1990–2000) (percent*)

<table>
<thead>
<tr>
<th>Affiliation</th>
<th>New York</th>
<th>Pennsylvania</th>
<th>California</th>
<th>Texas</th>
<th>Minnesota, Wisconsin, Michigan</th>
<th>Florida</th>
<th>Ohio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paid Full Time</td>
<td>30</td>
<td>22</td>
<td>50</td>
<td>34</td>
<td>27</td>
<td>17</td>
<td>68</td>
</tr>
<tr>
<td>Paid Part Time</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Volunteer</td>
<td>70</td>
<td>77</td>
<td>22</td>
<td>63</td>
<td>66</td>
<td>72</td>
<td>27</td>
</tr>
<tr>
<td>Contract</td>
<td>0</td>
<td>0</td>
<td>22</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Inmate/Prisoner</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Other (wildland, military)</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

*Column totals may not add to 100 due to rounding.

### Table 8. Nature of Fatal Injury by State (1990–2000) (percent*)

<table>
<thead>
<tr>
<th>Nature of Fatal Injury</th>
<th>New York</th>
<th>Pennsylvania</th>
<th>California</th>
<th>Texas</th>
<th>Minnesota, Wisconsin, Michigan</th>
<th>Florida</th>
<th>Ohio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burns/Asphyxiation</td>
<td>19</td>
<td>25</td>
<td>15</td>
<td>25</td>
<td>24</td>
<td>23</td>
<td>14</td>
</tr>
<tr>
<td>Cardiac Arrest</td>
<td>57</td>
<td>48</td>
<td>23</td>
<td>36</td>
<td>61</td>
<td>41</td>
<td>47</td>
</tr>
<tr>
<td>Internal/Head Trauma</td>
<td>18</td>
<td>23</td>
<td>46</td>
<td>27</td>
<td>10</td>
<td>32</td>
<td>25</td>
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<tr>
<td>Other</td>
<td>6</td>
<td>4</td>
<td>16</td>
<td>12</td>
<td>5</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

*Column totals may not add to 100 due to rounding.*
Comparison of Florida With Pennsylvania

As discussed throughout this report, numerous factors impact the incidence of firefighter fatalities by state. Based on data collected for this study, Table 9 specifically highlights the pattern of firefighter fatalities in Pennsylvania and Florida. Although these states have similar populations (14,460,152 and 12,081,349 respectively), a substantially greater number of firefighters are killed in Pennsylvania than in Florida—97 versus 22 firefighter fatalities during the study period. The hypothesis, therefore, is that since these states have similar populations, factors other than population must affect the incidence of firefighter fatalities.

### Table 9. Firefighter Fatality Data Elements: Florida and Pennsylvania

<table>
<thead>
<tr>
<th>Data Element</th>
<th>Florida</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AVERAGE AGE</strong></td>
<td>39 years</td>
<td>47 years</td>
</tr>
<tr>
<td><strong>RANK</strong></td>
<td>Firefighter</td>
<td>Firefighter</td>
</tr>
<tr>
<td></td>
<td>Assistant/Deputy Chief</td>
<td>Fire Police Officer</td>
</tr>
<tr>
<td></td>
<td>Fire Chief</td>
<td>Assistant/Deputy Chief</td>
</tr>
<tr>
<td><strong>GENDER</strong></td>
<td>Male</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>Female</td>
</tr>
<tr>
<td><strong>NATURE OF FATAL INJURY</strong></td>
<td>Cardiac Arrest,</td>
<td>Cardiac Arrest,</td>
</tr>
<tr>
<td></td>
<td>Trauma (internal or head)</td>
<td>Burns/Asphyxiation,</td>
</tr>
<tr>
<td></td>
<td>Burns/Asphyxiation</td>
<td>Trauma (internal or head)</td>
</tr>
<tr>
<td><strong>TYPE OF DUTY</strong></td>
<td>Extinguishing Fire,</td>
<td>Extinguishing Fire,</td>
</tr>
<tr>
<td></td>
<td>Neutralizing Incident</td>
<td>Neutralizing Incident</td>
</tr>
<tr>
<td></td>
<td>Other Duties on Emergency Scene</td>
<td>En Route/Responding</td>
</tr>
<tr>
<td></td>
<td>EMS</td>
<td>Traffic Control</td>
</tr>
<tr>
<td><strong>AFFILIATION</strong></td>
<td>Full-Time Career</td>
<td>Volunteer</td>
</tr>
<tr>
<td></td>
<td>Volunteer</td>
<td>Full-Time Career</td>
</tr>
<tr>
<td></td>
<td>Wildland, Full-Time</td>
<td>Paid Part-Time</td>
</tr>
<tr>
<td><strong>TYPE OF AGENCY</strong></td>
<td>Career</td>
<td>Volunteer</td>
</tr>
<tr>
<td></td>
<td>Combination</td>
<td>Career</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Combination</td>
</tr>
<tr>
<td><strong>MONTH OF YEAR</strong></td>
<td>August</td>
<td>January</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>August</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>December</td>
</tr>
<tr>
<td><strong>TYPE OF INCIDENT</strong></td>
<td>Structure Fire/Explosion</td>
<td>Structural Fire/Explosion</td>
</tr>
<tr>
<td></td>
<td>Wildland/Grass/Brush Fire</td>
<td>MVC</td>
</tr>
<tr>
<td></td>
<td>EMS</td>
<td>EMS</td>
</tr>
<tr>
<td><strong>CAUSE OF FIRE</strong></td>
<td>Arson</td>
<td>Arson</td>
</tr>
<tr>
<td></td>
<td>Natural</td>
<td>Electrical Distribution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heating</td>
</tr>
</tbody>
</table>

Some of the differences between the two states that are reflected in the table include:

- On average, firefighters who die are in Pennsylvania are 8 years older than those in Florida.
- Although cardiac arrest is the leading nature of fatal injury in both states, it affects a higher percentage of firefighters in Pennsylvania. This may correspond to the older age of Pennsylvania firefighters.
- Significantly more fire police officers die in Pennsylvania than in Florida.
- Significantly more firefighters in Florida are killed while involved in an EMS incident. More Pennsylvania firefighters are killed responding to incidents than Florida firefighters.
• The distribution of career and Volunteer personnel are reversed in the two states. In Pennsylvania, three out of four fatalities are volunteers; in Florida, three of every four fatalities are career firefighters. This difference could be an indication of a factor that affects the total number of firefighter fatalities in Pennsylvania, or it may reflect a larger statewide volunteer firefighter population.

• The leading month for firefighter fatalities in Florida is August, followed by September and July. This is consistent with the prevalence of fatalities involving wildland incidents, which occur predominantly during the summer in Florida. The leading month for firefighter fatalities in Pennsylvania is January, followed by August and December. The higher incidence of winter fires is consistent with the climate in Pennsylvania, where homes must be heated during the colder months. (Heating fires are a leading cause of firefighter fatalities in Pennsylvania.)

Although one could speculate that the composition of the fire service and the distribution of emergency incidents in Florida and Pennsylvania are similar to the distribution of firefighter fatalities, this is not guaranteed. Instead, due to the relatively small sample of firefighter fatalities, one or two anomalous events could significantly alter the data.

To fully address the reasons for the variations discussed in this section, additional research, data, and analyses are required. Some of the causal factors that may be of interest are shown in the adjacent box and may be candidate factors for further research and analyses. (In part, the National Fire Department Cenus, a project of the USFA, will generate some of these data.) By determining key factors responsible for firefighter fatalities in any state, specific prevention programs could be developed to specifically address and correct identified problems or trends.

<table>
<thead>
<tr>
<th>Possible Causal Factors for Future Analyses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate</td>
</tr>
<tr>
<td>Code Enforcement:</td>
</tr>
<tr>
<td>Centralized State Office or Local Enforcement</td>
</tr>
<tr>
<td>Stringency of Codes Adopted</td>
</tr>
<tr>
<td>Average Age of Firefighters</td>
</tr>
<tr>
<td>Composition of State Fire Service</td>
</tr>
<tr>
<td>Career vs. Volunteer</td>
</tr>
<tr>
<td>Gender Distribution</td>
</tr>
<tr>
<td>Overall Firefighter Health: Requirement for Annual Physicals?</td>
</tr>
<tr>
<td>Training Requirement</td>
</tr>
<tr>
<td>Uniform or Different for Career and Volunteer?</td>
</tr>
<tr>
<td>Offered at State or Local Level?</td>
</tr>
<tr>
<td>Age and Type of Housing Stock</td>
</tr>
<tr>
<td>Average Income Level in State</td>
</tr>
<tr>
<td>Common Types of Apparatus</td>
</tr>
<tr>
<td>Commercial Driver’s License Required for Emergency Vehicle Operators?</td>
</tr>
<tr>
<td>State/Departmental Participation in NFIRS?</td>
</tr>
<tr>
<td>Number of Fire Departments in State</td>
</tr>
<tr>
<td>Size of Fire Department</td>
</tr>
</tbody>
</table>

**Multiple Firefighter Fatality Incidents**

The death of a firefighter has profound effects on the fire service and community as a whole; when more than one firefighter dies in an incident, those effects are magnified. Overall, during the study period, 8 percent of fatal incidents involved the death of more than one firefighter; these incidents accounted for 18 percent of firefighter fatalities. This represents an increase from an earlier USFA study, which found that between 1982 and 1991, only 4
percent of incidents involved the death of more than one firefighter; those incidents accounted for 13 percent of firefighter fatalities [Ref. 9].

Table 10 shows the distribution of firefighter fatalities by the number of firefighters killed per incident. The majority of firefighters are killed in incidents that involve the death of only one firefighter (82 percent). Approximately 14 percent of firefighters are killed in incidents that result in the deaths of two or three firefighters. Incidents involving the death of more than four firefighters are rare, and account for only 3 percent of fatalities.

### Table 10. Multiple Firefighter Fatalities

<table>
<thead>
<tr>
<th>Number of Incidents</th>
<th>Fatalities per Incident</th>
<th>Fatalities</th>
<th>Percent of Firefighter Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>893</td>
<td>1</td>
<td>893</td>
<td>82</td>
</tr>
<tr>
<td>59</td>
<td>2</td>
<td>118</td>
<td>11</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>14</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>970</td>
<td>30</td>
<td>1,085</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 11 compares the nature of fatal injuries for firefighters killed in single- vs. multiple-firefighter fatality incidents. Approximately 90 percent of firefighters killed in multiple-fatality incidents die of traumatic injuries (a category that includes internal, head, and other traumas, as well as asphyxiation, burns, and burns/asphyxiation). In contrast, only 37 percent

### Table 11. Nature of Fatal Injury, Single- vs. Multiple-Fatality Incidents

<table>
<thead>
<tr>
<th>Nature of Fatal Injury</th>
<th>Firefighters in Multiple-Fatality Incidents</th>
<th>Firefighters in Single-Fatality Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphyxiation</td>
<td>32%</td>
<td>7%</td>
</tr>
<tr>
<td>Burns</td>
<td>12%</td>
<td>2%</td>
</tr>
<tr>
<td>Burns/Asphyxation</td>
<td>15%</td>
<td>2%</td>
</tr>
<tr>
<td>Cardiac Arrest/Heart Attack</td>
<td>1%</td>
<td>53%</td>
</tr>
<tr>
<td>Drowning</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>Electric Shock</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Gunshot</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Trauma</td>
<td>32%</td>
<td>26%</td>
</tr>
<tr>
<td>Stroke/CVA</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Table 11 compares the nature of fatal injuries for firefighters killed in single- vs. multiple-firefighter fatality incidents. Approximately 90 percent of firefighters killed in multiple-fatality incidents die of traumatic injuries (a category that includes internal, head, and other traumas, as well as asphyxiation, burns, and burns/asphyxiation). In contrast, only 37 percent...
of those killed in single-fatality incidents die of traumatic injuries; rather, they are more likely to die from heart attacks.

**Self-Contained Breathing Apparatus Depletion**

Self-contained breathing apparatus (SCBA) are designed to provide firefighters with air while they are operating in dangerous environments. How quickly firefighters deplete an SCBA’s air supply depends on the size of the cylinder used, the effort they exert, and their level of physical fitness. During extremely physically demanding activities, a firefighter could deplete an SCBA in as little as 10–15 minutes (when using a 30-minute air cylinder).

In 16 percent of fatalities during the study period (178 cases) firefighters were reportedly wearing an SCBA at the time of their injury; 30 percent had reportedly depleted their SCBA air supply. For the remaining 70 percent of fatalities, the air supply was either not depleted or that information was unavailable.

**Personal Alert Safety System Device Activation**

Personal Alert Safety System (PASS) devices were originally developed in the early 1980s. They are usually clipped to the harness of a firefighter’s SCBA and are designed to emit a loud signal if a firefighter becomes trapped or incapacitated while operating on a fireground. A pre-alert signal goes off 10 seconds before the alert signal and can be disabled by the firefighter’s moving; if the device has not sensed motion in 30 seconds or the device is manually activated, the alert signal is emitted.

In the 89 cases during the study period where a firefighter was reportedly wearing a PASS device at the time of their fatal injury, the device activated only 9 percent of the time. In 44 percent of incidents the device reportedly was worn but did not activate; in the remainder of incidents, it is unknown whether or not the device activated.

The effects of PASS devices on firefighter mortality are not yet clear. In its investigation of incidents involving firefighter fatalities, the National Institute for Occupational Safety and Health (NIOSH) has found multiple occasions where firefighters either failed to wear or activate their PASS devices prior to entering a structure [Ref. 10]. To combat this trend, SCBA manufacturers are incorporating PASS devices into their SCBA systems. Such devices are turned on automatically when the air cylinder is opened. As with standalone PASS devices, integrated PASS devices will alert if it does not sense motion. There is no way to disable the device while the SCBA system is pressurized. (There is a reset button in the event that the device activates accidentally.) It will be interesting to see how these new technologies affect firefighter mortality in the future. Revisiting this topic in 5–10 years could show significant change in the use and activation of PASS devices.

**Wildland Firefighters**

Wildland firefighting are often prominently featured in the media due to several high-profile incidents involving wildland firefighter fatalities and the intense wildfire season in 2000. Table 12 compares the nature of fatal injury for wildland firefighters vs. non-wildland firefighters. Wildland firefighters are far more likely to be killed by traumatic injuries than are non-wildland firefighters. Conversely, they are significantly less likely to die of a heart
attack for a variety of reasons including that wildland firefighting agencies typically have extremely high standards of physical fitness. Wildland firefighters also tend to be younger than non-wildland firefighters; nearly 70 percent of part-time wildland firefighters are under the age of 30.

For further information on wildland firefighter safety, contact the U.S. Forest Service or see http://www.fs.fed.us/fire/infodir.shtml; and http://www.usfa.fema.gov/pdf/wildff90–98.pdf.

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td><strong>Nature of Fatal Injury</strong></td>
</tr>
<tr>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Asphyxiation</td>
</tr>
<tr>
<td>Burns</td>
</tr>
<tr>
<td>Burns/Asphyxiation</td>
</tr>
<tr>
<td>Cardiac Arrest/Heart Attack</td>
</tr>
<tr>
<td>Drowning</td>
</tr>
<tr>
<td>Electric Shock</td>
</tr>
<tr>
<td>Trauma</td>
</tr>
<tr>
<td>Other Medical</td>
</tr>
<tr>
<td>Stroke/CVA</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

*Including contract personnel and prisoners

<table>
<thead>
<tr>
<th>Wildland Fatality</th>
<th>Non-Wildland Fatality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid entries: 83</td>
<td>Sample size: 1,002</td>
</tr>
<tr>
<td>Valid entries: 83</td>
<td>992</td>
</tr>
<tr>
<td>Invalid entries: 0</td>
<td>Invalid entries: 10</td>
</tr>
</tbody>
</table>
PREVENTION OF FIREFIGHTER FATALITIES

Some forces and circumstances that lead to firefighter fatalities are simply beyond human control. However, through research, study, training, improved operations, development of new technologies, the appropriate use of staffing, and other factors, it should be possible to significantly reduce the number of firefighters killed each year. Moreover, firefighter fatalities are generally the result of a chain of events, which, if detected early, may be broken to prevent many, or even most, fatalities.

This chapter addresses prevention strategies for the fire service. Given their persistent nature, four specific topics are discussed in detail: pre-existing conditions, training, fireground, and motor vehicle collisions. Further information on the prevention of firefighter fatalities can be found on the USFA website at http://www.usfa.fema.gov.

To enhance the overall safety of all members of the fire service, personnel should take care to adhere to standard operating procedures and maintain their personal health and fitness. This includes maintaining proper hydration on the fireground and wearing seatbelts at all times while operating or riding apparatus (or POVs). Moreover, at a higher level in the chain of events, strong public education programs can prevent emergency incidents from happening in the first place; were the incident prevented, the risks would be mitigated.

Pre-Existing Conditions

Previous existing medical conditions that affect the health and safety of firefighters include underlying medical diseases and the state of physical fitness of the firefighter at the time of his or her death. These deaths are different from other on-duty deaths in that the injury may not have occurred or been fatal to that individual under the same conditions in the absence of the pre-existing condition.

Firefighter Physical Fitness—In August 2000, the NFPA released NFPA 1583: Standard on Health-Related Fitness Programs for Fire Fighters [Ref. 11]. It establishes the minimum requirements for a health-related fitness program for fire department members who are involved in rescue, fire suppression, EMS, hazardous materials operations, special operations, and related activities. The standard requires fire departments to establish a “health-related fitness program that enables members to develop and maintain a level of health and fitness to safely perform their assigned functions.” Departments must appoint a health and fitness coordinator (HFC) to coordinate the program and perform periodic fitness assessments to determine an individual’s exercise needs.

A 2001 study at the Applied Exercise Science Laboratory at Texas A&M University investigated firefighters’ risk of suffering a heart attack. The study followed 74 firefighters ages 20–60 years old over a 6-year period and concluded that firefighters have long periods of stress-free activity during the day, and when the call for help comes, there is a “sudden, intense energy demand required, and if they are not in adequate physical condition, the results can be deadly” [Ref. 12].

A 1996 study performed by the Montgomery (AL) Fire Department in cooperation with The Human Performance Laboratory at Auburn University found that added weight and
body fat affected performance of firefighters on the fireground. The research showed that there was a direct relationship between added body weight and decreased physical performance. Additionally, as body weight increased, efficiency decreased and fatigue set in faster. Today, the Montgomery Fire Department monitors firefighters’ height, weight, and body fat composition at various points throughout their careers [Ref. 13].

Many fire departments are implementing mandatory physical fitness programs. The Oklahoma City Fire Department implemented a mandatory, on-the-job exercise program. These firefighters are required to exercise for 1½ hours on each 24-hour shift. Officials with the Oklahoma City Fire Department hope that by implementing the workout program, firefighters will live longer and avoid heart attacks. Firefighters meet with a physician at the beginning of the program and are then assigned to a physical wellness coordinator. The coordinator runs through a series of exercises to see what shape the firefighter is in and then, based on the results of the tests, creates an aerobic and weightlifting regimen. Firefighters are reevaluated every 6 months. Officials with the department have noted that the overall fitness of the department has improved with the implementation of the program [Ref. 14].

A variety of commercial fitness programs are widely available. Such programs include strength building, endurance, and flexibility exercises as well as tips on nutritional habits. Programs like step aerobics and Tae-Bo are becoming popular in fire departments across the country. These programs incorporate fun into cardiovascular exercise, motivating participants to continue with the workout regimen. Where possible, fire departments should incorporate physical training into the firefighter’s daily schedule. This should be done in conjunction with fitness experts, physicians, and nutritionists to ensure that firefighters get in shape in a safe, healthy manner.

The IAFF, International Association of Fire Chiefs (ICHIEFS), and 10 pairs of local unions and their municipalities joined together to form the Fire Service Joint Labor Management Wellness–Fitness Task Force. The task force created the Fire Service Joint Labor Management Wellness–Fitness Initiative in an attempt to build a stronger and healthier fire service. The initiative is a fitness program that includes physical, physiological, and psychological components. The program comes complete with a physical fitness and wellness program package that includes a manual and a video. It is hoped that all departments affiliated with the IAFF will implement the program [Ref. 15].

While it might appear that most physical fitness programs are targeted to career departments, many volunteer departments are encouraging their members to be more health conscious. To facilitate this, some departments have built weight rooms with state-of-the-art fitness equipment for use by their members. For departments that cannot afford expensive equipment, other options include soliciting donations of used exercise equipment. Other departments have approached commercial gyms or local recreation centers and formed agreements granting members free or reduced-price memberships. Some departments have hired fitness consultants who meet with members on a regular basis to develop individual and department-wide fitness programs.

Candidate Physical Agility Test—One way to prevent firefighters from having poor fitness habits is to recruit and hire firefighters with good fitness habits. Hiring healthy individuals to serve as firefighters may reduce firefighter fatalities from heart attacks and other medi-
cal conditions; physically fit individuals may also be at less of a risk of incurring traumatic injuries. However, a fair standard must be applied to all applicants.

The members of the Fire Service Joint Labor Management Wellness–Fitness Task Force developed the candidate physical agility test (CPAT) to establish a nondiscriminating, fitness-based test for hiring firefighters. The CPAT is administered along with other recruiting and mentoring practices. The CPAT was designed for the recruitment process for career departments, but it can also be applied during recruitment of volunteer firefighters.

When practical, departments should have EMS personnel and equipment standing by during the actual test should any candidate suffer a medical problem or injury.

The CPAT is comprised of eight events in which the candidate must wear a 50-pound weighted belt. (A belt is used as opposed to structural turnout gear and SCBA so as not to give an advantage to experienced firefighters seeking employment.) The eight events include:

- Stair climb—climbing stairs with a 25-pound simulated hose pack
- Ladder raise and extension—placing and raising a ground ladder to the desired floor or window
- Hose drag—stretching and advancing hoselines, charged and uncharged
- Equipment carry—removing and carrying equipment from fire apparatus to fireground
- Forcible entry—penetrating a locked door, breaching a wall
- Search—crawling through dark areas to search for victims
- Rescue drag—victim removal from a fire building
- Ceiling pull—pulling a ceiling to check for and locate fire extension

By incorporating the CPAT program into the recruiting and hiring process, fire departments increase the chance they will build a membership that is physically fit and able to fulfill the demanding duties of firefighters.

For further information on the efforts of the Fire Service Joint Labor Management Wellness–Fitness Task Force, contact the IAFF (http://www.iaff.org) or IAFC (http://www.iafc.org).

**Heart Attacks**—Heart attacks are the leading cause of firefighter fatalities. The physical demands placed on firefighters can be very high and they often have to go from a state of deep sleep to near 100 percent alertness and high physical exertion in a matter of minutes. Further, they must carry heavy equipment through intense heat while wearing heavy gear. Due to the physical demands of firefighting, firefighters must maintain a high level of physical fitness.

The medical term for heart attack is myocardial infarction [Ref. 16]. A heart attack occurs when the blood supply to part of the heart muscle itself—the myocardium—is severely reduced or stopped. This occurs when one of the coronary arteries that supply blood to the heart muscle is blocked. The blockage is often from the buildup of plaque (deposits of fat-like substances) known as atherosclerosis, combined with arteriosclerosis (the progressive hardening and thickening of the arteries). During exercise or excitement, the narrowed coronary arteries caused by arteriosclerosis cannot increase the blood supply enough to meet
the increased oxygen demand of the heart muscle. The plaque can eventually tear or rupture, triggering a blood clot to form that blocks the artery and leads to a heart attack. If the blood supply is cut off severely or for a long time, muscle cells suffer irreversible injury and die. Disability or death can result, depending on how much of the heart muscle is damaged.

At autopsy, a substantial number of firefighter fatalities were found to have severe coronary arteriosclerosis. Family members reported that many had been diagnosed with hypertension or diabetes prior to their deaths. Many factors affect a person’s risk of suffering a heart attack. Some risk factors are outside of an individual’s control such as increasing age, gender (male), and heredity (including race). Other risk factors, however, can be controlled or modified through diet, exercise, and personal choice. Modifiable risk factors include use of tobacco, high cholesterol, high blood pressure (hypertension), physical inactivity, obesity, and diabetes. The following are examples of ways fire departments can encourage their members to improve their health and lower their risk.

In a significant number of cases, no signs or symptoms precede heart attacks. In such cases, patients fall victim to sudden cardiac death (also called sudden death). Sudden cardiac death is the result of an abrupt loss of heart function. Victims of sudden cardiac death may or may not have a previous medical history of heart disease. All heart diseases can lead to cardiac arrest or sudden cardiac death. Many cardiac arrests occur when electrical impulses in the heart become rapid (ventricular tachycardia) or chaotic (ventricular fibrillation). These cardiac arrhythmias cause the heart to stop. Cardiac arrest can lead to brain death, and ultimately clinical death, if not treated within 4 to 6 minutes. The definitive treatment for these lethal arrhythmias is rapid defibrillation.

The American Heart Association website is an excellent resource for educational materials, prevention strategies, and other information on heart attack and stroke (http://www.americanheart.org). Firehouse Magazine’s website (http://www.firehouse.com/fitness/) has a page dedicated to fitness and well being. The page offers a variety of workouts aimed to help firefighters with such things as strength training, flexibility training, and cardiovascular conditioning, and it provides information on the latest trends in health and fitness.

**Diet**—Meals that are high in fat, cholesterol, sodium, and calories can contribute to or exacerbate health problems such as heart disease and diabetes. Maintaining a healthy diet can mitigate these health issues and reduce firefighters’ risk.

**Smoking**—Smokers have twice the risk of dying from heart disease than nonsmokers [Ref. 17]. Smoking reduces lung capacity and narrows blood vessels, damaging lungs and reducing the amount of oxygen available during strenuous activities, including firefighting. Smoking also causes chronic and potentially fatal lung diseases such as bronchitis and emphysema.

Smoking-related diseases and heart attacks are preventable. In the years after a smoker quits, their risk of dying from a heart attack decreases markedly. Fifteen years after quitting, an ex-smoker faces the same risks as someone who has never smoked [Ref. 17]. Also, their risk of lung disease, heart disease, stroke, diabetes, and hypertension all decrease. Although these lifestyle changes directly affect the firefighter’s individual health, they also benefit the department as a whole, as healthier firefighters may be less likely to be injured or killed while on duty.
The most effective way to prevent smoking-related disease is to maintain a smoke-free environment, which can be accomplished in several ways. Some fire departments have banned personnel from smoking while on duty; others have attempted to ban firefighters from smoking both on and off duty.

As an alternative, some departments have offered to pay for smoking cessation programs to help their firefighters quit smoking. These programs include the use of nicotine gums, patches, medications, various forms of psychotherapy, or a combination of these approaches. Offering a smoking cessation program is usually less objectionable to firefighters than ordering them to quit. Promoting a smoking cessation program can be cost effective to a fire department. By promoting such a program, fire departments make an investment in their future that may cost a down payment for the program itself, but should theoretically lower the cost of future medical care for that firefighter and for the department.

**Alcohol**—In a recent study by the Centers for Disease Control and Prevention, nearly 52 percent of Americans over the age of 12 had consumed an alcoholic beverage in the month prior to the survey [Ref. 18]. Many people, including firefighters, occasionally consume alcoholic beverages. However, the adverse effects of excessive alcohol consumption can be deadly.

Alcohol also affects the heart and, in high amounts, can produce irregular heartbeats. Over time, a rapid or irregular heartbeat can lead to hypertension, heart failure, stroke, or other complications [Ref. 16]. Excessive alcohol consumption also causes pancreatitis, nutritional deficiencies, malignancies, and cirrhosis.

The fire service must be aware of the signs of alcohol abuse and make resources available to members with alcohol problems. For further information, contact the National Institute on Alcohol Abuse and Alcoholism (http://www.niaaa.nih.gov) or Alcoholic’s Anonymous (http://www.alcoholics-anonymous.org).

**Employee Assistance Programs (EAPs)**—Both career and volunteer firefighters can benefit from the assistance of EAPs, which are programs organized to provide counseling, support, and other services. Some larger fire departments have their own EAPs; smaller agencies (of all types) might consider contracting for EAP services or participating in a local government’s EAP.

**Training**

Seven percent of firefighters deaths occur during training exercises each year. To prevent these fatalities, departments must approach training with safety as the leading priority.

**Physical Fitness**—The majority of deaths during training occur while the firefighter is engaged in physical fitness activities. The paradox in this situation is that firefighters must engage in physical activities to perform their duties effectively. To prevent deaths related to physical fitness, firefighters should engage in such activities only after being evaluated by a physician. With the help of the medical community plus certified physical trainers, lower impact exercise programs can be developed that improve the firefighter’s level of fitness but pose a lower risk of causing injury or death.
Training Exercises—Training exercises should include didactic as well as classroom sessions to prepare firefighters for the scenarios to be used in the practical exercise. Practical training sessions should be conducted in accordance with departmental SOPs; applicable federal, state, and local laws; and industry standards. Only those personnel who are qualified should be allowed to directly participate in training activities. Personnel that lack the training or qualifications to participate should be encouraged to assume support functions. Allowing unqualified personnel to participate in training or actual incidents could expose a fire department to serious liability in the event of an injury or fatality.

Since the purpose of practical training is to familiarize personnel with the conditions they will face in an actual incident, full protective equipment, including SCBA, PASS devices, and accountability systems should be used where appropriate. In particular, live-fire evolutions should conform to NFPA 1403, Standard on Live Fire Training Evolutions in Structures [Ref. 19].

Fireground

Fireground firefighter fatalities occur on the scenes of actual emergencies and tend to occur as the result of flashovers, structural collapses, and falls. One of the highest priorities a department should strive for and reinforce is familiarity with basic firefighting skills and self-rescue techniques. Familiarity with these techniques can reduce the likelihood that firefighters will become lost in a structure and require rescue.

Incident Command System (ICS)—The ICS is the model tool for the command, control, and coordination of resources and personnel at the scene of emergencies. It was designed to facilitate operations and efficient mitigation at the scene of an emergency, regardless of its magnitude, location, duration, or nature. The ICS is designed to allow for an incident commander (IC) to be identified regardless of that individual’s rank. The system allows for the progressive transfer of command from lower ranking individuals to higher ranking individuals as necessary.

Under the ICS, the IC designates sector commanders to assume responsibility for particular aspects of an emergency response. The IC determines the overall strategic objective for the incident; the sector commanders are responsible for developing tactical plans of action to achieve that strategic goal. Examples of sectors include command, EMS, triage, rescue, logistics, transportation, finance, and safety. For the safety sector, at a minimum, the IC should designate a safety officer who has the authority to alter, suspend, or terminate any activity at the scene if he or she determines those actions to be imminently unsafe [Ref. 20].

Freelancing occurs when firefighters or companies deviate from their assigned duties. What makes freelancing so dangerous is that the IC may give orders to another company that endangers the freelancers, or the freelancers may operate in a manner that endangers other firefighters. Training in ICS and operations may mitigate the occurrence of freelancing.

Many fire departments currently implement an ICS for working incidents. This practice should continue; those departments that do not currently use an ICS should consider developing one that suits their needs.

Accountability—As part of his or her responsibilities, the IC needs to know the approximate location of companies and personnel operating at the incident. While sector command-
ers accomplish part of this through regular reports to the IC, a structured Personnel Accountability System is also a necessity. Some Personnel Accountability Systems use technology, such as barcoding, to track the assignments of personnel and apparatus. Other Personnel Accountability Systems are simpler, and use plastic tags or dry-erase boards to manually track activities on the scene.

Closely related to Personnel Accountability Systems are PASS devices. As discussed previously, these devices are designed to emit a loud tone in the event that a firefighter becomes incapacitated or otherwise unable to move while operating at an incident. When activated, these devices can help search and rescue teams locate a downed firefighter quickly. In particular, if the team knows where the firefighter or company was assigned to operate, the sound of an activated PASS may lead them to the downed firefighter(s). NFPA 1982: Standard on Personal Alert Safety Systems [Ref. 21] specifies the requirements for PASS devices. Fire departments should make sure that PASS devices used comply with NFPA 1982.

In conjunction with a formal Personnel Accountability System, many departments also incorporate Personnel Accountability Reports (PARs) into their SOPs for emergency operations. PARs are generally conducted over the radio and require each company or firefighter to verbally check in with the IC at regularly scheduled intervals. Often, the dispatch center will advise the IC at certain points during the incident (e.g., 15 minutes, 30 minutes, 1 hour) to perform an accountability check. Once it is determined that a firefighter or company is not accounted for, the IC can shift resources from suppression or mitigation to search and rescue.

It is crucial that personnel are familiar with the particular Personnel Accountability System and PASS devices used by their departments. This requires ongoing training and cooperation across jurisdictions where mutual aid response is common.

**Tactical Strategies**—More fire departments are adjusting their tactics to allow for defensive operations when no life hazards are present. While some have criticized this shift, it may prove crucial in reducing the number of future firefighter fatalities. This does not mean that all aggressive interior firefighting should stop. Rather, ICs should be aware that in instances where the layout of a structure cannot be ascertained with certainty or there are hazardous substances present, an exterior attack should be considered, unless there are confirmed victims trapped in the structure. Firefighters have been killed searching for victims who have already exited a building or were never there in the first place.

**Two-In/Two-Out**—According to the Occupational Safety and Health Administration (OSHA) policy (29 CFR 1910–134) for interior structural firefighting, firefighters must be in direct contact with at least one other firefighter. Direct contact includes being able to maintain verbal or visual contact with other firefighters inside an area immediately dangerous to life and health (IDLH) at all times. Additionally, OSHA requires that a team of at least two properly equipped and trained firefighters be present outside of the IDLH area before any teams enter the structure. For further information, see [http://www.osha-slc.gov/OshStd_data/1910_0134.html](http://www.osha-slc.gov/OshStd_data/1910_0134.html).

Related to Two-In/Two-Out is the development of rapid intervention teams/crews (RITs/RICs). NFPA 1710: Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by
Career Fire Departments and NFPA 1720: Standard on Volunteer Fire Service Deployment recommend that at least two trained firefighters be assigned to a RIT. Although initial RITs often consist of only two firefighters (to comply with the two-out of Two-In/Two-Out), firefighter rescue requires many trained hands, especially if multiple firefighters are in distress at the same time.

RITs should stand by on the fireground and be deployed immediately when interior firefighters find themselves in imminent danger (e.g., they are unable to escape and continued presence in the current environment may lead to serious injury or death). Such teams should be equipped, at a minimum, with an extra SCBA, rope, forcible entry tools, a hoseline (from an engine not supplying the primary attack lines), and, if possible, a thermal imaging camera. As soon as a “Mayday” is transmitted, command should acknowledge the transmission and immediately deploy the RIT. Other units operating on the scene should be switched to an alternate tactical channel to allow for direct communication with the missing firefighter(s). For further information on the development of RITs, contact the USFA.

Self-Rescue—Firefighters who find themselves in imminent danger and are unable to wait for a RIT rescue may be able to escape from a structure using some crude but effective escape techniques. These techniques must be practiced, like any other techniques, but since they are often performed from an elevated level, fall protection and qualified instructors must be employed. Some examples of personal escape taught by various agencies and departments in the fire service include charged hose line slide, rappel with a personal escape rope, and wall breach. These are only some techniques being taught, not all of which are universally accepted as “best practices.”

Salvage and Overhaul—Salvage and overhaul operations begin during the extinguishment of a fire and continue after the fire has been knocked down. Though there might not be any fire in the building during salvage and overhaul operations, the atmosphere remains hazardous.

The structure in areas directly above, adjacent to, and in the room of fire origin, may have been seriously compromised by fire spread, smoke, and water. Firefighters and the safety officer should be alert to recognize when the integrity of the structure is compromised. Areas being salvaged often are still smoky and usually are filled with toxic fire byproducts of or gases not ignited during the fire. According to a study published by researchers at the University of Arizona College of Public Health, firefighters not wearing respiratory protection during salvage and overhaul were significantly more prone to lung injury than those that did wear such protection [Ref. 22]. Therefore, firefighters must be in full personal protective equipment (PPE), including SCBA, at all times while performing salvage and overhaul.

Motor Vehicle Collisions

Firefighter fatalities as a result of MVCs are an ongoing problem and accounted for 22 percent of the total number of firefighter fatalities from 1990–2000.

Driver Training—Driver familiarity with fire apparatus facilitates comfort and control over the vehicle. But driver familiarity must also be supplemented with a formal driver training program that educates the driver about obstacles, hazards, and roadway types.
In addition to licensing requirements at the state level, many fire departments require drivers to successfully complete an emergency vehicles operator’s course (EVOC) and departmental checkout programs prior to driving apparatus. EVOC involves both didactic and practical exercises to teach firefighters how to drive in emergency response situations. The course addresses topics such as high-speed driving, evasive maneuvering, and skid control.

Departmental checkout programs familiarize drivers with the particular vehicles they will be operating on a regular basis. This program should involve driving on the different types of roadways in the department’s first-due area. This might include in-town driving, out-of-town (rural) driving, highway driving, and off-road driving. If a department protects an area with dense traffic, the driver should train on maneuvering through, in, and around heavy traffic. The use of seatbelts should be stressed.

Driver training programs can be measured by the duration of time spent performing driver training, distance driven during driver training, or a combination of both. Throughout the program, the driver trainer must be unbiased in his/her evaluation of the driver trainee. Driver training, like all skills, should be practiced on a regular basis. In particular, tanker drivers should practice maneuvering the apparatus with the tank at various fullness levels. It is crucial that operators train regularly on the operation of tankers to prevent fatal errors while responding to incidents.

Fire departments should consult NFPA 1002: Fire Department Vehicle Driver/Operator Professional Qualifications [Ref. 23] when developing or modifying its driver training program. This standard addresses the knowledge and skills needed to operate and maintain fire department vehicles.

Dispatch and Response Criteria—Fire departments establish dispatch and response criteria based on applicable statutes, local precedent, and available resources. Responding with multiple apparatus to an incident may bring a lot of equipment to the scene, but not all of it may be necessary. Response guidelines should be established according to the nature and type of incident and the personnel needed to mitigate that incident. In some instances, a single-unit response may be appropriate rather than sending an entire first-alarm assignment.

Additionally, fire departments must consider whether an emergency response (using lights and sirens) to every incident is warranted. Many departments have shifted to emergency responses only for life-threatening or potentially life-threatening emergency incidents and not for routine responses for non-life-threatening incidents. Emergency vehicles traveling with emergency warning lights and sirens activated have a significantly higher risk of being involved in a motor vehicle collision [Ref. 24].

Intersections—The majority of MVCs occur at intersections; drivers should approach intersections with extreme caution, coming to a complete stop before entering the intersection [Ref. 25]. The driver should proceed through the intersection only when he/she is positive that the intersection is clear and that all opposing traffic has come to a complete stop. Some departments have prohibited their fire apparatus from entering intersections on a red light. These departments require their drivers to wait until a green light appears before proceeding through it.
Some departments are using modern technology to minimize the delay caused by red lights. These departments are installing equipment that provides the right-of-way for emergency vehicles at signalized intersections. Using high-energy infrared technology, the mounted device remotely toggles traffic lights from red to green. Departments that use these require their drivers to wait until their light turns green before proceeding. If the light does not turn green within a specified period of time, it means that another fire apparatus is approaching from a different direction. Such technology facilitates maneuvering through intersections more safely, helping to reduce the number of collisions involving fire apparatus.

**Seatbelts**—As noted earlier, the majority of firefighters killed in MVCs were not wearing seatbelts. Numerous studies have proven that wearing lap and shoulder belts reduce the risk of fatal or serious injury in a collision. When responding to emergency calls, drivers must do so with safety as their number one priority. The apparatus driver and unit officer should make sure that everyone aboard the apparatus is wearing their seatbelt before moving the vehicle. According to the National Highway Traffic Safety Administration, 49 states, the District of Columbia, and a number of American territories have enacted seatbelt laws. Although some states have exemptions for public safety agencies, the fact remains that seatbelts save lives, whether one is riding in a POV or a piece of fire apparatus.

**Privately Owned Vehicles**—Some departments operate on an on-call system where members respond to the fire station or fire scene in their POV. More firefighters are killed each year while responding to emergency calls in their POVs than any other vehicle. In some cases, personnel may break traffic laws like exceeding posted speed limits or rolling through stop signs while trying to get to an emergency. Not all states allow emergency lights on POVs; rather, some allow firefighters to use “courtesy lights.” Other vehicles are not legally required to yield the right-of-way to vehicles with courtesy lights and vehicles outfitted with such equipment are required to obey all traffic laws.

Firefighters should check with the appropriate agencies to determine what types of lights, if any, are permitted in their state. Where emergency or courtesy lights are permitted, firefighters must be vigilant about operating their POVs in a safe, responsible manner, regardless of the nature of the emergency to which they are responding.
RESOURCES

The deaths of firefighters have far reaching effects. It is very important that fire departments have a written plan in the event of the on-duty death of a firefighter. The NFFF has many resources to help departments, chief officers, and surviving family and friends. These include stress counseling, participation in the National Fallen Firefighters’ Memorial Weekend, and financial planning. Fire service members should also take stock of their personal finances to ensure that their families will be adequately supported in the event of their untimely death. Moreover, they should draft a will that includes their wishes for funeral/memorial services (e.g., a service funeral with apparatus or a private, family memorial).

Many local churches, religious organizations, and charities (including the Red Cross) make themselves available to families and fire departments in the aftermath of a fatality. The IAFF and its local chapters sponsor various programs for the families of deceased firefighters and often coordinate the memorial service/funeral for the deceased. Volunteer firefighters’ associations coordinate similar programs for their members.

Many larger fire departments have their own counselors on staff to assist families after the death of a firefighter. Departments without these resources may consider using the assistance of local chaplains or representatives of the local police department. Mental health clinics, hospitals, and private mental health professionals are also valuable resources for helping families and firefighters cope with their loss.

This chapter addresses some specific resources available to families and fire departments. For further information, contact the NFFF at http://www.firehero.org.

Fire Service Resources

General Resources

Taking Care of Our Own: A Resource Guide is a 50-page guide contains information on pre-incident planning, notification, family and fire department support, and resources for fire departments. The publication is available free of charge.

The National Fallen Firefighter Foundation
P.O. Drawer 498
Emmitsburg, MD 21727
(301) 447–1365
http://www.firehero.org/fire/comp_orderform2.htm

United States Fire Administration
Publications Center
16825 South Seton Avenue
Emmitsburg, MD 21727
1–800–561–3356
http://www.usfa.fema.gov

Firefighter Fatality Reports

Firefighter Fatalities in the United States. FEMA, USFA. Reports can be downloaded for the years 1986–2000 at the Website address.

United States Fire Administration
Publications Center
16825 South Seton Avenue
Emmitsburg, MD 21727
1–800–561–3356
http://www.usfa.fema.gov/nfdc/ff_fat.htm


NIOSH fire fighter fatality programs and reports, firefighter fatality investigation and prevention program, and other reports are available for many incidents and can be downloaded from the Website.

National Institute for Occupational Safety and Health
4676 Columbia Parkway
Cincinnati, OH 45226
1–800–35–NIOSH
Fax: (513) 841–4488
http://www.cdc.gov/niosh/facerpts.html
Investigations

*Firefighter Autopsy Protocol*, United States Fire Administration, 1991. Recommended procedures on investigating the cause and contributing factors of a firefighter’s death for coroners, medical examiners, and pathologists.

United States Fire Administration at [http://www.usfa.fema.gov](http://www.usfa.fema.gov) or

United States Fire Administration
Publications Center
16825 South Seton Avenue
Emmitsburg, MD 21727
1–800–561–3356


International Association of Fire Chiefs
4025 Fair Ridge Drive
Fairfax, VA 22033–2868
(703) 273–0911
publications@iafc.org;
[http://www.ichiefs.org/departments/pubs.htm#lod](http://www.ichiefs.org/departments/pubs.htm#lod)

*Standard Operating Procedures for On-Duty Deaths*

The NFFF provides SOPs and guidelines that were developed by fire departments for use in the event of the loss of a firefighter.

The National Fallen Firefighter Foundation
P.O. Drawer 498
Emmitsburg, MD 21727
(301) 447–1365
**A Procedural Guide in the Event of Death in the Line of Duty of a Member of the Volunteer Fire Service**, 1987. This 30-page book covers proper procedures to follow in the event of a on-duty death or injury.

National Volunteer Fire Council
1050 17th Street, NW
Suite 490
Washington, DC 20036
(202) 887–5700
1–888–ASK–NVFC
Fax: (202) 887–5291
nvfcoffice@nvfc.org
http://www.nvfc.org/manuals.html

**Stress and Grief**

International Critical Incident Stress Foundation, Inc., is a nonprofit organization that specializes in prevention and treatment of disabling stress for emergency services.

International Critical Incident Stress Foundation, Inc.
10176 Baltimore National Pike
Unit 201
Ellicott City, MD 21042
24-Hour Emergency Hotline: (410) 313–2473
Phone: (410) 750–9600
Fax: (410) 750–9601
http://www.icisf.org/

**Financial Assistance for Children and Spouses**

The following are examples of programs offered at the national level. For further information about resources available, by state, contact the NFFF.

**Nationwide**

The PSOB’s program provides financial assistance for firefighters who are totally disabled or killed by a traumatic injury in the line of duty.

Public Safety Officers’ Benefits Program
810 Seventh Street, NW
Washington, DC 20531
(202) 307–0635
1–888–SIGNL13 (744–6513)
Fax: (202) 307–3373
http://www.ncjrs.org/pdffiles1/fs000066.pdf
Private

The Firefighters Safety Association provides a benefit to the families member firefighters who are killed in the line of duty. In addition, the Association provides assistance in applying for the PSOB program, reporting the death to the National Fire Academy, and offers other forms of support.

Firefighters Safety Association, Inc.
33 Page Avenue, Suite 201
Asheville, NC 28801
(866) 253–9546
info@FirefighterSafety.net
http://www.firefightersafety.net/benefits.html

The National Volunteer Fire Council provides an accidental death and disability life insurance policy to its members.

National Volunteer Fire Council
1050 17th Street, NW
Suite 490
Washington, DC 20036
(202) 887–5700
1–888–ASK–NVFC
Fax: (202) 887–5291
www.nvfc.org/manuals.htm
nvfcoffice@nvfc.org

VFIS is an insurance company that specializes in providing insurance services to volunteer firefighters as well as other emergency service organizations. VFIS provides a wide range of services, including accident and sickness, disability, death, and retirement benefits.

VFIS Main Offices
183 Leader Heights Road
P.O. Box 2726
York, PA 17405
1–800–233–1957
(717) 741–0911
Fax: (717) 747–7030
inquires@vfis.com
http://www2.vfis.com/
APPENDIX—DOCUMENTATION

This appendix addresses the documentation for the development of the relational firefighter fatality database. An Entity Relational Diagram (ERD) is included to illustrate the relationships used to create the database. Also included is a listing of the field names in each of the database’s tables and a brief explanation of the data inside the field. Finally, a data dictionary highlights the valid entries for each data element, with definitions for each of the entries.

Entity Relational Diagram

Figure 29 illustrates the Entity Relational Diagram (ERD) for the Firefighter Fatality database.
## Field Names and Description of Data

<table>
<thead>
<tr>
<th>FIELD NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TblCodes</strong></td>
<td></td>
</tr>
<tr>
<td>Code_ID</td>
<td>Structural number used to create the database.</td>
</tr>
<tr>
<td>Code_Category</td>
<td>Identifies the data element that the code belongs to</td>
</tr>
<tr>
<td>Code_Value</td>
<td>Numeric identifier of data elements for ease of data entry.</td>
</tr>
<tr>
<td>Code_Description</td>
<td>Verbal description of code value</td>
</tr>
<tr>
<td>Code_Example</td>
<td>Examples to facilitate coding as used in NFIRS coding guide</td>
</tr>
<tr>
<td><strong>Cat_ID</strong></td>
<td>Structural number used to create the database</td>
</tr>
<tr>
<td>Cat_Code</td>
<td>Identifies the data element that the code belongs to</td>
</tr>
<tr>
<td>Cat_Description</td>
<td>Verbal description of the code values that appear on the Firefighter Fatality Data Collection form</td>
</tr>
<tr>
<td><strong>TblFirefighterData</strong></td>
<td></td>
</tr>
<tr>
<td>FF_ID</td>
<td>Decedent identifier used to link information in queries</td>
</tr>
<tr>
<td>Inc_ID</td>
<td>Incident identifier, used to link information in queries</td>
</tr>
<tr>
<td>FD_ID</td>
<td>Fire department identifier, used to link information in queries</td>
</tr>
<tr>
<td>Last Name</td>
<td>Last name of decedent</td>
</tr>
<tr>
<td>First Name</td>
<td>First name of decedent</td>
</tr>
<tr>
<td>Middle Initial</td>
<td>Middle name or initial of decedent</td>
</tr>
<tr>
<td>Rank</td>
<td>Decedent's rank or position in the fire service</td>
</tr>
<tr>
<td>Other</td>
<td>Rank not listed above</td>
</tr>
<tr>
<td>Gender</td>
<td>Decedent's sex</td>
</tr>
<tr>
<td>FF_Year_Birth</td>
<td>Year in which decedent was born</td>
</tr>
<tr>
<td>Date of Birth</td>
<td>Decedent's birth date</td>
</tr>
<tr>
<td>Affiliation</td>
<td>Decedent's occupational classification with fire department or agency (i.e. career, volunteer, etc.)</td>
</tr>
<tr>
<td>FF_Affiliation</td>
<td>Affiliation not listed above</td>
</tr>
<tr>
<td>FF_Month_Injury</td>
<td>Month in which decedent’s fatal injury occurred</td>
</tr>
<tr>
<td>FF_Year_Injury</td>
<td>Year in which decedent’s fatal injury occurred</td>
</tr>
<tr>
<td>Date of Injury</td>
<td>Date on which decedent’s fatal injury occurred</td>
</tr>
<tr>
<td>FF_Hour_Injury</td>
<td>Hour in which decedent’s fatal injury occurred</td>
</tr>
<tr>
<td>Time of Injury</td>
<td>Time of decedent's fatal injury</td>
</tr>
<tr>
<td>FF_Month_Death</td>
<td>Month in which decedent’s death occurred</td>
</tr>
<tr>
<td>FF_Year_Death</td>
<td>Year in which decedent’s death occurred</td>
</tr>
<tr>
<td>Date of Death</td>
<td>Date of decedent’s death</td>
</tr>
<tr>
<td>FF_Hour_Death</td>
<td>Hour in which decedent’s death occurred</td>
</tr>
<tr>
<td>Time of Death</td>
<td>Time of decedent’s death</td>
</tr>
<tr>
<td>Pre-Existing Conditions</td>
<td>Unused field, all data has been copied to PEC checkboxes</td>
</tr>
<tr>
<td>Other</td>
<td>Pre-existing condition not listed under the PEC checkboxes</td>
</tr>
<tr>
<td>Smoker within 10 years of death?</td>
<td>Checked if the decedent’s records indicate that he smoked within 10 years of his death</td>
</tr>
<tr>
<td>Age</td>
<td>Age of decedent at time of fatal injury</td>
</tr>
<tr>
<td>FF_Age at Death</td>
<td>Age of decedent at death</td>
</tr>
<tr>
<td>FF_PEC_1</td>
<td>Pre-existing condition, checked if the decedent’s records indicate that he had a prior heart attack</td>
</tr>
<tr>
<td>FF_PEC_2</td>
<td>Pre-existing condition, checked if the decedent’s records indicate that he had heart bypass surgery</td>
</tr>
<tr>
<td>FF_PEC_3</td>
<td>Pre-existing condition, checked if the decedent’s records indicate that he had a cardiovascular condition not described elsewhere</td>
</tr>
<tr>
<td>FF_PEC_4</td>
<td>Pre-existing condition, checked if the decedent’s records indicate that he had arteriosclerosis</td>
</tr>
<tr>
<td>FF_PEC_5</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he had hypertension</td>
</tr>
<tr>
<td>FF_PEC_6</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he had diabetes</td>
</tr>
<tr>
<td>FF_PEC_7</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he was dehydrated</td>
</tr>
<tr>
<td>FF_PEC_8</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he was fatigued</td>
</tr>
<tr>
<td>FF_PEC_9</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he had blood clots</td>
</tr>
<tr>
<td>FF_PEC_10</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he had a virus or infection</td>
</tr>
<tr>
<td>FF_PEC_11</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he had asthma</td>
</tr>
<tr>
<td>FF_PEC_12</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he had anemia</td>
</tr>
<tr>
<td>FF_PEC_13</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he suffered from seizures</td>
</tr>
<tr>
<td>FF_PEC_14</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he had an embolism</td>
</tr>
<tr>
<td>FF_PEC_15</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he had an aneurysm</td>
</tr>
<tr>
<td>FF_PEC_16</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he had a stroke or cerebral vascular accident (CVA)</td>
</tr>
<tr>
<td>FF_PEC_17</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he had pulmonary disease</td>
</tr>
<tr>
<td>FF_PEC_18</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he was hearing or vision impaired</td>
</tr>
<tr>
<td>FF_PEC_19</td>
<td>Pre-existing condition, checked if the decedent's records indicate that he had a condition that is not listed above, the conditions indicated here are entered into the other field for pre-existing conditions</td>
</tr>
</tbody>
</table>

Incomplete

Checked if information on the decedent is substantially incomplete

**TbleIncidents**

| Inc_ID | Incident identifier, used to link the information in queries |
| Incident # | Unused field |
| # of FF Fatalities | Number of firefighters killed in a particular incident |
| # of FF Injuries | Number of firefighters injured in a particular incident |
| Summary | Summary of incident from the United States Fire Administration or TriData |

**TbleIncidentDetails**

<p>| FF_ID | Decedent identifier, used to link information in queries |
| Inc_ID | Incident identifier, used to link the information in queries |
| Type of Duty | Type of duty assignment of decedent (i.e. extinguishing fire, suppression support, en route, etc.) |
| Other. | Type of duty not classified above |
| Cause of Fire | Cause of fire that decedent was responding to or involved in |
| Other. | Cause of fire not classified above |
| Fixed Property Use | Primary use of facility, structure, or outdoors where incident occurred |
| Other | Fixed property use not classified above |
| Type of Incident | Type of emergency that decedent was responding to, returning from, or involved in |
| Other | Type of incident not classified above |
| FI_InjuryLocation | Indicates whether decedent was inside or outside of structure when fatal injury occurred |</p>
<table>
<thead>
<tr>
<th>Incident in Vacant/Abandoned Structure?</th>
<th>Indicates whether the incident involved a vacant or abandoned structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-rise Incident?</td>
<td>Indicates whether the incident involved a high-rise building</td>
</tr>
<tr>
<td>FI_TrainingActivity</td>
<td>Indicates the type of training activity the decedent was involved in, if any</td>
</tr>
<tr>
<td>If training activity, what kind?</td>
<td>Other training activity not classified above</td>
</tr>
<tr>
<td>Vehicle Accident/Collision Rollover?</td>
<td>Indicates if decedent was involved in a vehicle accident</td>
</tr>
<tr>
<td>Alcohol factor in death?</td>
<td>Indicates if records report the presence of alcohol in decedent's blood</td>
</tr>
<tr>
<td>Drugs factor in death?</td>
<td>Indicates if records report the presence of legal or illegal drugs in decedent's body</td>
</tr>
<tr>
<td>PASS Worn?</td>
<td>Indicates if records mention that decedent was wearing a PASS device</td>
</tr>
<tr>
<td>PASS Status?</td>
<td>Indicates if records mention that decedent's PASS device was in the on or off position</td>
</tr>
<tr>
<td>PASS Activated?</td>
<td>Indicates if records mention that decedent's PASS device was activated</td>
</tr>
<tr>
<td>PPE Worn?</td>
<td>Indicates if records mention that decedent was wearing PPE</td>
</tr>
<tr>
<td>SCBA Worn?</td>
<td>Indicates if records mention that decedent was wearing SCBA</td>
</tr>
<tr>
<td>Air Supply Depleted?</td>
<td>Indicates if records mention that the decedent was found with his air supply depleted</td>
</tr>
<tr>
<td>Equipment Defects?</td>
<td>Indicates if records report any pre-existing problems with decedent's equipment</td>
</tr>
<tr>
<td>Type of Defective Equipment</td>
<td>Unused field, all data has been copied to FI_TOE checkboxes</td>
</tr>
<tr>
<td>Other</td>
<td>Field for equipment defects not listed under FI_TOE checkboxes</td>
</tr>
<tr>
<td>Contributing Factors</td>
<td>Unused field, all data has been copied to FI_CNF checkboxes</td>
</tr>
<tr>
<td>Other</td>
<td>Field for contributing factors not listed under FI_CNF checkboxes</td>
</tr>
<tr>
<td>Documented Carboxyhemoglobin Level</td>
<td>Carboxyhemoglobin level as reported in decedent's records</td>
</tr>
<tr>
<td>Nature of Fatal Injury</td>
<td>The primary apparent symptom the decedent experienced as a result of his fatal injury</td>
</tr>
<tr>
<td>Injury Cause Category</td>
<td>Major headings from NFIRS 4.1 cause of injury</td>
</tr>
<tr>
<td>Cause of Injury</td>
<td>The cause of a decedent's fatal injury based upon NFIRS 4.1</td>
</tr>
<tr>
<td>PSOB Case #</td>
<td>The case number assigned to the claim of a decedent’s family under the Public Safety Officer's Benefit Program</td>
</tr>
<tr>
<td>PSOB Approval Status</td>
<td>Checked if PSOB benefits were approved. PSOB approves benefits for public safety officers who died as a result of a traumatic injury sustained in the line of duty provided the injury is not self-inflicted and the decedent was not voluntarily intoxicated at the time the injury occurred</td>
</tr>
<tr>
<td>Autopsy performed</td>
<td>Indicates whether an autopsy was performed on decedent</td>
</tr>
<tr>
<td>Autopsy copy in file?</td>
<td>Indicates whether a copy of the decedent’s autopsy is on file</td>
</tr>
<tr>
<td>Source of data</td>
<td>Unused field, all data has been copied to FI_SRC checkboxes</td>
</tr>
<tr>
<td>Other</td>
<td>Field for contributing factors not listed under FI_SRC checkboxes</td>
</tr>
<tr>
<td>FI_CNF_1</td>
<td>Contributing factor to decedent's death as reported by NIOSH or the NFPA, checked if the contributing factor was a human communication error</td>
</tr>
<tr>
<td>FI_CNF_2</td>
<td>Contributing factor to decedent's death as reported by NIOSH or the NFPA, checked if the contributing factor was due to a failure of communication equipment</td>
</tr>
<tr>
<td>FI_CNF_3</td>
<td>Contributing factor to decedent's death as reported by NIOSH or the NFPA, checked if the contributing factor was due to insufficient resources</td>
</tr>
<tr>
<td>FI_CNF_4</td>
<td>Contributing factor to decedent’s death as reported by NIOSH or the NFPA, checked if the contributing factor was due to the lack of an accountability system</td>
</tr>
<tr>
<td>FI_CNF_5</td>
<td>Contributing factor to decedent’s death as reported by NIOSH or the NFPA, checked if the contributing factor was due to the lack of proper incident size up</td>
</tr>
<tr>
<td>FI_CNF_6</td>
<td>Contributing factor to decedent’s death as reported by NIOSH or the NFPA, checked if the contributing factor was due to the lack of standard operating procedures (SOPs)</td>
</tr>
<tr>
<td>FI_CNF_7</td>
<td>Contributing factor to decedent’s death as reported by NIOSH or the NFPA, checked if the contributing factor was due to the lack of an effective incident command system</td>
</tr>
<tr>
<td>FI_CNF_8</td>
<td>Contributing factor to decedent’s death as reported by NIOSH or the NFPA, checked if the contributing factor is not listed above, the data is entered into the other field for contributing factors</td>
</tr>
<tr>
<td>FI_SRC_1</td>
<td>Source of data used in the database, checked if the source is the PSOB</td>
</tr>
<tr>
<td>FI_SRC_2</td>
<td>Source of data used in the database, checked if the source is the USFA</td>
</tr>
<tr>
<td>FI_SRC_3</td>
<td>Source of data used in the database, checked if the source is TriData’s files</td>
</tr>
<tr>
<td>FI_SRC_4</td>
<td>Source of data used in the database, checked if the source is IOCAD</td>
</tr>
<tr>
<td>FI_SRC_5</td>
<td>Source of data used in the database, checked if the source is the NFPA</td>
</tr>
<tr>
<td>FI_SRC_6</td>
<td>Source of data used in the database, checked if the source is the NVFC</td>
</tr>
<tr>
<td>FI_SRC_7</td>
<td>Source of data used in the database, checked if the source is NIOSH</td>
</tr>
<tr>
<td>FI_SRC_8</td>
<td>Source of data used in the database, checked if the source is the IAFF</td>
</tr>
<tr>
<td>FI_SRC_9</td>
<td>Source of data used in the database, checked if the source is the Fallen Firefighter’s Foundation</td>
</tr>
<tr>
<td>FI_SRC_10</td>
<td>Source of data used in the database, checked if the source is from the internet</td>
</tr>
<tr>
<td>FI_SRC_11</td>
<td>Source of data used in the database, checked if the source is from the media</td>
</tr>
<tr>
<td>FI_SRC_12</td>
<td>Source of data used in the database, checked if the source is the decedent’s death certificate</td>
</tr>
<tr>
<td>FI_SRC_13</td>
<td>Source of data used in the database, checked if the source is the decedent’s autopsy</td>
</tr>
<tr>
<td>FI_SRC_14</td>
<td>Source of data used in the database, checked if the source is the decedent’s hospital records</td>
</tr>
<tr>
<td>FI_SRC_15</td>
<td>Source of data used in the database, checked if the source is from the decedent’s fire department.</td>
</tr>
<tr>
<td>FI_SRC_16</td>
<td>Source of data used in the database, checked if the source is the decedent’s toxicology report</td>
</tr>
<tr>
<td>FI_SRC_17</td>
<td>Source of data used in the database, checked if the source is an eyewitness statement</td>
</tr>
<tr>
<td>FI_SRC_18</td>
<td>Source of data used in the database, checked if the source is not listed above, the data is entered in the other field for source of data</td>
</tr>
<tr>
<td>FI_TOE_1</td>
<td>Type of equipment defect, checked if the defective equipment is the SCBA</td>
</tr>
<tr>
<td>FI_TOE_2</td>
<td>Type of equipment defect, checked if the defective equipment is the PASS device</td>
</tr>
<tr>
<td>FI_TOE_3</td>
<td>Type of equipment defect, checked if the defective equipment is the radio</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>FI_TOE_4</td>
<td>Type of equipment defect, checked if the defective equipment is the helmet</td>
</tr>
<tr>
<td>FI_TOE_5</td>
<td>Type of equipment defect, checked if the defective equipment is the PPE</td>
</tr>
<tr>
<td>FI_TOE_6</td>
<td>Type of equipment defect, checked if the defective equipment is not listed above, the data is entered into the other field for type of equipment defect</td>
</tr>
</tbody>
</table>

### TblFireDepartment

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FD_ID</td>
<td>Fire department specific record identifier, used to link the information in queries</td>
</tr>
<tr>
<td>FD_Name</td>
<td>Name of the decedent’s fire department</td>
</tr>
<tr>
<td>FD_City</td>
<td>City where the fire department is located</td>
</tr>
<tr>
<td>FD_State</td>
<td>State where the fire department is located</td>
</tr>
<tr>
<td>FD_Zip</td>
<td>Zip code where the fire department is located</td>
</tr>
<tr>
<td>FD_US_Protectorate</td>
<td>Checked if the fire department is located in a territory of the United States</td>
</tr>
<tr>
<td>FD_IncidentZip</td>
<td>Zip code if the incident occurred far from the decedent’s home fire department</td>
</tr>
<tr>
<td>Community_Population Size</td>
<td>Size of the fire department’s response area</td>
</tr>
<tr>
<td>Latitude</td>
<td>Latitude of the fire department based on the fire department’s zip code</td>
</tr>
<tr>
<td>Longitude</td>
<td>Longitude of the fire department based on the fire department’s zip code</td>
</tr>
<tr>
<td>X-Y Coordinates</td>
<td>Unused field</td>
</tr>
<tr>
<td>Type of Agency</td>
<td>Describes the type of organization decedent belonged to (i.e. volunteer, prison brigade, etc.)</td>
</tr>
<tr>
<td>Other</td>
<td>Type of agency not listed above</td>
</tr>
</tbody>
</table>

### TblVehicleInformation

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF_ID</td>
<td>Decedent identifier used to link information in queries</td>
</tr>
<tr>
<td>Decedent’s Status in Vehicle</td>
<td>Indicates whether decedent driving the vehicle or a passenger in the vehicle</td>
</tr>
<tr>
<td>Location in Vehicle</td>
<td>Indicates location of decedent in vehicle when injury occurred</td>
</tr>
<tr>
<td>VI_LocationInVehicle_Other</td>
<td>Location in vehicle not listed above</td>
</tr>
<tr>
<td>Type of Vehicle</td>
<td>Describes the apparatus or POV that decedent was driving or a passenger in</td>
</tr>
<tr>
<td>VI_TypeofVehicle_Other</td>
<td>Type of vehicle not listed above</td>
</tr>
<tr>
<td>Wearing Seatbelt?</td>
<td>Indicates if records mention that decedent wore a seatbelt</td>
</tr>
<tr>
<td>Was Ejected?</td>
<td>Indicates if records mention that decedent was ejected from vehicle</td>
</tr>
<tr>
<td>Driver Speeding?</td>
<td>Indicates if the decedent or the driver of the vehicle in which the decedent was riding was speeding</td>
</tr>
</tbody>
</table>

### Data Dictionary

This section includes the valid entries for each of the data elements collected in the database, with definitions (where applicable).

**Incident Information**

**Multiple FFF?** – Indicates whether more than one firefighter was killed during a particular Incident. If yes, the number of fatalities is indicated.

**Firefighter Injuries Number** – If firefighters were injured (non-fatally) during the course of the same incident as the fatality, the number of injured firefighters is recorded.
**Type of Duty at Time of Injury** – Refers to the type of duty the firefighter was performing when he or she was fatally injured.

<table>
<thead>
<tr>
<th>#</th>
<th>Type of Duty at Time of Injury</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extinguishing fire/neutralizing incident</td>
<td>Includes handling charged hose lines, operating master stream devices, removing power lines, and other duties directly related to mitigating an emergency incident.</td>
</tr>
<tr>
<td>2</td>
<td>Suppression Support</td>
<td>Includes forcible entry, ventilation, water supply, and Incident Command as well as other activities in support of fire suppression activities.</td>
</tr>
<tr>
<td>3</td>
<td>Traffic Control</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Other duties on Emergency Scene</td>
<td>Miscellaneous duties on the scene of an emergency, not addressed in other categories (e.g., safety officer).</td>
</tr>
<tr>
<td>5</td>
<td>EMS</td>
<td>Indicates the firefighter was actually involved in providing patient care at the time of his or her fatal injury.</td>
</tr>
<tr>
<td>6</td>
<td>Rescue</td>
<td>Indicates the firefighter was actively engaged in a rescue operation (e.g., extrication) and the time of his or her fatal injury.</td>
</tr>
<tr>
<td>7</td>
<td>Inspection</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Training</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Maintenance</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Communications</td>
<td>Includes communications duties at the firehouse or communications center, not on the scene of an emergency incident.</td>
</tr>
<tr>
<td>11</td>
<td>Administrative</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Prevention</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>En Route/Responding</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Returning/Non-Emergency</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>In-station duties</td>
<td>Includes normal daily activities, including eating, sleeping, etc.</td>
</tr>
<tr>
<td>16</td>
<td>Physical Fitness</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Medical Physical</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Competition/Muster</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Other</td>
<td>Any activity not included in the above categories.</td>
</tr>
</tbody>
</table>

**If a fire, Primary Cause** – These cause categories were based on the Priority Cause Grouping Code used in NFIRS, but were assigned based on incident reports submitted by fire departments or as reported in the media.

1. Incendiary/Suspicious (Arson)
2. Children Playing
3. Smoking
4. Heating
5. Cooking
6. Electrical Distribution
7. Appliances
8. Open Flame
9. Other Heat
10. Other Equipment
11. Natural
12. Exposure
13. Other
**Fixed Property Use of Incident** – Location of emergency incident. Incidents where firefighters were involved in motor vehicle collisions are coded based on the incident to which the firefighter was responding.

1. Public Assembly
2. Educational
3. Institutional
4. Residential
5. Store/Office
6. Industrial
7. Manufacturing
8. Storage
9. Street/Highway
10. Water
11. Outdoors
12. In flight/Airport
13. Railway
14. Fire Station
15. Training Facility/Area
16. Other

**Type of Incident** – The type of emergency incident the firefighter was engaged in neutralizing, responding to, or returning from.

1. Structural Fire/Explosion
2. Wildland/Brush/Grass Fire
3. Nonstructural Fire/Explosion
4. Fire Alarm
5. Motor Vehicle Crash
6. EMS
7. Water Rescue
8. Confined Space/Trench Rescue
9. False Call
10. Training
11. Other

**Decedent’s Location at time of Injury** – Where applicable, whether the firefighter was inside or outside a structure (of any type, residential, commercial, etc.) at the time of his or her fatal injury.

1. Inside Structure
2. Outside Structure
3. Unknown/Not Applicable

**Incident in a Vacant or Abandoned Structure?** – Whether incident occurred in a vacant or abandoned structure.

1. Yes
2. No
3. Unknown/Not Applicable

**High-rise Incident?** – Whether incident occurred in a high-rise structure (over three stories).

1. Yes
2. No
3. Unknown/Not Applicable

**If a training activity, what kind?** – If the firefighter was engaged in a training activity, indicates the general type of training.

1. Live Fire
2. Physical Fitness
3. SCBA
4 Apparatus Drill  
5 Driver Training  
6 Equipment Drill  
7 Underwater/Dive  
8 Water Rescue  
9 En Route/Returning from Drill  
10 Competition  
11 Disaster Drill  
12 Class/Seminar/Meeting  
13 Other  

**Vehicle Accident/Rollover?** – Indicates whether the firefighter was involved in motor vehicle accident or rollover.

1 Yes  
2 No  
3 Unknown  

**If YES, Decedent's status in vehicle** – If the firefighter was involved in a motor vehicle accident/rollover, indicates his or her status in the vehicle.

1 Driver  
2 Passenger  
3 Unknown  

**Location in Vehicle** – Indicates the firefighter’s location in the vehicle at the time of injury.

1 Drivers’ Seat  
2 Front Passenger  
3 Rear Passenger  
4 Jump Seat  
5 Back Step  
6 Payload Area  
7 Outside Vehicle  
8 Other  

**Type of Vehicle** – Indicates what type of vehicle the firefighter was driving or riding in at the time of injury.

1 Engine/Pumper  
2 Tanker  
3 Personally Owned Vehicle (POV)  
4 Ladder Truck/Aerial Tower  
5 Heavy Rescue  
6 Ambulance  
7 Brush Truck  
8 Pickup Truck/4X4  
9 Fire Dept Car  
10 F.D. Display/Competition Vehicle  
11 Boat  
12 Helicopter  
13 Airplane  
14 Other  

**Decedent wearing seatbelt?** – Indicates whether the firefighter was reportedly wearing a seatbelt at the time of injury.

1 Yes  
2 No  
3 Unknown  

**Decedent Ejected?** – Indicates whether the firefighter was ejected from the vehicle.
1 Yes
2 No
3 Unknown

**Driver Exceeding Speed Limit?** – Indicates whether the vehicle driver was known to have exceeded the speed limit prior to the fatal collision or rollover.

1 Yes
2 No
3 Unknown

**Alcohol a factor in death? (Decedent’s BAC/BAL)** – Indicates whether the firefighter’s blood alcohol level was reported to have been a factor in his or her death.

1 Yes
2 No
3 Unknown

**Drugs (prescription/illegal)** – Indicates whether the firefighter’s ingestion of drugs, prescription or illegal, were reported to have been a factor in his or her death.

1 Yes
2 No
3 Unknown

**PASS Worn?** – Indicates whether the firefighter was reportedly wearing a PASS Device at the time of injury.

1 Yes
2 No
3 Unknown
4 Not Applicable

**PASS Status?** – If worn, indicates the status of the firefighter’s PASS device, when the firefighter was found.

1 On
2 Off
3 Unknown
4 Not Applicable

**PASS Activated?** – If worn, indicates whether the firefighter’s PASS device reportedly activated.

1 Yes
2 No
3 Unknown
4 Not Applicable

**PPE Worn?** – Indicates whether the firefighter was wearing PPE appropriate to the incident at the time of injury.

1 Yes
2 No
3 Unknown
4 Not Applicable

**SCBA Worn?** – Indicates whether the firefighter was wearing and SCBA at the time of injury.

1 Yes
2 No
3 Unknown
4 Not Applicable

**Air Supply Depleted?** – If the firefighter was wearing an SCBA, indicates whether its air supply was found to have been depleted.
Equipment Defects or failures noted? – Indicates whether equipment defects or failures were noted in media reports, fire department incident reports, or other incident investigations.

1 Yes
2 No
3 Unknown
4 Not Applicable

If YES, which piece of equipment? – Indicates which piece of equipment reportedly failed or was defective.

1 SCBA
2 PASS
3 Radio
4 Helmet
5 PPE
6 Other

Contributing Factors (NIOSH/NFPA) – Indicates contributing factors identified by the NFPA, NIOSH or other investigating agencies.

1 Human Communication Error
2 Communication Equipment Failure
3 Insufficient Resources
4 Lack of Accountability System
5 Lack of Proper Incident Size
6 Lack of SOPs
7 Lack of Effective Incident Command System
8 Other

Firefighter Information

Name
Date of Birth
Gender
1 Male
2 Female
3 Unknown

Date of Injury
Time of Injury
Age at Injury
Date of Death
Time of Death
Age at Death

Rank – Firefighter’s rank at time of injury.
1 Chief
2 Assistant/Deputy Chief
Battalion/District Chief
Captain
Lieutenant
Sergeant
Engineer
Firefighter
Paramedic
EMT
Pilot
Forestry Worker
Forestry Technician
Fire Police Officer
Auxiliary Member
Fire Marshal
Inspector
Junior Firefighter
Recruit/Probationary
Other

Affiliation – Firefighter’s affiliation at the time of injury.

Paid (Full-time)
Paid (Part-time)
Volunteer
Contract
Inmate/Prisoner
Military
Wildland (Full time)
Wildland (Part time)
Other

Pre-existing Conditions (all that apply) – Conditions noted on autopsy reports, by family members, by other firefighters, or on other documents associated with the fatality.

Prior Heart Attack
Heart Bypass
Cardiovascular Other
Arteriosclerosis
Hypertension
Diabetes
Dehydration
Blood Clots
Virus/Infection
Asthma
Anemia
Seizures
Embolism
Aneurysm
Stroke/CVA
Pulmonary Disease
Hearing/Vision Impaired
Other

Decedent a smoker within 10 years of death? – Based on autopsy reports, reports from family members and other firefighters, or on other documents associated with the fatality.

Yes
No
Unknown
Fire Department Information

Fire Department Name
Community Size (Population)
Location (City/State/ZIP)

US Protectorate?
1 Yes
2 No

Latitude
Longitude

X-Y Coordinates

Type of Agency – Agency with which the firefighter was affiliated at the time of injury.
1 Career
2 Volunteer
3 Combination
4 Federal
5 Private Contractor
6 Prison Brigade
7 Other

Injury Information

Nature of Fatal Injury – Generally taken from autopsy records or incident reports; reflects the primary nature of the firefighter’s fatal injury.
1 Amputation
2 Asphyxiation
3 Aneurysm
4 Bleeding
5 Burns
6 Burns/Asphyxiation
7 Cancer
8 Cardiac Arrest/Heart Attack
9 Chemical Exposure
10 Dehydration
11 Diabetic Coma
12 Drowning
13 Electric Shock
14 Gunshot
15 Infectious Disease
16 Internal Trauma
17 Overdose
18 Other Medical
19 Respiratory Arrest
20 Stroke/CVA
21 Other cardiovascular
22 Puncture Wounds/Stabbing
23 Undetermined
Documented carboxyhemoglobin level – If available from autopsy records, reflects the level of carboxyhemoglobin in the firefighter’s blood.

Cause of Firefighter Injury – Reflects the proximate cause of the firefighter’s fatal injury.

<table>
<thead>
<tr>
<th>1. Fell/Slipped</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>In hole, outside structure.</td>
</tr>
<tr>
<td>102</td>
<td>In hole burned in floor</td>
</tr>
<tr>
<td>103</td>
<td>In hole burned in roof</td>
</tr>
<tr>
<td>104</td>
<td>In unguarded opening in floor.</td>
</tr>
<tr>
<td>105</td>
<td>In unguarded opening in roof.</td>
</tr>
<tr>
<td>106</td>
<td>Over object.</td>
</tr>
<tr>
<td>107</td>
<td>On wet surface.</td>
</tr>
<tr>
<td>108</td>
<td>On icy surface.</td>
</tr>
<tr>
<td>109</td>
<td>On flat surface.</td>
</tr>
<tr>
<td>110</td>
<td>On steps/stairs.</td>
</tr>
<tr>
<td>111</td>
<td>From ladder.</td>
</tr>
<tr>
<td>112</td>
<td>From structure.</td>
</tr>
<tr>
<td>113</td>
<td>From emergency apparatus (safety bar/belt not fastened).</td>
</tr>
<tr>
<td>114</td>
<td>From emergency apparatus (safety bar/belt failed).</td>
</tr>
<tr>
<td>115</td>
<td>In or into emergency apparatus.</td>
</tr>
<tr>
<td>116</td>
<td>Off station sliding pole.</td>
</tr>
<tr>
<td>199</td>
<td>Fell/Slipped not classified above.</td>
</tr>
<tr>
<td>100</td>
<td>Fell/Slipped; insufficient information to classify further.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Caught/Trapped — In, By, Between</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>201</td>
<td>Collapsing roof.</td>
</tr>
<tr>
<td>202</td>
<td>Collapsing wall.</td>
</tr>
<tr>
<td>203</td>
<td>Collapsing floor.</td>
</tr>
<tr>
<td>204</td>
<td>Collapsing ceiling.</td>
</tr>
<tr>
<td>205</td>
<td>Fire progress.</td>
</tr>
<tr>
<td>206</td>
<td>Back draft.</td>
</tr>
<tr>
<td>207</td>
<td>Flashover</td>
</tr>
<tr>
<td>208</td>
<td>Explosion.</td>
</tr>
<tr>
<td>209</td>
<td>Falling object(s).</td>
</tr>
<tr>
<td>210</td>
<td>Between objects.</td>
</tr>
<tr>
<td>211</td>
<td>Lost inside building.</td>
</tr>
<tr>
<td>212</td>
<td>Fire department apparatus.</td>
</tr>
<tr>
<td>213</td>
<td>Earth cave-in.</td>
</tr>
<tr>
<td>214</td>
<td>Underwater object(s) or obstacle(s).</td>
</tr>
<tr>
<td>299</td>
<td>Caught/Trapped not classified above.</td>
</tr>
<tr>
<td>200</td>
<td>Caught/Trapped; insufficient information to classify further.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Struck By</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Use when injury-producing object moved toward injured person.</td>
<td></td>
</tr>
<tr>
<td>301</td>
<td>Collapsing roof.</td>
</tr>
<tr>
<td>302</td>
<td>Collapsing wall.</td>
</tr>
<tr>
<td>303</td>
<td>Collapsing ceiling.</td>
</tr>
<tr>
<td>304</td>
<td>Pieces of wall.</td>
</tr>
<tr>
<td>305</td>
<td>Ceiling being pulled by self.</td>
</tr>
<tr>
<td>306</td>
<td>Ceiling being pulled by others.</td>
</tr>
<tr>
<td>307</td>
<td>Dirt particles.</td>
</tr>
<tr>
<td>308</td>
<td>Flying glass.</td>
</tr>
<tr>
<td>309</td>
<td>Glass broken by self.</td>
</tr>
<tr>
<td>310</td>
<td>Glass broken by others.</td>
</tr>
<tr>
<td>311</td>
<td>Water stream, hand line.</td>
</tr>
<tr>
<td>312</td>
<td>Water stream, master stream.</td>
</tr>
</tbody>
</table>
## 3. Impact
- Portable extinguisher stream.
- Ladder.
- Hand tools/equipment.
- Hose.
- Coupling.
- Fire department apparatus.
- Non-fire department vehicle.
- Falling object(s).
- Thrown objects, non-malicious (see 803 for Malicious).
- Apparatus and compartment doors.
- Other doors.
- Fire station equipment.
- Other personnel (not intentional).
- Struck By to classified above.
- Struck By; insufficient information to classify further.

## 4. Contact with/Exposure to

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>401</td>
<td>Heat</td>
</tr>
<tr>
<td>402</td>
<td>Embers</td>
</tr>
<tr>
<td>403</td>
<td>Hot metal</td>
</tr>
<tr>
<td>404</td>
<td>Hot tar, etc.</td>
</tr>
<tr>
<td>405</td>
<td>Fire</td>
</tr>
<tr>
<td>406</td>
<td>Splinters</td>
</tr>
<tr>
<td>407</td>
<td>Nails</td>
</tr>
<tr>
<td>408</td>
<td>Glass</td>
</tr>
<tr>
<td>409</td>
<td>Water</td>
</tr>
<tr>
<td>410</td>
<td>Steam</td>
</tr>
<tr>
<td>411</td>
<td>Smoke/toxic fire products</td>
</tr>
<tr>
<td>412</td>
<td>Unusual fumes, gases</td>
</tr>
<tr>
<td>413</td>
<td>Chemicals</td>
</tr>
<tr>
<td>414</td>
<td>Radioactive material</td>
</tr>
<tr>
<td>415</td>
<td>Electricity</td>
</tr>
<tr>
<td>416</td>
<td>Utility flames, flairs, torches, etc.</td>
</tr>
<tr>
<td>417</td>
<td>Underwater objects</td>
</tr>
<tr>
<td>418</td>
<td>Insects</td>
</tr>
<tr>
<td>419</td>
<td>Poisonous plants</td>
</tr>
<tr>
<td>420</td>
<td>Contagious disease</td>
</tr>
<tr>
<td>421</td>
<td>Extreme weather</td>
</tr>
<tr>
<td>499</td>
<td>Contact with/Exposure to not classified above.</td>
</tr>
<tr>
<td>500</td>
<td>Contact with/Exposure to; insufficient information to classify further.</td>
</tr>
</tbody>
</table>

## 5. Overexertion/Strain

Use if related to the activity at the time injury is received.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>501</td>
<td>While lifting hose</td>
</tr>
<tr>
<td>502</td>
<td>While lifting ladder</td>
</tr>
<tr>
<td>503</td>
<td>While lifting hand tools, saws, etc.</td>
</tr>
<tr>
<td>504</td>
<td>While lifting victim (during rescue from fire operation)</td>
</tr>
<tr>
<td>505</td>
<td>While lifting property/contents</td>
</tr>
<tr>
<td>506</td>
<td>While lifting during rescue operation</td>
</tr>
<tr>
<td>507</td>
<td>While lifting other, not classified above</td>
</tr>
<tr>
<td>508</td>
<td>While carrying hose</td>
</tr>
<tr>
<td>509</td>
<td>While carrying ladder</td>
</tr>
<tr>
<td>510</td>
<td>While carrying hand tools, saws, etc.</td>
</tr>
<tr>
<td>511</td>
<td>While carrying victim (during rescue from fire operation)</td>
</tr>
<tr>
<td>512</td>
<td>While carrying property/contents</td>
</tr>
<tr>
<td>513</td>
<td>While carrying during rescue operation</td>
</tr>
<tr>
<td>514</td>
<td>While carrying, not classified above</td>
</tr>
<tr>
<td>515</td>
<td>While pulling hose</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>516</td>
<td>While pulling ladder.</td>
</tr>
<tr>
<td>517</td>
<td>While pulling hand tools, saws, etc.</td>
</tr>
<tr>
<td>518</td>
<td>While pulling victim (during rescue from fire operation).</td>
</tr>
<tr>
<td>519</td>
<td>While pulling property/contents.</td>
</tr>
<tr>
<td>520</td>
<td>While pulling during rescue operation.</td>
</tr>
<tr>
<td>521</td>
<td>While pulling other, not classified above.</td>
</tr>
<tr>
<td>522</td>
<td>While in rescue operation.</td>
</tr>
<tr>
<td>523</td>
<td>While climbing ladders.</td>
</tr>
<tr>
<td>524</td>
<td>While climbing stairs.</td>
</tr>
<tr>
<td>525</td>
<td>While climbing cliff or wall.</td>
</tr>
<tr>
<td>526</td>
<td>While climbing not classified above.</td>
</tr>
<tr>
<td>599</td>
<td>Overexertion/Strain not classified above.</td>
</tr>
<tr>
<td>500</td>
<td>Overexertion/Strain; insufficient information to classify further.</td>
</tr>
</tbody>
</table>

### 6. Exiting or Escaping — Jumped

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>601</td>
<td>From ladder.</td>
</tr>
<tr>
<td>602</td>
<td>From wall, ledge, or window.</td>
</tr>
<tr>
<td>603</td>
<td>From roof.</td>
</tr>
<tr>
<td>604</td>
<td>From other part of structure.</td>
</tr>
<tr>
<td>605</td>
<td>From fire department apparatus.</td>
</tr>
<tr>
<td>699</td>
<td>Exiting or Escaping — Jumped not classified above.</td>
</tr>
<tr>
<td>600</td>
<td>Exiting or Escaping — Jumped; insufficient information to classify further.</td>
</tr>
</tbody>
</table>

### 7. Fire Department Apparatus Accident

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>701</td>
<td>Collision with other vehicle.</td>
</tr>
<tr>
<td>702</td>
<td>Collision with pedestrian</td>
</tr>
<tr>
<td>703</td>
<td>Collision with stationary object(s).</td>
</tr>
<tr>
<td>704</td>
<td>Collision not classified above.</td>
</tr>
<tr>
<td>705</td>
<td>Collision; insufficient information available to classify further.</td>
</tr>
<tr>
<td>706</td>
<td>Left road (no collision).</td>
</tr>
<tr>
<td>707</td>
<td>Overturned (no collision).</td>
</tr>
<tr>
<td>799</td>
<td>Fire Department Apparatus Accident not classified above.</td>
</tr>
<tr>
<td>700</td>
<td>Fire Department Apparatus Accident; insufficient information available to classify further.</td>
</tr>
</tbody>
</table>

### 8. Assaulted

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>801</td>
<td>Struck by individual(s) (deliberate act).</td>
</tr>
<tr>
<td>802</td>
<td>Struck by individuals (crowd action pushing or shoving).</td>
</tr>
<tr>
<td>803</td>
<td>Struck by thrown object(s).</td>
</tr>
<tr>
<td>804</td>
<td>Cut/stabbed.</td>
</tr>
<tr>
<td>805</td>
<td>Gunshot.</td>
</tr>
<tr>
<td>806</td>
<td>Bitten.</td>
</tr>
<tr>
<td>899</td>
<td>Assault not classified above.</td>
</tr>
<tr>
<td>800</td>
<td>Assault; insufficient information available to classify further.</td>
</tr>
</tbody>
</table>

### 9. Other Cause

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>999</td>
<td>Cause of Fire Fighter Injury not classified above.</td>
</tr>
<tr>
<td>000</td>
<td>Cause of Fire Fighter Injury undetermined or not reported</td>
</tr>
</tbody>
</table>

**Miscellaneous**

**PSOB Case #**

**PSOB Approval Status**

1. Approved
2. Denied
3. Unknown, Other

**Autopsy performed?**
Copy of Autopsy report in file?
1 Yes
2 No
3 Unknown

Brief summary of incident – Taken from media reports, incident reports, investigations, and other records.

Source(s) of Data
1 PSOB
2 USFA
3 TriData
4 IOCAD
5 NFPA
6 NVFC
7 NIOSH
8 IAFF
9 Fallen Firefighters’ Foundation
10 Internet
11 Media
12 Death Certificate
13 Autopsy
14 Hospital Records
15 Fire Dept. Report
16 Toxicology Reports
17 Eyewitness Statement
18 Other

Rules for Coding Data

The following are general rules for common types of incidents. In incidents with unusual circumstances or where the events did not exactly conform to the coding categories, it is the coder’s discretion how to interpret the data.

Required Fields

Name
Date of Injury
Nature of Injury

Residential Structure Fire

FPU = 4
TOI = 1

Motor Vehicle Collision (involving fire apparatus)

FPU = For incident to which the FF was responding
TOD = 13
Vehicle Accident/Rollover = YES (along with accompanying information, e.g., status in vehicle)
COI = 7xx

Motor Vehicle Collision (involving POV)
FPU = For incident to which the FF was responding
TOD = 13
Vehicle Accident/Rollover = YES (along with accompanying information, e.g., status in vehicle)
COI = 999

Motor Vehicle Collision as Incident
FPU = 9 (generally)
TOI = 5

EMS Call
TOI = 6

Other Rules

No entries should have “nulls.” Entries should be coded as “unknown” or not applicable/available.

Ensure that the agency and affiliation for each firefighter are consistent (e.g., generally, volunteer firefighters should be affiliated with either volunteer or combination agencies).

States and ZIP codes must match (to facilitate geocoding the data).

Where possible, record both the state where the firefighter was affiliated and the State where he or she died (this is especially important for wildland firefighters).

For heart attacks, COI should be coded as 5xx if the firefighter was actively engaged in some kind of physical activity at the time of his or her death. For those firefighters that were engaged in normal station duties or other administrative tasks, COI should be coded as 999.
REFERENCES

1 28 CFR § 32.2(g)(2001).
3 Incident data courtesy of the National Fire Protection Association.
15 Fire Service Joint Labor Management Wellness-Fitness Initiative, International Association of Fire Fighters.
17 Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control.


FEDERAL EMERGENCY MANAGEMENT AGENCY
UNITED STATES FIRE ADMINISTRATION
NATIONAL FIRE DATA CENTER

Firefighter Fatality Summaries
1990 - 2000

April 2002

Prepared by:
TriData Corporation
1000 Wilson Boulevard
Arlington, VA 22209
U.S. Fire Administration
Mission Statement

As an entity of the Federal Emergency Management Agency, the mission of the U.S. Fire Administration is to reduce life and economic losses due to fire and related emergencies through leadership, advocacy, coordination, and support. We serve the National independently, in coordination with other Federal agencies and in partnership with fire protection and emergency service communities. With a commitment to excellence, we provide public education, training, technology, and data initiatives.
Introduction

Fire departments in the United States respond to an average of 2 million fires each year. The men and women who respond to these fires are at extreme risk when performing their duties. Over an 11-year period from 1990 to 2000, more than 1 million firefighters have been injured, and 1,068 have lost their lives.

This report focuses on the fatalities suffered by firefighters and other officials engaged in the suppression of fires over this 11-year span. The bulk of this report is in chronological order by the date of the incident that caused the death, and it reflects the individual’s name, affiliation, and department. Summaries of the incidents themselves were unavailable for the years 1990–1993, but they are included for the next 7 years. An alphabetized list of fatalities begins on page 105.

All of the data presented were compiled from the U.S. Fire Administration’s firefighter fatality reports. Some additional data were collected by TriData Corporation during the report’s preparation.

This report was produced by TriData Corporation, Arlington, Virginia, for the National Fire Data Center, U.S. Fire Administration, under Contract Number EME–2000–DO–0396.

* * *

The abbreviations and acronyms used in this report are defined below:

- AED: automatic external defibrillator
- ALS: advanced life support
- ARFF: airport rescue fire fighting (vehicle)
- BLEVE: boiling liquid expanding vapor explosion
- BLS: basic life support
- CPR: cardiopulmonary resuscitation
- CVA: cardiovascular accident
- EMS: emergency medical service
- FAO: fire apparatus operator
- MVA: motor vehicle accident
- NIOSH: National Institute for Occupational Safety and Health
- PASS: Personal Alarm Safety System
- SCBA: self-contained breathing apparatus
- SUV: sports utility vehicle
- USDA: U.S. Department of Agriculture
## Fatality Summary: 1990–1993

<table>
<thead>
<tr>
<th>Date of Incident</th>
<th>Full Name</th>
<th>Affiliation</th>
<th>State</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1/90</td>
<td>Joseph M. Wilt</td>
<td>Volunteer</td>
<td>IA</td>
<td>West Burlington Fire Dept</td>
</tr>
<tr>
<td>1/1/90</td>
<td>William T. Klein</td>
<td>Volunteer</td>
<td>IA</td>
<td>West Burlington Fire Dept</td>
</tr>
<tr>
<td>1/10/90</td>
<td>James E. White</td>
<td>Career</td>
<td>TX</td>
<td>Carswell AFB Fire Dept</td>
</tr>
<tr>
<td>1/15/90</td>
<td>Carrol D. Marvel</td>
<td>Volunteer</td>
<td>AL</td>
<td>Valley Vol Fire Dept</td>
</tr>
<tr>
<td>1/18/90</td>
<td>Francis N. McKenzie</td>
<td>Volunteer</td>
<td>ME</td>
<td>Newport Fire Dept</td>
</tr>
<tr>
<td>1/18/90</td>
<td>Gary M. Passaro</td>
<td>Volunteer</td>
<td>CT</td>
<td>Tolland Fire Dept</td>
</tr>
<tr>
<td>1/26/90</td>
<td>John W. Folds</td>
<td>Volunteer</td>
<td>GA</td>
<td>Heard County Emergency Services</td>
</tr>
<tr>
<td>1/28/90</td>
<td>Robert T. Crutchfield, III</td>
<td>Career</td>
<td>VA</td>
<td>Danville Fire Dept</td>
</tr>
<tr>
<td>1/28/90</td>
<td>Vernon D. Deshazor</td>
<td>Career</td>
<td>VA</td>
<td>Danville Fire Dept</td>
</tr>
<tr>
<td>1/28/90</td>
<td>Willard C. Kuhn</td>
<td>Unknown</td>
<td>PA</td>
<td>Goodwill Fire Co #1</td>
</tr>
<tr>
<td>1/29/90</td>
<td>Ronald L. Stroud</td>
<td>Career</td>
<td>OK</td>
<td>Nichols Hills Fire Dept</td>
</tr>
<tr>
<td>2/19/90</td>
<td>Clayton M. Cutter</td>
<td>Career</td>
<td>CA</td>
<td>USDA Forest Service</td>
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<tr>
<td>2/19/90</td>
<td>Ingrid H. Sowle</td>
<td>Volunteer</td>
<td>NY</td>
<td>Port Washington Fire Dept</td>
</tr>
<tr>
<td>2/19/90</td>
<td>Vidar D. Anderson</td>
<td>Volunteer</td>
<td>CA</td>
<td>Long Valley Fire Dept</td>
</tr>
<tr>
<td>2/20/90</td>
<td>Richard A. Havens</td>
<td>Volunteer</td>
<td>MI</td>
<td>A1mont Fire Dept</td>
</tr>
<tr>
<td>2/20/90</td>
<td>Richard V. Brekrus</td>
<td>Career</td>
<td>IN</td>
<td>South Bend Fire Dept</td>
</tr>
<tr>
<td>2/26/90</td>
<td>Dale M. Seib</td>
<td>Volunteer</td>
<td>NY</td>
<td>Plainville Fire Dept</td>
</tr>
<tr>
<td>3/10/90</td>
<td>Roger A. Houghton</td>
<td>Volunteer</td>
<td>MA</td>
<td>Templeton Fire Dept</td>
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<tr>
<td>3/11/90</td>
<td>Robert E. Lee</td>
<td>Volunteer</td>
<td>SC</td>
<td>Cowpens Fire Dept</td>
</tr>
<tr>
<td>3/13/90</td>
<td>Robert L. Hitchcock</td>
<td>Volunteer</td>
<td>NY</td>
<td>Blenheim Hose Co</td>
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<tr>
<td>3/18/90</td>
<td>Floyd M. Price</td>
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<td>VA</td>
<td>Luray Vol Fire Dept</td>
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<tr>
<td>3/18/90</td>
<td>John L. Kelley, Jr.</td>
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<td>NY</td>
<td>Canisteo Vol Fire Dept</td>
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<tr>
<td>3/26/90</td>
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<td>MO</td>
<td>Western Taney County Fire Protection Dist</td>
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<tr>
<td>3/30/90</td>
<td>William P. Grimes</td>
<td>Volunteer</td>
<td>WV</td>
<td>Cool Springs Vol Fire Dept</td>
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<tr>
<td>4/6/90</td>
<td>Nicholas W. Hart</td>
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<td>Moorefield Community Fire Dept #1</td>
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<td>Edward P. Dougherty, Jr.</td>
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<td>Fallis Rural Fire Fighters Association</td>
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<tr>
<td>4/19/90</td>
<td>Karl J. Drews</td>
<td>Career</td>
<td>FL</td>
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<tr>
<td>4/19/90</td>
<td>Kaye F. Anderson</td>
<td>Career</td>
<td>FL</td>
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</tr>
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<td>4/21/90</td>
<td>Anthony L. Boyert</td>
<td>Career</td>
<td>SC</td>
<td>St. Paul's District Fire Dept</td>
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<tr>
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<td>Curtis C. Thomason</td>
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<td>Cornelia Fire Dept</td>
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<tr>
<td>5/1/90</td>
<td>James E. Chestnut, Jr.</td>
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<td>PA</td>
<td>Hustontown Area Vol Fire Co</td>
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<tr>
<td>5/1/90</td>
<td>Richard L. Hershey</td>
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<td>PA</td>
<td>Hustontown Area Vol Fire Co</td>
</tr>
<tr>
<td>5/1/90</td>
<td>Thomas L. Lane</td>
<td>Volunteer</td>
<td>PA</td>
<td>Hustontown Area Vol Fire Co</td>
</tr>
<tr>
<td>5/7/90</td>
<td>Mathe A. Alexander</td>
<td>Volunteer</td>
<td>MS</td>
<td>Long Creek Vol Fire Dept</td>
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<tr>
<td>5/10/90</td>
<td>Heriberto T. Rivera</td>
<td>Career</td>
<td>CT</td>
<td>Waterbury Fire Dept</td>
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<td>5/10/90</td>
<td>Howard A. Hughes</td>
<td>Career</td>
<td>CT</td>
<td>Waterbury Fire Dept</td>
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<tr>
<td>Date of Incident</td>
<td>Full Name</td>
<td>Affiliation</td>
<td>State</td>
<td>Department</td>
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<td>------------------</td>
<td>-------------------------</td>
<td>-------------</td>
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<td>5/12/90</td>
<td>William McAdams</td>
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<td>OR</td>
<td>Aurora Rural Fire Protection Dist</td>
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<tr>
<td>5/13/90</td>
<td>Mark A. Wunch</td>
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<td>PA</td>
<td>Lake Shore Vol Fire Dept</td>
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<td>5/15/90</td>
<td>James R. Ray</td>
<td>Career</td>
<td>AL</td>
<td>Montgomery Fire Dept</td>
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<td>5/17/90</td>
<td>Robert L. Adams, Sr.</td>
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<td>Cresson Vol Fire Dept</td>
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<td>Thomas N. Bianconi</td>
<td>Volunteer</td>
<td>PA</td>
<td>Cresson Vol Fire Dept</td>
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<tr>
<td>5/23/90</td>
<td>Hector M. Segura</td>
<td>Career</td>
<td>MA</td>
<td>Haverhill Fire Dept</td>
</tr>
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<td>5/28/90</td>
<td>Jerry A. Reed</td>
<td>Volunteer</td>
<td>MN</td>
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<tr>
<td>6/1/90</td>
<td>Daniel R. Joslyn</td>
<td>Volunteer</td>
<td>NY</td>
<td>Maple Springs Vol Fire Dept</td>
</tr>
<tr>
<td>6/13/90</td>
<td>Frederick J. Heimann, Jr.</td>
<td>Volunteer</td>
<td>PA</td>
<td>Neffs Fire Co</td>
</tr>
<tr>
<td>6/14/90</td>
<td>Karl Richter</td>
<td>Volunteer</td>
<td>NY</td>
<td>Wantagh Fire Dept</td>
</tr>
<tr>
<td>6/17/90</td>
<td>Peter Baltic</td>
<td>Volunteer</td>
<td>WV</td>
<td>Ravenswood Aluminum Co. Security &amp; Fire Protection</td>
</tr>
<tr>
<td>6/19/90</td>
<td>James Goode, Jr</td>
<td>Career</td>
<td>DE</td>
<td>Wilmington Fire Dept</td>
</tr>
<tr>
<td>6/19/90</td>
<td>Thomas D. Brashears</td>
<td>Career</td>
<td>KY</td>
<td>Hopkinsville Fire Dept</td>
</tr>
<tr>
<td>6/20/90</td>
<td>Ken M. Hertington</td>
<td>Volunteer</td>
<td>IL</td>
<td>Washburn Fire Protection Dist</td>
</tr>
<tr>
<td>6/26/90</td>
<td>Alex S. Contreras</td>
<td>Volunteer</td>
<td>AZ</td>
<td>Arizona State Land Dept</td>
</tr>
<tr>
<td>6/26/90</td>
<td>Curtis E. Springfield</td>
<td>Volunteer</td>
<td>AZ</td>
<td>Arizona State Land Dept</td>
</tr>
<tr>
<td>6/26/90</td>
<td>James E. Ellis</td>
<td>Volunteer</td>
<td>AZ</td>
<td>Arizona State Land Dept</td>
</tr>
<tr>
<td>6/26/90</td>
<td>James L. Denney</td>
<td>Volunteer</td>
<td>AZ</td>
<td>Arizona State Land Dept</td>
</tr>
<tr>
<td>6/26/90</td>
<td>Joseph L. Chacon</td>
<td>Volunteer</td>
<td>AZ</td>
<td>Arizona State Land Dept</td>
</tr>
<tr>
<td>6/26/90</td>
<td>Sandra J. Bachman</td>
<td>Volunteer</td>
<td>AZ</td>
<td>Arizona State Land Dept</td>
</tr>
<tr>
<td>6/27/90</td>
<td>Aaron J. Perry</td>
<td>Volunteer</td>
<td>CA</td>
<td>California Dept of Forestry &amp; Fire Protection</td>
</tr>
<tr>
<td>6/27/90</td>
<td>Victor Ferrera</td>
<td>Volunteer</td>
<td>CA</td>
<td>California Dept of Forestry &amp; Fire Protection</td>
</tr>
<tr>
<td>6/30/90</td>
<td>Michael E. Van Calbergh</td>
<td>Volunteer</td>
<td>MI</td>
<td>Gibraltar Fire Dept</td>
</tr>
<tr>
<td>7/9/90</td>
<td>Daniel J. Raskin</td>
<td>Volunteer</td>
<td>MD</td>
<td>Chestnut Ridge Vol Fire Co</td>
</tr>
<tr>
<td>7/10/90</td>
<td>Fred R. Garber</td>
<td>Volunteer</td>
<td>PA</td>
<td>New Danville Fire Co</td>
</tr>
<tr>
<td>7/14/90</td>
<td>Edwin L. Simpson</td>
<td>Volunteer</td>
<td>NY</td>
<td>Mellenville Vol Fire Dept</td>
</tr>
<tr>
<td>7/17/90</td>
<td>George J. Karl</td>
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<td>Vincent D. Meegan, Jr.</td>
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Fatality and Incidence Summary: 1994–2000

1/1/1994  Ronnie Fuller, Firefighter  Career, Age 49
Clinton Fire Department, SC  Heart Attack
Firefighter Fuller died after suffering a heart attack while operating a pumper at a house fire. His fellow firefighters and police officers on the scene immediately rushed to his aid when they saw him collapse and initiated CPR. He was transported to the hospital where he died.

1/3/1994  Marcus Carr, Firefighter/Paramedic  Career, Age 54
David Mosher, Firefighter/Paramedic  Career, Age 35
Chillicothe Fire Department, MO  Trauma
Firefighter Carr and Firefighter/Paramedic Mosher were killed when a tractor-trailer truck that veered into their lane struck their ambulance head on. The two were en route to the hospital with a patient, who also died in the crash. The ambulance was running with lights and siren at the time of the accident. The truck driver was critically injured.

1/4/1994  Thomas Dunn, Firefighter  Volunteer, Age 40
Rutherford Fire Department, NJ  Burns/Asphyxiation
Firefighter Dunn was killed when he became trapped on the second floor by a rapidly advancing fire in a balloon frame house. Firefighter Dunn’s company had been conducting search operations and horizontal ventilation in the house with only light fire and smoke conditions. The fire had initially been located in the basement. Conditions rapidly deteriorated as the pressurized heat and smoke broke out of concealed spaces in the attic above the fire fighters and from a dropped tin ceiling on the floor below them. Two personnel with Firefighter Dunn were able to escape through second floor windows as evacuation signals were sounded. Firefighter Dunn became disoriented and entangled in a bed frame on the second floor and was unable to escape. A rescue team entered the second floor via a window and quickly reached him, but he died from acute smoke inhalation and burns. His facepiece was not on when he was found, his SCBA straps had failed, and his PASS device was in the off position. A New Jersey Division of Fire Safety report indicates that the balloon frame construction, ventilation simultaneously below and above hidden fire areas, and operation of fog pattern streams in the basement may have all contributed to the rapidly deteriorating conditions faced by the fire crews on the second floor.

1/8/1994  Gerald Mullins, Firefighter  Career, Age 55
Binghamton Fire Department, NY  Heart Attack
Firefighter Mullins had just finished a shift assigned to an EMS unit and left the firehouse when he collapsed from a heart attack across the street. Medical care was quickly administered but efforts to revive him were unsuccessful.

1/10/1994  Harold Salisbury, Deputy Chief  Volunteer, Age 54
East Greenwich Fire Department, RI  Heart Attack
Deputy Chief Salisbury was incident commander at a structure fire in a metal product manufacturing plant. During the incident Chief Salisbury collapsed from a heart attack. Efforts to revive him were unsuccessful, and he was pronounced dead after transport to the hospital.

1/12/1994  Dennis Mullins, Jr., Firefighter  Affiliation and Age Unknown
Mount Vernon Fire Department, NY  Heart Attack
Firefighter Mullins suffered a heart attack at a fire. He died of complications from that heart attack in 1995.

1/21/1994  Glen Thorn, Firefighter  Volunteer, Age 68
Sea Girt Fire Company #1, NJ  Heart Attack
Firefighter Thorn suffered a heart attack at the scene of a structure fire after arriving in his personal vehicle and preparing to perform support functions at the exterior of the structure. His col-
lapse was witnessed by other fire department personnel who administered emergency care. He was transported to the hospital and died 19 days later.

1/22/1994  George Ciliberto, Captain  Career, Age 54
Ocean City Fire Department, NJ  Heart Attack
Captain Ciliberto died of a heart attack in his sleep while on duty at the fire station. Captain Ciliberto had run several emergency calls during the evening.

1/23/1994  Maurice Wardell, Jr., Firefighter  Volunteer, Age 58
Proctor Fire Department, VT  Heart Attack
Firefighter Wardell collapsed and died of an apparent heart attack after arriving on the scene of a working fire.

1/28/1994  Nick Charmello, Captain  Career, Age 53
Kansas City Fire Department, MO  Heart Attack
Captain Charmello had just finished assisting in the extrication of a patient from an automobile accident when he collapsed from an apparent heart attack. Firefighters and rescue crews on the scene rushed to his aid. He was pronounced dead after being transported to the hospital.

1/28/1994  Walter Franks, Firefighter  Volunteer, Age 66
Pine Hill Fire Department, NJ  Heart Attack
Firefighter Franks stayed at the fire hall to prepare coffee for firefighters out on a call. They returned to find him unconscious, having suffered a heart attack. Emergency care was initiated. Franks died several days later at the hospital.

1/28/1994  Vencent Acey, Firefighter  Career, Age 42
John Redmond, Firefighter  Career, Age 41
Philadelphia Fire Department, PA  Trapped
Firefighters Acey and Redmond died when they became trapped and overcome by smoke by a rapidly moving fire in the basement of a church. Several firefighters re-entered the church against orders to rescue the firefighters, and were able to pull one of them from the basement. Eight other firefighters were injured including several involved in the rescue efforts.

2/1/1994  Marilyn Williams, Firefighter  Volunteer, Age 55
Keystone Volunteer Fire Department, OK  Heart Attack
Firefighter Williams suffered a heart attack and died while pulling hose at a mobile home fire.

2/5/1994  Robert English, Battalion Chief  Career, Age 57
Detroit Fire Department, MI  Heart Attack
Battalion Chief English suffered a fatal heart attack while directing crews during the overhaul stages of an apartment fire. Children playing with matches are believed to have caused the fire.

2/7/1994  Newt Morgan, Firefighter  Volunteer, Age Unknown
Poughkeepsie Volunteer Fire Department, AR  Heart Attack
Firefighter Morgan was driving a fire engine to a reported structure fire when he suffered a massive heart attack. The engine veered slowly off the road into a tree. Firefighter Morgan was found in cardiac arrest by firefighters responding behind him and is believed to have died before the accident occurred.

2/11/1994  Timothy Hale, Fire Engineer  Career, Age 29
Phoenix Fire Department, AZ  Struck by Vehicle
Fire Engineer Hale was killed when he and his partner were struck by a vehicle while unloading the stretcher from the rear of their rescue unit during an EMS incident. Hale received severe traumatic injuries and died at a trauma center the following day. The driver of the vehicle was intoxicated.
2/20/1994  Ann F. Sheppard, Firefighter  
    Venus Volunteer Fire Department, FL  
    Career, Age 26  
    Heart Attack
Firefighter Sheppard was participating in search-and-rescue training when she suffered a fatal heart attack.

2/26/1994  Bedford Cash, District Ranger  
    United States Forest Service  
    Career, Age Unknown  
    Heart Attack
District Ranger Cash was conducting prescribed burning in the Tuskegee National Forest when he suffered a fatal heart attack.

2/27/1994  Dennis Dearing, Jr., Firefighter  
    Auburn Hills Fire Department, MI  
    Volunteer, Age 27  
    Trapped
Firefighter Dearing died when the floor collapsed under him while conducting operations at a house fire. Firefighter Dearing and two others had entered the house through the kitchen with a hose line to try to reach a fire located in the basement that had been burning for approximately 40 minutes. The officer in charge of the attack crew ordered them to evacuate the house due to the spongy feeling of the floor as they approached the basement stairs, but the floor collapsed. The fire was ruled incendiary in nature, with a high fire load of combustibles in the basement contributing to the floor collapse.

3/2/1994  Mark Mitchell, Firefighter  
    Pawcatuck Fire Department, CT  
    Volunteer, Age 26  
    Carbon Monoxide Poisoning
Firefighter Mitchell died of carbon monoxide poisoning after being separated from his crew while conducting search operations on the second floor of a single-family house. It is believed that there was a delay of over 1 hour before the fire department was called. Mitchell and three other firefighters were attempting to rescue a victim reported on the second floor when a flashover occurred, separating the crewmembers. Three firefighters escaped with injuries; Mitchell was found unconscious on the second floor and died later. His blood carboxyhemoglobin level was 24%.

3/5/1994  Charles Butchee, Firefighter  
    Warren Community Fire Department, OK  
    Volunteer, Age 54  
    Heart Attack
Firefighter Butchee died of a heart attack after being exposed to smoke and heat at an outside controlled burn.

2/6/1994  Walter Wade, Lieutenant  
    Miami Township Fire Department, OH  
    Volunteer, Age 34  
    Heart Attack
Lieutenant Wade died of a heart attack after completing a search for victims at a house fire. An autopsy revealed that Lt. Wade had an enlarged heart and a genetic heart abnormality.

3/22/1994  Gary King, Firefighter  
    Grundy County Rural Fire Protection District, MO  
    Volunteer, Age Unknown  
    Heart Attack
Firefighter King suffered a heart attack while operating at a two-alarm brush fire. He died after being transported to the hospital.

3/22/1994  Dustin Mills, Firefighter  
    Capron Fire Department, OK  
    Volunteer, Age 22  
    Apparatus Rollover
Firefighter Mills died en route to a wildfire that burned over 5,000 acres. The brush truck he was riding on overturned as it drove over a smoke-obscured 15-foot embankment. He died of traumatic injuries at the scene; another firefighter received minor injuries.

3/29/1994  John Drennan, Captain  
    New York Fire Department, NY  
    Career, Age 49  
    Burns
Captain Drennan and Firefighters Young and Seidenburg were conducting a search when the hot air and toxic gases that collected in the stairwell erupted into flames as other fire crews...
forced entry into the first floor apartment where the fire originated. The fire exhibited characteristics of both a backdraft and a flashover. Firefighter Young, in the bottom position on the stairs, was burned and died at the scene. Firefighter Seidenberg and Captain Drennan were rescued by other firefighters. They were transported to a burn unit with third and fourth degree burns over 50 of their bodies. Firefighter Seidenburg died the next day. Firefighter Drennan passed away several weeks later. The fire cause was determined to be a plastic bag left by the residents on top of the stove of the second floor apartment.

4/2/1994  Joseph Jay Boothe, Firefighter Volunteer, Age 17 Pea Ridge Volunteer Fire Department, AL Apparatus Rollover

Firefighter Boothe was riding in the passenger seat of a 1971 Ford 1,200-gallon tanker truck en route to a brush fire that was threatening several homes and a church. Boothe was killed when the vehicle overturned heading into a sharp turn. The police report indicated that the vehicle was traveling at approximately 35 miles per hour in a 30 mph zone. The driver received minor injuries and reported that the brakes on the vehicle locked up heading into the curve. The vehicle had no seat belts.

4/3/1994  Robert Waskiewicz, Firefighter Volunteer, Age 31 Augusta–Bridge Creek Fire Department, WI Burns

Firefighter Waskiewicz received fatal burn injuries when he was caught in a wind shift and overrun by a fast moving grass fire.

4/7/1994  Ronald Carlson, Firefighter Volunteer, Age 55 Blue Creek Rural Fire Protection District/ Lewellen Volunteer Fire Department, NE Apparatus Rollover

Firefighter Carlson was driving fire apparatus to a brush fire when the vehicle rolled over, killing him and seriously injuring two other firefighters.


Lieutenant Mathis and Private Bridges were killed when they became trapped and overcome by smoke during a fire on the ninth floor of a high-rise building. Two civilians also died in the arson fire. Lt. Mathis became disoriented when he was caught in rapidly spreading fire conditions on the fire floor, burning him and causing his SCBA to malfunction. He found his way into a room on the ninth floor where he was later discovered by other fire crews with his SCBA air depleted. Private Bridges, aware that Lt. Mathis was unaccounted for after several unsuccessful attempts to contact him by radio, left a safe stairwell where he had been attempting to fix problem with his own SCBA. Investigators believe Private Bridges was trying to locate Lt. Mathis, became entangled in fallen cable TV wiring within a few feet of the stairwell, and died of smoke inhalation after depleting his SCBA supply. A Memphis Fire Department investigation found many violations of standard operating procedures by companies on the scene, including crews taking the elevator to the fire floor, problems with the incident command system and coordination of companies, operating a ladder pipe with crews still on the fire floor, and a failure of personnel, including Lt. Mathis and Private Bridges, to activate their PASS devices.

4/15/1994  Stanley Rhoads, Firefighter Career, Age 47 Barrick Goldstrike Emergency Response Team, NV Smoke Inhalation

Firefighter Rhoads was on his way to work when a fire broke out in a gold refinery building. After arriving, he was witnessed putting on his personal protective clothing and SCBA. Two hours later, members of a volunteer fire department that had responded to the fire found his body inside the fire building. He had apparently entered the structure independently and ran out of air inside the refinery. Commanders did not know he was on the fire scene until his body was removed. The initial fire attack was described as “hectic” to the Nevada State Fire Marshal that investigated the report.
4/29/1994  Joseph Jarvis, Sr., Fire/Police Officer  Affiliation and Age Unknown  Oceanside Fire Department, NY  Struck by Vehicle  
Fire/Police Officer Jarvis was struck and killed by a vehicle while directing traffic at an emergency scene.

5/30/1994  Alton Warren, Firefighter  Career, Age 54  Baltimore City Fire Department, MD  Embolism  
Firefighter Warren was injured when he fell down the stairs at a fire, breaking his ankle. He died later of an embolism that developed from the injury.

6/4/1994  Anthony Covis, Senior Firefighter  Career, Age 42  Newport News Fire Department, VA  Heart Attack  
Senior Firefighter Covis died after suffering a heart attack while on duty in his station. Firefighter Covis, a 20-year veteran, had participated in a morning physical training exercise, and had gone to a separate room in the firehouse after eating lunch. Fellow firefighters found him in cardiac arrest a few hours later.

6/5/1994  George Lener, Lieutenant  Career, Age Unknown  New York City Fire Department, NY  Smoke Inhalation  
Lieutenant Lener collapsed from smoke inhalation and was found unconscious in the basement of a five story warehouse after a fire that required the response of more than 300 firefighters. Lt. Lener died 7 weeks later without regaining consciousness. A suspected arsonist has been arrested and charged with starting the fire. Sixteen other firefighters were injured during the incident.

6/10/1994  Victor Ruth III, Firefighter  Volunteer, Age 37  Neptune Fire Company #1, PA  Heart Attack  
Firefighter Ruth suffered a fatal heart attack while responding as part of an engine company to a medevac standby.

6/13/1994  Marc Butcher, Private  Affiliation Unknown, Age 37  Parkersburg Fire Department, WV  Heart Attack  
Private Butcher died in his sleep of a heart attack while on duty at the fire station. Efforts by fellow firefighters to revive him were unsuccessful.

6/14/1994  Ronald Holmgreen, Firefighter  Career, Age 46  Lake Havasu Fire Department, AZ  Heart Attack  
Firefighter Holmgreen suffered a fatal heart attack shortly after returning home from a fire department drill. Firefighter Holmgreen had exhibited signs of cardiac distress during the drill.

6/18/1994  David Barter, Firefighter/EMS Coordinator  Volunteer, Age 58  West Terre Haute Volunteer Fire Department, IN  Heart Attack  
Firefighter/EMS Coordinator Barter died after suffering a heart attack at his station. He had just returned from an emergency medical call in very hot weather.

6/24/1994  Stephen Minehan, Lieutenant  Career, Age 44  Boston Fire Department, MA  Smoke Inhalation  
Lieutenant Minehan died after leading his company in a successful search for two other trapped firefighters at a blaze in a vacant waterfront warehouse. He apparently became disoriented in the heavy smoke conditions and was separated from his company as they rescued the trapped firefighters. He radioed that he was trapped but several rescue efforts to find him were unsuccessful. He died of smoke inhalation and his company recovered his body several hours later.

6/28/1994  Clifford Harris, Chief  Volunteer, Age 50  Rusk Volunteer Fire Department, TX  Heart Attack  
Chief Harris responded to a house fire. After the fire was knocked down, Chief Harris entered the structure to assist with overhaul operations in the area of origin. Chief Harris was not wear-
ing turnout gear or SCBA. After several minutes, Chief Harris left the structure and collapsed in cardiac arrest. He had had heart bypass surgery 10 years earlier. The fire had burned several hundred plastic videocassette tapes, which produced toxic gases. Chief Harris’ death was attributed to a heart attack caused by inhalation of toxic gas; no autopsy was performed.

6/29/1994  Anthony Bullard, Fire Marshal
Greenville Fire Department, TX  Career, Age 42
Fire Marshal Bullard suffered a cerebral hemorrhage during physical education class at the police academy. He died 6/30/1994.

7/6/1994  Don Mackey, Smokejumper  Age 34
Roger Roth, Smokejumper  Age 31
James Thrash, Smokejumper  Age 44
Jon Kelso, Prineville Hot Shots  Age 27
Kathi Beck, Prineville Hot Shots  Age 24
Scott Blecha, Prineville Hot Shots  Age 27
Levi Brinkley, Prineville Hot Shots  Age 22
Bonnie Holtby, Prineville Hot Shots  Age 21
Rob Johnson, Prineville Hot Shots  Age 26
Terri Hagen, Prineville Hot Shots  Age 28
Doug Dunbar, Prineville Hot Shots  Age 22
Tami Bickett, Prineville Hot Shots  Age 25
Robert Browning, Helitack  Age 28
Richard Tyler, Helitack  Age 33
Overrun by Wildfire
Fourteen wildland firefighters lost their lives when a wind shift resulted in a blow-up fire condition that trapped them on the uphill and downwind position from a fire on Storm King Mountain, Colorado. The 14 firefighters included smokejumpers Mackey, Roth, and Thrash; Prineville Hot Shots Kelso, Beck, Blecha, Brinkley, Holtby, Johnson, Bickett, Dunbar, and Hagen; and Helitack crewmembers Tyler and Browning. Browning and Tyler were killed when a large drop cut off their escape route and the fire overran them. The other firefighters were killed as they moved toward the ridgeline to escape the fire advancing toward them from below. According to witness accounts, the firefighters were unable to see how dangerous their position had become because of a small ridge below them. They had been moving slowly and were still carrying their equipment as the fire blew up behind them to a height of over 100 feet. At this point the crew dropped their tools and made an uphill dash for the top of the mountain but only one person made it over to survive. The fire overran the remaining 12 firefighters and reportedly reached a height of 200 to 300 feet as it crossed over the ridge. It was estimated to be moving at between 10 and 20 miles per hour at the time of the blow up. Several other firefighters in various other locations on the mountain became trapped by the flames but were able to make it to safe positions or deploy their emergency shelters. Post-incident investigations have determined that the crews fighting the fire violated many safety procedures and standard firefighting orders. The weather conditions prevalent that day had forecast a “red flag,” the most dangerous wildfire conditions.

7/12/1994  Robert Boomer, Pilot  Career, Age Unknown
Sean Gutierrez, Firefighter  Career, Age Unknown
Sam Smith, Firefighter  Career, Age Unknown
Brites Wings and Helicopter and Helitack  Helicopter Crash
Pilot Boomer and Helitack Firefighters Gutierrez and Smith were killed when their helicopter crashed while transporting them to a wildfire burning in the Black Range of the Gila National Forest. Two other crewmembers were injured in the crash.

7/23/1994  Michael Shaughnessy, Firefighter  Career, Age 32
Cleveland Fire Department, OH  Trauma
Firefighter Shaughnessy was killed when he fell off the roof of his fire station.
7/27/1994  Paul Hodges, Firefighter  
United States Forestry Service  
Seasonal Wildland, Age Unknown  
Heart Attack  
Firefighter Hodges died after suffering a heart attack while driving a tanker truck at a wildland fire. He was a contract employee for the USFS and a volunteer with the Chelan County Fire Protection District #9.

7/29/1994  Robert Kelly, Pilot  
Randy Lynn, Pilot  
Neptune, Inc. (Contract to USFS)  
Career, Age 58  
Career, Age 44  
Aircraft Crash  
Pilots Kelly and Lynn were killed when their air tanker plane crashed after dropping retardant on a wildfire.

8/3/1994  John Nutter, Sergeant  
Louisville Division of Fire, KY  
Career, Age 28  
Smoke Inhalation/Burns  
Sergeant Nutter was killed when the roof collapsed under him while performing ventilation at a fire in a storage facility. Sgt. Nutter fell into a storage area where, according to investigators, he was able to force his way into a hallway but was then trapped by interlocking doors and heavy fire conditions. Rescue efforts were hampered by maze-like conditions in the building. Sgt. Nutter was found with a depleted air bottle and dislodged facepiece. He had been exposed to fire conditions that exceeded the protective envelope provided by his turnout gear. Efforts to revive him were unsuccessful. He was wearing an operating PASS device but it was in the “off” position. He died of smoke inhalation and burns.

8/7/1994  Wayne Smith, Captain  
New York City Fire Department, NY  
Career, Age 37  
Smoke Inhalation/Burns  
Captain Smith was critically injured while conducting search-and-rescue operations on an upper floor of a building when he was trapped by high heat and heavy smoke conditions. Captain Smith was burned over 40 percent of his body and received severe smoke inhalation injuries to his lungs; he died on 10/4/1994. Fourteen other firefighters were injured in the blaze. Initial operations were hampered by a faulty fire hydrant across the street from the building.

Joe Johnson, Flight Crew  
Shawn Zaremba, Flight Crew  
Hemet Valley Flying Service, CA  
Age Unknown  
Age Unknown  
Age Unknown  
Aircraft Crash  
Crewmembers Buc, Johnson, and Zaremba were killed when their air tanker crashed en route to a wildfire in Kern County, California.

8/13/1994  James Harvey, Firefighter  
Greenwood Fire Department, IN  
Volunteer, Age 39  
Heart Attack  
Firefighter Harvey suffered a fatal heart attack during training.

8/18/1994  Herbert Smith, Firefighter  
Shelby Volunteer Fire Department, AL  
Affiliation and Age Unknown  
Heart Attack  
Firefighter Smith suffered a fatal heart attack at a fire.

8/18/1994  Sam McCarty, Firefighter  
Harding County Fire District #2  
Affiliation and Age Unknown  
Heart Attack  
Firefighter McCarty suffered a heart attack and died while cutting a fire line with a road grater at a grass fire.

8/8/1994  David Castro, Firefighter  
United States Fire Service  
Age Unknown  
Apparatus Rollover  
Firefighter Castro died of traumatic injuries suffered when his water tanker truck overturned on the Quincy–Oroville Highway while en route a wildfire.
8/8/1994  Craig Drury, Sergeant Volunteer, Age 24 Burns
Highview Fire District, KY
Sergeant Drury was caught in a flashover while making entry into a single story house. Sgt. Drury suffered severe burns to his lungs. The fire was started by an arsonist who was disgruntled over an interracial adoption.

8/25/1994  Sydney Bruce Maplesden, Jr., Firefighter Career, Age Unknown Overrun by Wildfire
Oregon Department of Forestry
Firefighter Maplesden died when he was overrun by a wildfire while attempting to cut a firebreak with a bulldozer.

8/27/1994  Paul MacMurray, Firefighter Volunteer, Age 30 Trapped
Hudson Falls Volunteer Fire Department, NY
Firefighter MacMurray responded as part of an engine company to a fire on the first floor of a three-story hotel. Assigned to search for and rescue occupants on the second floor, Firefighter MacMurray and another firefighter successfully evacuated several victims while attempts to extinguish the fire were initiated below them. Upon their return to continue the search, conditions quickly changed from a light haze of smoke to black smoke with high heat conditions. Firefighter MacMurray and his partner became separated in their attempt to locate the stairwell and get out of the building. The other firefighter made several efforts to locate Firefighter MacMurray, but was forced to retreat due to untenable conditions. Several rescue efforts were made, but heavy fire conditions eventually forced the evacuation of all fire personnel to defensive positions as the entire structure burned. His body was recovered the following day. The fire was incendiary in nature.

8/27/1994  Gerald Murray, Assistant Chief Volunteer, Age 46 MVA
Windham Hose Company #1, NY

Assistant Chief Murray died when his personal vehicle crashed while responding to a fire.

9/1/1994  James Harris, Firefighter Affiliation and Age Unknown Heart Attack
Mechanicville Fire Department, NY
Firefighter Harris suffered a fatal heart attack after running to the fire station to respond on a fire call.

9/3/1994  Earl Detty, Sr., Captain Volunteer, Age 50 Heart Attack
Union Township Fire Department, OH
Captain Detty responded to a report of a fire in the woods. Upon arrival, he discovered a legal campfire and then suffered a heart attack and died while walking back to his fire engine.

9/6/1994  Dwight Smith, Firefighter Recruit Career, Age 34 Cardiac
Memphis Fire Department, TN
Firefighter Recruit Smith collapsed in cardiac arrest after a jog during a physical training session. Firefighter Smith was in his fourth week of firefighter recruit class.

9/11/1994  Dewey Henry, Lieutenant Career, Age 58 Trauma
Metro–Dade Fire and Rescue Department, FL
Lieutenant Henry was killed after being trapped under rolls of carpet and debris when the roof collapsed during a fire in a carpet warehouse.

9/13/1994  Gus Fullbright, Chief Volunteer, Age 49 Heart Attack
Sallisaw Fire Department, OK
Chief Fullbright assumed incident command of a fire in a fully involved unattached garage with a vehicle inside. Firefighters had pulled a 1-inch booster line to protect the house exposure and were preparing to deploy larger attack lines in a defensive mode when a loud hiss was heard and an explosion took place. Seven firefighters were burned, including Chief Fullbright who was
standing 40–50 feet away wearing only his helmet. Chief Fullbright died of his burn injuries 2 weeks after the incident.

9/15/1994  Robert L. Johnson, Driver  Affiliation and Age Unknown
Bureau of Land Management  Struck by Vehicle

Mr. Johnson, a driver at the National Interagency Fire Center base camp, was killed when his truck was struck by another vehicle while en route with supplies to a wildfire.

9/22/1994  James Certain, Captain  Volunteer, Age 41
Scenic Loop Volunteer Fire Department, TN  Apparatus Rollover

Captain Certain was killed when the 1972 Chevrolet 3,000-gallon tanker truck he was driving overturned at an intersection while en route to a house fire. Captain Certain died of his injuries at the scene.

9/23/1994  John King, Flight Engineer  Affiliation and Age Unknown
US Army Reserve, ID  Helicopter Crash

Flight Engineer King, a civilian serving on a U.S. Army Reserve CH-47D helicopter, died of traumatic injuries when he was struck by a helicopter rotor blade during a crash. The helicopter was attempting to pick up firefighters during the Chicken Complex fire in McCall, Idaho. His unit had been assigned to provide emergency support to the U.S. Forest Service’s wildland fire suppression teams.

10/1/1994  Elias Ovsiovitch  Affiliation and Age Unknown
Hillcrest Fire Company #1, NY  Heart Attack

Mr. Ovsiovitch suffered a fatal heart attack while performing clerical duties at the fire station.

10/6/1994  Daren Smith, Fire Management Officer  Career, Age 23
United States Forest Service  Trauma

Fire Management Officer Smith of the U.S. Forest Service was killed when he was struck by a falling tree while clearing a fire road.

10/13/1994  Roy Stephenson, Firefighter  Volunteer, Age 42
#1 Green Township Volunteer Fire Department, IN  Heart Attack

Firefighter Stephenson died after suffering a heart attack while operating a pumper at a working structure fire.

10/29/1994  Michael DeLane, Firefighter  Career, Age 33
Newark Fire Department, NJ  Electrocution

Firefighter DeLane was climbing down an aerial ladder after roof operations at a two-alarm fire. As DeLane passed a saw to a fellow firefighter, it touched a power line, electrocuting both of them. Firefighter DeLane was killed and the other firefighter injured. One civilian died in the fire, which had been extinguished at the time of the accident.

11/8/1994  Brian D. Sutton, Sr., Firefighter  Career, Age 48
Enterprise Fire Company, NJ  Heart Attack

Firefighter Sutton was stricken by a heart attack as he was hooking up to a hydrant during pump operations at a house fire.

11/9/1994  Richard Liddy, Firefighter  Volunteer, Age Unknown
Basking Ridge Fire Company, NJ  Heart Attack

Firefighter Liddy suffered a fatal heart attack while pulling hose at the scene of a house fire.

11/12/1994  Edward Freeman, Firefighter  Career, Age Unknown
Memphis Fire Department, TN  Heart Attack

Firefighter Freeman suffered a fatal heart attack after returning to his station after an auto fire.
11/12/1994  Jack Lee Hone, Firefighter  
            Santa Monica Fire Department, CA  
            Career, Age 31  
            Exposure  
            Firefighter Hone was exposed to an unknown illness while engaged in emergency support activities. He died 3/18/1996.

11/20/1994  Mary Jo Brown, Firefighter  
            United States Forest Service  
            Career, Age 45  
            Overrun by Wildfire  
            Firefighter Brown died of smoke inhalation after her position was overrun by a rapidly moving wildfire. Two other firefighters deployed their personal shelters and survived the fire.

11/23/1994  Roger Evans, Fire Management Officer  
            United States Forest Service  
            Age Unknown  
            Shot (Accidental)  
            Fire Management Officer Evans was killed when a 106mm rifle exploded during training for avalanche control, part of his collateral duties.

            Mayfield Heights Fire Department, OH  
            Affiliation Unknown, Age 38  
            Heart Attack  
            Firefighter Nelboeck collapsed and died of an apparent heart attack as he was carrying a patient to an EMS unit during a rescue call.

12/6/1994  Dwight Burger, Firefighter  
            South Danesville Volunteer Fire Department, NY  
            Volunteer, Age Unknown  
            Apparatus Crash  
            Firefighter Burger died in an apparatus crash en route to an emergency.

12/10/1994  Jesse Shockley, Jr., Captain  
            Fort Bragg Fire Department, NC  
            Career, Age 38  
            Heart Attack  
            Captain Shockley died after suffering a heart attack during a training session on ladders.

12/24/1994  Lionel Hoffer, Firefighter  
            Milwaukee Fire Department, WI  
            Career, Age 44  
            Smoke Inhalation  
            Firefighter Hoffer died at a fire in a church when he fell through a hole in the second floor. He had been operating an attack line in the church with an engine company when he went to check a room for fire extension. His crew heard him call for help and found him hanging from a hole in the floor, but they were unable to keep him from falling. He fell approximately 12 feet into the first floor. Rescue crews were alerted by his PASS device and tried to reach him, but they were hampered by the collapsed floor in the front of the building and barred security doors at the rear of the building. Rescue crews eventually fought their way through heavy heat and smoke conditions to Firefighter Hoffer’s location, removed him from the building, and administered emergency care. His air supply was exhausted, and his death has been attributed to smoke inhalation.

12/26/1994  Evan Buchholtz, Firefighter  
            Poy–Sippi Fire Department, WI  
            Volunteer, Age 46  
            Heart Attack  
            Firefighter Buchholtz suffered a fatal heart attack while performing duties at a house fire.

12/27/1994  Steven Colona, Chief Engineer  
            Melfa Volunteer Fire Department, VA  
            Volunteer, Age 18  
            Apparatus Rollover  
            Chief Engineer Colona died of traumatic injuries when the tanker truck he was driving overturned on the way to reported fire in a chicken house. Another firefighter was severely injured in the accident. The call turned out to be a false alarm.

12/27/1994  Thomas Wylie, Firefighter  
            New York City Fire Department, NY  
            Career, Age 30  
            Carbon Monoxide  
            Firefighter Wylie suffered carbon monoxide poisoning in a structure fire. He died in 1995.
1/5/1995  Walter Kilgore, Lieutenant    Career, Age Unknown  
Gregory Shoemaker, Lieutenant    Career, Age Unknown  
James Brown, Firefighter    Career, Age Unknown  
Randall Terlicker, Firefighter    Career, Age Unknown  
Seattle Fire Department, WA    Trapped

Four members of the Seattle (WA) Fire Department died when a floor collapsed without warning during a commercial building fire. Lieutenants Kilgore and Shoemaker, and Firefighters Brown and Terlicker died when a modified and unprotected wood floor support failed under heavy fire conditions. Contributing factors to this incident included an unusual and complicated building configuration, companies entering the structure on different levels from different sides of the building, a lack of pre-fire plans, conflicting interpretations of observed fire conditions from different locations on the fireground, personnel not recognizing the significance of their own observations and operations with respect to the overall incident, a lack of progress reports that would have permitted the incident commander to reevaluate his attack plan, and inadequate information passed on to responding companies about an arson threat against the building. The cause of the fire was determined to be arson, and a suspect was charged. As part of the Major Fires Investigation Project, the U.S. Fire Administration conducted a detailed analysis of this incident, and the findings are contained in the report “Four Firefighters Die in Seattle Warehouse Fire.”

1/7/1995  Wilbur Pinnell, Firefighter    Affiliation and Age Unknown  
Winchester Fire Department, TN    Heart Attack

Firefighter Pinnell suffered a fatal heart attack while returning from extinguishing a garbage fire that had extended to a commercial occupancy.

1/24/1995  Henry Frizzell, Forestry Technician    Affiliation and Age Unknown  
Tennessee Division of Forestry, TN    Heart Attack

Forestry Technician Frizzell suffered a fatal heart attack while returning from a fire.

1/26/1995  Lathan Grant Smith, Jr., Chief    Volunteer, Age 37  
East Providence Volunteer Fire Department, AL    Heart Attack

Chief Smith died after suffering a heart attack while fighting a brush fire. Chief Grant was a founder of the East Providence Volunteer Fire Department and a career firefighter with the Talladega Fire Department.

1/28/1995  Victor Melendy, Firefighter    Career, Age 47  
Stoughton Fire Department, MA    Trapped

Firefighter Melendy died when he was caught in a flashover while searching for victims on the third floor of a rooming house.

1/31/1995  Marcus King, Firefighter    Volunteer, Age 15  
Jared Lee Wright, Firefighter    Volunteer, Age 18  
Claude Volunteer Fire Department, TX    Apparatus Struck by Train

Firefighters King and Wright were killed when a train struck their fire apparatus while they were fighting a brush fire on a railroad right-of-way. Both firefighters suffered severe traumatic injuries and died several days later.

2/2/1995  Ernestine Garcia, Firefighter    Volunteer, Age 56  
Willard Fire Department, NM    Apparatus Rollover

Firefighter Garcia died when she was thrown from a fire engine in a rollover accident while responding to a brush fire. The vehicle apparently hit a soft shoulder on the side of the road, crossed the road and rolled over. The driver, a 17-year-old junior firefighter, was hospitalized for multiple injuries. He was permitted to drive to fires but prohibited from operating on the fire-
ground until turning 18. The weather was clear, and there was no oncoming traffic at the time of the crash.

<table>
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<tr>
<th>Date</th>
<th>Name</th>
<th>Title</th>
<th>Affiliation/Lic/State</th>
<th>Age</th>
<th>Cause of Death</th>
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<td>Glenn Scott</td>
<td>Chief Volunteer</td>
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<td>2/14/1995</td>
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<td>Captain Career</td>
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<td>33</td>
<td>Trapped</td>
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when the floor collapsed beneath him. Heavy smoke and fire conditions prevented other firefighters from rescuing him. The fire originated in the basement of the house.

3/9/1995 Louis Mambretti, Lieutenant Career, Age 57
San Francisco Fire Department, CA Burns
Lieutenant Mambretti died of severe respiratory burns he received after becoming trapped in the garage of a house that was on fire. Lt. Mambretti, the officer on the first arriving engine, had led his crew with the first attack line into the garage when the electrically controlled garage door closed behind them. The fire spread quickly due to 50 mile-per-hour winds, creating heavy fire conditions in the garage and injuring the three firefighters before other crews could breach garage door with axes and saws to pull them out.

3/13/1995 Bobby Crowe, Forest Ranger Career, Age Unknown
Georgia Forestry Commission, GA Heart Attack
Forest Ranger Crowe died of a heart attack after battling a fire in a half acre of wood pallets.

3/15/1995 Phillip Sherburn, Firefighter Volunteer, Age 57
Aumsville Rural Fire Protection District, OR Heart Attack
Firefighter Sherburn died of a heart attack shortly after responding to a house fire. He collapsed while performing water supply operations.

3/18/1995 Henry Williams, Firefighter Volunteer, Age 53
Delran Volunteer Fire Department, NJ Heart Attack
Firefighter Williams died when he suffered a heart attack while taking a firefighter stress test for the New Jersey Forest Service.

3/24/1995 Donald Kaczka, Fire Engineer Career, Age 57
Chicago Fire Department, IL Heart Attack
Fire Engineer Kaczka died after suffering a heart attack at the scene of a rubbish fire at a recycling plant.

3/27/1995 Dana Morrison Volunteer, Age Unknown
Ferry County Fire Protection District, WA Heart Attack
Firefighter Morrison died after suffering a heart attack while operating a hose line at a fire.

3/29/1995 Norman Prime, Deputy Chief Volunteer, Age Unknown
South China Fire Department, MA Heart Attack
Deputy Chief Prime died of a heart attack while fighting a brush fire.

4/2/1995 James Weaver, Firefighter Volunteer, Age 71
Gallupville Volunteer Fire Department, NY Heart Attack
Firefighter Weaver of the Gallupville (NY) Volunteer Fire Department died of a heart attack while performing water supply operations at a brush fire.

Hobart Fire Department, IN Trapped
Firefighter Hansen was killed while conducting search operations for two reported trapped victims at a house fire. Firefighter Hansen and another firefighter were operating on the second floor when fire erupted from a concealed space near the stairwell, trapping them on the second floor, where they ran out of air. They were able to find their way to a window where a rescue ladder had been placed. As Firefighter Hansen aided his injured partner through the window and on to the ladder, a flashover occurred and he was killed. Three other firefighters were injured attempting to rescue Firefighter Hansen and his partner.

4/15/1995 Ronnie Wilson, Forestry Technician Career, Age Unknown
Tennessee Division of Forestry, TN Heart Attack
Forestry Technician Wilson suffered a fatal heart attack after returning from the scene of a four-acre brush fire.
Engineer Luster–Stauss and Firefighter Lohbeck were killed while responding to a barn fire when their tanker truck failed to negotiate a curve and overturned into a creek. Both died of traumatic injuries at the scene of the accident. The firefighters had apparently gone in the wrong direction and were reported to be heading away from the fire at the time of the crash.

Lieutenant McNeil died of a heart attack after fighting a brush fire. Lt. McNeil was a retired career firefighter with the Boston Fire Department.

Firefighter Cropper suffered a heart attack after fighting a fire in a hotel. Cropper was hospitalized and died on 4/28/1995.

Firefighter Novosad died of a heart attack while responding to a plane crash at Williams Airport.

Firefighter Cussen was killed when his car collided with another fire department vehicle at the scene of a reported explosion at a school.

Firefighter McCormick suffered a fatal heart attack at the scene of a mobile home fire.

Chief McKay suffered a fatal heart attack as he was leaving the fireground.

Firefighter Stivers was killed when the fire engine in which she was riding overturned, crushing her. The driver of the engine received minor injuries. The engine was on a nonemergency training run and the driver had apparently swerved to avoid an oncoming car. Firefighter Stivers had just completed her 6-month probation period in the department.

Firefighter Lapp died of an apparent heart attack while transporting a patient to the hospital from the scene of a motor vehicle accident.

Firefighter Deer was killed when the fire engine in which he was riding overturned. One other firefighter was paralyzed in the incident; two others received minor injuries. Firefighter Deer and the other critically injured firefighter were in the back of the engine and were not wearing seat belts when the accident occurred. The raised roof of the engine separated from the cab when it overturned. The firefighters were thrown from the engine. The engine was responding to a box alarm that turned out to be a false alarm.
6/3/1995  Bradley Hocking, Sr., Chief  
Pipestone–Berrien Township–Eauclaire Fire Department, MI  
Affiliation and Age Unknown  
Heart Attack  

Chief Hocking suffered a heart attack after responding to the scene of a fatal vehicle accident. He was transported by an ambulance to a nearby hospital, where he died on 6/6/1995.

6/5/1995  William Walls, Firefighter  
Rock Community Fire Protection District, MO  
Volunteer, Age 35  
Heart Attack  

Firefighter Walls suffered a fatal heart attack after fighting a fire in a mobile home.

6/6/1995  Peter “Butch” Borwegan, Lieutenant  
Edison Division of Fire, NJ  
Career, Age Unknown  
Heart Attack  

Lieutenant Borwegan was discovered unconscious on the apparatus floor of Edison Fire Station 5. Attempts to resuscitate him were unsuccessful, and he was pronounced dead at a nearby hospital.

6/7/1995  David Barrera, Firefighter  
Eagle Pass Fire Department, TX  
Affiliation and Age Unknown  
Seizure  

Firefighter Barrera died after suffering a seizure while on duty as a dispatcher.

6/10/1995  Richard Hogan, Firefighter  
Christopher Rizac, Firefighter  
Sheppard Air Force Base, TX  
Career, Age Unknown  
Burns  

Firefighters Hogan and Rizac were killed while fighting a fire at an oil refinery in Addington, Oklahoma. Both had responded in a P-19 crash truck to assist local fire departments with suppression efforts. The fire was located in an oil storage tank and was caused by a lighting strike. Firefighters Rizac and Hogan were killed when several thousand gallons of burning oil boiled over the side of the tank, trapping their crash truck in a mixture of oil and mud. They attempted to flee on foot but were overrun by the flow of oil and died of massive burns.

6/12/1995  Kevin Sutch, Fire Commissioner  
Levittown Fire Department, NY  
Affiliation and Age Unknown  
Heart Attack  

Fire Commissioner Sutch suffered a fatal heart attack while attending the New York State Firemen’s Convention in Albany, New York.

6/22/1995  Gary Cockrell, Pilot (Aero Union Corporation)  
Lisa Netsch, Pilot (Aero Union Corporation)  
Michael Smith, Pilot (United States Forest Service)  
Career, Age 33  
Career, Age 31  
Career, Age 48  
Aircraft Crash  

Contract Pilots Cockrell and Netsch of Aero Union Corporation, and Pilot Smith of the USDA Forest Service were killed in an aircraft collision over Ramona, CA, when Smith’s spotter plane hit the DC-4 air tanker piloted by Cockrell and Netsch. Both planes were on final approach to the airport after returning from dropping fire retardant on a brush fire.

6/22/1995  Carter Martin, Assistant Chief  
Brookville–Timberlake (VA) Volunteer Fire Department  
Volunteer, Age Unknown  
Drowning  

Assistant Chief Martin drowned after he waded into fast moving floodwaters to search three vehicles that had been swept downstream. Chief Martin was swept under water and trapped. He was wearing full protective firefighting turnout clothing while in the water, was not wearing a life vest, and had been tied into a rope that was attached to a fire engine. Two other rescuers were thrown into the water but survived. Martin also served as a career firefighter with the Lynchburg (VA) Fire Department and was an instructor with the Virginia Department of Fire Programs. It was later discovered that the occupants of the vehicles had reached safety on their own prior to the response of emergency personnel.
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<tr>
<th>Date</th>
<th>Name</th>
<th>Affiliation</th>
<th>Age</th>
<th>Cause</th>
<th>Details</th>
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<tbody>
<tr>
<td>7/6/1995</td>
<td>Randy Williford</td>
<td>Lieutenant</td>
<td>Career, Age 44</td>
<td>Heart Attack</td>
<td>North Little Rock Fire Department, AR. Williford suffered a heart attack after attempting to complete an agility test required for promotion to the rank of captain. He died of heart failure at a hospital on 7/9/1995.</td>
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<tr>
<td>7/10/1995</td>
<td>Gary Soupene</td>
<td>Firefighter</td>
<td>Volunteer, Age 48</td>
<td>MVA</td>
<td>Riley County Rural Fire Department, KS. Soupene was killed while responding in his personal vehicle to a reported grass fire. He was slowing down to pick up another volunteer when his vehicle was struck from behind by a car driven by another firefighter responding to the same incident, flipping Firefighter Soupene's car and killing him. The reported fire turned out to be a burning bale of hay.</td>
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<tr>
<td>7/10/1995</td>
<td>John Schuyler</td>
<td>Firefighter</td>
<td>Affiliation and Age Unknown</td>
<td>Heart Attack</td>
<td>Weldon Fire Company, PA. Schuyler suffered a fatal heart attack while responding on foot to the firehouse after a vehicle fire had been reported.</td>
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<tr>
<td>7/14/1995</td>
<td>John Weingart</td>
<td>Firefighter</td>
<td>Career, Age 56</td>
<td>Heart Attack</td>
<td>Detroit Fire Department, MI. Weingart suffered a fatal heart attack while hooking up to a fire hydrant at a residential dwelling fire.</td>
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<td>7/15/1995</td>
<td>Edward Pitcher</td>
<td>Assistant Chief</td>
<td>Volunteer, Age 39</td>
<td>Electrocution</td>
<td>Sharon County Volunteer Fire Department, CT. Chief Pitcher was electrocuted when he came in contact with a downed power line during the cleanup of debris after a storm.</td>
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<td>7/15/1995</td>
<td>Adam Sorenson</td>
<td>Volunteer Fire Department</td>
<td>Volunteer, Age Unknown</td>
<td>Apparatus Crash</td>
<td>Ruth Volunteer Fire Department, NV. Mr. Sorenson was killed when the ambulance he was driving swerved and crashed. The ambulance was not responding to an emergency or transporting any patients when the accident occurred.</td>
</tr>
<tr>
<td>7/19/1995</td>
<td>Arthur Thompson</td>
<td>Fire Commissioner</td>
<td>Volunteer, Age Unknown</td>
<td>Heart Attack</td>
<td>Freeport Fire Department, NY. Thompson, Fire Commissioner for the Freeport (NY) Fire Department, suffered a heart attack while en route to a fire. He was transported by an ambulance to a local hospital where he died.</td>
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<tr>
<td>7/20/1995</td>
<td>Lyle Garlinghouse</td>
<td>Firefighter</td>
<td>Career, Age 45</td>
<td>Heart Attack</td>
<td>Osceola Fire Department, FL. Garlinghouse suffered a fatal heart attack at an EMS incident.</td>
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<tr>
<td>7/21/1995</td>
<td>Peter Crown</td>
<td>Firefighter</td>
<td>Career, Age 39</td>
<td>Helicopter Crash</td>
<td>Honolulu Fire Department, HI. Crown, a helicopter pilot for the Honolulu (HI) Fire Department was killed when his helicopter crashed in the Koolau Mountains on the island of Oahu. He was conducting a search for a lost hiker and was towing two police officers in the helicopter's basket to the search area when the helicopter crashed in inclement weather. The two police officers were also killed.</td>
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<td>7/25/1995</td>
<td>Mitch Weaver</td>
<td>Firefighter</td>
<td>Affiliation and Age Unknown</td>
<td>Heart Attack</td>
<td>Tunnelton Volunteer Fire Department, WV. Weaver died of a heart attack while at the scene of a vehicle accident.</td>
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</tbody>
</table>
Firefighters Buttram and Oliver were killed when the 1955 brush truck they were driving stalled and they were overrun by a fast moving wildfire.

Chief Luker was killed when the 1972 3,500-gallon tanker truck he was driving overturned en route to a barn fire, ejecting him from the truck. He was not wearing a seat belt at the time of the accident.

Firefighter Mangieri was killed when he became trapped while trying to escape from a house fire during a flashover.

Firefighter Garneau, age 17, had an enlarged heart.

Battalion Chief Trygar was exposed to an unknown illness on 8/20; he died 12/20/1995.

Firefighter–EMT Cormican drowned while conducting a body recovery in a creek for a drowning victim. Firefighter Cormican and two other members of the Black River Falls dive team were trapped in a hydraulic created by a small waterfall while wading into the creek and searching for the victim’s body. Shore personnel were able to remove the three rescuers with a pike pole, but they could not revive Firefighter Cormican.

Rescue Diver Berggren died while conducting dive operations in a quarry to recover the body of a drowning victim. He had apparently inhaled the wrong mixture of gas from his scuba tank during the 200-foot dive, asphyxiating him.

Firefighter Hinson drowned after rescuing a man from a vehicle on a flooded highway. Firefighter Hinson and two other firefighters had tied themselves into a rope that was attached to a haul line on a fire department vehicle. As he reached the car and pulled the occupant out, the
The car was swept into the flooded creek channel. Firefighter Hinson and the other firefighters slipped into the current, and he became trapped on a guide wire to a telephone pole when other rescuers tried to haul them out of the water. The two other firefighters were rescued. A rescue diver from another department entered the water to reach the car driver, and they were both swept into a tree, where they were later rescued by boat. Firefighter Hinson was eventually pulled from the water, but attempts to resuscitate him were unsuccessful.

8/31/1995  Martin Kautz, Firefighter Volunteer, Age 35  
Brush Volunteer Fire Department, CO MVA  
Firefighter Kautz was killed in a vehicle accident while en route to a medical emergency. Firefighter Kautz and three other firefighters responded in his minivan from the fire station to a report of a child choking. They were struck en route by a car driven by an emergency medical technician who had run a stop sign while en route to the ambulance quarters to respond to the same call. Firefighter Kautz was killed and the three firefighters were injured.

9/6/1995  George Peters, Fire/Police Officer Volunteer, Age Unknown  
Elinwild Volunteer Fire Company, PA Heart Attack  
Fire/Police Officer Peters suffered a fatal heart attack at the scene of a multialarm fire.

9/8/1995  John Pache, Past Chief Volunteer, Age Unknown  
Aviation Volunteer Fire Company No. 3, NY Heart Attack  
Past Chief Pache suffered a fatal heart attack while en route to a structure fire.

9/13/1995  John McCroden, Captain Volunteer, Age 47  
City of Geneva Fire Department, OH Heart Attack  
Captain McCroden died when he suffered a heart attack while ventilating the roof at a fire in a single-family house.

9/16/1995  Eric Schaefer, Firefighter Career, Age 25  
Baltimore City Fire Department, MD Trauma  
Firefighter Schaefer was killed when a 1-1/2-foot thick granite wall collapsed on him while he was engaged in forcible entry at a multiple-alarm fire in an old warehouse that had been converted to a business occupancy.

9/17/1995  Gene Schubert, Firefighter Affiliation and Age Unknown  
Harriman Fire Department, TN Heart Attack  
Firefighter Schubert suffered a fatal heart attack at the scene of a fire.

9/19/1995  Ray Lencioni, Captain Affiliation and Age Unknown  
Colma Fire District, CA Heart Attack  
Captain Lencioni suffered a fatal heart attack while at a medical call.

9/23/1995  Frederick Fairweather, First Assistant Chief Volunteer, Age 48  
Bullville Fire Company, NY Heart Attack  
First Assistant Chief Fairweather suffered a fatal heart attack while marching with the department in the Bullville parade. He was a retired firefighter with the Newburgh Fire Department.

9/26/1995  Thomas O’Boyle, Lieutenant Career, Age 55  
Chicago Fire Department, IL Heart Attack  
Lieutenant O’Boyle suffered a fatal heart attack at a fire in a furniture warehouse. Lt. O’Boyle, aide to the Fire Commissioner, had just exited the structure after checking on the progress of firefighters inside when he collapsed.

9/28/1995  John Fisher, Sergeant Affiliation and Age Unknown  
Greensburg Volunteer Fire Department, PA Heart Attack  
Sergeant Fisher suffered a fatal heart attack while responding on foot to an emergency call for a pedestrian struck by a train.
9/30/1995  Richard Washburn, Instructor
Kentucky Tech Fire/Rescue Training, KY
Affiliation and Age Unknown
Unknown
Instructor Washburn collapsed and died while he was teaching a confined space entry and rescue course at a regional fire school.

10/8/1995  Peter McLaughlin, Firefighter
New York City Fire Department, NY
Career, Age 31
Trapped
Firefighter McLaughlin died from burn injuries and smoke inhalation while performing a search on the fourth floor at a fire in a tenement building. The fire broke through the ceiling and engulfed the apartment. A window gate blocked Firefighter McLaughlin’s route of escape. The fire started on a mattress in a fourth floor bedroom. The building had been previously cited for over 170 fire code violations.

10/25/1995  John Riggins, Jr., Corporal
Indianapolis Fire Department, IN
Career, Age 53
Heart Attack
Corporal Riggins suffered a fatal heart attack after performing roof ventilation at a house fire.

10/28/1995  James “Frank” Ainsworth, Past Chief
Friendship Fire Company, WV
Affiliation and Age Unknown
Heart Attack
Past Chief Ainsworth suffered a fatal heart attack at a fundraising event for the fire company. He was treasurer and served on the Board of Directors of the department at the time of his death.

10/29/1995  Stephen Sulzinski, Firefighter
Hicksville Fire Department, NY
Volunteer, Age 66
Heart Attack
Firefighter Sulzinski suffered a fatal heart attack while attending a fire service activity in Albany.

11/7/1995  Walter Augustin, Assistant Chief
Congers Fire Department, NY
Volunteer, Age Unknown
Heart Attack
Assistant Chief Augustin suffered a fatal heart attack while marching in the Congers parade with the department.

11/9/1995  John Haviar, Firefighter
Industrial Fire Brigade
Career, Age Unknown
Asphyxiation
Firefighter Haviar, an industrial fire brigade member at a Reynolds Aluminum plant, was killed when he entered an oxygen deficient atmosphere in an excavation pit without breathing apparatus to attempt the rescue of three workers. Argon gas was accidentally pumped into the pit, displacing the oxygen and trapping the workers. Firefighter Haviar was overcome and was killed along with two of the workers.

11/11/1995  Thomas Buff, Jr., Chief
Blaney Volunteer Fire Department, SC
Affiliation and Age Unknown
Struck by Vehicle
Chief Buff was killed when a passing police cruiser struck him. The fire department had just finished extinguishing a vehicle fire on an interstate highway when a minor accident occurred in the opposing lanes of traffic. Chief Buff started across the road to check on the occupants of the cars when he was hit, receiving multiple traumatic injuries.

11/19/1995  David Harness, Assistant Chief
Hanna Township Volunteer Fire Department, IN
Volunteer, Age 45
Struck by Vehicle
Assistant Chief Harness was killed when a vehicle at the scene of an emergency struck him.

11/25/1995  Michael Canonico, Firefighter
Andover Township Fire Department, NJ
Volunteer, Age 52
MVA
Firefighter Canonico was killed while responding on his motorcycle to a report of a furnace fire. He died when he attempted to pass a pickup truck on the right and the truck made a right turn, striking him.
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<th>Date</th>
<th>Name</th>
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<th>Age</th>
<th>Location</th>
<th>Cause</th>
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<tbody>
<tr>
<td>12/10/1995</td>
<td>Henry W. Howe, Firefighter</td>
<td>Volunteer, Age 50</td>
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<td>Brownsville Rural Fire District, OR</td>
<td>Trauma</td>
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<td>Firefighter Howe was struck by a vehicle while clearing a downed tree from a road.</td>
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<td>12/14/1995</td>
<td>James Shue, Captain</td>
<td>Volunteer, Age Unknown</td>
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<td>Locke Township Volunteer Fire Department, NC</td>
<td>Apparatus Rollover</td>
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<td>Captain Shue was killed when the engine he was driving overturned en route to an odor of smoke call, which turned out to be a false alarm. Two other firefighters were injured.</td>
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<td>12/31/1995</td>
<td>John Clancy, Lieutenant</td>
<td>Career, Age 35</td>
<td></td>
<td>New York City Fire Department, NY</td>
<td>Burns</td>
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<td>Lieutenant Clancy was killed when the floor collapsed beneath him at a fire in an abandoned residential building as he entered to conduct a search for occupants. Lt. Clancy fell into the basement where he died of burns.</td>
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<td>1/5/1996</td>
<td>James B. Williams, Firefighter</td>
<td>Career, Age 38</td>
<td></td>
<td>New York City Fire Department, NY</td>
<td>Burns</td>
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<td>Firefighter Williams died from burns sustained during a two-alarm fire at an apartment building in Queens, New York. Unaware that the occupants of the apartment had already left, he and four other firefighters were searching for victims and fighting the fire when they were engulfed in flames after breaking through a door.</td>
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<td>1/5/1996</td>
<td>William R. Favinger, Sr., Firefighter</td>
<td>Volunteer, Age 55</td>
<td></td>
<td>West End Fire Company, PA</td>
<td>Heart Attack</td>
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<td>Firefighter Favinger suffered a fatal heart attack while returning from an automatic alarm. He collapsed in the station while filling out the roster. CPR was immediately started and paramedics were called.</td>
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<td>1/6/1996</td>
<td>Guy R. Pollard, Firefighter</td>
<td>Volunteer, Age 64</td>
<td></td>
<td>Owego Fire Department, NY</td>
<td>Heart Attack</td>
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<td>Firefighter Pollard suffered a fatal heart attack while performing pump operations at a suspected house fire on a mutual call with the Owego Fire Department. After determining that the house’s chimney was stuffed, trucks began preparing to leave when Firefighter Pollard suffered the heart attack. He was transported to Wilson Memorial Regional Medical Center where he was pronounced dead on arrival.</td>
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<tr>
<td>1/7/1996</td>
<td>Thomas Dorr, Firefighter</td>
<td>Volunteer, Age 50</td>
<td></td>
<td>Pleasantville Fire Department, NY</td>
<td>Stabbed</td>
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<td>Firefighter Dorr died from multiple stab wounds while responding to the station on foot during a snowstorm. He was walking to the firehouse for storm duty and was attacked en route.</td>
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<td>1/7/1996</td>
<td>Willard Hopler, Firefighter</td>
<td>Volunteer, Age 59</td>
<td></td>
<td>Rockaway Borough Fire Department, NJ</td>
<td>Heart Attack</td>
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<td>Firefighter Hopler suffered a massive heart attack while operating an aerial apparatus at the scene of a chimney fire. Despite resuscitative efforts by his crew, he was pronounced dead on arrival at the hospital.</td>
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<tr>
<td>1/13/1996</td>
<td>Dale Zimmerman, Chief</td>
<td>Volunteer, Age 40</td>
<td></td>
<td>Pecatonica Fire Protection District, IL</td>
<td>Asphyxiation</td>
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<td>Chief Zimmerman died in an attempt to rescue two men who were overcome by fumes in a grain bin. During the rescue, alarm bells sounded warning that another firefighter’s SCBA was low. Chief Zimmerman went over to change the tank, but his mask fogged up. He took off his mask in order to change the tank. The other firefighters then left, but saw Chief Zimmerman having problems in his attempt to rescue the two men. The two men were rescued, but Chief Zimmerman eventually died from asphyxia from the carbon monoxide poisoning.</td>
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</table>
1/18/1996  Marcel Glenn, Firefighter  Career, Age 34
Cairo Fire Department, GA  Cardiac
Firefighter Glenn died while fighting a structure fire. He was ventilating a house fire by breaking the windows with a fire hose. After he had ventilated two windows, he turned around and collapsed. EMS was called and he was taken to the hospital where he was pronounced dead due to cardiac arrest.

1/19/1996  Reed Morton, Sr., Fire Police  Volunteer, Age 78
Citizens Hose Company #1, PA  Heart Attack
Firefighter Morton suffered a heart attack while directing traffic and assisting evacuees at a fire.

1/19/1996  Robert Haggadone  Volunteer, Age 43
Wildwood Fire Association, MI  Struck by Vehicle
Firefighter Haggadone was struck by a passing motorist while operating a pumper at a house fire. He died after being in a coma for 7-1/2 months.

1/22/1996  Jerald Dibbles, Firefighter Recruit  Career, Age 23
Dallas Fire Department, TX  Sickle Cell
Firefighter Recruit Dibbles died during his second day at the training academy. He had a pre-existing condition of sickle cell anemia (trait). Because of this condition, he went into a state of rhabomyalisis (internal heating and buildup of acid in the heart muscle). This condition caused several major organs to fail resulting in death.

1/26/1996  Dale Burkhalter, Firefighter  Volunteer, Age 27
Livingston Fire Department, TX  MVA
Firefighter Burkhalter died in a car accident while returning from a fire incident. The accident occurred at 4 a.m. at a dark and unlighted intersection. The road conditions was wet, and there were patches of fog. In an attempt to cross a major highway, the Firefighter Burkhalter’s car was struck on the driver’s side.

1/31/1996  Marvin Mathis, Firefighter  Volunteer, Age Unknown
Lake Murray Village Fire Department, OK  Heart Attack
Firefighter Mathis drove a tanker to the fire scene and suffered a fatal heart attack on arrival.

2/1/1996  Steven Gushiken, Firefighter  Career, Age 52
Kauai County Fire Department, HI  Unknown
Firefighter Gushiken got up in the morning (4:30 a.m.) while still on duty and went for a walk in the park adjacent to the station as part of his normal morning routine. When the rest of the shift woke up, they found him unconscious on the ground. Attempts to revive him were unsuccessful.

2/5/1996  Louis Valentino, Firefighter  Career, Age 37
New York City Fire Department, NY  Trapped
Firefighter Valentino became trapped when the roof of an Auto Body Shop in East Flatbush–Brooklyn collapsed. Fifteen other firefighters were injured at this three-alarm blaze. Firefighter Valentino died less than an hour after the fire started at about 3:40 p.m.

2/5/1996  Corey Morgan, Firefighter  Volunteer, Age 16
Clarksville Fire Department, VA  MVA
Firefighter Morgan died in a motor vehicle accident while responding to a fire call.

2/11/1996  Michael McLaughlin, Firefighter  Volunteer, Age 59
Ridgefield Boro Fire Department, NJ  Trauma
Firefighter McLaughlin died of an apparent heart attack after arriving on the scene of a small fire in a laundromat. He experienced head trauma when he fell on the scene and knocked his head against the fire engine. This trauma resulted in cardiac arrest.
2/11/1996  Raymond Vinson, Firefighter Volunteer, Age 61  
Enville Fire Department, OK Heart Attack  
Firefighter Vinson fought a grass fire for approximately 7 hours in the morning, when he was called out again for another grass fire. This incident lasted about 5 hours. He died of a heart attack after returning from the incident.

2/23/1996  Nathaniel Quinn, Firefighter Volunteer, Age 66  
I.X.L. Fire Department, OK Cardiac  
Firefighter Quinn went into cardiac arrest while fighting a wildland fire near Okemah. The wildfires blackened up to 30,000 acres and destroyed 43 homes in 10 Oklahoma counties.

2/24/1996  Francis Ploeger, Firefighter Volunteer, Age 45  
Ash Township Volunteer Fire Department, MI Heart Attack  
Firefighter Ploeger arrived at the scene of a two-alarm barn fire. While pulling a hose from the fire truck, he collapsed from a heart attack. CPR was initiated at the scene, and he was taken to a hospital where he was pronounced dead later that evening.

3/2/1996  Leonardo Maguidad, Firefighter Volunteer, Age 29  
Allentown Road Volunteer Fire, MD Cardiac  
Firefighter Maguidad suffered a cardiac arrest at the station while on duty.

3/7/1996  Dennis McGary, Firefighter Volunteer, Age 46  
Tomah Volunteer Fire Department, WI Heart Attack  
Firefighter McGary suffered a fatal heart attack after returning from a house fire. After returning, he was putting away equipment and preparing firehouse items when the heart attack occurred.

3/8/1996  Vinton Durflinger, Firefighter Volunteer, Age 72  
Alexandria Volunteer Fire Department, NE Heart Attack  
Firefighter Durflinger collapsed and died due to a heart attack after checking out a suspected house fire.

3/13/1996  Norman Manka, Firefighter Volunteer, Age 44  
Golden City Volunteer Fire Department, MI Heart Attack  
Firefighter Manka was operating the pump at a grass fire when he collapsed and died due to a heart attack.

3/18/1996  Frank Young, Firefighter Career, Age 38  
John Hudgins, Jr., Firefighter Career, Age 32  
Chesapeake Fire Department, VA Trapped  
Firefighters Young and Hudgins died while battling a blaze in the Advanced Auto Parts store. Both firefighters became trapped by fire when the truss roof collapsed on top of them. The firefighters were found in the rear of the structure some time later.

4/7/1996  Robert Duvall, Firefighter Volunteer, Age 39  
Granville Fire Protection District, IL Heart Attack  
Firefighter Duvall suffered a fatal heart attack while fighting a house fire in Hennepin, IL.

4/8/1996  Norman Adams, Firefighter Volunteer, Age 38  
Almena V. Fire Department, KS Asthma Attack  
Firefighter Adams died from an asthma attack after engaging in support duties for 9-1/2 hours at an industrial fire in a plant that makes aluminum products.

4/8/1996  Jonathan C. Boster, Firefighter Volunteer, Age 19  
Grant County Fire District 5, WA Apparatus Rollover  
Firefighter Boster and another firefighter were responding to a reported mobile home fire when they rounded a corner too quickly and the tanker they were in rolled onto its side. Firefighter
Boster was killed. The other firefighter was treated for broken ribs and other minor injuries. It was not reported whether the firefighters were wearing seat belts.

4/10/1996  Terry Leasher, Firefighter  Volunteer, Age 41  
Harlan Township Fire & Rescue, OH MVA  
Firefighter Leasher died of internal injuries due to a motor vehicle accident. He was on his way to the station to perform truck inspections.

4/19/1996  Donald Collins, Firefighter  Career, Age 62  
Schenectady City Fire Department, NY Cardiac  
Firefighter Collins was hooking up a hose at the scene of a vacant house fire around 2 a.m. when he went into cardiac arrest. He was taken to the hospital and pronounced dead.

4/19/1996  Mathew Hatcher, Firefighter  Volunteer, Age 32  
Wayne Fire Department, OK Struck by Apparatus  
Firefighter Hatcher died of abdominal injuries after being pinned between two fire trucks at a grass fire. He was at the rear of one truck starting the pump when a second truck struck him.

4/23/1996  John Goessling, Firefighter  Career, Age 43  
Omaha Fire Department, NE Trauma  
Firefighter Goessling was killed when the roof collapsed on him at a four-alarm fire in a commercial building, the Dollar General store. A 15-year-old was arrested and charged with arson.

4/23/1996  Mark Clark, Firefighter  Career, Age 45  
Division of Forestry & Wildlife, HI Heart Attack  
Firefighter Clark died while participating in a chainsaw (tree felling) training class. He was clearing brush around a tree when he put his saw down, collapsed, and died of a heart attack.

4/24/1996  Stanley Adams, Captain  Career, Age 45  
Don Moree, Captain  Career, Age 49  
Willie Craft, District Chief  Career, Age 48  
Rick Robbins, District Chief  Career, Age 47  
Jackson Fire Department, MS Shot  
Captain Adams, Captain Moree, District Chief Craft, and District Chief Robbins were shot to death during a meeting of district chiefs. They were killed by a disgruntled firefighter who went on a rampage killing five people including his wife. Two other people were also injured in this incident.

4/26/1996  Robert Pemberton, Firefighter  Volunteer, Age 55  
Antioch Volunteer Fire Department, AR Apparatus Rollover  
Firefighter Pemberton was killed in an apparatus accident while en route to a reported structure fire. He was ejected from the driver’s seat after the truck failed to negotiate a turn and then overturned several times. He was pronounced dead at the scene.

5/1/1996  Robert Hamler  Career, Age 34  
Atlanta Fire Department, GA Stroke  
Firefighter Hamler suffered a stroke at the fire station. He was inspecting fire hydrants when he started to feel poorly. He was then taken to the hospital where he died.

5/26/1996  Kevin Malone, Assistant Chief  Volunteer, Age 31  
Mahwah Township Fire Department, NJ Heart Attack  
Assistant Chief Malone died of a heart attack at home after returning from a false alarm. He had complained of not feeling well earlier in the day, and 2 days earlier he had fought a separate fire where he inhaled a large amount of smoke.

5/30/1996  William Frank, Firefighter  Volunteer, Age 73  
Camp Hill Fire Department, PA Heart Attack  
Firefighter Frank had a heart attack after returning from a heat exchanger fire at a mall.
6/9/1996  Michelle Smith, Firefighter  Career, Age 23
Globe Ranger District (USFS), AZ  Heat Exhaustion/Dehydration

Firefighter Smith disappeared during a training run and was found dead 26 hours later. According to the autopsy report, she died of heat exhaustion and dehydration. There was no sign of struggle or foul play.

6/19/1996  Rex Hoad, Firefighter  Volunteer, Age 43
Cameron Fire Department, NY  MVA

Firefighter Hoad died from injuries from a motor vehicle accident that occurred while returning from a service call.

6/23/1996  Lee Allen Steele, Firefighter  Volunteer, Age 22
Monte Jason Harmon, Firefighter  Volunteer, Age 19
Poplar Springs Volunteer Fire Department, SC  Apparatus Rollover

Firefighters Steele and Harmon were killed in an apparatus accident while responding to a call that turned out to be a false alarm. The driver lost control of the truck, and it ran off the road, overturned, and hit a tree.

6/24/1996  Ronald Lupo, Firefighter  Volunteer, Age 32
Dillon County Fire Department, Dillon, SC  MVA

Firefighter Lupo was responding to a field fire at approximately 7:10 p.m. While en route, his vehicle was struck on the right front side by an oncoming van. He died from internal injuries later that night at a hospital.

6/29/1996  Robert Bibbee, Firefighter  Volunteer, Age Unknown
Elizabeth Volunteer Fire Department, WV  Heart Attack

Firefighter Bibbee was hauling drinking water to families and homes in a rural area to raise funds for a fire department event when he suffered a heart attack.

7/4/1996  William L. Parsons, Captain  Volunteer, Age 32
Cameron Volunteer Fire Department, WV  Trauma

Captain Parsons, a licensed pyrotechnician, was killed at the annual 4th of July fireworks display that is sponsored by the Cameron Fire Department. A 6-inch round prematurely detonated on the ground causing a piece of metal/wood to strike Captain Parsons in the head. His brother was also injured.

7/11/1996  Bruce Lindner, Firefighter  Volunteer, Age 48
Relief Hose Company #2, NJ  Cardiac

Firefighter Lindner died from cardiac arrest during a vehicle extrication drill.

7/11/1996  George Crane, Jr., Firefighter  Volunteer, Age 23
Morgan County Fire Department, GA  MVA

Firefighter Crane died in a motor vehicle accident while responding in his personal vehicle to an emergency call.

7/13/1996  Arthur Petit, Firefighter  Career, Age 59
Holyoke Fire Department, MA  Cardiac

Firefighter Petit died due to cardiac arrest while searching for victims at a multifamily dwelling fire. The firefighter’s crew was ordered to search the interior of the third floor (fire floor). While searching and ventilating, Firefighter Petit collapsed on the porch of one of the apartments. He was not revived despite the attempts of fellow firefighters who performed CPR immediately.

7/21/1996  Donald Raibley, Firefighter  Volunteer, Age 19
Pigeon Township Volunteer Fire Department, IN  Drowning

Firefighter Raibley was responding to a residential house fire at 4 a.m. when he had a seizure and drove his car over a dam into a lake, where he drowned.
Kris Sherman, Firefighter Volunteer, Age 36  Sligo Volunteer Fire Department, PA Apparatus Rollover  Firefighter Sherman died from injuries resulting from an overturned pumper during a response to an incident.

George Guyer, Firefighter Volunteer, Age 38  Stokes–Rockingham V.F.D, NC MVA  Firefighter Guyer was responding in his personal vehicle to a transformer fire when his truck hydroplaned on the wet road and collided with an oncoming truck.

John William Swan II, Firefighter Volunteer, Age 18  Township Volunteer Fire Department, IN Shot  Firefighter Swan responded to a motor vehicle accident involving a car and a motorcycle. The driver of the motorcycle ran into the boat that the car was towing. The driver of the car proceeded to shoot the driver of the motorcycle, two bystanders, and the firefighter who arrived on the scene.

Norman Ray, Firefighter Volunteer, Age Unknown  Fruitland Fire Department, UT Cardiac  Firefighter Ray suffered cardiac arrest due to overexertion at a grass fire.

Floyd Birchmore, Firefighter Volunteer, Age 53  Addison Fire Department, VT Heart Attack  A fire broke out in a barn owned by Firefighter Birchmore. He called the fire department and started to lead the animals out of the barn. The first engine arrived and Firefighter Birchmore began pulling the hose off the truck. Shortly after, he collapsed and died of a heart attack.

William McGinnis, Firefighter Volunteer, Age 38  Surfside Volunteer Fire Department, TX Electrocution  Firefighter McGinnis was the lone responder to an electrical pole fire that occurred midday. As he began deploying a hoseline, the pole broke in half, pulling the charged power lines down and electrocuting him.

Walter L. Bricker, Deputy Chief Volunteer, Age 65  Metal Township Volunteer Fire & Ambulance Company, PA Heart Attack  Chief Bricker suffered a fatal heart attack while assisting an ambulance crew with patient care. He was pronounced dead upon arrival at the hospital.

Leonard Coulter, Firefighter Volunteer, Age 67  Gerton Fire Department, NC Cardiac  Firefighter Coulter suffered cardiac arrest while responding to a motor vehicle accident.

Leslie Hendricks, Deputy Chief Volunteer, Age 59  Union Township Fire Department, NJ Heart Attack  Deputy Chief Hendricks died as a result of cardiac arrest that was connected to an exposure at an earlier fire incident at a Burger King. He was supervising a crew when a cloud of gas vapors engulfed him. He began having trouble breathing and was sent to the hospital. Deputy Chief Hendricks was discharged after 2 days, returned home and died 10 days later.

John Gray, Firefighter Career, Age 50  Bureau of Land Management, NV Heart Attack  Firefighter Gray was repairing a water tender between fires when he died of a heart attack. After he collapsed, a fellow crewmember began CPR and called an ambulance.

Lawrence Roche, Lieutenant Career, Age 46  Harahan Fire Department, LA Heart Attack  Lieutenant Roche had a heart attack at the scene of a structure fire.
8/27/1996  Robert Wallingford, Captain  Volunteer, Age 47
South Portland Fire Department, ME  Heart Attack
Captain Wallingford died from a heart attack while directing engine company operations at the scene of a four-alarm fire in a welding supply company.

9/4/1996  Richard Dorsey, Firefighter  Volunteer, Age 19
Bahama Volunteer Fire Department, NC  MVA
Firefighters were responding to a call when a tree fell across the roadway and struck their brush truck. The accident killed Firefighter Dorsey and injured one other.

9/10/1996  Bruce Honstain, Assistant Chief  Volunteer, Age 43
Powell Volunteer Fire Department, WY  Electrocution
Assistant Chief Honstain was attempting to rescue his son from a motor vehicle accident when they were both electrocuted and died.

9/14/1996  Sam Strall, Firefighter  Volunteer, Age 35
Rising Sun Fire Department, MD  Heart Attack
Firefighter Strall collapsed and died of a heart attack during a fundraiser at the firehouse.

9/18/1996  Jeffrey Renner, Firefighter  Volunteer, Age 35
Baltic Fire & Rescue Department, OH  Heart Attack
Firefighter Renner had arrived at his regular job, when he was informed of a fire in the paint shed. He was leaving to drive to the station to get his gear when he suffered a heart attack as he was getting to his car.

9/18/1996  Henry Scott, Firefighter/Paramedic  Career, Age 36
Springdale Fire Department, OH  Heart Attack
Firefighter/Paramedic Scott suffered a fatal heart attack while at a live burn training exercise.

9/20/1996  William Reid, Firefighter  Career, Age 42
Birmingham Fire and Rescue Service, AL  Cardiac
Firefighter Reid died of cardiac arrest at required annual fitness test (running and walking).

9/21/1996  Martin Doherty, Lieutenant  Career, Age 63
Chicago Fire Department, IL  Heart Attack
Lieutenant Doherty, a 35-year veteran of the Chicago Fire Department, suffered a fatal heart attack while on duty at the fire station.

9/29/1996  Kevin Reveal, Firefighter  Volunteer, Age 31
Herrin Fire Department, IL  Trauma
Firefighter Reveal died while fighting a fire at a commercial two-story, vacant, boarded-up, wood-frame structure. He was opening up a boarded window that was opposite from where the fire was located when the wall collapsed, killing him and injuring several others.

10/12/1996  Clark Derryberry, Firefighter  Volunteer, Age 19
Mt. Pleasant Rural Fire, TN  MVA
Firefighter Derryberry died in a motor vehicle accident while returning home from a barn fire. The barn fire was the last one out of a series of four.

10/13/1996  Keith Boudoin, Firefighter  Career, Age 41
Jefferson Parish EBC Fire Dept., LA  Heart Attack
Firefighter Boudoin was preparing to enter a structure fire for the third time to look for trapped victims when he suffered a fatal heart attack. He was immediately taken to the hospital where he was pronounced dead.

10/15/1996  Karl Schmidt, Assistant Chief  Volunteer, Age 40
Cowlesville Volunteer Fire Company, NY  Cardiac
Assistant Chief Schmidt died from an apparent heart attack after attending an EMS training event. The chief returned home from the event, and then decided to drive himself to the hospital but died on the way.
<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Title</th>
<th>Age</th>
<th>Location</th>
<th>Cause</th>
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</thead>
<tbody>
<tr>
<td>10/18/1996</td>
<td>Martha Ann Bice, Firefighter</td>
<td>Volunteer, Age 59</td>
<td></td>
<td>West Etowah VFD, AL</td>
<td>Surgical Complications</td>
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<td>Firefighter Bice was cutting firebreaks at a brush fire when she experienced chest pain and collapsed. She was taken to the hospital and doctors determined that she had suffered a heart attack. She underwent triple bypass surgery, returned home and died several days later from complications.</td>
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<td>10/19/1996</td>
<td>Eugene Bauerlien, Firefighter</td>
<td>Volunteer, Age 72</td>
<td></td>
<td>Westminster Fire Department, MD</td>
<td>Heart Attack</td>
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<td>Firefighter Bauerlien suffered a fatal heart attack at the fire station. He had been on duty all morning at the station cooking for the fire department fundraiser. At 11:00 a.m., he left to direct traffic for a college homecoming. This was part of his duty for the fire/police, a division of the fire department. He then returned to the fire department for breakfast and went into cardiac arrest.</td>
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<td>10/24/1996</td>
<td>Jackson Capps, Captain</td>
<td>Volunteer, Age 25</td>
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<td>Glassy Mountain Fire Department, SC</td>
<td>MVA</td>
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<td>Captain Capps died in a motor vehicle accident when his fire truck was struck by a dump truck while responding to a grass fire. He had just finished working the A shift at the electric plant when the call for a grass fire came out. After picking up a fire truck at the fire department, he pulled into a dump truck’s path after driving less than 100 yards. The call turned out to be a false alarm.</td>
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<td>10/24/1996</td>
<td>Jack Grosse, Firefighter</td>
<td>Career, Age 53</td>
<td></td>
<td>Cedar Falls Fire Department, IA</td>
<td>Cardiac</td>
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<td>Firefighter Grosse suffered cardiac arrhythmia and died while asleep in his quarters.</td>
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<td>10/26/1996</td>
<td>Albert DeFlumere, Firefighter</td>
<td>Volunteer, Age 49</td>
<td></td>
<td>Blauvelt Volunteer Fire Company, NY</td>
<td>Smoke Inhalation</td>
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<td>Firefighter DeFlumere died of smoke inhalation at a residential structure fire after he returned inside to rescue his son.</td>
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<td>10/26/1996</td>
<td>Frank Gilbert, Jr., Firefighter/Paramedic</td>
<td>Career, Age 39</td>
<td></td>
<td>Portage Fire Department, IN</td>
<td>MVA</td>
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<td>Firefighter/Paramedic Gilbert died from complications due to a vehicle accident while transporting a patient to the hospital.</td>
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<td>11/9/1996</td>
<td>John Bryant, Firefighter</td>
<td>Volunteer, Age 21</td>
<td></td>
<td>Upper Gwynedd Township Fire Department, PA</td>
<td>MVA</td>
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<td>Firefighter Bryant was fatally injured in a motor vehicle accident while responding to an alarm. The firefighter was on his way to the station when his vehicle was hit from behind at high rate of speed.</td>
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<td>11/9/1996</td>
<td>Steve Trice, Firefighter</td>
<td>Volunteer, Age 24</td>
<td></td>
<td>Sharptown Volunteer Fire Department, MD</td>
<td>Struck by Vehicle</td>
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<td>Firefighter Trice stopped at a motor vehicle accident and was struck by a passing vehicle while attempting to extricate a victim.</td>
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<td>11/12/1996</td>
<td>Walter Schwinger, Jr., Captain</td>
<td>Career, Age 52</td>
<td></td>
<td>Tonawanda Fire Department, NY</td>
<td>Pulmonary Embolism</td>
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<td>Captain Schwinger died of a pulmonary embolism while asleep in the bunkroom while on duty.</td>
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<td>11/12/1996</td>
<td>William Chambers, Firefighter</td>
<td>Career, Age 49</td>
<td></td>
<td>Anne Arundel County Fire Department, MD</td>
<td>Heart Attack</td>
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<td>Firefighter Chambers collapsed and died of a heart attack during response to medical call.</td>
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<td>11/24/1996</td>
<td>Donald Manuel, Firefighter</td>
<td>Volunteer, Age 65</td>
<td></td>
<td>Highview Fire District, KY</td>
<td>Heart Attack</td>
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<td>Firefighter Manuel suffered a fatal heart attack upon arrival at the scene of a church fire.</td>
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<td>11/27/1996</td>
<td>Edward Ramos, Firefighter</td>
<td>Volunteer, Age 36</td>
<td></td>
<td>Branford Fire Department, CT</td>
<td>Trapped</td>
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<td>Firefighter Ramos was killed in a warehouse fire at Floors and More, Inc., after the roof collapsed, trapping him and two other firefighters inside. Despite having his SCBA facepiece knocked off in the collapse, Firefighter Ramos stayed on the hoseline and knocked down the fire so the other firefighters could escape.</td>
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<td>12/4/1996</td>
<td>Ruben Lopez, District Chief</td>
<td>Volunteer, Age 39</td>
<td></td>
<td>Houston Volunteer Fire Department, TX</td>
<td>Trapped</td>
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<td>District Chief Lopez was killed in a residential structure fire while attempting to rescue one of the house’s occupants. The firefighter and the victim were caught in a flashover. Both the firefighter and the victim were killed.</td>
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<td>12/8/1996</td>
<td>Craig Arnone, Firefighter</td>
<td>Volunteer, Age 23</td>
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<td>Somers Fire Department, CT</td>
<td>Electrocution</td>
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<td>Firefighter Arnone was electrocuted when his SCBA tank came into contact with a downed power line carrying 23,000 volts at a residential structure fire. A snowstorm was responsible for the power line being down. Firefighters thought the electrical power to the area had been shut off when they came to the house.</td>
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<td>12/21/1996</td>
<td>Stanley Scott, Firefighter</td>
<td>Career, Age 45</td>
<td></td>
<td>Chicago Fire Department, IL</td>
<td>Heart Attack</td>
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<td>Firefighter Scott suffered a fatal heart attack after hooking up to a hydrant at a structure fire. CPR was initiated on the scene, but firefighter Scott was pronounced dead at a hospital.</td>
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<td>12/21/1996</td>
<td>James A. Ellis, Firefighter</td>
<td>Career, Age 43</td>
<td></td>
<td>Boston Fire Department, MA</td>
<td>Trauma</td>
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<td>Firefighter Ellis died as a result of injuries sustained after falling approximately 20 feet down a fire pole on the way to a call. The presence of water possibly from a sink is listed as the cause of the fall. The fall caused severe head trauma and neurological damage.</td>
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<td>12/21/1996</td>
<td>Laura Halsey, Firefighter</td>
<td>Volunteer, Age 23</td>
<td></td>
<td>Stroh Volunteer Fire Department, IN</td>
<td>MVA</td>
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<td>Firefighter Halsey was driving to the hospital with a patient from an automobile wreck when a car struck them head on at 4:30 a.m. The striking car had no headlights and was in the wrong lane. All of the car’s occupants were killed.</td>
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<td>12/23/1996</td>
<td>James Warick, Firefighter</td>
<td>Volunteer, Age 52</td>
<td></td>
<td>Burnet Volunteer Fire Department, TX</td>
<td>Struck by Vehicle</td>
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<td>Firefighter James Warick was struck by a vehicle while directing traffic at an incident.</td>
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<td>12/27/1996</td>
<td>Charles Brant Chesney, Firefighter</td>
<td>Volunteer, Age 36</td>
<td></td>
<td>Forsyth County Fire Department, GA</td>
<td>Trauma</td>
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<td>Firefighter Chesney was killed while advancing a hoseline to the upper floor of a three-story condominium fire when the roof collapsed due to unseen fire spread. The two firefighters with him were able to escape.</td>
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<tr>
<td>12/29/1996</td>
<td>Raymond Emmrich, Chief</td>
<td>Volunteer, Age 54</td>
<td></td>
<td>Kimball Township Fire Department, WI</td>
<td>Heart Attack</td>
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<td>Chief Emmrich suffered a heart attack while driving a pumper to a dwelling fire. After suffering the heart attack, the pumper ended up in a snow bank.</td>
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1/1/1997  Brian D. Myers, Sr., Engineer Volunteer, Age 47 burns 
Schuyerville Hose Company, NY Burns 
Firefighter Myers and three other firefighters were operating the nozzle at the scene of a restaurant fire early on New Year’s Day when the ceiling collapsed and a flashover occurred. Two of the firefighters were able to escape. A rescue team placed a nozzle through the front window to cool down the area where firefighters were trapped. They located and removed one of the trapped firefighters. They then reentered the building and found Firefighter Myers. He too was removed and emergency medical care was provided. Firefighter Myers went into cardiac arrest while en route to the hospital. He had suffered burns to 70 percent of his body. His son and one other firefighter were also injured.

1/2/1997  David P. Janora, Assistant Chief Volunteer, Age 49 cardia 
Clarence Center Fire Department, NY Cardiac 
At 9:30 p.m., Chief Janora went into cardiac arrest during a meeting at the fire station. Chief Janora had attended a vehicle fire earlier during the day.

1/2/1997  Harold “Mac” E. McGowan, Firefighter/Safety Volunteer, Age 70 cardia 
Officer, Union Fire Company #1, PA Cardiac 
Following a structure fire, Firefighter McGowan removed his gear and went into cardiac arrest.

1/3/1997  Arthur R. Ebert, Firefighter Volunteer, Age 63 heart attack 
Fort Morrow Fire Department, OH Heart Attack 
Firefighter Ebert responded to a structure fire and returned to the station to clean up when he was dispatched to a report of a house fire. Firefighter Ebert and another firefighter took an engine to the scene. They were the first to arrive. The second firefighter pulled a handline but was not getting any water. He went to investigate and found Firefighter Ebert had collapsed due to a heart attack.

1/7/1997  Carl L. Ayers, Fire Police Volunteer, Age 67 struck by vehicle 
Newton–Ransom Fire Company, PA Struck by Vehicle 
Fire Police Officer Ayers was struck by a car and killed while directing traffic at a motor vehicle collision.

1/8/1997  H. Robert Hathaway, Chief Volunteer, Age 58 heart attack 
Branchport Fire Department, NY Heart Attack 
Chief Hathaway collapsed due to a heart attack immediately following a meeting at the firehouse.

1/10/1997  Harold Hester, Firefighter Volunteer, Age 52 mva 
Malden Fire Department, MO MVA 
Firefighter Hester was involved in a vehicle accident while responding to a call. He was in his personal vehicle and lost control when the car hit a patch of ice on the highway.

1/10/1997  Allen H. Martin, Jr., Firefighter Career, Age 33 trapped 
New Orleans Fire Department, LA Trapped 
Firefighter Martin became trapped by debris in a two-story residential structure fire while searching the structure for victims and conducting an interior attack. The roof collapsed and it was several minutes before firefighters were able to make a rescue attempt. Firefighter Martin died shortly after arriving at the hospital.

1/14/1997  Stoy Geary, Chief Volunteer, Age 62 cardiac 
Rosine Volunteer Fire Department, KY Cardiac 
Chief Geary suffered cardiac arrest at the scene of a residential structure fire.
1/15/1997  Richard Sanders, Lieutenant
Oakland Fire Department, CA  Career, Age 47
Heart Attack
Lieutenant Sanders died as a result of a heart attack that occurred early in the morning in the station towards the end of his shift.

1/20/1997  Thomas C. Reynolds, Firefighter
Terlton Community Fire Department, OK  Volunteer, Age 29
Burns
Firefighter Reynolds was seriously burned while rescuing two children from an overturned dune buggy. He died 1/20/1998.

1/26/1997  Robert William Martinson, Sr., Assistant Chief
Conover Fire Department, WI  Volunteer, Age 43
Smoke Inhalation
Chief Martinson was on the roof of a house checking the progress of the fire when the roof collapsed.

2/4/1997  Wayne M. Fogel, Firefighter
Detroit Fire Department, MI  Career
Heart Attack
Firefighter Fogel suffered from a heart attack while on duty at the firehouse.

2/5/1997  Kevin C. Seaburg, Assistant Chief
Selkirk Fire District, NY  Volunteer, Age 38
Heart Attack
Chief Seaburg collapsed due to a heart attack while carrying and setting up equipment at the scene of a structure fire.

2/6/1997  Bryan J. Golden, Firefighter
Brett A. Laws, Firefighter
Stockton Fire Department, CA  Age 21, Career
Age 29, Career
Trapped
Units were dispatched to a report of a house fire. The first arriving officer found a working fire and immediately requested a second-alarm assignment. Two houses were on fire and there was a possibility of a person trapped. Unbeknownst to the initial crews, the house was much bigger than it appeared from the street and there was a large two-story addition heavily involved in fire. An interior attack was initiated with a 1-3/4-inch handline through the front door.

Approximately 21 minutes later, with no warning, there was a catastrophic collapse of the entire second floor and roof of the addition. The collapse trapped firefighters working on the first floor. Fire Captain Oscar Barrera was trapped in the burning debris, but was rescued through the efforts of other firefighters. Captain Barrera was seriously burned. Firefighters Laws and Golden could not be rescued and were killed. This was Firefighter Golden’s first fire.

The owner of the house was also killed in the fire. The second story had been added on by the owner for use as a dance studio and was made of heavy timber.

2/15/1997  Timothy J. Warren, III, Firefighter
Geneva Fire Department, NY  Volunteer, Age 36
Heart Attack
Firefighter Warren collapsed due to a heart attack while fighting a fire that broke out in a three-story dormitory at Hobart College. The fire started on the first floor. No students were injured.

2/16/1997  Peter Kahn, Firefighter
Trumansburg Fire Department, NY  Volunteer, Age 75
Heart Attack
Firefighter Kahn collapsed due to a heart attack while directing traffic at the scene of a two-car vehicle collision.

2/17/1997  Charles “Chuck” H. Williams, II, Firefighter
Lexington Fire Department, KY  Career, Age 29
Burns
Firefighter Williams and a second firefighter became trapped after entering a residential fire and falling through a hole into the basement. Both received second- and third-degree burns. Efforts
were made to revive Firefighter Williams on the scene. The other firefighter was admitted to the hospital with serious burns.

2/22/97 Robert E. Fowler, Firefighter Volunteer, Age 54
Spencerport Fire Department, NY Trauma

Firefighter Fowler was crushed and killed when a tree fell on his personal vehicle during a response to an emergency call. Due to extreme weather, the fire department had been called for several downed power lines and windows that had been blown out. Firefighter Fowler and his son were driving the half mile from their house to the station. His son, who was a junior firefighter, was also taken to the hospital with back injuries.

2/28/1997 Charles Allen Weber, Sr., President Volunteer, Age 48
Violetville Volunteer Fire Company, Baltimore County, MD Heart Attack

Firefighter Weber returned from an emergency call and was in the process of storing his gear when he suffered a fatal heart attack.

3/15/1997 Rustett “Rusty” S. Hauber, Firefighter/Dive Team Career, Age 32
Charlie Mestaz, Firefighter/Dive Team Volunteer, Age 36
Yakima County Sheriff’s Dive Team, WA Asphyxiation

Firefighters Hauber and Mestaz died from asphyxiation while attempting to rescue two civilian divers from a 1,000-foot long, 100-foot deep irrigation siphon. A police officer was also killed at this incident.

3/21/1997 Tommy T. Gross, III, Firefighter Career, Age 24
Tuscaloosa Fire Department, AL Heart Attack

Firefighter Gross suffered from a heart attack while going through a burn building while in rookie school.

4/17/1997 Larry L. Mercer, Captain Career, Age 48
Duncan Fire Department, OK Stroke

Captain Mercer died as a result of a stroke that occurred while on duty. He was on a 24-hour shift and was feeling ill. This prompted him to make a doctor’s appointment for the next working day. He died as a result of the stroke 48 hours after experiencing pain on his way to work.

4/20/1997 William W. Babka, Firefighter/Co-Pilot Career, Age 34
Walter John Hirth, Jr., Captain/Pilot Career, Age 45
Pennsylvania Bureau of Forestry, Harrisburg, PA Aircraft Crash

Pilot John Hirth and Co-Pilot William W. Babka were killed after approaching a forest fire to make a water drop. After leveling for the drop, the aircraft was affected by a downdraft from wind gusts. The smoke from the fire also had an impact on their visibility. The aircraft stripped off the tops of trees for approximately 100 feet before coming to rest. An unattended campfire started the blaze.

4/26/1997 Earl Holsapple, Captain Volunteer, Age 45
California Division of Forestry, La Cima Fire Center, Julian, CA Asthma Attack

Captain Holsapple suffered a severe asthma attack and died while teaching an equipment operating class at the California Division of Forestry’s Fire Academy.

San Antonio Fire Department, TX Cardiac

Fire Apparatus Operator Bricker died as a result of cardiac arrest while fighting a four-alarm motel fire. He experienced smoke inhalation at the fire and, after returning to the station, FAO Bricker complained of feeling sick. He was transported to the hospital at 5:56 a.m. in severe respiratory distress. He died at 4:38 p.m. Other personnel also suffered from various symptoms as a
result of exposure to the smoke. The following day, an environmental consultant was directed to sample and analyze the scene and clothing worn by firefighters. Analysis revealed that an “unusual chemical event” occurred at the scene of the fire. Testing determined firefighters may have been exposed to chlorine or chlorine compounds, hydrochloric acid, pesticides, amines, illicit drugs (such as methamphetamines), and other undetermined chemicals.

5/3/1997  Tracy D. Floyd, Firefighter  Career, Age 29
           Winchester Fire Department, TN  MVA
Firefighter Floyd was killed while responding to the scene of a structure fire when another vehicle pulled out in front of him, causing a collision.

5/5/1997  Timothy M. Goff, Firefighter  Volunteer, Age 27
           Kenmore Volunteer Fire Department, NY  Trauma
Firefighter Goff died on 5/24/1997, as a result of injuries sustained from a wall collapse during a paint store fire. Five other firefighters were injured in the collapse.

5/8/1997  M. Edward Hudson, Lieutenant  Career, Age 53
           Reginald G. Robinson, Sr., Firefighter  Volunteer, Age 33
           Stewart Warren, Captain  Career, Age 47
           West Helena Fire Department, AR  Explosion
           The West Helena Fire Department was dispatched to the BPS Bartlo chemical plant at 1:02 p.m. for a report of smoke coming from the building. Firefighters were advised that the building contained azinphos methyl. The building exploded at approximately 1:22 p.m., killing three firefighters and severely injuring one. Eleven other firefighters were involved in the rescue of the injured firefighter and the rescue attempt for the three firefighters who died.

5/9/1997  Will Ellis Rowe, Jr., Captain  Career, Age 49
           Macon–Bibb County Fire Department, Macon, GA  Trauma
During a severe thunderstorm, Captain Rowe and his crew responded to a report of a trash fire and found a downed tree on the roof of a house. Captain Rowe and another firefighter went behind the house to assess the situation when the tree began to slide off the roof. The firefighters began to move out of the way when Captain Rowe slipped in the mud and was crushed by the falling tree. He was killed instantly.

5/12/1997 Lawrence Hobson, Lieutenant  Career, Age 49
           Robbins Fire Department, IL  Heart Attack
Lieutenant Hobson collapsed and died due to a heart attack while pulling 2-1/2-inch hoseline at an abandoned house fire.

5/25/1997 William “Junior” T. Wilson, Firefighter  Volunteer, Age 41
           Pinecrest Volunteer Fire Department, Jacksboro, TN  Apparatus Rollover
Firefighter Wilson was killed during a rollover en route to a vehicle accident on Interstate 75.

5/26/1997 Stanley F. Kaminski, Firefighter  Volunteer, Age 67
           Langford–New Oregon Fire Department, North Collins, NY  Cardiac
Firefighter Kaminski went into cardiac arrest and died while attending a memorial service with the fire department.

5/29/1997 David M. Ray, Firefighter  Contract, Age 21
           California Department of Forestry/Conservation Corps, Julian, CA  Heat Stroke
Firefighter Ray died as a result of a heat stroke after fighting a brush fire. The fire started when a tractor mower hit a rock, producing a spark. Over 140 firefighters fought the fire. Two firefighters went to the hospital after collapsing from heat stroke. According to news articles, this was Firefighter Ray's first fire. Firefighter Ray's crew was assigned to cut a fireline on a hillside.
Winds at the time were light and the temperature was close to 100 degrees by early afternoon. The humidity level was under 15 percent. After a long period cutting firelines (which included one break), Firefighter Ray manifested symptoms of heat stress. Despite the immediate on-scene attention of his crew and quick evacuation to a hospital, his condition deteriorated rapidly to heat stroke. He did not regain consciousness and died early the next morning.

6/3/1997  Jesse Gates, Pilot  Career, Age Unknown
Leo A. Stevens, Firefighter  Career, Age 55
Fort Apache Indian Reservation and BIA Facility Management, AZ  Aircraft Crash

Pilot Jesse Gates and Firefighter Leo Stevens were killed in the crash of a fire reconnaissance airplane on the Fort Apache Indian Reservation in Eastern Arizona. A lookout tower reported black smoke near the Black River. Dispatch lost contact with the patrol plane at about the same time the smoke was reported. The plane had been on a routine fire reconnaissance flight.

6/5/1997  James H. Johnson, Firefighter  Volunteer, Age 63
Charles A. Rudd, Lieutenant  Volunteer, Age 21
New Bloomington Fire Department, OH  Career, Age 30
Robert Douglas Good, Firefighter/Paramedic  Electrocution
Rural Metro Ambulance  Career, Age Unknown

Firefighter Johnson and Lieutenant Rudd were electrocuted at the scene of a motor vehicle collision when a rescuer came into contact with downed power lines, creating a chain reaction. Five rescuers were injured and three rescuers were electrocuted. The initial victim, who was being carried on a backboard, was also fatally electrocuted.

6/7/1997  Gerald T. Ertle, Captain  Volunteer, Age 53
Benton Volunteer Fire Department, MI  Heart Attack

Captain Ertle went into cardiac arrest and died during a training class at the state academy. After completing certification classes during April, May, and June, he attended the volunteer certification field day (practical testing day) at the fire academy. Shortly after completing the testing, Captain Ertle suffered a fatal heart attack.

6/9/1997  Timothy Wayne Martin, Firefighter/EMT  Volunteer, Age 38
Clovis Fire Department, NM  Apparatus Rollover

Firefighter Martin was providing patient care in the back of an ambulance when the ambulance lost control on wet pavement and overturned. The patient was also killed.

6/16/1997  Edwin J. Haungs, Sr., Fire Police  Volunteer, Age 51
South Lockport Fire Company, Inc., NY  Heart Attack

Fire Police Officer Haungs’ fire company was called to assist with traffic control at a mutual-aid motor vehicle accident. He collapsed and died due to a heart attack immediately after returning from this call.

6/16/1997  William Jack Northam, Firefighter  Volunteer, Age 55
Laurel Fire Department, Inc., DE  Heart Attack

The Laurel Fire Department was dispatched to a motor vehicle accident. Firefighter Northam was putting away tools before boarding the apparatus when he collapsed due to a heart attack. He was taken to the hospital and died 10 hours later.

6/16/1997  John McClay Watson, Firefighter  Volunteer, Age 18
Moscow Volunteer Fire Company, PA  MVA

Firefighter Watson died as a result of injuries sustained from an accident involving his personal vehicle while en route to an EMS call. He was thrown from his vehicle, which rolled over three times in the course of the accident. He died the next day from severe head trauma.
Firefighter Mellon suffered from a heart attack while preparing to respond in his personal vehicle to a fire alarm.

Firefighter Drobitsch’s death occurred during a diving training session.

Lieutenant Neuner died due to injuries sustained at a residential structure fire after becoming trapped in the basement.

Firefighter Moore was killed when he was thrown from a fire truck after it overturned en route to a fire call.

Firefighter Vagnier and two other firefighters were attempting to rescue a flood victim when Firefighter Vagnier was swept under the wheel of a truck by raging waters. Firefighters treated him at the scene, and immediately transported him to a local hospital where he subsequently died. Reports indicate that either Firefighter Vagnier was pulled under when another firefighter holding his security rope went under or he was pulled under after attempting to help rescue another firefighter that went down. He died on 7/3/97.

Firefighter Sequin was killed when he became trapped by a roof collapse while fighting a residential structure fire. One other firefighter was injured and suffered second-degree burns. The second firefighter was dragged to safety after becoming unconscious. Rescuers did not see Firefighter Sequin due to heavy smoke, and he was not located until later that afternoon. Fire officials stated that there was a possibility that fireworks started the fire. The owner of the house believed that a “rocket” landed on her roof.

Pilot Hiser was killed as a result of a helicopter crash that occurred during a water drop at a wildland fire.

Captain Tebo collapsed at the scene of a structure fire and later died as a result of a heart attack.

Firefighter Rovero died from apparent cardiac and respiratory arrest at the scene of a 10-acre brush fire.

Lieutenant Sippel collapsed of a seizure while assisting a victim at a motor vehicle accident.
7/25/1997  Jerome H. Chlian, Jr., Firefighter Volunteer, Age 46 
Starbuck Fire Department, MN Heart Attack 

Firefighter Chlian died as a result of a heart attack while on duty.

8/3/1997  Joseph J. Estavillo, Fire Engineer Career, Age 44 
San Diego Fire & Life Safety Services, CA Infectious Disease 

Fire Engineer Estavillo was called out on a strike team to fight a brush fire in the northern part of San Diego County. While fighting the fire, he sustained cuts on his hands (through his gloves). After returning to his crew that night (2:00 a.m.), Estavillo complained to his Captain about not feeling well. They immediately went to the hospital. By morning they had discovered that Fire Engineer Estavillo was infected with Strep A, which caused his death.

8/19/1997  Jeffrey E. Sammons, Firefighter Volunteer, Age 21 
South Whitley Fire Department, IN Trauma 

Firefighter Sammons was killed and two others were injured in a restaurant fire caused by cooking equipment that had been left on. Firefighter Sammons and others were making an internal fire attack when the heat buildup became extreme. They started to exit the structure when a flashover occurred causing some of the ceiling tile to fall.

8/22/1997  Richard B. Jenkins, Sr., Firefighter Volunteer, Age 39 
Tennville Fire Department, GA MVA 

Firefighter Jenkins was killed en route to a house fire from his home in a private vehicle.

8/31/1997  Robert D. Chisholm, Assistant Chief Volunteer, Age 50 
Gearhart Fire Department, OR Heart Attack 

Chief Chisholm had a heart attack while trying to rescue a missing swimmer at Gearhart beach in Oregon. After searching for the victim, Chief Chisholm became tired and passed out. His fellow firefighters dragged him to the shore. Crews were unable to revive him.

9/5/1997  Kenneth E. Bayer, Captain Career, Age 52 
Los Angeles County Fire Department, CA Carbon Monoxide 

Captain Bayer died from cardiac arrest after being exposed to high concentrations of carbon monoxide (CO). The exposure to smoke and CO occurred over an approximate 45–60-minute period as he directed the interior extinguishment, salvage, and overhaul operations of a chimney and attic fire in a two-story condominium. He died 9/9/1997.

9/7/1997  Howard E. Strube, Firefighter Career, Age 34 
Canton Fire Department, IL Trauma 

Firefighter Strube was killed during training on the fire department’s new aerial apparatus. Firefighter Strube was operating as the safety observer (platform operation) when his head became caught between the ladder rungs while the ladder was retracted.

9/8/1997  David E. Carpenter, Firefighter Volunteer, Age 38 
Donald J. Payton, Sr., Captain Volunteer, Age 57 
Thayer Rural Fire Department, MO MVA 

Captain Payton and Firefighter Carpenter were killed while responding to a motor vehicle accident. The fire truck they occupied collided head on with a dump truck. The police reported that the dump truck crossed the centerline and struck the fire truck.

9/14/1997  Henry E. Perry, Firefighter Volunteer, Age 59 
Pumpkin Center Fire Department, Inc., Trauma 
Jacksonville, NC 

Firefighter Perry went into cardiac arrest at the scene of a structure fire. He was climbing on top of a fire truck when he fell. The pump operator noticed him falling, but had no time to react. Firefighter Perry died as a result of injuries received by the fall.
10/2/1997  Walter Douglas Buckert, Firefighter Volunteer, Age 23
Michael D. Mapes, Firefighter Volunteer, Age 35
Carthage Fire Department, IL Explosion

These fatalities occurred at a fire located at a grain dryer fire north of Burnside, IL. En route to the fire, firefighters were advised that liquid propane gas tanks were involved. Upon arrival, firefighters noticed one of the 1,000-gallon tanks venting and shooting flames approximately 45 to 50 feet in the air. After surveying the scene and talking to the owner, firefighters decided to move the truck to a safer location for a better point of attack. While doing so, one of the tanks exploded, causing the deaths of Firefighters Mapes and Buckert. Two other firefighters were injured.

10/10/1997  William “Pops” H. Winters, Deputy Chief Volunteer, Age 76
Atglen Fire Company, PA Cardiac

Chief Winters collapsed and went into cardiac arrest at the scene of a structure fire.

10/15/1997  Harold “Ray” Elliott, Battalion Chief Career, Age 54
Kern County Fire Department, CA Heart Attack

Chief Elliott was doing mandatory physical training outside at Virginia Colony Station 41 when he collapsed due to a heart attack at approximately 9:40 p.m. He was on an overtime shift and had already worked approximately 24 hours. Chief Elliott died 4/28/1998.

10/22/1997  David Shawn Williams, Firefighter Career, Age 26
Taylor County Fire Rescue Service, FL Shot (Accidental)

Firefighter Williams was killed when an overheated bullet (0.22 caliber) from a greenhouse fire discharged, hitting him in his chest.

10/24/1997  John M. Carter, Sergeant Career, Age 38
District of Columbia Fire Department, Washington, DC Trapped

Sergeant Carter died when the floor beneath him collapsed during a three-alarm grocery store fire. The incident commander was evacuating the building at the time of the collapse. The investigation into the fire’s cause indicated that faulty electrical wiring in the basement started the fire.

10/24/1997  David Womer, Firefighter/EMT Volunteer, Age 24
Mount Carmel Volunteer Fire Department Explosion
Station 5, PA

Firefighter Womer was killed when the rescue squad building where he was on duty experienced an explosion. A fellow rescue squad member rolled an open 30-pound propane tank from a gas grill into the squad house as a practical joke. All but Firefighter Womer evacuated the building. Eventually the gas reached the pilot light in the furnace room and triggered the explosion.

10/25/1997  Kathryn A. Mayfield, Firefighter/EMT Volunteer, Age 47
Crooksville Volunteer Fire Department, OH Heart Attack

Firefighter Mayfield collapsed in the station after returning from a tire fire and was taken to the hospital. She died the next morning due to a heart attack.

10/27/1997  James E. Hynes, Firefighter Career, Age 27
Terry McElveen, Lieutenant Career, Age 43
Philadelphia Fire Department, PA Smoke Inhalation

Lieutenant McElveen and Firefighter Hynes died as a result of smoke inhalation at the scene of a residential structure fire. The fire was a result of wires that had come down on the roof during a heavy rainstorm. The firefighters were operating in the interior of a two-story occupied dwelling with a fire in the basement. They ran out of air, removed their SCBA masks, and remained inside
the dwelling. The two firefighters were found near the back door with their SCBAs on, but their masks off.

11/2/1997  Leroy Swenson, Captain  Career, Age 56  
            Minneapolis Fire Department, MN  Struck by Vehicle  
Captain Swenson was killed at the scene of a four-vehicle accident when a large commercial truck lost control on the icy road and rolled over on top of him, killing him instantly.

11/5/1997  William S. Bradner, III, Firefighter  Volunteer, Age 30  
            Tunstall Fire and Rescue Company, Danville, VA  Apparatus Rollover  
Firefighter Bradner was killed when he was thrown from a tanker truck as it overturned while returning to the scene of a structure fire. Another volunteer was also injured in the accident and suffered a broken pelvis. The two firefighters had already delivered one load of water and were returning with the second load when the accident occurred.

11/6/1997  Johnson “Jack” Oatman, Firefighter  Volunteer, Age 55  
            Ewansville Volunteer Fire Department, Mount Holly, NJ  Heart Attack  
Firefighter Oatman died from a heart attack that occurred while preparing to respond to a motor vehicle accident with entrapment.

11/7/1997  John F. Kroening, Firefighter  Volunteer, Age 75  
            Cambria Volunteer Fire Company, Lockport, NY  Struck by Vehicle  
Firefighter Kroening was on the scene of a motor vehicle accident setting up equipment when a passing vehicle struck him. He was taken to the hospital and died from the injuries the next day.

11/13/1997  Eugene Ottonello, Assistant Fire Manager  Officer  Wildland Career, Age 47  
            Bureau of Land Management, Battle Mountain, NV  Asthma Attack  
Officer Ottonello died due to an asthma attack at a prescribed burn. He then went into respiratory and cardiac arrest and died.

11/14/1997  Scott Alan Vrabel, Firefighter  Volunteer, Age 26  
            New Salem Volunteer Fire Department, PA  Apparatus Rollover  
Firefighter Vrabel was killed when he lost control of a brush truck en route to a two-vehicle accident. The truck ran off the road into a telephone pole and flipped, pinning Firefighter Vrabel underneath.

11/15/1997  William H. Fairweather, Fire Police  Volunteer, Age 78  
            Middletown Fire Department, NY  Heart Attack  
Fire Police Officer Fairweather was directing traffic at the scene of a motor vehicle accident when he had a heart attack and died.

11/18/1997  George A. Davis, Firefighter 1st Class  Career, Age 27  
            Houma Fire Department, LA  Heart Attack  
Firefighter Davis entered a structure fire wearing breathing apparatus. He later exited the structure, still wearing SCBA, and collapsed and fell into the arms of another firefighter. Firefighters performed CPR on the scene. Davis was then taken to the hospital where he died on 11/23/97.

11/22/1997  Gregory I. Quinn, Assistant Chief  Volunteer, Age 46  
            Village of Westfield Fire Department, WI  Struck by Vehicle  
Chief Quinn died after being hit by a sport utility vehicle that lost control on an icy bridge at the scene of a motor vehicle accident. The car struck two firefighters and hit one of the cars involved in the first wreck. The other firefighter was not seriously injured. The driver of the SUV was not wearing her seat belt and was killed.

11/26/1997  George Hopey, Jr., Fire Police  Volunteer, Age 69  
            Dravosburg Volunteer Fire Company #1, PA  Heart Attack  
Fire Police Officer Hopey suffered a heart attack while directing traffic at the scene of a structure fire. He died on 11/28/97.
12/1/1997  Thomas M. McCormack, Chief  Career, Age 44
Watervliet Fire Department, NY  Heart Attack
Chief McCormack died from a heart attack while directing fire operations at a residential structure fire mutual-aid call in the City of Troy, NY. The City of Watervliet was first due on the call, and Troy units were deployed on the second alarm.

12/5/1997  John F. Lincoln, Jr., Firefighter  Volunteer, Age 52
Purcellville Volunteer Fire Department, VA  Heart Attack
Firefighter Lincoln suffered a heart attack after returning from an all night working residential fire that included a civilian casualty. He died on 12/6/97.

12/9/1997  “Randy” Smartt, Firefighter  Career, Age 49
Huntsville Fire Department, AL  Heart Attack
Firefighter Smartt died as a result of a heart attack that occurred while on duty at the firehouse.

12/11/1997  Ronald A. Guilmette, Private  Career, Age 38
Woonsocket Fire Department, RI  Unknown
Private Guilmette responded to a fire alarm at 1:30 a.m. Upon returning to the station at 1:40 a.m., Private Guilmette complained of back pain to his crew and told them he thought he would be more comfortable sitting up on the couch in the television room. At 5:30 a.m., his engine was dispatched to another alarm. The crew found Private Guilmette collapsed on the floor near the couch.

12/15/1997  Leonard N. Zeller, Firefighter  Volunteer, Age 53
Edwards Fire Department, NY  Heart Attack
Firefighter Zeller died as a result of a heart attack that occurred while responding to an EMS call. He was on foot on the way to the fire station when he collapsed. He was revived on the way to the hospital, but died at the hospital.

12/17/1997  Scott M. Berry, Firefighter/Driver  Volunteer, Age 33
Bradley County Volunteer Fire Department, Cleveland, TN  Apparatus Rollover
Firefighter/Driver Berry was killed when his 12,050-gallon tanker overturned while responding to the scene of a brush fire. His brother was also in the tanker and was transported by helicopter to the hospital. Firefighter Berry was wearing his seat belt at the time of the accident.

12/20/1997  William “Sam” Smitherman, Sr., Firefighter  Volunteer, Age 59
East Oktibbeha Fire Department, Starkville, MS  Struck by Vehicle
A passing car at a motor vehicle fire struck and killed Firefighter Smitherman as he was retrieving a crowbar from the engine.

12/23/1997  Brian T. Hauk, Assistant Chief  Volunteer, Age 32
Logan–Trivoli Fire Department, Hanna City, IL  MVA
Chief Hauk died in a vehicle accident while responding to the firehouse for a reported oven fire in an apartment complex. Chief Hauk was taking evasive action to avoid another vehicle that failed to yield to his vehicle when his vehicle flipped. He was displaying an activated blue light. He had the right of way and the other car had a stop sign.

12/30/1997  Thomas P. Ryan, Firefighter  Volunteer, Age 68
Middletown Township Fire Department, NJ  Heart Attack
Firefighter Ryan died of a heart attack after returning from a call.

1/5/1998  Harold E. Roemer, Jr., Firefighter  Volunteer, Age 55
Greenlawn Fire District, NY  Heart Attack
Firefighter Roemer had just completed 30 minutes on a treadmill in the gym located at fire department headquarters. He signed out of the gym, drank some water, and collapsed due to a heart attack.
1/6/1998  Prince Albert Mousley, Jr., Firefighter  Career, Age 58
Wilmington Fire Department, DE  Heart Attack

Firefighter Mousley was a member of a ladder company on the scene of an oil burner fire in the basement of a residential structure. As he and a partner entered the rear of the structure, Firefighter Mousley stated that he was tired and collapsed of a heart attack. Firefighter Mousley had just returned to duty after a battle with cancer. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–13.

1/12/1998  Robert J. O’Toole, Firefighter  Part-Time Paid, Age 25
Washington Township Fire Department, OH  Struck by Vehicle

Firefighter O’Toole responded to an automobile collision on an interstate highway. The victim of the original collision had been loaded into an ambulance and had left the scene. As Firefighter O’Toole and others began to disconnect the battery on the vehicle, which was located in the median, he was struck and killed by another vehicle that had lost control on the ice. A police officer was also killed and another firefighter was severely injured in this incident.

1/16/98  Brian Allen Cannon, Training Officer  Volunteer, Age 30
Taylors Bridge Fire Department, Inc., NC  Apparatus Rollover

Firefighter Cannon and a fire captain were returning to the station from the scene of a traffic collision. The pumper left the roadway and overturned. Firefighter Cannon, who was not wearing a seat belt, was ejected and sustained blunt trauma injuries to the head.

1/21/1998  Gregory Scott Carter, Firefighter  Volunteer, Age 24
Fairlea Volunteer Fire Department, WV  Carbon Monoxide/Burns

Firefighter Carter responded to a report of smoke in a supermarket. The market was contained in a strip mall, which also included a post office and a photoprocessing store. Firefighter Carter had been employed at the supermarket in the past. Firefighter Carter and a captain entered the front of the store in full protective clothing and SCBA to search for the fire. They became disoriented while trying to exit the store. The captain alerted other firefighters by radio that he and Firefighter Carter were lost and in need of rescue. Firefighter Carter ran out of air and placed the breathing tube from his SCBA into his coat in an attempt to breathe. The captain was able to escape without significant injury. Immediate attempts were made by on-scene firefighters to rescue Firefighter Carter but rescuers were driven back by intense heat and smoke. Firefighter Carter was wearing a PASS device but it was not turned on. No hose line or search rope was used. The cause of death was smoke and soot inhalation, carbon monoxide poisoning, and complete body charring. This was an accidental fire caused by an electrical malfunction in a wall. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–04.

1/27/98  Stephen Earl Murphy, Lieutenant  Career, Age 47
Philadelphia Fire Department, PA  Heart Attack

Lieutenant Murphy responded to a fire in a row house dwelling. He carried a 16-foot portable ladder to the rear of the structure, raised the ladder, broke out windows, climbed the ladder, and entered a bedroom. Other firefighters who ascended the ladder reported seeing Lieutenant Murphy in the bedroom. He ordered them to proceed into the structure and continue ventilation. When the firefighters returned to the bedroom, they found Lieutenant Murphy face down and unresponsive suffering from an apparent heart attack. Firefighters initiated emergency medical treatment and Lieutenant Murphy was transported to the hospital where a heartbeat was restored. Lieutenant Murphy died on 2/3/1998. The cause of the fire was ruled accidental as a result of a portable kerosene heater placed too close to combustibles. Lieutenant Murphy was not wearing SCBA.
2/5/1998  Stephen D. Carletti, Firefighter Volunteer, Age 43
         David P. Theisen, Firefighter Volunteer, Age 29
         Crooksville Fire Department, OH Asphyxiation/Burns, Trauma

Firefighters Carletti and Theisen responded to a report of a fire in the basement of a single-story home. They entered the basement with other firefighters and extinguished fire in the ceiling. In the process of moving around the basement, the attack line was pinched off when it was caught in a folding chair. Firefighters were not aware that their water supply had been cut off. When they began to pull additional ceiling tiles, the room experienced a flashover. Of the five firefighters in the basement when the flashover occurred, two escaped, one was rescued, and two were killed. An adjacent room, which had not been discovered by the firefighters, was fully involved in fire and fire spread to the other room when tiles were removed. Repeated radio requests for help and water were received from the basement but rescuers were unable to reach the firefighters in distress due to severe heat and fire. Both firefighters were wearing their PASS devices, they were turned on, and they activated. The fire cause was determined to be accidental. Firefighter Carletti died of asphyxiation and burns and Firefighter Theisen died as the result of a crush injury. Firefighter Theisen was also a career firefighter in Westerville. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–06.

2/10/1998  Richard L. Kalous, Firefighter Career, Age 50
          De Pere Fire Rescue, WI Heart Attack

Firefighter Kalous responded as a member of an engine company to a car fire. Upon arrival at the scene, he hand stretched a 5-inch supply line to a fire hydrant about 75 feet from the engine. When it was determined that the supply line would not be needed, he was directed to don SCBA and assist with fire attack. He was discovered by other firefighters on a side step of the engine unresponsive and suffering from a heart attack; firefighters were unable to revive him.

2/11/1998  Warren D. Myers, Jr., Firefighter Career, Age 48
          Tulsa Fire Department, OK Heart Attack

Firefighter Myers and his crew responded to a gas leak at a single-family dwelling. The line was shut off and, after repairs were made, Firefighter Myers turned the gas back on. Firefighter Myers was observed to be fatigued at the incident. When his engine company returned to quarters, Myers did not get off the truck and appeared to be in distress. Despite immediate medical treatment by his crew and others, he died of a heart attack. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–29.

2/11/1998  Patrick Joseph King, Firefighter/Career, Age 40
          Anthony E. Lockhart, Firefighter Career, Age 40
          Chicago Fire Department, IL Smoke Inhalation

Firefighter King and Firefighter Lockhart responded from different companies to a report of a structural fire in a tire shop. No visible fire was encountered, there was no excessive heat, and only light smoke was found in most of the building with heavier smoke in the shop area. Ten firefighters were in the interior of the structure when an event that has been described as a flashover or backdraft occurred, disorienting the firefighters. Some were able to escape but Firefighters King and Lockhart were trapped in the structure. A garage door that self-operated due to fire exposure may have introduced oxygen into the fire area and may have been a factor in the backdraft. The exit efforts of firefighters were complicated by congestion in the building. Within minutes of the backdraft, the building was completely involved in fire and rescue efforts were impossible. Both firefighters died from carbon monoxide poisoning due to inhalation of smoke and soot. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–05.

2/5/1998  Luis A. Rivera–Rivas, Firefighter Career, Age 58
          Puerto Rico Fire Department, PR Heart Attack

Firefighter Rivera–Rivas died of a heart attack after being exposed to smoke at a grass fire in the town of Papillas. The wind shifted, resulting in the smoke exposure.
2/17/1998  Keith C. Thomas, Fire Chief  Volunteer, Age 56  
Aubbeenaubbee Volunteer Fire Department, IN  Heart Attack  
Chief Thomas was helping to prepare for a CPR training session in his fire station when he collapsed and died from a heart attack.

2/25/1998  William E. Bonnar Sr., Battalion Chief  Career, Age 61  
Orland Fire Protection District, IL  Heart Attack  
Chief Bonnar collapsed and died of a heart attack approximately 20–30 minutes after the completion of an SCBA drill in a commercial structure.

3/8/1998  Joseph C. Dupee, Fire Captain I  Career, Age 38  
Los Angeles City Fire Department, CA  Asphyxiation/Burns  
Captain Dupee and his company were dispatched to a structure fire in a pet food processing company and were assigned to backup interior crews. When fire conditions worsened, all firefighters exited the building with the exception of Captain Dupee who had somehow been separated from his crew. The situation was further complicated by the activation of an emergency signal by another firefighter that had become disoriented (he was rescued by his company officer). Shortly after firefighters left the building, a partial roof collapse occurred. When it was determined that Captain Dupee was missing, a rapid intervention crew forced entry in the rear of the structure and removed Captain Dupee. He was burned over 95 percent of his body. Rescuers initiated advanced life support care, but he was pronounced dead at the hospital. The cause of death was determined to be asphyxiation and burns. The fire was accidental and started as a grease fire in a convection oven. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–07.

Westford Volunteer Fire Department, NY  Trauma  
Firefighter Matter and other members of his department were dispatched to a report of a downed tree blocking the roadway. Firefighter Matter and another fire department member arrived at the scene in their personal vehicles. Each carried a chain saw and began to remove the tree from the roadway. The firefighters agreed that they would use a rope to pull the remnants of the tree to the ground to make a safer operation. While the rope was being prepared, Firefighter Matter continued to remove loose debris and began to use his chain saw to cut at one of the larger branches supporting the tree. Firefighter Matter was caught and carried by the tree as it rotated and was pinned face down under the largest section of the tree. Despite immediate removal of the tree by other firefighters, Firefighter Matter died from crush injuries.

Lionville Fire Company, PA  Struck by Vehicle  
Firefighter Good was killed when he was struck by a tractor-trailer truck that had lost control and slid into firefighters providing treatment at the scene of an earlier automobile collision. Firefighter Good was in the rear of the ambulance when he was struck. Nine other responders were injured, three of them severely. All emergency response personnel were out of the travel lanes when the incident occurred. The incident occurred in heavy rain.

3/16/1998  Paula Bennett, Firefighter  Volunteer, Age 44  
Carriere Volunteer Fire Department, MS  Trauma  
Firefighter Bennett died in a motor vehicle accident while responding to a structure fire. She was the only female firefighter to die in the line of duty during 1998.

3/23/1998  Michael A. Butler, Firefighter/Lead Paramedic  Career, Age 33  
Michael D. McComb, Apparatus Operator  Career, Age 48  
Eric F. Reiner, Firefighter/Lead Paramedic  Career, Age 33  
Los Angeles City Fire Department, CA  Helicopter Crash  
Firefighters Butler and Reiner and Apparatus Operator McComb died when the fire department helicopter in which they were flying crashed in a park. The crash occurred while they were
transporting an 11-year-old child that had been injured in a vehicle collision to the hospital. In addition to these fatalities, the child was killed in the crash and the pilot and one additional crewmember were severely injured. The reason for the crash has been attributed to the inflight failure of the tail rotor system. More information related to this incident can be found in National Transportation Safety Board report LAX98GA127.

3/28/1998  Richard K. Rice, Sr., Assistant Chief  Volunteer, Age 38
Nassauville Volunteer Fire Department, FL  Apparatus Rollover

Chief Rice was killed in a vehicle collision while en route to the scene of an illegal burn. Rice was operating a pumper when the truck left the road, rolled one and a half times, and ended up on its roof in a ditch. Chief Rice was partially ejected and was pronounced dead at the scene.

4/1/1998  Jeffrey William Reick, Safety Officer  Volunteer, Age 34
Aurora Fire Department, IN  Gastric Hemorrhage

Safety Officer Reick experienced a gastric hemorrhage while setting up for a live-fire training exercise. He was stricken when he exited the structure after another firefighter set the training fires. Safety Officer Reick died on 4/2/98.

4/9/1998  Thomas James Archer, Jr., Firefighter  Volunteer, Age 46
Larry R. Walsh, Firefighter  Volunteer, Age 45
Albert City Community Fire Department, IA  Explosion

Firefighter Archer and Firefighter Walsh were killed when they were struck by pieces of an 18,000-gallon propane tank when the tank experienced a BLEVE. The piping leading from the tank was damaged when an all-terrain vehicle struck it. A fire developed as a result of the leak and the fire department responded. While firefighters were protecting exposures, the tank exploded. Six other firefighters and a deputy sheriff were injured in the explosion. More information related to this incident is available in NIOSH Fire Fighter Fatality Investigation 98–F–14, report number 98–007–I–IA, from the U.S. Chemical Safety and Hazard Investigation Board and from the National Fire Protection Association.

Chanhassen Fire Department, MN  Heart Attack

Firefighter Wiborg died of a heart attack after completing an annual physical agility test.

4/22/1998  Ralph William Stanbery, Firefighter  Volunteer, Age 62
Granby Fire Department, MO  Heart Attack

Firefighter Stanbery was assisting with the filling of brush trucks from a tanker at an arson wildland fire. He collapsed and subsequently died of a heart attack.

4/25/1998  William J. Robertson, Battalion Chief  Career, Age 46
Ridge Road Fire District, NY  Heart Attack

After exercising for 45 minutes on a treadmill at the fire station, Chief Robertson responded to a report of a car fire. When the incident proved to be in another jurisdiction, Chief Robertson began to return to quarters. He suffered a heart attack, his command vehicle left the roadway and struck a metal pole. The vehicle collision was observed by a security guard who rendered aid and was joined by a police officer and paramedics. The car fire was found to be arson.

4/29/1998  Raymond Nakovics, Firefighter  Career, Age 49
New York City Fire Department, NY  Heart Attack

Firefighter Nakovics suffered a heart attack at the scene of a multiple-alarm highrise fire.

5/2/1998  Joseph Kroboth, Jr., Fire Police Captain  Volunteer, Age 59
The Volunteer Fire Company of Halfway, MD  Struck by Vehicle

Captain Kroboth was directing traffic at the scene of a serious motor vehicle collision. The scene was very busy and a medical helicopter was in the process of landing. A pickup truck suddenly
changed lanes and struck Captain Kroboth. The driver's attention was directed toward incident operations. According to the police report, Captain Kroboth was thrown 150 feet. He was wearing a reflective vest and utilizing a flashlight with safety wand. He died of massive head and chest injuries on 5/3/98.

5/2/1998  Michael A. Pizinger, Firefighter  Career, Age 33
Los Angeles City Fire Department, CA  Drowning
Firefighter Pizinger was killed when he drowned during a scuba diving training accident.

5/5/1998  Patrick Henry McKinney, Jr., Firefighter  Volunteer, Age 72
Colorado City Volunteer Fire Department, TX  Apparatus Rollover
Firefighter McKinney was driving a converted tanker from one brush fire to another when he lost control of the tanker as it crossed a narrow bridge. The tanker rolled three times after the right rear wheels of the vehicle caught on a concrete guardrail. Firefighter McKinney was ejected; another firefighter who was a passenger in the tanker was injured in the collision.

5/7/1998  Victor Clement Castillo, Fire Suppression Technician  Career, Age 43
El Paso Fire Department, TX  Seizure Disorder
Fire Suppression Technician Castillo was participating in a mandatory maze training exercise. During the event, Technician Castillo bumped his head twice, but told instructors that he was okay. After going off duty and going home, Technician Castillo became ill and was taken to the hospital by his wife. Later that month he was hospitalized for seizures and remained under a doctor’s care until his death. He never returned to duty. The cause of death was ruled as cardio-pulmonary arrest leading to anoxic brain injury. Underlying causes were aspiration secondary to a seizure, and seizure disorder secondary to his head injury. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–08. Technician Castillo died on 1/21/1999.

5/7/1998  Jesus Mercado, Firefighter  Career, Age 35
Puerto Rico Fire Department, PR  Apparatus Rollover
Firefighter Mercado was killed in the rollover of a ladder truck while en route to a furniture warehouse fire in the town of Bayamon. One of the rear tires on the apparatus failed, resulting in the collision. Four other firefighters were injured.

West Haverstraw Fire Department, NY  Heart Attack
Firefighter/Driver Mumford was the operator of a tower ladder apparatus at a mutual-aid structure fire. While preparing to leave the scene, Firefighter/Driver Mumford experienced an apparent heart attack. He had previously been under a doctor’s care for a cardiac condition but had been released to drive a fire truck. Rain slicked roads and an earlier fall by Firefighter/Driver Mumford may have contributed to his death.

5/19/1998  Eugene Williard Blackmon, Jr., Firefighter  Career, Age 38
Chicago Fire Department, IL  Drowning
Firefighter Blackmon was conducting an underwater search for two reported drowning victims in the Calumet River. While going from shore to a boat he lost his grip on a flotation device and slipped under the water. He had removed his scuba tank prior to entering the water. Firefighter Blackmon was recovered after approximately 10–15 minutes and provided with emergency medical care. He was airlifted by a fire department helicopter to a local hospital but was pronounced dead at the hospital. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–18.

5/26/1998  Jake M. Hoeffner, Junior Fire Department Captain  Volunteer, Age 17
Yaphank Fire Department, NY  MVA
Firefighter Hoeffner was a passenger in the bed of a fire department pickup as it proceeded across a parking lot during preparation for fire department training. Firefighter Hoeffner fell from
the pickup and struck his head, sustaining fatal injuries. He was not wearing a seat belt. Fire­fighter Hoeffner died on 5/31/1998.

5/27/1998  Walter A. Ernst, Firefighter  Volunteer, Age 61
East Meadow Fire Department, NY  Heart Attack
Firefighter Ernst assisted in the training of firefighters using SCBAs in a simulated smoke filled structure. He complained of pain in his left shoulder and was extremely fatigued at the conclusion of the training exercise as well as later in the fire station. He died at home in bed a few hours later of a heart attack.

5/29/1998  Robert W. Munter, Fire Chief  Career, Age 56
Berlin Fire Department, MA  Heart Attack
Chief Munter, the only paid member of his department, was conducting an inspection of a new school that was under construction in his jurisdiction. At some point during the inspection, Chief Munter suffered a heart attack. He was found by construction workers lying prone with a head injury that likely occurred as he fell. Chief Munter was treated by members of his own department and transported to the hospital, where he was pronounced dead.

6/2/1998  Dennis L. Buroker, Sergeant  Career, Age 44
Muncie Fire Department, IN  Heart Attack
Sergeant Buroker had gone to bed after responding to a brush fire at approximately 1:00 a.m. He was found dead in his bed by other firefighters in the morning. The cause of death was determined to be a heart attack due to hypertrophic cardiomyopathy (a genetic disease).

6/5/1998  James Blackmore, Lieutenant  Career, Age 48
Scott J. LaPiedra, Captain  Career, Age 40
New York City Fire Department, NY  Trauma, Burns
Along with other firefighters, Lieutenant Blackmore and Captain LaPiedra were conducting a search on the second floor of a commercial/residential structure. A civilian fire victim had been reported to be trapped in the area. Without warning, the second floor collapsed into the fire area on the first floor, trapping firefighters in a live fire on the first floor. Two firefighters died and four were seriously injured. The civilian fire victim had escaped through a back entrance. Lieutenant Blackmore was pronounced dead at the hospital after being recovered by other firefighters. The cause of death was crushing trauma and burns resulting in a heart attack. Captain LaPiedra suffered severe burns over 70 percent of his body and died on 7/4/1998. The cause of death was thermal burns resulting in cardiac arrest. More information related to this incident is available in NIOSHFire Fighter Fatality Investigation 98–F–17.

Laurel Fire Company, PA  Struck by Vehicle
Fire Police Lieutenant Rohrbaugh was directing traffic at the scene of a motor vehicle collision. He was struck from the rear by a pickup truck. The pickup left the scene without stopping. Lieutenant Rohrbaugh was thrown 97 feet and landed along the side of the road.

6/27/1998  Jerry David Donahue, Pilot  Wildland Contractor, Age 57
Charles Franklin Key, Copilot  Wildland Contractor, Age 59
Neptune Aviation Services, MT; Gila National Forest, NM  Aircraft Crash
Pilot Donahue and Copilot Key were killed as a result of the crash of their Lockheed SP–2H aircraft while fighting the Leggert wildland fire under contract for the United States Forest Service. The crash occurred about 5 miles west of Reserve, New Mexico. The tanker had completed a dry pass over the fire area, and then circled around to make a second pass and release its load. At that time, it contacted trees, crashed, and burned. The aircraft was carrying 2,450 gallons of fire retardant. More information related to this incident can be found in National Transportation Safety Board report FTW98GA86.
6/27/1998  Johnnie Ray Park, Captain  Career, Age 43  
Cullman Fire Department, AL  Heart Attack

Captain Park died of a heart attack that occurred at the scene of a motor vehicle collision. The incident had been in progress for about an hour. Captain Park had assisted with patient treatment and scene cleanup. He was sitting in the cab of his engine and was beginning to complete an incident report when he was stricken. His crew immediately transported him to the hospital in the engine. The weather was hot and humid. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–22.

Central High Fire Department, OK  MVA

Firefighter Allen was responding to his fire station in his personal vehicle when he was involved in a collision with another vehicle at an uncontrolled intersection. Firefighter Allen was thrown through the windshield of his vehicle and landed almost 20 feet away. Two children that were passengers in Firefighter Allen’s vehicle were injured. The driver of the other vehicle was injured. No one in either car was wearing a seat belt.

7/6/1998  Tulon Lee Goodwin, Firefighter/Forestry Worker  Wildland Career, Age 50  
Alabama Forestry Commission, AL  Heart Attack

Firefighter Goodwin was stricken with a heart attack at the scene of a wildland fire. Children playing with bottle rockets caused the fire. Firefighter Goodwin had been operating on the scene for about 4 hours and was plowing a fire line.

7/17/1998  John Rochford Kennedy, Fire Police Officer  Volunteer, Age 75  
Ocean Pines Volunteer Fire Department, MD  Heart Attack

Fire Police Officer Kennedy was stricken with a heart attack as he directed traffic at the scene of a motor vehicle collision.

7/23/1998  Matthew P. Casboni, Firefighter  Volunteer, Age 55  
Saint John Volunteer Fire Department, IN  Heart Attack

Firefighter Casboni died of a heart attack that occurred as he was acting as the air supply officer at a working structure fire.

7/23/1998  Thomas E. Prendergast, Captain  Career, Age 56  
Chicago Fire Department, IL  Heart Attack

Captain Prendergast and his crew were fighting a two-alarm fire in a residential occupancy. Captain Prendergast and his crew were operating hose lines when he complained of chest pain and shortness of breath. He was immediately escorted to an ambulance and transported to the hospital. Captain Prendergast died as a result of a heart attack. He died on 8/8/1998.

8/1/1998  Barvon Coy Hamilton, Firefighter  Volunteer, Age 71  
Southern Oaks Volunteer Fire Department, TX  Hypovolemic Shock

Firefighter Hamilton was on the back step of a pumper as it was relocated at the scene of a brush fire. The pumper was backing up, and Firefighter Hamilton was on the back step securing hose that had been reloaded. As the pumper backed up, Firefighter Hamilton attempted to warn the driver about a utility pole that was behind the apparatus. He apparently lost his grip and was crushed between the pumper and the pole. His right leg was amputated below the knee. Despite the efforts of local EMS providers, Firefighter Hamilton died of hypovolemic shock (loss of blood). Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–19.

8/3/1998  Donald Claude Martin, Firefighter  Volunteer, Age 34  
Van Buren Fire Department, ME  Heart Attack

Firefighter Martin was in his fire station preparing to respond to assist with a search for a missing child. He became ill and was transported by other firefighters to the hospital. He was pronounced dead upon arrival. Firefighter Martin died of a heart attack.
Larry Joe King, Sr., Firefighter
Maury City Fire Department, TN
Paid–Call, Age 42
Heart Attack
Firefighter King was attempting to pry open the hood of a pickup truck that was on fire. He suffered a heart attack and died.

Calvin Harbaugh, Sr., Fire Police Officer
Ebenezer Fire Company, PA
Volunteer, Age 56
Heart Attack
Fire Police Officer Harbaugh was stricken with a heart attack while directing traffic at the scene of a motor vehicle collision.

John M. Walker, Private
Memphis Fire Department, TN
Career, Age 58
Heart Attack
Private Walker was assigned to light duty to the department’s SCBA maintenance shop. He was stricken with a heart attack while on duty. Despite immediate advanced life support care, Private Walker died.

Justin Melton, Firefighter
Scott Selby, Firefighter
Marks Fire Department, MS
Volunteer, Age 22
Volunteer, Age 35
Smoke Inhalation
Firefighters Melton and Selby were working in different areas of a structure fire that involved a commercial building. A collapse occurred which trapped Firefighter Melton as he and other firefighters were advancing a hoseline on the fire. Firefighter Selby was on the roof of the fire structure attempting ventilation when he fell into the fire area and was killed. Both firefighters died of asphyxiation due to smoke inhalation. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–21.

Robert F. Peters, Lieutenant
Hastings on Hudson Fire Department, NY
Volunteer, Age 52
Heart Attack
Lieutenant Peters was completing paperwork after returning from a response to an automatic fire alarm. Lieutenant Peters had driven an aerial apparatus to the incident. He was stricken with a heart attack and died.

Brian Carrasco, Inmate Handcrew Firefighter
Los Angeles County Fire Department, CA
Wildland Part-Time, Age 35
Apparatus Rollover
Firefighter Carrasco was killed in a vehicle collision while working as a member of an inmate handcrew. The brush/engine vehicle in which we was riding rolled over. Eleven others were injured.

Juan Manuel Hernandez Jr., Firefighter
United States Department of Agriculture Forest Service, NM
Wildland Full-Time Seasonal, Age 24
Apparatus Rollover
Firefighter Hernandez was killed in a vehicle collision while working near Willows, California. The engine in which he was riding was stuck by a pickup truck that crossed the centerline and impacted the engine along the left underside and rear dual wheels. The engine flipped and landed upside down. Firefighter Hernandez was wearing a seat belt but was partially ejected from the vehicle. He was pronounced dead at the scene.

Allen Lawrence Heitzler, Firefighter
Slaughter Volunteer Fire Department, LA
Volunteer, Age 22
MVA
Firefighter Heitzler was responding to a trailer fire in his role as a volunteer firefighter. He was responding in his Sheriff’s Department cruiser when he was involved in a collision. Firefighter Heitzler’s vehicle was traveling at a high rate of speed when it skidded, struck a cow in the roadway, crashed into a utility pole, rolled over, and burned. Firefighter Heitzler was not wearing a seat belt at the time of the collision.
9/5/1998  Eugene P. McDonough, Firefighter  Career, Age 54  Saint Johnsbury Fire Department, VT  Trauma
Firefighter McDonough responded with other members of his department to a mutual-aid fire in a recycling facility. While opening a large door to allow a master stream attack, Firefighter McDonough was crushed when a parapet wall collapsed. The cause of the fire was arson. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–20.

9/9/1998  Ernest Alan McElroy, Forest Ranger II  Wildland Career, Age 40  Arkansas Forestry Commission, AR  Overrun by Wildfire
Forest Ranger McElroy was plowing a fire line with a bulldozer. The fire overcame his position. He attempted to back out but struck a tree. Ranger McElroy dismounted the bulldozer and proceeded down the fire line on foot. He was burned over 60 percent of his body but still managed to walk the 1/2 mile to a waiting ambulance. Ranger McElroy died of his injuries on 10/28/1998. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–30.

9/14/1998  Randy Sims, Captain  Volunteer, Age 44  Antioch Volunteer Fire Department, SC  Heart Attack
Captain Sims was at the scene of a structure fire assisting with overhaul when he suffered a heart attack and died.

9/18/1998  Donald Trotochaud, Firefighter/Senior Airman  Career, Age 23  Laughlin Air Force Base, TX  MVA
Firefighter Trotochaud was killed in a single vehicle collision while en route to standby at a remote airfield. One other firefighter was injured.

9/21/1998  David M. Brinkley, Firefighter/Past Chief  Volunteer, Age 43  United Communities Volunteer Fire Department, MD  Heart Attack
Firefighter Brinkley suffered a heart attack while refilling SCBA cylinders after a response to a vehicle fire.

9/24/1998  Tony B. Chapin, Firefighter/EMT  Volunteer, Age 19  Willamina Fire Department, OR  MVA
Firefighter Chapin was killed while on the way to a paramedic training class in his personal vehicle. A car crossed the centerline and struck the vehicle that Firefighter Chapin was driving. He survived the initial impact but died the next day. Firefighter Chapin was wearing his seat belt.

9/27/1998  Preston Edgar Patterson, Firefighter/Fire Police  Volunteer, Age 66  The Manchester Fire Engine and Hook and Ladder Company Number One, MD  Heart Attack
Firefighter Patterson was stricken with a heart attack while performing fire police duties at the scene of a motor vehicle collision.

9/28/1998  Neil A. Holmes, Captain  Career, Age 55  Fresno City Fire Department, CA  Brain Aneurysm
Captain Holmes was found unconscious in the restroom of his fire station. He suffered a brain aneurysm.

9/28/1998  Paul P. Satterfield, Battalion Chief  Career, Age 60  Nashville Fire Department, TN  Brain Aneurysm
While in command of a fire, Chief Satterfield complained of illness. He finished his shift and went off duty in the morning. He died at home on 9/29/98 of a brain aneurysm.

9/30/1998  Robert Odell Lee, Fire Chief  Volunteer, Age 56  North River Valley Volunteer Fire Company, WV  Heart Attack
Chief Lee was monitoring pump operations during a drill at a nursing home. He was wearing full protective clothing but no SCBA. He was not performing any strenuous activity; however,
the day was hot and humid. Chief Lee suddenly collapsed and died of a heart attack. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–11.

10/5/1998  Gary D. Nagel, Airtanker Pilot  Wildland Contractor, Age 62
San Joaquin Helicopters, CA  Aircraft Crash

Airtanker Pilot Nagel was killed in the crash of a Grumman TS–2A airtanker when he misjudged his maneuvering altitude and impacted the terrain. He had made two drops on the Mount Edna fire near Banning, California, and was preparing to make a third. Other factors that contributed to the crash were the mountainous terrain, tailwind conditions, and turbulence in the area. Airtanker Pilot Nagel was an employee of San Joaquin Helicopters, a contractor to the California Department of Forestry and Fire Protection. More information related to this incident can be found in National Transportation Safety Board report LAX99GA005.

10/5/1998  Thomas Oscar Wall, Captain  Career, Age 44
Orange County Fire Authority, CA  Heart Attack

Captain Wall died at the Taylor fire in Riverside, California. He was protecting exposed dwellings when he told other firefighters that he did not feel well and collapsed. Captain Wall died of a heart attack.

10/13/1998  Barry L. Wary, Firefighter  Volunteer, Age 51
Klingerstown Volunteer Fire Company, PA  Heart Attack

Firefighter Wary was actively involved in the suppression of a fire in an industrial occupancy. Upon exiting the structure, he collapsed and died of a heart attack.

10/24/1998  Carson L. Gosey, Sr., Firefighter/Fire Police  Volunteer, Age 60
Shiloh/Danieltown/Oakland Fire Department, NC  Struck by Vehicle

A vehicle at the scene of a training exercise struck Firefighter Gosey as he assisted a water tanker that was crossing the road.

10/24/1998  Lawrence D. Thrower, Lieutenant  Volunteer, Age 51
Sidney Fire Department, NY  Heart Attack

Lieutenant Thrower responded to the scene of a dumpster fire at a manufacturing facility. He was equipped in full protective clothing and SCBA as he and his crew extinguished the fire and performed overhaul. Lieutenant Thrower removed his facepiece at the conclusion of operations and was beginning to remove his other protective clothing when he collapsed. Firefighters initiated advanced life support care and Lieutenant Thrower was transported to the hospital. He was pronounced dead of a heart attack a short time later.

11/6/1998  Hubert Sidney Jones, Fire Chief  Volunteer, Age 29
Thoroughfare Volunteer Fire Department, NC  Carbon Monoxide/
Robby Dean Blizzard, First Lieutenant  Smoke Inhalation
Arrington County Volunteer Fire Department, NC  Volunteer, Age 24

Chief Jones and First Lieutenant Blizzard were killed as they fought a fire in an automobile salvage yard storage building. Firefighters believed that they had found the seat of the fire and were applying water when a rapid change in conditions occurred. Chief Jones ran out of air while trying to escape. Lieutenant Blizzard entered the structure to search for Chief Jones. He ran out of air, became disoriented, and failed to exit the building. Lieutenant Blizzard was wearing a PASS device but it was not activated. Chief Jones was not equipped with a PASS device. The causes of death for Chief Jones were listed as carbon monoxide poisoning and smoke inhalation and the cause of death for Lieutenant Blizzard was listed as carbon monoxide poisoning. Lieutenant Blizzard was also a career firefighter in another community but was off duty at the time. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–32.
11/7/1998  Paul Allen Laux, Captain  Volunteer, Age 50  
Cool Spring Township Fire Department, IN  Cardiac  
Captain Laux drove a water tanker to the scene of a reported structure fire. When the report turned out to be steam, the incident commander released all units to return to station. As reports were completed and units prepared to return to station, a firefighter noticed that the door to the tanker was open. As he looked inside, he observed Captain Laux slumped over the wheel and unconscious. Captain Laux was removed from the tanker and provided with basic life support care until the arrival of an advanced life support ambulance. No defibrillator was available initially but one was utilized upon the arrival of ALS. Captain Laux had a history of cardiovascular disease including bypass surgery but had been cleared for fire fighting by his personal physician. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–05.

11/8/1998  Charles Peter Frank III, Deputy Chief  Volunteer, Age 56  
West Weatherfield Fire Department, VT  Heart Attack  
Deputy Chief Frank was in command of a vehicle fire on a local highway. He participated in forcible entry, water supply, and fire attack. After the fire was extinguished, Chief Frank began to speak with the people who reported the fire when he suddenly collapsed. Despite immediate EMS assistance on the scene and the arrival of advanced life support care, Chief Frank died of a heart attack.

11/9/1998  Thomas Benjamin Rice, Fire Police Officer  Volunteer, Age 70  
Village of Perry Fire Department, NY  Heart Attack  
Fire Police Officer Rice had been directing traffic at the scene of a commercial structure fire. His duties were completed and he had been released. A passing firefighter noticed Officer Rice on the ground near his vehicle. Despite immediate aid, he died of a heart attack. Nothing unusual preceded the attack. Officer Rice had a history of heart problems.

11/13/1998  William Dwight Yankey, Firefighter  Career, Age 35  
Harrodsburg Fire Department, KY  Pulmonary Embolism  
Firefighter Yankey’s captain was awakened when Firefighter Yankey fell out of bed. His captain found him not breathing and began CPR with the assistance of other firefighters. Firefighter Yankey regained consciousness at least twice and spoke with other firefighters. He was transported to the hospital and was pronounced dead. The cause of death was listed as acute cardio-respiratory failure due to occlusive pulmonary thromboemboli (blood clot in the lungs).

11/18/1998  Roger DeWayne Bookout, Heavy Fire Equipment Operator  Wildland Career, Age Unknown  
California Department of Forestry and Fire Protection, CA  Apparatus Rollover  
Operator Bookout was killed in an unwitnessed rollover of the tractor that he was using to perform fire lookout road maintenance.

11/24/1998  Norman Neal Almond, Captain  Career, Age 46  
Craig Daniel Brown, Driver/Operator  Career, Age 27  
Parsons Fire Department, KS  Electrocution  
A painting contractor found that their ladders were not long enough to reach the upper portion of the church. A representative of the church contacted city hall and requested an aerial ladder. After an assessment by the fire chief, a reserve pumper was sent to the scene to allow for the use of its ground ladders. Captain Almond and Driver/Operator Brown were assisting with the positioning of a ladder on the exterior of a church that was being painted. The aluminum ladder made contact with an electrical service line, resulting in the fatal electrocution of both firefighters and injury to one additional firefighter. The firefighters were positioning the ladder since it was too cumbersome for the two painters to position by themselves. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 98–F–31.
<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Title</th>
<th>Age</th>
<th>Location</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/2/1998</td>
<td>Steven C. Mayfield, Firefighter</td>
<td>Houston Fire Department, TX</td>
<td>47</td>
<td>Heart Attack</td>
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<td>Firefighter Mayfield was participating in Federal Aviation Administration mandated Aircraft Rescue Fire Fighting training at the Dallas–Fort Worth airport training facility. Firefighter Mayfield was in the interior of an aircraft fuselage mockup lifting and pulling a mannequin when he experienced a fatal heart attack.</td>
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<tr>
<td>12/9/1998</td>
<td>Steve Austin Tippins, Assistant Chief</td>
<td>Etolie Volunteer Fire Department, TN</td>
<td>37</td>
<td>MVA</td>
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<td>Chief Tippins was responding in his personal vehicle to an EMS incident. He failed to yield at a stop sign and was broadsided on the driver’s side by a truck. Chief Tippins was killed instantly. His wife, a passenger in his vehicle, was injured.</td>
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<tr>
<td>12/12/1998</td>
<td>Stephen E. Gessler, First Assistant Chief</td>
<td>Little Falls Fire Department, NJ</td>
<td>44</td>
<td>Cardiac</td>
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<td>Chief Gessler was in command of a search effort to find a missing civilian. The man was located and Chief Gessler ordered an ambulance to transport him. Immediately after giving the order, Chief Gessler complained of being dizzy and collapsed. Bystanders initiated resuscitation efforts immediately. Chief Gessler died of dilated cardiomyopathy (a disorder in which the heart muscle is weakened and cannot pump blood efficiently).</td>
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<tr>
<td>12/18/1998</td>
<td>James F. Bohan, Firefighter Christopher M. Bopp, Firefighter Joseph P. Cavalieri, Lieutenant New York City Fire Department, NY</td>
<td>Career, Age 25 Career, Age 27 Career, Age 42</td>
<td>25, 27, 42</td>
<td>Trapped</td>
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<td>Firefighter Bohan, Firefighter Bopp, and Lieutenant Cavalieri were killed while fighting a residential highrise structure fire. As they rushed to the tenth floor to search for victims, they were overcome by a wave of heat and smoke that killed all three. The heat wave, or fireball, may have been propelled by a gust of wind coming through the fire apartment. The automatic closing device on the apartment door had been removed or had malfunctioned. The building’s hallway sprinklers did not activate due to a closed valve. Six other firefighters were injured in the fire.</td>
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<td>12/18/1998</td>
<td>Thomas J. Concannon, Fire Police Lieutenant Wormleysburg Fire Company #1, PA</td>
<td>Volunteer, Age 55</td>
<td>55</td>
<td>Heart Attack</td>
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<td>Fire Police Lieutenant Concannon responded to a motor vehicle collision. He parked his vehicle short of the incident scene. Members working on the incident scene assumed that he had stopped in that location to divert traffic. At the conclusion of the incident, Lieutenant Concannon failed to respond to a radio call. Shortly thereafter, he was found slumped over the steering wheel of his vehicle, unresponsive, with the vehicle still in gear and his foot on the brake. Despite immediate medical care, Lieutenant Concannon died of a heart attack. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–10.</td>
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<tr>
<td>12/31/1998</td>
<td>Kennon Loy Williams, Captain Banks County Fire Department, GA</td>
<td>Volunteer, Age 27</td>
<td>27</td>
<td>Trapped</td>
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<td>Captain Williams and other members of his department were conducting an offensive attack on an arson fire of a church built circa 1850. Captain Williams was caught under heavy timbers in a roof collapse. Further information related to this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–04.</td>
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<tr>
<td>1/5/1999</td>
<td>Carl Arnold Olsen, Firefighter Kiln Volunteer Fire Department, MS</td>
<td>Volunteer, Age 51</td>
<td>51</td>
<td>Struck by Vehicle</td>
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<td>Firefighter Olsen was killed when a car struck him as he worked to refill a water tanker. The lights of the tanker blinded the driver of the car. Firefighter Olsen was not wearing any reflective</td>
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Firefighter O’Connell responded with his department to a report of a structure fire. The fire involved an oil burner in a furnace and was extinguished with the use of a dry chemical extinguisher. Firefighter O’Connell, who had some experience with this type of equipment, was ordered to investigate further and make sure that the fire was out. He was exposed to soot and dry chemical residue. He left the house and collapsed on the front lawn in cardiac arrest. Firefighters initiated EMS treatment immediately, and Firefighter O’Connell was transported to the hospital. It is the opinion of Firefighter O’Connell’s doctor that the heart attack was caused by exposure to smoke and chemicals. Firefighter O’Connell suffered from injuries to the brain caused by a lack of oxygen and died on 1/25/1999. No autopsy was performed.

Firefighter Gouckenour entered a structural fire in a house alone with a hose line. He was equipped with full turnout gear and SCBA, but was not equipped with a PASS device. It is believed that he tripped over a coffee table and became entangled in a couch. He removed his SCBA to call for help and was overcome by extremely heavy heat and smoke conditions. Firefighters on the scene attempted a rescue but were driven back by intense heat and flames and finally by the collapse of the house’s roof. Firefighter Gouckenour’s body was found approximately 10 feet inside the front door of the structure. The cause of death was asphyxiation due to smoke inhalation and carbon monoxide. Firefighter Gouckenour joined the fire department after his home had burned 2 years before his death. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–02.

Firefighter Toomey was crushed and killed when the second floor of a turn-of-the-century residential structure collapsed into the first floor. The fire eventually went to six alarms. A total of four firefighters were trapped by the collapse, including Firefighter Toomey. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–03.

Forestry Technician Wauson was participating in an annual requalification test for seasonal firefighting duty with the U.S. Forest Service (USFS). The test required the participant to carry a 45-pound backpack and cover 3 miles within 45 minutes. Forestry Technician Wauson had just passed the 1-mile mark when he collapsed. Medical personnel at the site immediately provided CPR and defibrillation; however, he was not revived. The autopsy revealed that Forestry Technician Wauson’s death was caused by hypertensive arteriosclerotic disease. As a result of his death, the USFS temporarily suspended use of the pack test.

Firefighter Tolan had responded to a report of a structural fire as the driver and sole occupant of a ladder truck. When he arrived on the scene, he exited his apparatus and told his shift commander that he was not feeling well. He was taken to the hospital by ambulance, was treated for a heart attack, and subsequently was discharged from the hospital. Firefighter Tolan never returned to work. He became ill again in June, was readmitted to the hospital, and died on 6/9/1999.
Fire Investigator McGroarty was in the attic of a residential structure that had experienced a fire 5 days before. A private fire investigator and an electrical consultant also were in the attic with Investigator McGroarty. During the course of the investigation, a chimney, which had been supported by the roof prior to the fire, collapsed onto Investigator McGroarty causing severe injuries. The chimney was too heavy for the personnel on the scene to lift and it stayed in place until additional personnel arrived. Medical treatment was initiated immediately after Investigator McGroarty was freed. He was transported to the hospital where he died. The cause of death on the autopsy was listed as multiple injuries caused by falling debris from a recent fire. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–06.

Firefighter Loyd was a member of the Greenville Fire Protection District and its predecessors for 70 years. He drove a fire department equipment truck to the scene of a reported grain elevator fire. As he was standing by the truck shortly after arrival, he collapsed from a heart attack. Medical aid was rendered at the scene. Firefighter Loyd died the next day; no autopsy was performed.

Firefighter Murphy was preparing to back his command vehicle into the station after returning from a report of smoke in an apartment building. Firefighter Murphy did not complain of any illness at the scene. As he prepared to back in, he collapsed on the steering wheel from a heart attack. The chief officer who was riding in the vehicle attempted to shift the vehicle into park but was unsuccessful. The command vehicle, a Chevrolet Suburban, proceeded in reverse and collided with a pumper located in the apparatus bay. Despite the immediate administration of CPR and defibrillation by firefighters and the subsequent arrival of advanced life support personnel, Firefighter Murphy was pronounced dead shortly after arriving at the hospital. The autopsy listed the cause of death as occlusive coronary heart disease. Additional information about this incident is contained in NIOSH Fire Fighter Fatality Investigation 99–F–12.

Firefighter Myers was clearing snow from around fire hydrants with a backhoe. A mechanical problem occurred with the backhoe and Firefighter Myers brought the equipment to a repair facility to fix the problem. During the course of the repairs, Firefighter Myers was struck by a part of the equipment and died of a traumatic injury.

Chief Collins, Captain Dean, and Firefighter Sanders were members of an attack team working in the interior of a church that was involved in fire when the roof collapsed and trapped the three in the fire area. The fire was set in a shed next to the church and spread into the attic rafters of the church building itself. Firefighters were attacking an attic fire from the interior of the structure and were being ordered to the exterior as the collapse occurred. Firefighters were on
the roof at the time of the collapse, and one fell into the church but was not seriously injured. The fire was determined to be caused by arson. Chief Collins died of extensive thermal burns. He had a carboxyhemoglobin level of 6.25 percent. Captain Dean died of smoke inhalation with thermal injuries. He had a carboxyhemoglobin level of 52.5 percent. Firefighter Sanders died of smoke inhalation with thermal injuries. He had a carboxyhemoglobin level of 72.5 percent. Chief Collins and Captain Dean were a career officers with the Fort Worth Fire Department.

2/15/1999   Terry Lee Myers, Driver/Operator  
Vigilant Hose Company, Emmitsburg, MD  
Volunteer, Age 50  
Heart Attack  
Driver/Operator Myers was working as a pump operator at the scene of a brush fire on the campus of Mount Saint Mary’s College in Emmitsburg, Maryland. He had been working for about 45 minutes when he collapsed of a heart attack. Driver/Operator Myers had not complained of any sickness prior to his attack. Members of his department and paramedics from the rescue squad provided emergency care. Despite their efforts, he was pronounced dead at a local hospital. The brush fire was caused by the spread of an unattended fire, which had been set to dispose of cleared brush and trees. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–43.

2/16/1999   Robert C. Stanmire, Sr., Firefighter  
Forest Grove Volunteer Fire Company, NJ  
Volunteer, Age 52  
Heart Attack  
Firefighter Stanmire suffered a heart attack as he and other members of his department prepared to respond to a suspicious brush fire. He was stricken in the fire station as he boarded a piece of fire apparatus while dressed in full turnouts. Fellow firefighters began CPR immediately, and the local rescue squad provided advanced life support care, but Firefighter Stanmire was dead upon arrival at a local hospital; no autopsy was performed.

2/18/1999   Burton Frank Chestnut, Firefighter  
Brazos Volunteer Fire Department, TX  
Volunteer, Age 67  
Heart Attack  
Firefighter Chestnut was on a personal errand with two other Brazos firefighters when they came upon a fire in a woodpile that was against a structure. Firefighter Chestnut remained at the scene to begin notifying residents of the fire while other firefighters went to retrieve their fire apparatus. When the other firefighters returned, they found Firefighter Chestnut dead of an apparent heart attack.

2/19/1999   Terry “Ted” Oliver, Assistant Fire Chief  
Eaton Rapids Fire Department, MI  
Volunteer, Age 58  
Heart Attack  
Assistant Chief Oliver was directing the overhaul and salvage of a bedroom fire that had been extinguished. He ascended the stairs to the second floor of the house to check on the progress of work in the fire area. Upon reaching the top of the stairwell, he collapsed and died of an apparent heart attack. He was removed from the structure and taken to the hospital by an ambulance that was on the scene of the fire. Assistant Chief Oliver was the first firefighter to die in the line of duty for the 125-year-old department.

2/28/1999   Arthur Bruce Franklin, Firefighter  
Anderson County Fire Protection District, KY  
Volunteer, Age 50  
Unknown  
Firefighter Franklin died after returning home from a fire.

2/28/1999   Alan W. Ducheck, Captain  
DeSoto Fire and Rescue, MO  
Paid-on-Call, Age 46  
Heart Attack  
Captain Ducheck was assisting with a lengthy vehicle extrication when he suffered a heart attack. He died on 3/1/1999.

3/12/1999   Jerome Taylor, Captain  
Hillburn Fire Department, NY  
Volunteer, Age 69  
Heart Attack  
Captain Taylor collapsed and died of an apparent heart attack while directing traffic at a structure fire.
<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Title</th>
<th>Age</th>
<th>Location</th>
<th>Incident</th>
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<tbody>
<tr>
<td>3/16/1999</td>
<td>David L. Packard, Firefighter</td>
<td>Career, Age 56</td>
<td></td>
<td>Boston Fire Department, MS</td>
<td>Heart Attack</td>
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<td>Firefighter Packard was preparing for duty when his engine company was dispatched to a motor vehicle collision. Firefighter Packard did not respond on the call because he was on the oncoming shift and the call was handled by the off-going shift. He was found by other firefighters upon their return to quarters. He had collapsed in the bunkroom and suffered an apparent heart attack. Despite immediate aid by on-scene firefighters, the use of a defibrillator, and advanced life support treatment by paramedics, Firefighter Packard died. No autopsy was performed. The cause of death as listed on his death certificate was asystole caused by coronary artery disease. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–17.</td>
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<tr>
<td>3/16/1999</td>
<td>Charles James “Chuck” Vodak, Firefighter Volunteer, Age 45</td>
<td>Age 45</td>
<td></td>
<td>Dunning Fire Department, NE</td>
<td>Heart Attack</td>
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<td>Firefighter Vodak and other members of his department had been fighting a prairie fire for more than 4 hours. Firefighter Vodak complained of chest pains and experienced a heart attack. Other firefighters performed CPR on Firefighter Vodak for 1 hour as they waited for an ambulance to arrive at the isolated fire location. The path of the fire was 10 miles wide in some places and it eventually consumed 70,000 acres.</td>
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<tr>
<td>3/17/1999</td>
<td>Walter J. Flyntz, Firefighter</td>
<td>Career, Age 44</td>
<td></td>
<td>Bridgeport Fire Department, CT</td>
<td>Cardiac</td>
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<td>Firefighter Flyntz responded as part of an engine company to a report of a fire in the basement of an apartment building that was undergoing renovation. Upon arrival, he assisted with the connection of his engine to a hydrant and then helped check for fire extension on the upper floors of the building. After clearing the second floor, Firefighter Flyntz went to the third floor to check for extension. Shortly after his arrival on the third floor, he collapsed. A renovation worker discovered him and notified other firefighters. The cause of death was listed as atherosclerotic cardiovascular disease. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–18.</td>
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<tr>
<td>3/23/1999</td>
<td>Paul Haislopp, Captain</td>
<td>Volunteer, Age 50</td>
<td></td>
<td>Centerville Fire Department, OH</td>
<td>Heart Attack</td>
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<td>Captain Haislopp experienced a heart attack at his fire station as he moved fire apparatus in preparation for a response to a structure fire.</td>
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<tr>
<td>4/2/1999</td>
<td>Aubrey R. Tillman, Firefighter</td>
<td>Career, Age 57</td>
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<td>Charleston Fire Department, SC</td>
<td>Heart Attack</td>
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<td>Firefighter Tillman had been on duty for 14 hours and had participated in physically demanding training for 3-1/2 hours of his shift. At approximately 10 p.m., Firefighter Tillman experienced a temporary loss of consciousness. As other firefighters came to his aid, Firefighter Tillman regained consciousness and complained of severe chest pains. He was transported by ambulance to the hospital under paramedic care. His condition deteriorated in the ambulance and further deteriorated in the hospital emergency room. Firefighter Tillman died at 11:37 p.m. The death certificate listed “probable acute myocardial infarction” as the immediate cause of death. No autopsy was performed. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–15.</td>
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<tr>
<td>4/6/1999</td>
<td>Kenneth Allen Nickell, Captain</td>
<td>Volunteer, Age 28</td>
<td></td>
<td>Route 377 Volunteer Fire Department, KY</td>
<td>Overrun by Wildfire</td>
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<td>Kevin Rex Smith, Firefighter/EMT</td>
<td>Volunteer, Age 30</td>
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<td>Captain Nickell and Firefighter Smith responded to a wildland fire in the Daniel Boone National Forest near Cranston, Kentucky. They were part of a seven-person team that was constructing a fire line in hardwood leaf litter on the forest floor. Nickell and Smith were in the lead and using a rake and a gasoline-powered leaf blower to construct the line. As the fire line was being</td>
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constructed, spot fires were breaking over the fire line and several members of the team doubled back to control the spot fires. Captain Nickell and Firefighter Smith continued to construct the fire line. The fire was growing in intensity and the wind was picking up so the crew leader gave the order for all firefighters to pull back. Captain Nickell acknowledged the order and indicated that he and Firefighter Smith would pull back. Shortly thereafter, another radio transmission was received from Captain Nickell indicating that he and Firefighter Smith were burned or on fire. Evidence suggests that the two tried to outrun the fire uphill but were slowed by terrain. It appeared as if the firefighters attempted to run back through the fire to reach the burned area. At some point, they succumbed to the flames and collapsed. The cause of death for both firefighters was listed as asphyxia due to environmental oxygen deprivation, smoke inhalation, and acute carbon monoxide poisoning. Neither firefighter was equipped with a fire shelter. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–14. A report also is available from the Kentucky Division of Forestry entitled Report of the Accident Investigations Team for the Island Fork Fire, April 6, 1999, Near Cranston, Kentucky.

4/8/1999      John E. Murphy, Deputy Fire Chief
Russell Fire Department, MA      Paid-on-Call, Age 64
Cardiac

Deputy Fire Chief Murphy was engaged in fighting a wildland fire for 4 hours. He collapsed and was down for 10 to 15 minutes before being discovered by another firefighter. The firefighter initiated CPR and transported him to a waiting ambulance in the bed of the fire chief’s pickup (due to terrain). CPR continued through transport in the BLS ambulance, ALS treatment, and treatment in the emergency room. Despite all efforts, Chief Murphy died in the emergency room. The cause of death was listed as coronary atherosclerosis. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–32.

4/12/1999      Phillip M. Pinkowski, Jr., Firefighter
Clarendon Volunteer Fire Department, VT      Volunteer, Age 59
Heart Attack

Firefighter Pinkowski collapsed and died of an apparent heart attack while acting as a pump operator at a residential structure fire.

4/15/1999      Robert D. Peters, Firefighter
West Lake Fire Department, PA      Volunteer, Age 71
Stomach Aneurysm

Firefighter Peters responded to an ambulance call and was not feeling well at the call. After the call, he went home. That afternoon, a relative found him at home nearly unconscious. Despite surgery, Firefighter Peters died as the result of a stomach aneurysm.

4/28/1999      David J. Watts, Captain
Nantucket Fire Department, MA      Paid-on-Call, Age 56
Cardiac

Captain Watts was engaged in active structural firefighting for 2-1/2 hours in a multiple-occupancy wood-frame building that was constructed circa 1849. After the fire was controlled, Captain Watts returned home and suffered a heart attack in the shower. CPR was administered, first by his wife and later by firefighters, and an automatic defibrillator was used by other firefighters who responded to Captain Watts’ residence. He was transported by ambulance to a local hospital where he was stabilized. Captain Watts was transferred to a hospital in Boston by air but he never regained consciousness. He died on 5/2/1999; the cause of death was listed as coronary thrombosis and ventricular tachycardia. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–19.

5/2/1999      Kenneth Alan Strain, Firefighter
Hemby Bridge Volunteer Fire Department, NC      Volunteer, Age 28
Trauma

Firefighter Strain was the sole occupant and driver of a 1996 pumper. He was returning to the station after a cancelled call for a motor vehicle collision. He pulled the pumper to the right side of the road to allow for the passage of other traffic when the right rear wheels of the pumper left the paved surface of the road and fell into a ditch. Firefighter Strain was unable to regain control, and the pumper struck a tree. Firefighter Strain was killed instantly and was pronounced
dead at the scene. According to the highway patrol, speed was not a factor. Firefighter Strain was wearing his seat belt. It took other firefighters 2 hours to free him from the wreckage. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–16.

5/3/1999  Eric Noel Casiano, Firefighter  Career, Age 41  Philadelphia Fire Department, PA  Trauma  
Firefighter Casiano and his company were fighting a structural fire in a residential occupancy. During the fire, Firefighter Casiano fell through a floor but appeared to be uninjured. After his company had been released and was back at quarters, everyone returned to bed. A short time later, Firefighter Casiano's company was dispatched to another call. Other firefighters found him down and without vital signs. Despite immediate CPR and ALS care within 4 minutes, Firefighter Casiano died. His autopsy revealed that he had a massive hemorrhage within his back muscles, which damaged his spinal cord. The hemorrhage was caused by the fall.

5/4/1999  Arthur A. Tullis, Fire Chief  Part-Time (Paid), Age 61  LaGrange Park Volunteer Fire Department, IL  Heart Attack  
Chief Tullis and members of his fire department and a neighboring department had responded to an automatic fire alarm in a retirement home. Chief Tullis was first on the scene and was exiting the building to command the arrival of other units when he collapsed from an apparent heart attack. Firefighters provided advanced life support care. The cause of death was heart disease. Carpet installers caused the alarm activation.

5/14/1999  Lewis Edward Williams, Fire and Rescue Captain  Volunteer, Age 47  Fort Oglethorpe Fire & Rescue, GA  Heart Attack  
Captain Williams worked for 2-1/2 hours on the scene of a trench collapse that trapped one worker. He participated in various tasks, including the unloading of supplies, and command. He collapsed at the command post without warning or any complaint of sickness. Despite immediate advanced life support care, Captain Williams died. The cause of death was listed as a heart attack. The trapped construction worker was rescued successfully. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–49.

5/30/1999  Lewis Jefferson Matthews, Firefighter  Career, Age 29  Anthony Sean Phillips, Sr., Firefighter  Career, Age 30  District of Columbia Fire Department, Washington DC  Burns  
Firefighters Matthews and Phillips were members of two different engine companies working on the first floor of a townhouse fire. Both crews had entered the front door of the townhouse at street level. The fire was confined to the basement. A truck company opened the basement at grade at the rear of the structure, and a small fire was observed. A company officer at the basement door requested permission to extinguish the fire but the incident commander denied his request since he knew that crews were in the building and he did not want to have an opposing hose stream situation. The fire grew rapidly and extended up the basement stairs into the living areas of the townhouse where Firefighters Matthews, Phillips, and others were working. With the exception of Firefighters Matthews and Phillips, all firefighters exited the building after the progress of the fire made the living area of the townhouse untenable. On the exterior of the building, firefighters realized that Firefighter Matthews was not accounted for. Firefighters re-entered the building and followed the sound of a PASS device. They removed the firefighter with the activated PASS to the exterior of the building. Once outside, firefighters realized that the firefighter who had been rescued was not Firefighter Matthews, but was, in fact, Firefighter Phillips. The search continued and Firefighter Matthews was discovered and removed approximately 4 minutes later.

Firefighter Phillips’ PASS device was of the type that is automatically activated when the SCBA is activated and it worked properly. Firefighter Matthews’ PASS was a manually activated type and it was found in the “off” position.
Both firefighters were burned extensively (Phillips over 60 percent of his body and Matthews over 90 percent of his body); they were transported rapidly to the hospital. Firefighter Phillips was pronounced dead upon arrival at the hospital and Firefighter Matthews died the following day. Two other firefighters were injured fighting the fire. One of the firefighters, who suffered burns over 60 percent of his body surface area, survived and was released from the hospital in August 1999. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–21.

5/31/1999  Joseph F. Tagliareni, Jr., Firefighter Volunteer, Age 34 Secaucus Fire Department, NJ Heart Attack
Firefighter Tagliareni was driving an engine in response to a report of an automobile fire. He started to feel ill, pulled the apparatus to the side of the road, exited the apparatus, walked to the rear of the engine, and collapsed from a heart attack. Other firefighters began CPR immediately and advanced life support care was provided before transporting Firefighter Tagliareni to the hospital. Firefighter Tagliareni was in a coma for 13 days before his death on 6/13/1999. The autopsy found hypertrophy and dilatation of the heart, and pneumonia.

6/2/1999  Rudolf Cohen, Deputy Fire Chief Career, Age 67 Gary Fire Department, IN Cardiac
Deputy Chief Cohen collapsed and died of heart failure while working at his desk. No autopsy was performed.

6/3/1999  Vincent Fowler, Captain Career, Age 47 New York City Fire Department, NY Smoke Inhalation
Captain Fowler and a probationary firefighter were searching for victims and fire in the basement of an occupied residential structure. The basement was extremely congested with furniture, newspapers, magazines, and other items. Water had been applied to the fire and it appeared to be under control. While in the basement, both firefighter low air alarms sounded. Captain Fowler delayed his own exit from the basement as he located his probationary firefighter. In the process, he ran out of air; Captain Fowler and the probationary firefighter buddy-breathed until Captain Fowler collapsed. The probationary firefighter dragged Captain Fowler until he was joined by other firefighters. Because of the congested conditions in the basement, it took an extended period of time for Captain Fowler to be removed from the building. Captain Fowler died the next day. The cause of death was listed as smoke inhalation with carbon monoxide inhalation; the level of carbon monoxide in his blood was 60 percent.

6/4/1999  Richard Anthony Heinze, Firefighter Career, Age 47 Newark Fire Department, NJ Cardiac
Firefighter Heinze had just returned from a fire run that turned out to be a malfunctioning fire alarm system. He retired to the bunkroom shortly after returning to the station. Approximately 40 to 50 minutes after returning to the station, other firefighters heard a loud noise and found Firefighter Heinze on the floor of the bunkroom gasping for air. He soon became unconscious. Firefighters immediately began CPR and an ambulance was summoned. Despite medical care that included defibrillation, Firefighter Heinze was pronounced dead at the hospital. Firefighter Heinze had complained of pain in his jaw and a headache earlier in the shift. The cause of death was listed as hypertensive and atherosclerotic cardiovascular disease. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–31.

6/8/1999  Clyde Peterson, Assistant Fire Chief Volunteer, Age 70 Hilltop Lakes Volunteer Fire Department, TX Heart Attack
Chief Peterson had just finished commanding a fire involving a stake-bed truck filled with asphalt shingles. As he was returning to his vehicle, he suffered an apparent heart attack. He was discovered by other firefighters when they noticed that he was missing. CPR was begun immediately. No autopsy was performed. The cause of the fire was listed as suspicious.
6/9/1999  Phillip P. Cirrito, Firefighter  Career, Age 47  Merion Fire Company of Ardmore, PA  Pulmonary Embolism

Firefighter Cirrito had been on duty for approximately 22 hours. During the shift, he had responded to two fire incidents and had assisted with the installation of radio equipment on a new pumper. The day was extremely hot with temperatures above 90 degrees. At approximately 5:50 a.m., an ambulance was dispatched to the fire station to a report of a firefighter gasping for air. Firefighter Cirrito died sometime later that day. The cause of death was listed as a pulmonary thromboembolism and hypertensive cardiovascular disease.

6/11/1999  Wayne Robert Luecht, Assistant Chief  Career, Age 47  Northbrook Fire Department, IL  Burns

Firefighters from the Northbrook Fire Department responded to a report of an electrical problem in a department store located in a mall. Crews smelled smoke in the building and located some electrical equipment that had burned. There was no hazard of fire extension so crews were released to return to quarters, and the on-duty fire prevention staff were requested to the scene. Assistant Chief Luecht, the Fire Marshal, arrived and accompanied a private electrical contractor as he investigated the cause of the power outage and fire. As the electrician was testing an electrical panel, a white-blue flash, concussion, and fireball occurred, enveloping the electrician and Chief Luecht. Although severely burned over 90 percent of his body surface, Chief Luecht directed the response to the emergency and directed firefighters to assist other victims before he allowed them to treat him. He was alert and oriented throughout his treatment and spoke with others until he was placed on a ventilator at the hospital; however, he died on 6/21/1999. The electrician was killed and two department store employees were injured.

6/13/1999  Arch Russell Sligar, Jr., Firefighter  Volunteer, Age 52  Bethany Volunteer Fire Department, WV  Heart Attack

Firefighter Sligar was riding in the officer’s seat of a pumper responding to a mutual-aid structure fire. The apparatus driver noticed that Firefighter Sligar was not talking and that he had slumped over in the officer’s seat. The driver stopped the apparatus and initiated CPR. An advanced life support unit arrived within 2 minutes and defibrillated Firefighter Sligar. He regained consciousness for a short time but suffered another arrest in the ambulance en route to the hospital. He was pronounced dead about 40 minutes after arrival at the hospital. The cause of death was listed as a heart attack. No autopsy was performed. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–24.

6/16/1999  Clifford Thomas Moore, Fire Captain  Career, Age 38  Manteca Fire Department, CA  Trauma

Captain Moore was participating in training exercises at a regional training facility. He was proctoring the hose aloft and ladder rescue evolutions. During the second evolution, the incident commander initiated an emergency evacuation of the building as part of the training. Captain Moore attempted an emergency evacuation method from the second-story window of the training tower onto a ground ladder that had been placed at the window. He fell from the window and received critical facial and head injuries. He was treated by paramedics on the scene and transported to the hospital where he was pronounced dead. The Manteca Fire Department conducted a board of inquiry into the incident. The report is available for download at the Manteca Fire Department Web site. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–25.

6/17/1999  Paul Francis McGrath, Firefighter  Career, Age 50  Pittsburgh Fire Department, PA  Cardiac

Firefighter McGrath was a member of a truck company that was fighting a three-alarm defensive fire in a three-story brick building that had last been used as living quarters for nursing students. Firefighter McGrath participated in numerous tasks on the fireground, including establishing a water supply to his truck company for master stream operations, ventilation, placement of ground ladders, and forcible entry. The fire had just been brought under control when the call
went out that a firefighter was down. Firefighter McGrath had become dizzy at the aerial ladder turntable while operating the ladder pipe and was assisted to the ground by other firefighters. Upon reaching the ground, he collapsed of an apparent heart attack. Advanced life support treatment was provided by on-scene EMS crews, and he was transported to the hospital where he died. The cause of death was listed as arteriosclerotic cardiovascular disease. The fire was found to be arson, and suspects were arrested. Firefighter McGrath was born at the hospital located on the same grounds as the nurse’s residence that burned. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–22.

6/18/1999  Ronald Gregory Phillips, Firefighter Paramedic  Career, Age 32
Sylvania Township Fire Department, OH  Cerebral Aneurysm
Firefighter Phillips had just begun his daily physical fitness workout when he collapsed. He had been working out with dumbbells on a bench. His collapse was not witnessed, but others in the area heard noise and found him unconscious. ALS treatment was provided and he was transported to the hospital. Firefighter Phillips never regained consciousness and died. An autopsy was performed and the cause of death was listed as a ruptured cerebral aneurysm.

6/22/1999  Wayne Rosen, Firefighter/Paramedic  Volunteer, Age 24
Akron Fire Department, NY  Trauma
Firefighter Rosen was struck and killed by a drunk driver while riding his motorcycle to participate in training at the firehouse.

6/23/1999  Matthew Eric Black, Firefighter  Volunteer, Age 20
Lakeport Fire Department, CA  Electrocution
A large branch from a mature oak tree fell on some power lines and brought them down causing a grass fire. The Lakeport Fire Department was dispatched to the fire and warned about the downed wires. Firefighter Black’s workplace was about 1-1/2 miles from the fire scene, so he responded directly to the scene in his personal vehicle and joined up with an engine company. Firefighter Black asked if he could advance a booster reel line and extinguish a pile of burning debris, and permission was granted. According to witness accounts, Firefighter Black appeared to stumble after pulling on the hose after it hung up. He fell face down on the live wire and was electrocuted. Other firefighters on the scene used a hand tool to remove the wire from under Firefighter Black and dragged him away from the wire. They initiated CPR. Advanced life support arrived within 9 minutes, and Firefighter Black was transported to the hospital where he died. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–26.

7/4/1999  Roger B. McEwen, Sr., Captain  Volunteer, Age 52
Hanover Volunteer Fire Department, AL  Heart Attack
Captain McEwen had been working on the scene of a mobile home fire for about 1 hour. He had advanced and operated hose lines, helped other firefighters with their SCBAs, and was operating a fire pump when he collapsed from an apparent heart attack. Paramedics on scene began care immediately. Despite efforts on the scene and during transport, Captain McEwen was pronounced dead at the hospital. No autopsy was performed.

7/7/1999  Costello Nathaniel “Colonel” Robinson, Firefighter/Technician  Career, Age 64
District of Columbia Fire Department, Washington DC  Dog Attack
Firefighter Robinson was the most senior active firefighter on the District of Columbia Fire Department. He and his engine company were dispatched, along with other units, to the report of a fire in a densely populated area of the District. As Firefighter Robinson and other firefighters were searching for a fire, Firefighter Robinson was attacked from behind by an unrestrained pit bull terrier dog. Firefighter Robinson was injured by the attack and unable to walk. He was transported to a local hospital and scheduled for knee surgery to repair the damage caused by the dog attack. On 7/9/1999, the day that his knee surgery was scheduled, Firefighter Robinson
became acutely short of breath and unresponsive. Autopsy findings included “hypertensive cardiovascular disease” and “blunt impact trauma [to the knee] with avulsion of [the] right quadriceps tendon.” Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–40.

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<tr>
<th>Date</th>
<th>Name</th>
<th>Title</th>
<th>Age</th>
<th>Location</th>
<th>Cause</th>
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<tbody>
<tr>
<td>7/7/1999</td>
<td>Lawrence D. Lehman, Fire Police Lieutenant</td>
<td>Fire Police/Friendship Fire Company, PA</td>
<td>51</td>
<td>South Lebanon Township Fire Police/Friendship</td>
<td>Heart Attack</td>
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<td>Fire Police Lieutenant Lehman was performing crowd control and traffic duties at the scene of a wildland fire. Firefighters had been on the scene for less than 1 hour when Lieutenant Lehman collapsed of an apparent heart attack. Firefighters initiated emergency medical care immediately; however, he was pronounced dead at the hospital.</td>
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<td>7/12/1999</td>
<td>David Vernon Parks, Firefighter/Photographer</td>
<td>Washington Township Volunteer Fire Department, PA</td>
<td>69</td>
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<td>Heart Attack</td>
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<td>Firefighter Parks was engaged in routine maintenance of an engine company apparatus when he was stricken with a heart attack and later died.</td>
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<td>7/15/1999</td>
<td>Bryan Christopher Pottberg, Firefighter/Paramedic</td>
<td>Lee’s Summit Fire Department, MO</td>
<td>25</td>
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<td>Drowning</td>
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<td>Firefighter/Paramedic Pottberg was participating in a scheduled rescue diver drill. Pottberg was under water performing a search evolution when he failed to surface. Other firefighters searched for him, and he was brought to the surface after approximately 11 minutes. He received immediate medical attention in the boat and while on route to the hospital, where he was pronounced dead. It is not known why Firefighter/Paramedic Pottberg had difficulty. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–29.</td>
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<td>7/18/1999</td>
<td>Martin Michael Stiles, Inmate Firefighter</td>
<td>Los Angeles County Fire Department, CA</td>
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<td>Trauma</td>
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<td>Firefighter Stiles was a part of a Los Angeles County Fire Department Strike Team working a wildland fire incident in Ventura County. His crew was assigned to construct a handline around a slopover that extended over a dozer line on a ridge. At 1:50 a.m., Firefighter Stiles slipped over a ridge and fell to his death 150 feet below.</td>
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<td>7/27/1999</td>
<td>David Dwayne Hartwick, Firefighter</td>
<td>New Braunfels Fire &amp; Rescue, TX</td>
<td>35</td>
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<td>Heart Attack</td>
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<td>Firefighter Hartwick was at home asleep when his fire department was dispatched to a structure fire. Firefighter Hartwick was found dead in the morning, the victim of a heart attack. His pager had been reset after the page for the structure fire. It is assumed that Firefighter Hartwick rose to respond to the structure fire and then died of the heart attack. This fact cannot be established with 100 percent certainty.</td>
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<td>7/29/1999</td>
<td>Richard F. Devine, Firefighter</td>
<td>Philadelphia Fire Department, PA</td>
<td>49</td>
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<td>Heart Attack</td>
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<td>Firefighter Devine was assigned to an engine company working on the scene of a structure fire. He was the nozzle person and extinguished a fire on the second floor of the structure. After taking a short break once the fire was controlled, Firefighter Devine re-entered the structure to assist with overhaul. Upon his arrival at the second floor, he collapsed of an apparent heart attack. CPR was begun immediately by other firefighters and paramedics, and Firefighter Devine was transported to the hospital where he was pronounced dead. The autopsy listed the cause of death as arteriosclerotic cardiovascular disease, with heat stress cited as another significant condition. A child playing with matches caused the fire. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–50.</td>
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7/30/1999    Kenneth F. Clinch, Firefighter Volunteer, Age 52    Mount Marion Fire Department, NY Heart Attack

Firefighter Clinch and members of his fire department were fighting a car fire on the New York State Thruway. Firefighter Clinch had driven a water tanker to the scene and was directed to stretch a 2-1/2-inch line from the tanker to the pumper. The day was hot and humid. He stretched 100 feet of line from the tanker to the pumper, made the connection to the pumper, and was headed back to the tanker when he collapsed of an apparent heart attack. On-scene firefighters immediately went to his aid and summoned advanced life support care. The ambulance arrived within 8 minutes. Firefighter Clinch was breathing and had a weak pulse when he left the scene for the hospital; however, he died later that day. The autopsy reported the cause of death as occlusive coronary artery disease.

8/5/1999    Richard Clarence Bacon, Assistant Chief Volunteer, Age 46    Dunstable Volunteer Fire Department, MA Heart Attack

Assistant Chief Bacon had driven a fire department pumper to the scene of a reported structure fire. The fire was minor, and all units were ordered to return to the station. Upon returning to the station, Chief Bacon was completing some paperwork when he was observed to be in medical distress. A firefighter in the station began CPR, and he was transported to the hospital where he died.

8/5/1999    James Everett Clark, III, Senior Firefighter Career, Age 42    Midwest City Fire Department, OK Struck by Vehicle

Senior Firefighter Clark was a member of a squad company that had been dispatched to the report of a motor vehicle collision on I-40 in Midwest City. The roads were wet from rain and rain had begun to fall again. A ladder company also was dispatched on the call. The squad arrived on the scene and discovered that the collision was minor. The ladder arrived and positioned itself behind the squad to divert traffic away from the incident scene; all of the unit’s emergency lights were operating. Approximately 2 minutes after arriving on the scene, the ladder was hit from behind by a passenger vehicle. Firefighters dismounted the ladder apparatus to check on the condition of the driver. Senior Firefighter Clark, who had heard the collision, joined the firefighters. After the patient from the second collision was moved to an area that was thought to be safe (between the ladder truck and the wall), the company officer of the ladder company walked further upstream in traffic in an attempt to wave traffic away from the scene of both collisions. At this point, another passenger vehicle lost control and spun into the space between the ladder apparatus and the retaining wall. Senior Firefighter Clark placed himself between the oncoming car and the driver of the car that had collided with the ladder apparatus. Two firefighters and the driver of the car that hit the ladder apparatus were injured. Senior Firefighter Clark died as the result of head injuries on 8/8/1999. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99-F-27.

8/5/1999    Michael Eugene “Cuppie” Cupp, Sr., Fire Chief Volunteer, Age 48    Cygnet Volunteer Fire Department, OH Heart Attack

Chief Cupp and members of his fire department had just extinguished a brush fire on a vacant lot. As Chief Cupp returned to his truck, he collapsed of an apparent heart attack. He was pronounced dead later that night at the hospital. The cause of death was a massive myocardial infarction. No autopsy was performed.

8/5/1999    Cilton Jay Dauzat, Firefighter Volunteer, Age 63    White Tail Ridge Volunteer Fire Department, TX Struck by Apparatus

Firefighter Dauzat had responded with members of his fire department to a wildland fire that resulted from the failure of a local homeowner to contain an intentional fire in a pile of logs. The driver of the responding pumper did not realize that Firefighter Dauzat had mounted the back step. The pumper was attempting to ascend a hill. Despite two tries, the pumper was unable to climb the hill and when the apparatus backed down off of the hill, the driver discovered the he had run over Firefighter Dauzat. It is believed that Firefighter Dauzat lost his footing. The cause of death was listed as severe chest and head injuries.
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<td>8/8/1999</td>
<td>Ronald Wade Meshell</td>
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<td>to pull a 1-1/2-inch line from the</td>
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<td></td>
<td>and a deputy fire</td>
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<td></td>
<td>rear of the Huttig pumper to assist a</td>
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<td></td>
<td>chief arrived in a</td>
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<td></td>
<td>firefighter from another department</td>
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<td></td>
<td>pumper and parked</td>
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<td></td>
<td>that had a booster line from the other</td>
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<td></td>
<td>about 40 feet</td>
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<td></td>
<td>department’s pumper on the fire. Before</td>
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<td>downhill from the</td>
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<td></td>
<td>the line could be charged, the fuel</td>
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<td></td>
<td>motor home. Firefighter</td>
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<td></td>
<td>tank on the motor home ruptured and</td>
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<td></td>
<td>Meshell and another</td>
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<td></td>
<td>sent a flood of burning fuel down hill</td>
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<td></td>
<td>firefighter burned</td>
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<td></td>
<td>toward Firefighter Meshell, another</td>
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<td>over 96 percent of</td>
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<td>firefighter, and both pumpers.</td>
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<td>his body surface and</td>
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<td>Firefighter Meshell was not wearing</td>
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<td></td>
<td>his airway. He died</td>
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<td>any protective clothing, although he</td>
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<td>on 8/16/1999.</td>
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<td></td>
<td>had loaded his protective clothing on</td>
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<td>Additional information</td>
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<td>the pumper prior to response. He was</td>
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<td>about this incident</td>
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<td></td>
<td>surrounded by flames for an estimated</td>
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<td>can be found in</td>
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<td>15 seconds and was burned over 96</td>
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<td></td>
<td>NIOSH Fire Fighter</td>
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<td>percent of his body surface and his</td>
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<td></td>
<td>Fatality Investigation</td>
<td></td>
<td></td>
<td>airway. He died on 8/16/1999.</td>
<td></td>
</tr>
<tr>
<td>8/9/99</td>
<td>Arthur J. Heckman</td>
<td>Firefighter Volunteer</td>
<td>66</td>
<td>Macks Creek Fire Department, MO</td>
<td>Heart Attack</td>
</tr>
<tr>
<td></td>
<td>Heckman was the first</td>
<td></td>
<td></td>
<td>Firefighter Heckman had pulled a</td>
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<tr>
<td></td>
<td>to arrive at a wildland</td>
<td></td>
<td></td>
<td>pumper behind a house to fill it with</td>
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<tr>
<td></td>
<td>fire that was</td>
<td></td>
<td></td>
<td>water. He was found slumped over the</td>
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<td></td>
<td>threatening</td>
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<td></td>
<td>wheel, having suffered an apparent</td>
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<tr>
<td></td>
<td>structures. Firefighter</td>
<td></td>
<td></td>
<td>heart attack.</td>
<td></td>
</tr>
<tr>
<td>8/14/99</td>
<td>Frank William Wood</td>
<td>Firefighter Volunteer</td>
<td>54</td>
<td>Flourtown Fire Company, PA</td>
<td>Heart Attack</td>
</tr>
<tr>
<td></td>
<td>Wood and members of</td>
<td></td>
<td></td>
<td>Firefighter Wood assisted with the</td>
<td></td>
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<td></td>
<td>his department were</td>
<td></td>
<td></td>
<td>rescue of an unconscious staff member</td>
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<td></td>
<td>fighting a room fire</td>
<td></td>
<td></td>
<td>and then collapsed of an apparent</td>
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<td></td>
<td>in a nursing home.</td>
<td></td>
<td></td>
<td>heart attack. He was rushed to the</td>
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<tr>
<td></td>
<td>Firefighter Wood</td>
<td></td>
<td></td>
<td>hospital but subsequently died.</td>
<td></td>
</tr>
<tr>
<td>8/26/99</td>
<td>David Thomas Nall</td>
<td>Assistant Chief Volunteer</td>
<td>40</td>
<td>Town of Jay Volunteer Fire Department,</td>
<td>Heart Attack</td>
</tr>
<tr>
<td></td>
<td>Nall responded to an</td>
<td></td>
<td></td>
<td>FL</td>
<td></td>
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<tr>
<td></td>
<td>emergency medical</td>
<td></td>
<td></td>
<td>Assistant Chief Nall assisted with the</td>
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<td></td>
<td>incident on a high</td>
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<td></td>
<td>treatment of the patient and was</td>
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<td></td>
<td>school football field.</td>
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<td></td>
<td>helping to load the child in an</td>
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<td></td>
<td>Chief Nall assisted</td>
<td></td>
<td></td>
<td>ambulance when he complained of chest</td>
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<td></td>
<td>with the rescue of</td>
<td></td>
<td></td>
<td>pains. He collapsed and CPR was</td>
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<td></td>
<td>an unconscious</td>
<td></td>
<td></td>
<td>initiated. Chief Nall was transported</td>
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<td></td>
<td>staff member and then</td>
<td></td>
<td></td>
<td>to a local hospital where he was</td>
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<td></td>
<td>collapsed of</td>
<td></td>
<td></td>
<td>pronounced dead about 1 hour later. No</td>
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<td></td>
<td>an apparent heart</td>
<td></td>
<td></td>
<td>autopsy was performed.</td>
<td></td>
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<tr>
<td>8/27/99</td>
<td>Stephen Joseph Masto</td>
<td>Firefighter Career</td>
<td>28</td>
<td>Santa Barbara Fire Department, CA</td>
<td>Heat Stroke</td>
</tr>
<tr>
<td></td>
<td>Masto was working as</td>
<td></td>
<td></td>
<td>Firefighter Masto was working as an</td>
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<td></td>
<td>an EMT at a wildland</td>
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<td></td>
<td>EMT at a wildland fire, roaming among</td>
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<td></td>
<td>fire, roaming among</td>
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<td>other firefighters and providing first</td>
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<td></td>
<td>other firefighters</td>
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<td></td>
<td>aid to anyone who became injured. He</td>
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<td></td>
<td>and providing first</td>
<td></td>
<td></td>
<td>worked a 6 a.m. to 6 p.m. shift, was</td>
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<tr>
<td></td>
<td>aid to anyone who</td>
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<td></td>
<td>equipped with a portable radio, and</td>
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<td></td>
<td>became injured. He</td>
<td></td>
<td></td>
<td>carried a canteen. He did not return to</td>
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<td></td>
<td>worked a 6 a.m. to 6</td>
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<td></td>
<td>camp at the end of his shift, and a</td>
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<td></td>
<td>p.m. shift, was</td>
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<td></td>
<td>search was initiated. Firefighter Masto</td>
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<td></td>
<td>worked a 6 a.m. to 6</td>
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<td></td>
<td>was discovered dead, wearing brush</td>
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<td></td>
<td>p.m. shift, was</td>
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<td>gear, about 12 hours later (on 8/28/1999)</td>
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<td></td>
<td>equipped with a</td>
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<td></td>
<td>in steep terrain. The cause of death</td>
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<td></td>
<td>portable radio, and</td>
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<td></td>
<td>was found to be heat stroke; there was</td>
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<td></td>
<td>carried a canteen. He</td>
<td></td>
<td></td>
<td>no evidence of trauma or other medical</td>
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<td></td>
<td>did not return to camp</td>
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<td></td>
<td>conditions that contributed to his</td>
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<td></td>
<td>at the end of his</td>
<td></td>
<td></td>
<td>death.</td>
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<tr>
<td>8/31/99</td>
<td>Timmy Roger Dawson</td>
<td>Firefighter Volunteer</td>
<td>34</td>
<td>Center Rock Volunteer Fire Department,</td>
<td>Apparatus</td>
</tr>
<tr>
<td></td>
<td>Dawson was the driver</td>
<td></td>
<td></td>
<td>SC</td>
<td>Rollover</td>
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<td></td>
<td>of a 1994 pumper</td>
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<td>Firefighter Dawson was the driver of a</td>
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<td></td>
<td>responding to a motor</td>
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<td></td>
<td>1994 pumper responding to a motor</td>
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<td></td>
<td>vehicle collision.</td>
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<td>vehicle collision. Two other</td>
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<td>Two other firefighters</td>
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<td>firefighters were passengers in the</td>
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<td></td>
<td>were passengers in the</td>
<td></td>
<td></td>
<td>pumper. The right wheels of the pumper</td>
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<td>pumper. The right</td>
<td></td>
<td></td>
<td>left the road, and Firefighter Dawson</td>
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<td></td>
<td>wheels of the pumper</td>
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<td></td>
<td>attempted unsuccessfully to bring the</td>
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<td></td>
<td>left the road, and</td>
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<td></td>
<td>truck back under control. He over</td>
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<td></td>
<td>Firefighter Dawson</td>
<td></td>
<td></td>
<td>compensated and the pumper went off</td>
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<td></td>
<td>attempted unsuccessfully</td>
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<td></td>
<td>the left side of the road, through a</td>
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<td></td>
<td>to bring the truck</td>
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<td></td>
<td>yard, and rolled several times. The</td>
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<td></td>
<td>back under control.</td>
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<td></td>
<td>pumper’s speed was estimated at 60</td>
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<td></td>
<td>He overcompensated</td>
<td></td>
<td></td>
<td>miles per hour in a 35-mile-per-</td>
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</table>
hour zone. Firefighter Dawson was not wearing a seat belt. The other firefighters riding on the pumper received minor injuries. The cause of death was listed as blunt trauma.

9/13/1999  Kenneth C. Cashman, Firefighter Volunteer, Age 29 Auglaize Township Volunteer Fire Department, OH MVA

Firefighter Cashman was responding to a stove fire in a residence. A dump truck loaded with stone pulled out in front of Firefighter Cashman’s car, colliding with it and killing him instantly. Firefighter Cashman was wearing a seat belt at the time of the collision and was operating a red dash light and a siren. The dump truck driver was charged with aggravated vehicular homicide.

9/15/1999  Terri LeAnn Hood, Firefighter Volunteer, Age 31 McCollolch Volunteer Fire Department, IN Struck by Apparatus

Firefighter Hood was helping firefighters from a five-county area battle a 450-acre wildland fire. She was protecting a tobacco barn with other firefighters when conditions worsened and firefighters decided to withdraw. In heavy smoke and confusing conditions, Firefighter Hood was run over by a pumper backing away from the barn. She was killed instantly. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99-F-35.

9/27/1999  Lewis Edward “Rawhide” Anderson, Firefighter Volunteer, Age 68 River Falls Volunteer Fire Department, SC Struck by Vehicle

Firefighter Anderson was directing traffic around an earlier traffic collision. He was positioned about a 1/2 mile north of the collision scene. The weather was rainy and Firefighter Anderson was wearing bright yellow rain gear and using a stop/slow sign. He was struck by an 18-wheel truck, which also struck a fire department vehicle on the scene. The truck then left the scene. Firefighters were notified by another truck driver that Firefighter Anderson was down. They went to his aid and administered CPR and other medical care. He died on 9/30/1999. According to the police report, the truck driver was operating his vehicle at a reckless speed. According to the certificate of death, Firefighter Anderson was killed by a cerebral contusion and edema due to blunt force trauma to the head.

10/3/1999  Gregory Edwin Pacheco, Firefighter Volunteer, Age 20 United States Forest Service, Carson National Trauma Forest, NM

Firefighter Pacheco was a member of a forest firefighting crew constructing a fire line on the La Jolla fire near San Diego, California. He was ascending steep terrain when a large rock fell and hit Firefighter Pacheco on the head, injuring him severely. One other firefighter received moderate injuries and was released back to his crew. Firefighter Pacheco died on 10/5/1999. The cause of death was listed as a closed head injury.

10/4/1999  Jeffrey Scott Thompson, Firefighter Volunteer, Age 20 Howell County Rural Fire District #1, MO Electrocution

Firefighter Thompson and other members of his fire department responded to a grass fire that was caused when some power lines fell. The line had fallen on a fence, energizing it. The fire chief warned all firefighters that fences in the area were energized and to avoid them. Firefighter Thompson and two other firefighters were advancing a booster line to control the fire when they came in contact with a fence. All three were electrocuted and injured seriously. Firefighters on the scene provided medical care, and the injured were evacuated by air. Firefighter Thompson died that day. The two other firefighters survived their injuries.

10/5/1999  William Malcolm Bethune, Captain Volunteer, Age 58 Texas City Fire Department, TX MVA

Captain Bethune was riding in the officer’s seat of an engine company responding with lights and siren to a medical emergency. As the engine company entered an intersection against the red light, it struck a passenger car, veered off the roadway, and struck a cement freeway support column. Captain Bethune, who was not wearing a seat belt, was ejected through the front wind-
shield of the pumper. He struck the pavement and received severe injuries. Captain Bethune was provided with medical care on the scene and flown to a trauma center. He was pronounced dead upon arrival at the trauma center. The cause of death was listed as blunt trauma to the head. The driver of the pumper also was severely injured; the firefighter riding in the back of the cab sustained only minor injuries. A police investigation of the incident attributed the cause of the accident to the failure of the passenger car to yield to a responding emergency vehicle. The driver of the passenger car acknowledged that he had seen the responding engine approaching but thought that he could get through the intersection before the engine got there. The report also concluded that Captain Bethune's failure to wear a seat belt was a major factor in his death. Captain Bethune was the first firefighter fatality for the Texas City Fire Department since most members of the Texas City Fire Department were killed in an explosion 52 years before. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–36.

10/7/1999  Marvin Huisman, First Assistant Chief Wilmont Fire Department, MN Volunteer, Age 56 Heart Attack

Chief Huisman and other firefighters were battling a brush fire. Chief Huisman had assisted with the extension of hose lines and was operating a fire pump. He suffered a heart attack and died.

10/7/1999  Elvis Benson Maxwell, Firefighter/Operator Grant Parish Fire District #5, LA Volunteer, Age 49 Apparatus Rollover

Firefighter/Operator Maxwell was responding as the driver of a fire department tanker tender to a structure fire on a rainy night. He lost control of the vehicle that left the roadway and overturned. An EMS unit en route to the fire came upon the scene and discovered Firefighter Maxwell still inside the vehicle with no vital signs. The paramedics initiated care, but he was pronounced dead in the emergency room. He was not wearing a seat belt and was partially ejected in the collision. The cause of death was listed as blunt trauma.

10/16/1999  Karen Jane Savage, Firefighter/EMT Hawkins Bar Volunteer Fire Department, CA Volunteer, Age 44 Struck by Apparatus

Firefighter/EMT Savage and other members of her department responded to a wildland fire that had developed into firestorm conditions. The fire eventually consumed 26,000 acres and destroyed 75 homes. Firefighter Savage and other firefighters stopped at a support vehicle to get supplies. As she handed supplies to other firefighters on a pumper, the vehicle began to move. She fell or jumped from the pumper and was crushed by the pumper’s rear wheels. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99–F–42.

10/18/1999  Charles C. Young, Firefighter/EMT Ross Township Fire Department, OH Volunteer, Age 77 Heart Attack

Firefighter/EMT Young responded to a very upsetting incident involving the suicide of a teen. He returned from the incident and was speaking with his wife on the phone about the call when he was stricken with a heart attack. His wife was unsure of where he was so it took firefighters 10 to 20 minutes to find and treat him. Despite efforts by members of his department and others, Firefighter/EMT Young died.

10/28/1999  Brian K. Burnett, Firefighter Robert Charles Ulrich, Captain Scipio Township Volunteer Fire Department, IN Volunteer, Age 23 Volunteer, Age 57 Apparatus Rollover

Firefighter Burnett and Captain Ulrich were responding in a tanker (tender) to the report of a brush fire. Firefighter Burnett was driving but failed to negotiate a curve in the road; the apparatus left the road and crossed into a cornfield, where it rolled several times. Firefighter Burnett was ejected from the vehicle and the vehicle rolled on top of him. Captain Ulrich was trapped in the tanker, which was on its roof, until he was extricated by other firefighters. Both firefighters were transported to the hospital.
Captain Ulrich died on 11/4/1999. He had been released from the intensive care unit to a regular hospital floor. Captain Ulrich was seemingly well and recovering from his injuries. He was discovered pulseless and nonresponsive; emergency care was provided but was not successful. The autopsy concluded that Captain Ulrich died of a cardiac arrhythmia. It is not known if the cardiac problems were related to the collision. Captain Ulrich was wearing his seat belt at the time of the collision.

Firefighter Burnett died on 1/22/2000. He was making a slow recovery. The family had been told that he might be home in a week or so but that he would need further therapy. No cause of death for Firefighter Burnett is available. He was not wearing his seat belt at the time of the collision.

10/29/1999    David Merle Pack, Forestry Aide I    Wildland Full-Time, Age 63
              Tennessee Department of Agriculture/Forestry    Drowning
              Division, TN
Forestry Aide Pack responded to what was described as a “routine” woodland fire. Other firefighters spoke with him as they responded to the incident. At the conclusion of the incident, Forestry Aide Pack’s pickup truck was found at the edge of a pond near the fire area with the headlights on and the engine running. After a foot search failed to locate him, a search dog was called in. The dog led searchers to Forestry Aide Pack’s body in the pond. His body was recovered. The reason for his presence in the pond is unknown. His cause of death was drowning.

10/29/1999    Walter F. Vaughan, Fire Police Officer Volunteer, Age 80
              Warminster Fire Department, PA    Struck by Vehicle
Fire Police Officer Vaughan was directing traffic around the scene of a reported structure fire. He was struck by a passenger car and sustained multiple injuries. He was transported to the hospital where he was placed on a ventilator. Officer Vaughan died on 11/13/1999. At the incident, he was wearing a reflective safety vest and helmet and using a wand-type flashlight to direct traffic. The driver of the passenger vehicle was cited for careless driving and failure to obey an authorized person directing traffic.

11/2/1999    Michael J. Sims, Sr., Firefighter Volunteer, Age 38
              Highland Hose Company, Tarentum, PA    Trauma
Firefighter Sims was responding to an automatic fire alarm activation as a passenger in a 1965 open cab aerial ladder apparatus. As the truck made a turn, Firefighter Sims fell from the vehicle and sustained severe injuries. His fall was not witnessed, but another firefighter heard the impact of Firefighter Sims striking the pavement. Emergency medical care was provided, and he was airlifted to a hospital. Firefighter Sims died the following day. The apparatus was equipped with seat belts and a safety gate; it is not known if Firefighter Sims was wearing his seat belt at the time of his fall.

11/3/1999    Jerry Wayne Ramey, Firefighter Trainee Volunteer, Age 18
              West Fork Fire Department, AR    Electrocution
Firefighter Trainee Ramey responded with members of his department to a fire in the utility easement behind a home. A very small fire was found, which was out except for a few burning embers. Firefighter Trainee Ramey attempted to stomp out the embers when he came into contact with a 7,200-volt electrical line that had been hidden from view in tall grass. He fell on top of the line and was removed by other firefighters. Emergency medical aid was provided, and he was transported to the hospital where he was pronounced dead.

              Southampton Fire Department, NY    Heart Attack
Firefighter Korte was performing scene safety duties as other members of his department performed a vehicle extrication. He had just finished closing a road for traffic control. He was standing by the fire police truck talking to another firefighter when he dropped to the ground. Firefighter Korte died of an apparent heart attack. No autopsy was performed.
11/7/1999  David Zan Lancaster, Firefighter Volunteer, Age 24  Elliott Volunteer Fire Department, MS MVA
Firefighter Lancaster was killed as the result of a motor vehicle collision in his personal vehicle while responding to a car fire.

11/14/1999  Bert Andrew Bruecher, Firefighter Volunteer, Age 46  Village of Pleak Volunteer Fire Department, TX Apparatus Rollover
Firefighter Bruecher was the driver and lone occupant of a tanker that was responding to a fire involving 200 round bales of hay that were near a home and a propane tank. The tanker entered a curve at high speed, left the road, and rolled over. A shift in the water load may have contributed to the collision. Firefighter Bruecher was partially ejected and was pinned under the truck. Two 14-year-old boys were arrested and one was charged with second-degree arson for setting the fire. As a part of a plea bargain, the boys were placed on probation until they are 18.

11/16/1999  Brian Andrew Lee, Firefighter Career, Age 38  Fire Department Jersey City, NJ Cardiac
Firefighter Lee and his fire company had just returned from an emergency response and were resupplying their engine company. Firefighter Lee began to experience severe stomach pains. An ambulance was called and he was loaded for transport to the hospital. While en route to the hospital, he collapsed into cardiac arrest and was not revived. The cause of death was listed as natural inflammation of the heart caused by sarcoidosis.

11/18/1999  Henri Fred Broussard, Fire Chief Volunteer, Age 69  Maurice Volunteer Fire Department, LA Heart Attack
Maurice firefighters responded to a fire that involved the cab of an 8,600-gallon gasoline tanker next to several above ground fuel tanks and a large liquid petroleum gas tank at a local gas station. Chief Broussard drove the first engine to the scene and was met there by other firefighters. As the firefighters dressed in their protective clothing, Chief Broussard stretched the initial attack line and then returned to the pumper to operate the pump from the top-mounted pump panel. Shortly after arriving back at the pumper, Chief Broussard suffered a heart attack. Other firefighters and the crew of an on-scene ambulance provided immediate medical aid. Chief Broussard was transported to a local hospital where he was pronounced dead upon arrival. No autopsy was performed. Three other firefighters were injured at the incident.

11/18/1999  James Melvin Dunham, Safety Officer/Firefighter Volunteer, Age 36  Saint Jo Fire Department, TX Cardiac
Firefighter Dunham drove a fire department rescue truck to the scene of a mutual-aid vehicle collision that required extrication. As he was setting up the power unit for a hydraulic rescue tool, Firefighter Dunham stumbled and hit his head on the ground. Other firefighters rendered immediate aid and defibrillated him. Advanced life support aid was provided on the scene, and Firefighter Dunham was flown to a hospital by helicopter. Despite all efforts, he did not survive. The cause of death was listed as occlusive coronary artery atherosclerosis.

11/20/1999  Jackie Mac Garnett, Firefighter Volunteer, Age 54  Quapaw Volunteer Fire Department, OK Heart Attack
Firefighter Garnett and his department were dispatched to a wildland fire. Firefighter Garnett rose to respond and suffered a heart attack. He was transported to a local hospital, stabilized, and then flown to a regional hospital. He was taken to surgery and died a short time later. No autopsy was performed.

11/20/1999  Alton L. “Al” Lewis, First Assistant Fire Chief Volunteer, Age 55  Montour Falls Fire Department, NY Heart Attack
First Assistant Fire Chief Lewis had just returned home after responding to a motor vehicle accident. He suffered a heart attack in his driveway and died.
11/20/1999 Wayne C. Yost, Assistant Fire Chief Volunteer, Age 48  
Cochranville Fire Company, PA Heart Attack

Assistant Chief Yost had responded to a shed and wildland fire. He complained of not feeling well at the scene and went home. Shortly after his arrival at home, an ambulance was called. Assistant Chief Yost suffered a heart attack. He was revived at his home by members of a local response team but died on 11/27/1999.

12/2/1999 Brad A. Michener, Firefighter Volunteer, Age 24  
Scipio–Republic Fire Department, OH Heart Attack

Firefighter Michener had driven a heavy rescue truck to the scene of a brush fire and then back to the station at the conclusion of the incident. Firefighter Michener left the station in his personal vehicle and returned home. His home was about a block from the fire station. As he exited his vehicle at home, he collapsed in his backyard of an apparent heart attack and died the next day. Firefighter Michener had a pre-existing heart condition but had been released to full duty by his personal physician.

12/3/1999 Paul Arthur Brotherton, Firefighter Career, Age 41
Timothy Paul Jackson, Firefighter Career, Age 51
Joseph T. McGuirk, Firefighter Career, Age 38
Jeremiah Michael Lucey, Firefighter Career, Age 38
James Francis Lyons, Firefighter Career, Age 34
Thomas Edward Spencer, Lieutenant Career, Age 42

Worcester Fire Department, MA Trapped

Members of the Worcester Fire Department responded to a fire in the Worcester Cold Storage Warehouse. The building was a windowless six-story structure. Upon arrival, firefighters found a large warehouse with light smoke conditions and a fire on the second floor. They initiated search-and-rescue and fire-attack operations. Within seconds, conditions in the fire building changed and thick black smoke reduced visibility to zero. All fire department personnel were ordered down from upper floors and a head count was taken. It revealed that two firefighters were not accounted for. A “mayday” radio transmission was received from Firefighter Brotherton indicating that he and Firefighter Lucey were lost and running out of air. A search for the trapped firefighters was initiated with 18 firefighters searching for the two that were lost. Lieutenant Spencer, Firefighter Jackson, Firefighter McGuirk, and Firefighter Lyons entered the fifth floor to conduct a search. Contact with the teams was lost and all six firefighters died. NIOSH conducted a review of this incident. The cause of the fire was accidental, the result of a candle knocked over during a domestic dispute by transients living in the building.

12/7/1999 Roy Kenneth Crago, Firefighter Volunteer, Age 65
Fallston Volunteer Fire and Ambulance Company, Inc., MD Brain Aneurysm

Firefighter Crago and members of his fire department were dispatched to a report of a transformer explosion. Firefighter Crago arrived at the fire station in his personal vehicle and responded as the driver of an engine company apparatus. Two other firefighters were on board. At some point during the response, Firefighter Crago suffered a stroke. The engine left the road, skidded down an embankment, and crashed into a concrete culvert. Other firefighters removed Firefighter Crago from the apparatus and began CPR and ALS care. He was transported to the hospital. Despite all efforts, he died on 12/10/1999. The cause of death was listed as a subarachnoid hemorrhage caused by a brain aneurysm. Firefighter Crago was not wearing his seat belt, but the injuries he received as a result of the crash were not life threatening.

12/10/1999 Richard L. Van Wert, Fire Chief Volunteer, Age 58  
Schaghticoke Fire Department, NY Explosion

Chief Van Wert was supervising the disposal of fireworks residue in a controlled burn at a local fairground. He noticed a spark heading toward a van containing at least 100 pounds of additional residue that was to be discarded. He yelled for the fireworks company employee to run
but was unable to escape the explosion himself. The van exploded and burned. Chief Van Wert was killed instantly. His actions were credited with saving the employee.

12/13/1999  **Gregory Eugene Rodgers, Firefighter/EMT Volunteer, Age 50**  
**Dresden Volunteer Fire Department, OH**  
Heart Attack

Firefighter Rodgers responded as the passenger of a water tanker that responded to a mutual-aid barn fire. The driver of the tanker was his son, a firefighter/EMT. Firefighter Rodgers assisted with the setup of a portable tank and suction equipment and helped the tanker dump its load of water at the fire scene. Once empty, the tanker responded to a hydrant about 2 miles from the fire scene and connected to it. The driver of the tanker found Firefighter Rodgers on the ground and unresponsive. He summoned paramedics and began CPR. Firefighter Rodgers was transported to the hospital where he died.

12/15/1999  **Paul Franklin Ezernack, Jr., Firefighter Volunteer, Age 28**  
**North Sabine Fire Protection District, LA**  
Apparatus Rollover

Firefighter Ezernack was responding in a 1,500-gallon tanker to a report of a brush fire. An embankment gave way under the right wheels of the tanker. He attempted to regain control, but the tanker left the roadway and rolled over. He was ejected from the vehicle and thrown 170 yards. He was pronounced dead at the scene.

12/18/1999  **Bradley Curtis McNeer, Firefighter Volunteer, Age 22**  
**Chesterfield County Fire Department, VA**  
MVA

Firefighter McNeer was riding in the officer’s seat of a heavy rescue responding to a gas leak in a residence. He and the driver were the only occupants of the vehicle. Neither firefighter was familiar with the route to the incident, and Firefighter McNeer was having difficulty finding the address in the apparatus map book. The driver decided to reduce his response mode to non-emergency and pull over to look at the map book himself. As he was preparing to pull over or stop, the right rear wheels of the apparatus left the road and went into a ditch. The driver was able to steer the unit out of the ditch, but oversteered to the left and struck a car. He then saw another oncoming vehicle and overcorrected to the right ending up back in the ditch. The rescue truck struck a large tree. Firefighter McNeer was wearing a seat belt but received a fatal head injury. A fire department investigation concluded, “The accident was caused by the driver taking his eyes off the road as he reached for the light switch. Attempting to drive the vehicle out of the ditch, and the speed of the vehicle, contributed to the severity of this accident.”

12/20/1999  **John H. Tvedten, Battalion Chief Career, Age 47**  
**Kansas City Fire Department, MO**  
Trapped

Chief Tvedten was a sector officer working inside a warehouse that was involved in fire. Visibility in the warehouse was good, and firefighters were putting water on the fire. About 45 minutes into the incident, interior conditions changed rapidly as thick black smoke enveloped the building. The incident commander ordered the building to be evacuated, and Chief Tvedten ordered firefighters to leave. The emergency evacuation signal was given over radios and by fire apparatus air horns at the scene. During the evacuation, Chief Tvedten became disoriented and lost. He was in radio communication with Command. Six search teams swept the building but were not able to locate the chief.

12/20/1999  **Theodore A. Ferrante Jr., Firefighter Career, Age 43**  
**Revere Fire Department, MA**  
Heart Attack

Firefighter Ferrante and members of his ladder crew responded to an activated fire alarm in a highrise building. The cause of the alarm was found to be a prank pull station activation. At the scene of the incident, Firefighter Ferrante complained of chest pains but told his company officer that he just needed to lie down and he would feel better. Approximately 2 hours later, Firefighter Ferrante began to experience severe pain. An ambulance was called as other firefighters rendered aid. Firefighter Ferrante was transported to a local hospital where he died.
12/22/1999  Jason L. Bitting, Firefighter  Career, Age 29
David M. McNally, Assistant Chief  Career, Age 48
Nathan R. Tuck, Firefighter  Career, Age 39
Keokuk Fire Department, IA  Trapped

The Keokuk Fire Department was dispatched to a fire in a residential structure. The structure was a house built in 1910 that was divided into three apartments. The department responded with an engine, a quint, and a chief’s vehicle with a total of three firefighters, a lieutenant, an assistant chief, and the fire chief. The response of the chief and one firefighter was delayed because they were returning from a previous incident. Upon arrival, Assistant Chief McNally, Firefighter Bitting, and Firefighter Tuck entered the building in full turnouts and SCBA for search and rescue. A mother and child were trapped on the roof above the porch and three other children were trapped inside. Firefighters rescued one infant child who was transported to the hospital by a police officer. Firefighters rescued a second infant child who was transported to the hospital by a police captain and the fire chief. The fire chief was away from the scene for approximately 3 minutes. Firefighters were searching for the third child when a flashover occurred and trapped all three. An aggressive fire attack was mounted by firefighters who were arriving as part of a callback of off-duty members but the effort was not able to save the lives of the three firefighters. Assistant Chief McNally was found on the second floor at the top of the stairs with the third child. Firefighter Bitting was found in the front bedroom on the second floor of the apartment. Firefighter Tuck was found on the first floor of the apartment in the living room area. All three firefighters were wearing PASS devices that were integrated with their SCBAs. The PASS devices failed to sound an alarm when the firefighters became incapacitated. The SCBAs and PASS devices are undergoing testing to determine why they did not operate.

In addition to the three firefighters killed in this incident, the two infant children and a 7-year-old child perished. A child playing with the stove caused the fire; two high chair trays that were stored on top of the stove caused the fire. Smoke alarms in the home did not operate.

12/29/1999  Ronald Eugene Kaltreider, Safety Officer  Volunteer, Age 39
Pleasant Hill Volunteer Fire Company, PA  Heart Attack

Safety Officer Kaltreider had been at the fire station for most of the day performing year-end computer work and assuring that his department was prepared for Y2K. As he discussed the upcoming purchase of some communications equipment with another firefighter, he suffered a heart attack. Firefighters immediately began attempts to revive him, but they were unsuccessful. Officer Kaltreider had a history of heart disease dating back to 1990.

12/31/1999  Robert Dale Pollard, Firefighter  Volunteer, Age 64
Southern Stone County Fire Protection District, MO  Stroke/CVA

Firefighter Pollard was driving a rescue vehicle to a wildland fire. While en route, he collapsed and was treated by first responders and then airlifted to a hospital. Firefighter Pollard died the next day of a cerebral bleed (stroke/CVA).

Spencerville Invincible Fire Company, OH  Heart Attack

Pump Operator/Inspector Purdy was operating a top-mounted pump panel at the scene of a residential structure fire. Inspector Purdy asked his wife, a volunteer paramedic, for a drink. When she returned to the truck with the drink, she saw him fall from the truck, the victim of a massive heart attack. Firefighters provided medical aid immediately. Inspector Purdy was transported to a local hospital where he was pronounced dead 20 minutes after arrival. No autopsy was performed.

1/11/2000  Ronald J. Osadacz, First Assistant Chief  Volunteer, Age 36
Morganville Volunteer Fire Company Number One, NJ  Heart Attack

First Assistant Chief Osadacz was on the scene of a vehicle fire that resulted from the collision of a pickup truck with a tree. While working on the scene, he was struck in the groin area by a
water stream from a one and 1/2-inch hoseline. He was agitated by this occurrence, left the scene, and returned to his home. Upon his arrival at home, Chief Osadacz complained of indigestion, took some over-the-counter medicine, and laid down to rest. Within a few moments, he suffered a fatal heart attack. An autopsy revealed that he died of severe occlusive coronary arteriosclerosis. A physician who examined him less than a week prior to his death stated that the chief's agitated state would have contributed to the heart attack.

1/11/2000  Allen L. Streeter, Firefighter Volunteer, Age 58 Ranch Drive Fire District, OK Heart Attack

Firefighter Streeter responded to a trash and grass fire in the department's brush truck. Shortly after exiting the vehicle, he collapsed of an apparent heart attack. Firefighters immediately initiated CPR, and an ambulance was summoned.

1/12/2000  Robert M. Jones, Firefighter Volunteer, Age 48 Unity Volunteer Fire Department, ME Heart Attack

Firefighter Jones was preparing to use a dry hydrant to supply water for a fire in a residential structure. He attached a large diameter hoseline to the pumper, removed the cap from the dry hydrant, and was preparing to attach a suction hose to the hydrant. Another firefighter, who was assisting Firefighter Jones, came around the truck and found him on the ground. After calling for help, the assisting firefighter began CPR. Despite treatment on the scene and in the ambulance, Firefighter Jones died. The cause of death was listed as a heart attack. The fire was caused when a boy and his two brothers inadvertently set a sofa on fire; all three boys, 6-year-old triplets, died in the fire.

1/15/2000  Gary Lynn Bankert, Sr., Firefighter Volunteer, Age 37 Roanoke–Wildwood Volunteer Fire Department, NC Drowning

Firefighter Bankert was participating in fire department sponsored dive training in a rock quarry that contained a private lake used exclusively for recreational diving. Firefighter Bankert was a member of his department's search and recovery dive team. As the class ascended from the third of three dives, the class stopped for a safety and accountability check at a depth of 15 feet. At the time of the check, Firefighter Bankert was present; however, when the class proceeded to the surface, he did not surface. Other divers went immediately to the bottom of the lake and found Firefighter Bankert at a depth of approximately 22 feet. He was brought to the surface and transported by paramedic ambulance to a local hospital. He was pronounced dead later that evening. The cause of death was listed as severe metabolic acidosis as the result of a near drowning. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation F2000–11.

1/16/2000  Ernest John Young, Firefighter/Trustee Volunteer, Age 52 Big Knob Volunteer Fire Department, Station 26, PA Trauma

Firefighter/Trustee Young was assisting with the replacement of electric garage door openers on apparatus bay doors at his fire station. He and another firefighter had climbed to the top of a fire rescue truck using a 14-foot extension ladder. As Firefighter Young began his descent, the ladder slipped out from under him and he fell approximately 10 feet and struck his head on the concrete floor. The ladder was not being footed at the time it fell. Despite immediate medical aid and transport by helicopter to a regional hospital, Firefighter Young died on 1/17/2000. The cause of death was listed as blunt force trauma to the head. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation F2000–07.

1/17/2000  James William Altic, Fire Chief Volunteer, Age 47 Halfway Fire & Rescue, MO Apparatus Rollover

Chief Altic was the lone occupant and driver of a tanker apparatus responding with lights and siren to a mutual-aid structure fire. Road conditions were slippery because a light misty rain was falling after prolonged dry spell. Chief Altic failed to negotiate a curve in the road, and the apparatus left the roadway and rolled over. He sustained fatal neck and chest injuries and was pro-
nounced dead at the scene. The driver’s seat belt had been removed from the apparatus at some point prior to the collision, so Chief Altic was not restrained. The police report cited the speed of the fire apparatus as a factor in the collision, as well as the wet roadway. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation F2000–18.

1/17/2000  Juan Gilberto De Leon, Captain  Career, Age 53  McAllen Fire Department, TX  Heart Attack

Captain De Leon was in his assigned sector driving a command vehicle. He stopped at a business in his sector to help a civilian move some boxes. During this task, Captain De Leon suffered a heart attack. The civilian called 9–1–1 and provided CPR until the arrival of fire department and EMS responders. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation F2000–12.

1/27/2000  Walter Harvey Gass, Captain  Volunteer, Age 74  Sealy Volunteer Fire Department, TX  Smoke Inhalation/Burns

Captain Gass and other members of his department were dispatched to a residential structure fire that was caused when lightning struck a house. The first two firefighters on the scene, the assistant chief and the fire chief, confirmed a working fire with dark smoke and fire visible from the attic and dormers. Captain Gass and his crew were the first fire company to arrive at the scene. He and two other firefighters entered the structure through the front door to perform an attack on the fire. Shortly afterwards, as the two firefighters who were with Captain Gass fed more hose into the structure, there was a rapid buildup of heat and the hoseline seemed to drop. The firefighters exited the building and reported the situation to the chief. Two rapid intervention teams were formed and, after four attempts, the second team was successful in recovering Captain Gass. He was equipped with full structural protective clothing and a manually activated PASS device. The PASS was found in the “off” position. Captain Gass was located about 18 feet inside the front door of the structure. Firefighters removed him from the structure approximately 20 minutes after his arrival on the scene. The cause of death was listed as smoke and soot inhalation with greater than 80 percent total thermal injury. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation F2000–09.

1/27/2000  Robert Boy Ketelsen, Firefighter  Volunteer, Age 59  Westbrook Fire Department, CT  Heart Attack

Firefighter Ketelsen and members of his fire department responded to an automatic fire alarm. The alarm turned out to be unfounded. Fire department members returned to the fire station and placed the fire apparatus in service. Less than 2 minutes after departing the fire station for home in his personal vehicle, Firefighter Ketelsen suffered a heart attack. He managed to pull off the road into a parking lot before he became unconscious. Firefighter Ketelsen was found in full cardiac arrest when members of his fire department arrived. He was transported to a local hospital where he was pronounced dead. Firefighter Ketelsen had a history of heart problems.

2/6/2000  Douglas George Stevens, Training Officer  Volunteer, Age 42  Story City LaFayette Township Volunteer Fire Department, IA  Heart Attack

Training Officer Stevens was working on the scene of a residential structure fire. He climbed a ground ladder, used a halligan tool to remove a section of siding, and then continued on to the roof to prepare to perform additional ventilation. Training Officer Stevens descended the ladder and walked toward a backup hose team that was standing by outside of the residence. As he neared the other firefighters, Training Officer Stevens collapsed due to an apparent heart attack. Paramedics standing by on the scene initiated care immediately. ALS medical care was provided during a 17-minute transport to the hospital to no avail. The cause of death was listed as occlusive coronary artery disease. The cause of the fire was an overheated wall next to a chimney. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation F2000–14.
2/11/2000  Paul Eugene Cooper, Firefighter Volunteer, Age 26

Hoopa Volunteer Fire Department, CA MVA

Firefighter Cooper was responding as the driver of an engine apparatus en route to a motor vehicle accident on a narrow, two-lane road. While the engine was about to negotiate a slight left curve, a car approached from the other direction straddling the line between the two lanes. Firefighter Cooper moved the apparatus to the right side of the road to avoid a collision, and the engine’s right tires left the pavement and drove onto a soft grassy shoulder. The truck continued on the shoulder, began to fishtail, glanced off of a power pole on the right side of the road, veered to the left out of control, and struck a large oak tree. Neither Firefighter Cooper nor the passenger was wearing a seat belt. Firefighter Cooper was trapped behind the steering wheel, it took firefighters nearly 1 hour to free him. The other firefighter, a passenger, was ejected. An ambulance transported both firefighters to the hospital. Although he was alert and conscious during the extrication, Firefighter Cooper entered a coma in the hospital. He never regained consciousness and died on 2/14/2000, his 27th birthday.

2/13/2000  Richard Owen Spink, Lieutenant Career, Age 48

Fort Campbell Fire Department, KY Heart Attack

Lieutenant Spink had just completed participating in a live burn structural training session. Lieutenant Spink was participating in a critique of the training when he was struck with a massive heart attack. Lieutenant Spink had a number of cardiac risk factors including prior heart attacks or chest pain, high blood pressure, overweight, diabetes, and smoking.

2/14/2000  Lewis Evans Mayo, III, Firefighter Career, Age 44

Kimberly Ann Smith, Firefighter Career, Age 30

Houston Fire Department, TX Trapped

Firefighters Mayo and Smith responded with Engine Company 76, three other engines, two ladder companies, two chief officers, an ambulance, and support staff to a report of a fire in a McDonald’s restaurant. The fire was reported at 4:30 a.m. Engine Company 76 was staffed with a captain, a fire apparatus operator, and two firefighters. Engine 76 was the first firefighting unit, arriving at 4:38 a.m., and reported 6-foot flames visible from the roof; the flames appeared as if they might be venting from an exhaust fan, possibly indicating a grease fire. Firefighters from Engine 76 and other units were ordered to advance an attack line into the interior of the structure where no fire was visible. At 4:52 a.m., the incident commander ordered all firefighters out of the building to transition to a defensive fire attack. The flames visible from the roof had grown to 30 feet in height, and fire had become visible in the kitchen area of the restaurant.

After the evacuation order was given, Firefighters Mayo and Smith were declared missing. The incident commander requested a second alarm at 5:02 a.m. and numerous rescue attempts were made. At 5:27 a.m., the third alarm was requested. Shortly afterwards, a ladder company opened the rear door of the restaurant and made entry to the back of the kitchen area. A PASS device had been heard alarming in the kitchen area, and a firefighter was able to see a downed firefighter through the door. Firefighter Mayo was discovered with his facepiece in place, his regulator not connected to the facepiece, and with his SCBA partially removed and entangled in wires. He was removed and transported to the hospital, where he was pronounced dead.

Given the amount of time that had passed and the likelihood that Firefighter Smith was buried in debris, the search effort transitioned into a recovery mode. Firefighter Smith was found at approximately 7:13 a.m. within 6 feet of the rear door of the restaurant. She was entangled in wires and a pair of wire cutters was found near her body. She was wearing an SCBA, but the status of her facepiece and regulator could not be determined. Both firefighters died of asphyxia due to smoke inhalation. Firefighter Mayo’s carboxyhemoglobin level was found to be 26 percent and the level for Firefighter Smith was found to be 52 percent.

The fire was intentionally set by a group of juveniles attempting to conceal a burglary attempt. Four individuals were convicted of crimes with sentences ranging from 2 to 35 years. Additional
information about this incident can be found in NIOSH Fire Fighter Fatality Investigation F2000–13.

2/19/2000  James D. Geiger, Firefighter/EMT   Volunteer, Part Paid, Age 55
City of Defiance Fire & Rescue, OH   Heart Attack

Firefighter/EMT Geiger responded with other members of his fire department to a sledding accident. Firefighter/EMT Geiger assisted with patient packaging and helped carry the patient through deep snow to an ambulance. Firefighter/EMT Geiger left the scene at the conclusion of the incident in his private vehicle. Firefighter/EMT Geiger suffered a heart attack as he arrived at his home; his car struck a propane tank. Firefighters were called to the scene and transported Firefighter/EMT Geiger to the hospital where he died shortly after arrival. The autopsy cited severe occlusive coronary artery disease as the cause of death.

2/21/2000  Evangelino Soto Rodriguez, Sergeant   Career, Age 53
Puerto Rico Fire Department, PR   Struck by Vehicle

Sergeant Rodriguez was called to the scene of an arson-caused lumberyard fire. Sergeant Rodriguez had just finished attaching a hoseline to a hydrant and began to cross the road back to his engine company. As he crossed the road, a car operated by a drunk driver struck him. The cause of death was listed as severe multiple trauma.

2/29/2000  Robert Jeffery Jackson, Firefighter   Volunteer, Age 35
Harmony Volunteer Fire Department, OK   MVA

Firefighter Jackson was responding to a mutual-aid grass fire in a neighboring community. Firefighter Jackson was the sole occupant and driver of a 3/4-ton, 4-by-4 brush truck. As Firefighter Jackson responded, he encountered a sedan traveling in the opposite direction. As the sedan crested a hill, the driver lost control, skidded approximately 258 feet, crossed the center of the road, and struck the brush truck head on. Firefighter Jackson attempted to avoid the collision by pulling to the side of the road. The emergency lights on the brush truck were activated. Firefighter Jackson was wearing a seat belt. Firefighter Jackson’s speed was estimated at 30–35 miles per hour and the speed of the sedan was estimated at 70 miles per hour.

After the collision, both vehicles caught fire. The fire was reported to the Harmony Volunteer Fire Department, and they responded to the incident. Upon arrival, both vehicles were found to be fully involved in fire. The cause of death was listed as massive blunt chest trauma with burns noted as another significant medical condition.

3/4/2000  David Paul Sutton, Firefighter   Volunteer, Age 27
Fraser Department of Public Safety, MI   Asphyxiation

Firefighter Sutton responded, along with other members of his department, to a working apartment fire. While they were engaged in suppression of the first fire, another apartment fire was reported in a building across the street from the original fire. Since no fire apparatus was available to respond, Firefighter Sutton and other firefighters responded in a van to the scene. Police officers were in the process of evacuating the building. A resident in need of rescue had been spotted at a second-story window. Mutual-aid fire companies were responding but not yet on the scene. The smoke condition at the entrance to the apartment building was light, with heavier smoke and heat on the second floor. One firefighter observed fire at the top of the stairs. Firefighter Sutton and another firefighter, equipped with full protective clothing and SCBA, entered the building to effect the rescue. Witnesses outside the building reported that the resident disappeared from the window as if she had been reached by firefighters. Within seconds, a flashover occurred, trapping the resident and the two firefighters. Both firefighters managed to reach a bathroom at the rear of the apartment, but they were unable to get through the window with their SCBAs in place. Firefighter Sutton was observed by other firefighters at the window, and a rescue effort was mounted.

Two firefighters shed their SCBA and entered the bathroom from ground ladders. Firefighter Sutton was removed after his SCBA was cut from him. The low-pressure hose on his SCBA had
burned through. The other firefighter was located in the bathtub and removed. Both were transported to the hospital where Firefighter Sutton was pronounced dead. The other firefighter sustained major burns and was hospitalized for 6 months; the apartment resident died.

The fire was caused when an arsonist(s) ignited combustibles on the first and second floors of the apartment building. This fire was one of six arson fires that occurred in the same general area over 2 days.

3/6/2000  Robert W. Buhler, Firefighter Volunteer, Age 62   Delmont Volunteer Fire Department, SD Overrun by Wildfire Firefighter Buhler and members of his fire department were fighting a wildland fire. The fire was the result of a controlled field burn that was being conducted by some local citizens that got out of control. The conditions were dry with winds of 40 miles per hour. The fire was in a very deep winding ravine. Hose was being added to an attack line when a wind gust blew up an area that had been thought to be previously extinguished. The fire spread rapidly up a hill and engulfed Firefighter Buhler. Firefighter Buhler had responded directly to the scene from a nearby town and was not wearing protective clothing. Firefighter Buhler was severely burned over 60 to 80 percent of his body and died on 3/16/2000. Another firefighter, who was near Firefighter Buhler at the time of the blowup and who was equipped with protective clothing, received minor injuries. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation F2000–22.

3/6/2000  Donald R. Wilson, Assistant Chief Volunteer, Age 50   Herrick Fire Protection District, IL Heart Attack Assistant Chief Wilson was on the roof of a residence that was involved in fire. The fire started when a garbage fire extended through brush to a house. He had just chopped a hole in the roof to determine if the fire had spread to the attic. He was seen lying on the roof. Firefighters found that Assistant Chief Wilson had suffered a heart attack. Despite their efforts, Assistant Chief Wilson was pronounced dead at the scene.

3/7/2000  Jerry Wayne Coppin, Training Officer Volunteer, Age 56   Okay Volunteer Fire Department, OK Cerebral Hemorrhage Training Officer Coppin and members of his department responded to assist with storm watch duties in their community. Toward the end of the storm, Training Officer Coppin suffered a cerebral hemorrhage as he sat in his pickup truck and operated a radio. First responders and ambulance personnel provided medical aid immediately. Training Officer Coppin was transported to a hospital but died on 3/11/2000.

3/8/2000  William M. Blakemore, Private Volunteer, Age 48   Memphis Fire Department, TN Career, Age 41 Shot Along with other units, Engine 55, a four-person engine company including Lieutenant Lerma and Private Blakemore, responded to the report of a residential structure fire. Engine 55 was the first unit on the scene and reported a working house fire. Lieutenant Lerma stepped from the apparatus to perform a size up of the fire and was immediately shot by a gunman who had been hiding in the garage of the house. The gunman continued to fire, striking Private Blakemore as he sat in the back of the pumper preparing his protective equipment. The driver of Engine 55 moved the apparatus forward out of the danger zone. The fourth member of the crew had been on the opposite side of the apparatus preparing his protective clothing and jumped onto the running board as the apparatus was moved to safety. As the gunman engaged and killed a deputy sheriff, firefighters moved Lieutenant Lerma to a safe area and began treatment.

Lieutenant Lerma was pronounced dead at the scene and Private Blakemore died in an ambulance en route to the hospital. Both were killed by shotgun blasts to the head. A deputy sheriff was also killed. After the scene was secured, firefighters extinguished the fire in the house and discovered the body of the gunman’s wife. The gunman was an off-duty Memphis firefighter. He
was responsible for the fire in the house, and he was likely the person who reported the fire to the Memphis Fire Department through a 9–1–1 call.

Lieutenant Lerma’s father was killed in the line of duty in 1977. Lieutenant Lerma was carried to his rest in a fire truck named after his father.

3/13/2000  Jessie Lamar Y’Barbo, Forestry Technician III  Wildland Career, Age 54  Burns  Texas Forest Service, TX  Forestry Technician Y’Barbo was participating in the controlled (prescribed) burn of a 35-acre block of mature pine forest, with low understory vegetation. Forestry Technician Y’Barbo was wearing brush gear and operating a 1985 Honda 250 all-terrain vehicle (ATV), owned by the Forestry Service. The ATV had a shop-made holder at the rear that accommodated a drip torch. As Forestry Technician Y’Barbo ascended an incline, the vehicle overturned backward. As he struggled to free himself, he accidentally kicked off the cap on the ATV’s fuel tank, splashing him with fuel, which was ignited by the drip torch. Other firefighters quickly came to Forestry Technician Y’Barbo’s aid, and he was transported to a hospital where he died on 4/7/2000. The cause of death was listed as complications of thermal injuries.

An Accident Review and Mitigation Report prepared by the Forest Service recommended that all Forest Service ATVs be equipped with threaded caps (the cap on Forestry Technician Y’Barbo’s ATV was only equipped with a 1/4-turn cap); fuel tank venting and overflow tubes; operator training, equipping supervisors with first aid kits that include fire blankets; the consideration of replacement of older, narrow track ATVs; and the installation of rollover protection on ATVs.

3/15/2000  Mike Shortt, Fire Chief  Career, Age 44  Weaverville Volunteer Fire Department, CA  Heart Attack  Chief Shortt was acting as an instructor for an evening drill on ground ladder placement and raises. Chief Shortt acted mainly as an instructor/coach and did not personally participate in much actual ladder handling. During the class, Chief Shortt collapsed, the victim of a heart attack. Medical aid was provided immediately by firefighters attending the class. Chief Shortt was transported to the hospital where he died 3/31/2000.

3/17/2000  David Clements Sharp, II, Firefighter/Engineer  Career, Age 31  Fayetteville Fire/Emergency Management Department, NC  Firefighter/Engineer Sharp responded to an automatic fire alarm as the driver and lone occupant of a 1993 Pierce Arrow 100-foot ladder tower truck. The first unit on the scene found a system malfunction and canceled all other responding fire apparatus, including the ladder truck operated by Firefighter/Engineer Sharp.

As he returned to the fire station, Firefighter Sharp came upon a railroad crossing that was blocked by traffic control devices as a slow-moving freight train passed. As the last car of the train passed, it stopped just past the intersection. Firefighter Sharp drove the ladder truck around the traffic control arm and attempted to cross the tracks. As he passed the freight train, a passenger train, traveling approximately 30 mph, headed in the opposite direction of the freight train struck the left front of the fire truck. Witness statements indicated that Firefighter/Engineer Sharp’ view of the oncoming passenger train was likely blocked by the freight train. The collision spun the truck around and he was ejected; he landed under the truck’s rear tires and was pronounced dead at the scene. The cause of death was listed as multiple blunt trauma. He was not wearing a seat belt. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation F2000–19.

3/18/2000  Frederick L. Brain, Fire Police Officer  Volunteer, Age 76  Miller Place Fire Department, NY  Heart Attack  Fire Police Officer Brain was directing traffic at the scene of a motor vehicle collision. After approximately 1 hour on the scene, Fire Police Officer Brain collapsed. The fire chief reached
Fire Police Officer Brain and found him gasping for breath and having a weak pulse. Firefighters on the scene applied an automatic external defibrillator and the unit delivered a shock. A firefighter performed CPR on Fire Police Officer Brain as an ambulance was summoned. Fire Police Officer Brain was transported to the hospital with a pulse. He lapsed into a coma and died on 4/24/2000.

3/27/2000 Kevin Francis Sterenchuk, Administrative District Chief Career, Age 48 Cedar Rapids Fire Department, IA Heart Attack

District Chief Sterenchuk was in his office performing administrative duties. He had not been feeling well an hour prior and had asked the department’s EMS coordinator to take his blood pressure. His blood pressure was high, and he was also complaining of an ache in his right elbow similar to carpal tunnel pain. He agreed to have his blood pressure checked again. Later that day, the EMS coordinator walked past District Chief Sterenchuk’s office and noticed that he was having difficulty breathing. He directed a staff member to call 9–1–1 and retrieved medical equipment from a reserve fire apparatus stored in the building. Revival efforts were unsuccessful.

3/28/2000 Michael “Mike” Russell Queen, Fire Chief Volunteer, Age 30 Clayton Fire Department, GA Trauma

Fire Chief Queen was assisting with hose testing at his fire station. During the testing process, a 2-1/2-inch hose separated from its coupling. High-pressure water struck Chief Queen and propelled him into a fire truck that was parked nearby. Chief Queen suffered a fatal blow to the head as he hit the apparatus. A firefighter/EMT began treatment immediately, and Chief Queen was transported to the county hospital. He was pronounced dead approximately 45 minutes after the accident.

3/31/2000 Kendall O. Bryant, Firefighter/EMT Paid-on-Call, Age 36 Layton City Fire Department, UT Smoke Inhalation

Firefighter/EMT Bryant and members of his department were dispatched to the report of a residential fire. Upon arrival, Firefighter/EMT Bryant’s captain reported a working fire with flames and smoke visible from the garage. The captain ordered his firefighters to extinguish the fire in the garage, and the fire was knocked down within 5 minutes of their arrival on scene. The captain then instructed Firefighter/EMT Bryant and another firefighter to enter the structure with a hoseline to search for victims, conduct fire extension, and begin ventilating the structure. Upon entry, the firefighters encountered dark smoke but no visible flame. They began a left-hand search and proceeded to the second floor of the structure. The second floor contained bedrooms and was directly above the garage. A lieutenant joined the firefighters on the second floor by following the hoseline. As the firefighters searched the bedrooms, there was a rapid buildup of heat. A red glow was visible at the bottom of the stairs, cutting off the team’s escape route. The decision was made to follow the hoseline back out of the structure since the firefighters were unsure about the presence of windows in the bedrooms and the stairway was small. Firefighter/EMT Bryant was the last in line as the firefighters made their way to safety.

As the firefighters emerged from the house, the lieutenant removed his facepiece and told other firefighters that Firefighter/EMT Bryant was supposed to be right behind him but had not exited the structure with him. The incident commander ordered an accountability check and Firefighter/EMT Bryant was confirmed to be missing. A second crew of firefighters entered the residence through the front door but could not climb the stairs because they appeared to be collapsed and were heavily involved in fire. The incident commander ordered a ladder raised to provide firefighters with access to a roof area, which led to the bedroom windows. Two firefighters entered the second floor of the structure and searched two bedrooms. A sound believed to be Firefighter/EMT Bryant’s PASS device was located but turned out to be a smoke alarm.

The firefighters saw a light in the bedroom across the hall and found that it was a flashlight that was carried by Firefighter/EMT Bryant. Firefighter/EMT Bryant was found on his knees on the floor with his facepiece removed. His SCBA cylinder was found to be empty and his protective
hood was found over his mouth and nose, most likely in an attempt to filter air to breathe. His PASS device was found in the “off” position. Firefighter/EMT Bryant was removed by firefighters through a window and lowered to the ground into the care of waiting paramedics.

Firefighter/EMT Bryant was pronounced dead in the emergency room. The cause of death was later listed as smoke and soot inhalation and acute carbon monoxide poisoning. Firefighter/EMT Bryant’s blood carboxyhemoglobin level was found to be 25 percent at the time of his death. Firefighter/EMT Bryant was a career firefighter in Ogden, Utah. Two other firefighters were injured. The fire was caused by a droplight that had been hung near a cardboard box that was being used as part of a dog’s bed. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation F2000–23.

4/4/2000    David Anthony Maisano, Captain Tritown Fire Department, MI Volunteer, Age 38 Pneumonia

Captain Maisano and members of his fire department responded to a report of smoke in a residential structure. After removing the contents of the fireplace and checking the attic and roof of the structure, it was determined that smoke was escaping the chimney in the attic and causing the smoke buildup. Firefighters were stowing equipment in preparation for their return to the station. Captain Maisano was attaching an elastic cord to secure a ground ladder to the truck when the cord snapped and struck him in the face. Captain Maisano fell to the ground from a height of approximately 9 feet, fracturing a wrist and causing severe back pain. He was transported to the hospital by ambulance; he was in the hospital for 3 days prior to being discharged. Due to his pain he was unable to sleep in bed, so he slept in an easy chair on the night that he was released from the hospital. He was last seen alive at approximately 2:30 a.m. on April 8th, but was discovered dead by his wife in the morning. The autopsy attributed his death to pneumonia. The autopsy also noted that the use of multiple prescribed pain relief medications might have resulted in some degree of respiratory depression.

4/7/2000    James Ted Griffith, Firefighter/Training Officer Winterset Volunteer Fire Department, IA Volunteer, Age 25 Explosion

Firefighter Griffith and members of his department were called to the scene of a grass fire. The fire started when salvage workers ignited grass and nearby wood as they worked to dismantle two old, rusting 12,000-gallon elevated fuel storage tanks. The grass fire was extinguished, and the salvage workers decided to use a blowtorch to cut a small hole near the drain of the tank that had already been pulled to the ground. The hole was intended to allow the attachment of a tow chain, which would be used to pull the tank to a salvage yard. As the hole was being made with a blowtorch, the tank emitted a hissing sound and suddenly exploded. Firefighter Griffith was killed instantly when he was struck by flying debris. The top of the tank, which was torn away in the explosion, weighed over 900 pounds and flew over 114 feet before coming to rest. A salvage worker was also killed, and eight firefighters and a civilian received injuries. Analysis of the tank contents revealed that the tank contained residual gasoline and other petroleum products.

4/11/2000   Michael R. Baughn, Firefighter Washington Fire/Rescue, OH Paid on Call, Age 46 Cardiac

Firefighter Baughn and 30 other members of his department were participating in search-and-rescue training in the basement of an office building. Teams of two firefighters, equipped with structural protective clothing and SCBA, were doing crawl-through searches in areas that were obscured with nontoxic smoke. After completing an exercise that lasted approximately 20 minutes, Firefighter Baughn sat in a basement hallway, removed his SCBA facepiece, rested, and waited for other firefighters to complete the exercise. When the other firefighters emerged from the exercise, Firefighter Baughn began to climb the stairs from the basement to the ground level of the building. As he reached the first landing in the stairwell, Firefighter Baughn suddenly collapsed. Firefighters found Firefighter Baughn and immediately initiated CPR.
Arriving ambulance personnel were unable to deliver a shock to Firefighter Baughn through their defibrillator. Firefighter Baughn was transported immediately to the closest hospital, 2 minutes away. Firefighter Baughn was pronounced dead 30 minutes later.

The case of death was listed as cardiomegaly (enlarged heart)—acute cardiac arrhythmia. Firefighter Baughn had a history of high blood pressure. He took two medications for this disease, but he did not take them regularly. The energy selector for the defibrillator was found to be in the “0” mode. The defibrillator will not deliver a shock unless an energy level greater than zero for the shock is selected. Additional defibrillator training was recommended for squad members. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation F2000–24.

4/20/2000 Riccy Levi Davis, Firefighter/Paramedic Career, Age 33 Center Point Fire/Rescue, AL Hyperthermia

Firefighter/Paramedic Davis and members of his department were dispatched to a report of a fire in a single-family residential structure that included a full basement. Upon arrival, firefighters found heavy smoke showing from the structure and found that the fire was in the basement. Firefighters attempted to reach the fire through the garage door (which opened into the basement) but were unsuccessful in locating the seat of the fire. A positive-pressure fan was placed at the garage door. Another team of three firefighters, including Firefighter/Paramedic Davis, advanced an attack line through the front door of the residence. On their initial entry into the residence, they were unable to locate any fire. The crew withdrew, found that a positive-pressure fan had been placed at the front door, and returned to explore another area of the house.

Firefighter/Paramedic Davis was at the nozzle as the hoseline was advanced into the second entry on the main floor of the residence. As the line was advanced, Firefighter/Paramedic Davis fell through the floor into the area of the basement that was involved in fire. Other firefighters helped Firefighter/Paramedic Davis as he attempted to jump back to the first floor from the basement but these efforts were unsuccessful. Firefighters attempted to lower a scuttle hole ladder into the hole but the location of the hole and the sagging of the first floor into the basement prevented its use. Firefighters instructed Firefighter/Paramedic Davis to use the hoseline to protect himself as they attempted to rescue him through the basement.

An attack team entered the basement and fought its way to the room that contained Firefighter/Paramedic Davis. It is estimated that 12 to 15 minutes passed from the time Davis fell into the basement until he was located and removed from the structure. Upon removal from the structure, he was flown to the hospital where he was pronounced dead. The cause of death was listed as hyperthermia (thermal injuries). The carboxyhemoglobin level in Firefighter/Paramedic Davis’ blood was less than 5 percent; he was burned over roughly one-third of his body.

4/20/2000 Robert Cowey Brannon, Jr., Lieutenant Career, Age 43 Bluefield Fire Department, WV Cardiac

Lieutenant Brannon responded with his three-person engine company to a report of a residential structure fire. Arriving companies found a working fire on the first and second floors of a 1-1/2-story wood-frame house. Lieutenant Brannon took command of the incident and ordered an attack line through the front door. After completing a 360-degree walk around the involved structure, Lieutenant Brannon assisted with the deployment and advancement of a second attack line. The line was stretched to the first floor of the house and was used to control hot spots. Lieutenant Brannon noticed an air leak on his SCBA. The leak was controlled by another firefighter inside the house, but Lieutenant Brannon found that he was out of air and needed a new cylinder. Lieutenant Brannon exited the house, spoke momentarily with the fire chief, and proceeded to his apparatus to get his cylinder changed. He kneeled at the truck to allow the driver/operator to replace his cylinder. The driver/operator asked Lieutenant Brannon if he was okay, Lieutenant Brannon responded that he needed a new cylinder, turned his head, and collapsed.

Other firefighters and on-scene paramedics immediately came to Lieutenant Brannon’s aid. He was defibrillated several times on the scene and transported to a local hospital. He was revived
in the emergency room but died on 5/4/2000. The cause of death was listed as atherosclerotic coronary artery disease. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation F2000–34.

Bureau of Land Management/Alaska Fire Service, AK Parachute Failure

Smokejumper Liston was participating in mandatory annual recertification practice parachute jumps in preparation for the upcoming wildland season. He had completed three jumps. During the fourth jump of the day, Smokejumper Liston’s parachute failed, and he plunged 3,000 feet to his death. Emergency medical care was provided immediately by other smokejumpers trained as emergency medical technicians to no avail. His cause of death was listed as multiple impact (deceleration) injuries. Smokejumper Liston was the first parachute-related fatality for the Bureau of Land Management in 40 years; all smokejumping activity in Alaska and Idaho was halted for over 2 months as this incident was investigated.

The investigation revealed that the parachute malfunction was characterized as a “drogue in tow” meaning that the drogue chute deployed but did not release on demand to deploy Smokejumper Liston’s main parachute. Smokejumper Liston then followed emergency procedures and manually deployed his reserve parachute. During this action, the reserve pilot chute became entangled with the drogue bridle (the line which attaches the drogue to the main parachute) thereby preventing both the main and reserve canopies from deploying.

4/29/2000 L.C. Merrell, Lieutenant Career, Age 43
Chicago Fire Department, IL MVA

Lieutenant Merrill was in command of a truck company responding with lights and siren to a still alarm. Lieutenant Merrill was riding in the front passenger seat of the apparatus and was not wearing a seat belt. The truck company slowed prior to entering an intersection and was broad-sided by a pickup truck that ran a stop sign. Lieutenant Merrill was ejected. Despite immediate medical care, he was pronounced dead at the scene. The cause of death was listed as blunt head trauma. Four other firefighters and nine civilians in two vehicles were injured. The still alarm turned out to be false. The Chicago Fire Department Commissioner was quoted as saying that Lieutenant Merrell could have survived the accident if he had been wearing a seat belt. The driver of the pickup was ticketed for speeding and failure to stop.

4/30/2000 Arnold Blankenship, III, Second Assistant Chief Volunteer, Age 27
Greenwood Volunteer Fire Company #1, Inc., DE Trapped

Assistant Chief Blankenship and other members of his department were participating in a training/demolition burn of a 2-1/2-story, wood-frame dwelling. According to the fire chief, the plan for the day was to do small, one-room burns to evaluate a saw, and then to completely burn the house. After a series of small fires were extinguished on the first floor of the house, preparations were made for the demolition burn.

The plan for the final fire was to ignite the attic, then ignite the first floor, evacuate the house, and allow it to burn completely. Water curtain nozzles were set up on the exterior of the house to protect trees that were in the proximity of the house. Assistant Chief Blankenship went into the attic of the house and used a small garden-type sprayer to distribute diesel fuel in the attic. As fires were ignited inside an attic room, Assistant Chief Blankenship used the sprayer to “accelerate” the fire. With the exception of Assistant Chief Blankenship, all firefighters had left the attic space and were proceeding to the first floor of the structure. A firefighter waiting at the base of the attic stairs for Assistant Chief Blankenship noted fire and smoke coming from the attic. When firefighters reached the exterior of the structure, they notified the fire chief that Assistant Chief Blankenship was missing and possibly trapped.

As some firefighters attempted to suppress the fire, other firefighters used a ground ladder to access the second floor of the house in an attempt to rescue Assistant Chief Blankenship. After several attempts, firefighters followed the sound of an activated PASS device and were able to
reach Assistant Chief Blankenship. They were unable to remove him as portions of the collapsed roof covered him. Mutual-aid firefighters arrived and were able to locate and remove Assistant Chief Blankenship’s body about an hour after the time he was reported missing. The cause of death was later listed as asphyxiation and burns.

5/7/2000  Carl Ray Payne, Pilot  Wildland Part-Time, Age 66  Office of the Texas Forest Service, Texas  Aircraft Crash  Payne had just dropped a load of fire retardant on a fire outside of Fort Stockton, Texas. The aircraft was an Air Tractor AT–802A. After the drop, Pilot Payne was circling two radio antennas (280 feet and 310 feet) when the outboard 5 feet of his right wing struck the antenna guide cables and support structure. Pilot Payne was able to level the aircraft and continued to fly; however, the aircraft was compromised and struck trees and terrain before coming to rest. Cable strands from the antenna towers were found among the aircraft wreckage. The cause of death for Pilot Payne was listed as multiple severe trauma. Additional information related to this incident may be found in National Transportation Safety Board Accident Investigation F10003A142.

5/8/2000  Kenneth Jesse, Fire Police Officer  Volunteer, Age 80  Harford Volunteer Fire Company, PA  Heart Attack  Jesse had responded with members of his department to a vehicle fire on the interstate. On the scene of the vehicle fire, he blocked traffic to protect firefighters engaged in control of the fire. When the fire was extinguished, Fire Police Officer Jesse returned home. Upon his arrival at home, Fire Police Officer Jesse told his wife that he felt dizzy and had a lump in his stomach. His wife went inside their house for a moment to prepare to take him to the doctor and found that he had collapsed in their carport when she returned outside. His wife called 9–1–1, and firefighters from Fire Police Officer Jesse’s department responded and began CPR. Despite their efforts, Fire Police Officer Jesse died of a heart attack.

5/15/2000  Leo Koponen, Air Attack Pilot  Wildland Contract Part-Time, Age 49  Courtney Aviation, United States Forest Service, CA  Aircraft Crash  Air Attack Pilot Koponen and Air Tactical Group Supervisor Tobias were beginning a reconnaissance flight to look for any fires that may have spread from the ongoing Scott–Able fire. The aircraft was a Cessna T337C. Approximately 6 minutes after takeoff, black smoke was noted in the vicinity and calls were received from local residents reporting smoke in Alamo Canyon. A helicopter flying in the area confirmed that there was a downed aircraft and that there appeared to be no survivors. Investigators found that the aircraft had crashed nose first and that the death of both firefighters was immediate. The weather at the time of the flight was clear with a light wind. Additional information related to this incident may be found in National Transportation Safety Board Accident Investigation DEN00GA089.

5/27/2000  Evan N. Shirk, Firefighter  Volunteer, Age 27  Moreau Fire Protection District, MO  Apparatus Rollover  Shirk was the sole occupant and driver of an engine apparatus returning from a motor vehicle accident. The pumper was equipped with a 1,000-gallon water tank that was filled to 900 gallons. The accident turned out to be an unfounded report. As Firefighter Shirk returned to the station, the right front wheel drifted off of the road onto soft ground. According to the police accident report, Firefighter Shirk overcorrected and the right wheel struck a drainage culvert, causing the pumper to veer across the road, roll over several times, and catch fire. Firefighter Shirk was not wearing a seat belt and was ejected. Firefighter Shirk was pronounced dead at the scene. The cause of death was listed as massive head trauma. The police accident report listed
driver inattention as a factor in the crash. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation F2000–33.

5/31/2000  Lyndell J. Smith, Firefighter Volunteer, Age 46
Caldwell Fire Department, KS Apparatus Rollover

Firefighter Smith was a passenger in a 1984 Jeep CJ7 command vehicle. The truck was equipped with extrication equipment and was responding with lights and siren in operation to a vehicle rollover with reports of serious injuries. Firefighter Smith was riding the hump between the driver and the front seat passenger. None of the truck’s occupants were wearing seat belts. As the command vehicle overtook and passed a passenger car on the left side, the car turned into the command vehicle, striking it at the right rear tire. The command vehicle skidded across traffic, entered a ditch, overturned in a wheat field, and caught fire. All three occupants of the command vehicle were ejected. Firefighter Smith received fatal injuries; the other occupants were seriously injured. No autopsy was performed but the cause of death for Firefighter Smith was listed as closed head and chest trauma with exsanguination from mortal axillary wounds (blood loss). No extrication was required at the scene of the original rollover call.

Florida Division of Forestry, FL Helicopter Crash

Firefighter Burton was fighting a fire near Fort Myers, Florida. He had been on the scene for approximately 1-1/2 hours, performing reconnaissance, making water drops, and filling his external bucket from a local lake. Witnesses observed the helicopter in level flight headed back to the lake after a water drop. The helicopter was reported to suddenly bank deeply with its nose down. After a few seconds, the helicopter crashed in a cow pasture. The cause of the crash has not been determined. The aircraft was a 1966 Bell UH1 (205). Additional information related to this incident may be found in National Transportation Safety Board Accident Investigation MIA00GA184.

6/25/2000  Whitney C. Teehan, Jr., Captain Volunteer, Age 66
Eastern Point Volunteer Fire Company #2, CT Heart Attack

Captain Teehan and members of his department responded to a manufacturing facility for a report of fire. Captain Teehan was acting as the department’s Accountability Officer on the scene of the incident. It was determined that a large dust cloud caused by a high-pressure air leak had been mistaken for smoke. As companies prepared to return to quarters, Captain Teehan suffered a massive heart attack while seated in a pumper. Other firefighters began CPR and an AED was used. The AED was unable to restore a rhythm, and Captain Teehan was transported to the hospital, where he died. Captain Teehan had suffered a previous heart attack on the scene of a car fire in 1997. An AED operated by a private fire department saved him that day.

7/2/2000  Nathan Andrew Pescatore, Firefighter Volunteer, Age 17
Lloydsville Volunteer Fire Department and Relief MVA Association, PA

Firefighter Pescatore was responding as the sole occupant and driver of his personal vehicle to a report of a structure fire. He crossed the centerline of the road as he entered a curve in the road. As he rounded the curve, he came upon a farm tractor approaching from the opposite direction. Firefighter Pescatore’s view of the tractor as he drove into the curve was blocked by vegetation.

Firefighter Pescatore was unable to get back into his lane and struck the farm tractor head on. The loader bucket on the front of the tractor was driven through both driver’s side roof posts and severely injured Firefighter Pescatore. Firefighters responding on mutual aid to the structure fire were diverted to the collision and were joined by Lloydsville firefighters at the scene. After Firefighter Pescatore was extricated, he was flown by helicopter to the hospital, where he was pronounced dead.
7/15/2000  Phillip Ridings, Firefighter Volunteer, Age 52
Hornersville Volunteer Fire Department, MO Heart Attack

Firefighter Ridings was advancing a 1-1/2-inch hose line at the scene of an electrical fire in a two-story residence. The home was originally built in 1917 and had been renovated several times. As he worked, Firefighter Ridings became fatigued and suffered a fatal heart attack.

7/18/2000  Steven Max Wilmot, Captain Career, Age 47
Springfield Fire Department, IL Multiple Organ System Failure

Captain Wilmot was a fire investigator working on the scene of a previous structure fire. As Captain Wilmot and another fire investigator worked on the scene, Captain Wilmot caught his foot on an object and fell forward onto his chest, landing on a concrete walkway. After being helped up by the other fire investigator, Captain Wilmot said that he had fallen on his camera. The lens of the camera had created an impression on his torso. Captain Wilmot told the other fire investigator that he thought he had bruised a rib. Wilmot reported the fall to his employer and saw a doctor on the day of the fall. He was prescribed pain medication and placed on restricted duty.

Unbeknownst to him, when he fell, Captain Wilmot injured his spleen and developed a stress ulcer. The ulcer eventually perforated, releasing bowel contents into Captain Wilmot’s abdomen, which caused a massive infection. Captain Wilmot became ill and was admitted to the hospital, where he died on 8/9/2000. The cause of death was due to multiple organ system failure due to peritonitis with severe hypertension, ischemic necrosis of the liver and kidneys due to blunt force trauma of the left chest wall with splenic hematomas, and a perforated stress ulcer.

The cause of the original structure fire was listed as suspicious. Four children were later arrested and charged with arson and criminal damage to property.

8/2/2000  Richard Stark, Ambulance Captain Volunteer, Age 62
Thornhurst Volunteer Fire and Rescue Company, PA Heart Attack

Captain Stark and members of his fire department responded to provide care for an elderly female in respiratory arrest. The removal of the patient through her house to the ambulance had been very difficult. Captain Stark climbed into the ambulance and sat in the captain’s chair. At this time he experienced a heart attack. The ambulance was already en route to a rendezvous point to meet paramedics. The ambulance continued to the rendezvous point, where paramedics there treated Captain Stark and continued transport to the hospital, where he died.

8/3/2000  Phillip Arthur “Pip” Conner, Seasonal Firefighter Wildland Seasonal, Age 29
National Park Service, Lake Meade National Helicopter Crash Recreation Area, NV

Firefighter Conner was a passenger in a Bell Ranger helicopter that was preparing to return to base for the night after helping to fight the Charlie fire. As the helicopter lifted off, it veered violently to the right and the rotor blades made contact with the ground. The helicopter came to rest back on its skids and the pilot shut the engine down. Firefighter Conner was wearing a seat belt at the time of the accident; despite this, he was severely injured and died. The other passengers and a crewmember on the ground that came to their aid were also injured. Additional information about this aircraft accident can be obtained at the National Transportation Safety Board Website under report number LAX00GA286.

8/3/2000  Jack Elias Gazalie, Firefighter Volunteer, Age 46
Adamsburg & Community Volunteer Fire Department Trapped

Firefighter Gazalie was killed in a fire in his home after rescuing his daughter and mother.

8/6/2000  Bradley Scott Pierce, Firefighter/Paramedic Career, Age 27
Saint Charles City Fire Department, MO Heart Attack

Firefighter Pierce had finished a 24-hour shift and was participating in fire department-approved physical fitness activities in the basement of his fire station. Firefighter Pierce was alone in the
workout area. During the shift, Firefighter Pierce had responded to an emergency medical call and a false alarm. At some point during his workout, Firefighter Pierce suffered a heart attack. Other firefighters discovered him in seizures and provided immediate medical help, to no avail. Firefighter Pierce was a member of his department’s Combat Challenge Team.

8/9/2000  Lisa Ann Farrow, Firefighter Volunteer, Age 30 Engelhard Fire and Rescue, NC Pulmonary Edema

Firefighter Farrow had provided support at the scene of a fire that was confined to food on the stove. Firefighter Farrow had complained of the heat that day. The temperature was over 90 degrees with significant humidity. As she was returning equipment to the apparatus at the conclusion of the incident, she collapsed. EMS assistance was on scene and provided aid immediately. Firefighter Farrow was transported to the nearest hospital, 50 miles away. Shortly after her departure from the scene, Firefighter Farrow went into cardiac arrest. The cause of death was listed as acute hypoxia due to pulmonary edema. Firefighter Farrow had a history of heart problems.

8/11/2000  James Alan Burnett, District Forester Wildland Career, Age 51 Department of Agriculture, Forestry Services, OK Overrun by Wildfire

Four times during the summer of 2000, District Forester Burnett received leave from his full-time job in Oklahoma to work as a temporary firefighter for the Federal government. He had served two assignments in Florida and one assignment in Louisiana. On 8/2/2000, he accepted another assignment as the engine boss of an Oklahoma contract engine and was eventually assigned to the “Kate’s Basin” fire in Wyoming. District Forester Burnett’s engine was assigned to assist local firefighters with a burnout operation. As District Forester Burnett was sizing up the fire line, a sudden wind caused the fire to “blow up.” District Forester Burnett attempted to start the pump on his engine to protect his position but was unable to start the pump. District Forester Burnett attempted to reach a safety zone and attempted to deploy his fire shelter, but was unsuccessful. District Forester Burnett was wearing brush gear at the time of his injury. He died of burns.

8/12/2000  Logan D. Fields, Assistant Chief Career, Age 51 Hazard Fire Department, KY Heart Attack

Assistant Chief Fields was on duty in the fire station. He was walking from the bunkroom to the hallway when he fell to the floor, the victim of a heart attack. He died later that day.

8/13/2000  Lester Lee Shadrick, Captain Wildland Contract, Age 53 ERA Aviation, Bureau of Land Management, NV Helicopter Crash

Captain Shadrick was working the Twin Peaks fire Northeast of Fallon, Nevada. He was piloting a Bell 412 helicopter and was the lead chopper in a flight of two helicopters preparing to make a water drop on a fire-involved ridgeline. The helicopter was carrying a bambi bucket suspended below the aircraft. As Captain Shadrick approached the ridgeline, his aircraft made a sudden 90-degree left (descending) turn and impacted the mountainous terrain. No radio communication was received from his helicopter after the turn and before the crash. Captain Shadrick was killed instantly.

8/13/2000  Warren (J.C.) Smith, Private Career, Age 28 Indianapolis Fire Department, IN Barotrauma

Private Smith was participating in dive training exercises at a local quarry. Private Smith and his company were simulating the rescue of a drowning child in 70 feet of water. Private Smith had been a certified team diver for 2 years. Private Smith failed to surface with his buddy and rescue attempts were commenced immediately. CPR was started in the water and continued during a boat ride to shore. Paramedics from a local rescue squad provided aid, and Private Smith was transported by helicopter to a local hospital where he was pronounced dead. Private Smith died of barotrauma, a condition caused when a diver rises to the surface of the water too quickly and suffers internal injuries as a result of gas expansion during the ascent.
8/13/2000  Grant F. Trick, First Assistant Chief Volunteer, Age 49
Canton Fire Department, PA Heart Attack

First Assistant Chief Trick was in his fire station gathering firefighters to perform a controlled burn of some brush near a residence. The burn had been planned in advance and had been requested by a local resident. As he prepared for the activity, First Assistant Chief Trick suffered a heart attack. Other firefighters in the station summoned paramedics, and First Assistant Chief Trick was transported to a hospital. He died later that day.

8/14/2000  James Robert Renfroe, Assistant Chief Volunteer, Age 47
Dallas County Fire & Rescue Services, TX Cardiac

Assistant Chief Renfroe responded in a minipumper to a fire that involved a 240-foot long wooden railroad trestle. He worked on the scene for approximately 6 hours acting as a sector officer and pump operator. Near the conclusion of the incident, the incident commander instructed him to bring the minipumper back to the station to provide coverage for his area. Assistant Chief Renfroe got into the vehicle, started it, and then turned to the passenger and told him that he was not feeling well. EMS personnel on scene were called and Assistant Chief Renfroe collapsed. Firefighters found no pulse or respiration and CPR was begun. Assistant Chief Renfroe was transported to a local hospital by air ambulance. He was pronounced dead at the hospital. The cause of death was listed as atherosclerotic cardiovascular disease. Assistant Chief Renfroe was an Equipment Supervisor for the City of Dallas Fire Department. The railroad trestle fire was believed to be accidental, caused by a passing train.

8/17/2000  Robert Wayne Crump, Firefighter Career, Age 37
Denver Fire Department, CO Drowning

Firefighter Crump and members of his squirt company were directing traffic away from an area that had been flooded by a very heavy rain. Firefighter Crump was wearing full structural protective clothing including a protective coat, protective trousers, and a helmet. According to the police report, 2-1/2 inches of rain had fallen in the 2 hours prior to this incident. As the firefighters were working, a woman who was attempting to cross a flooded area stalled her car in the high water and was attempting to walk to a nearby bank to make a phone call. She attempted to cross a rain-filled ditch and fell into the water. She became stuck in a pool of water that covered a culvert but was able to grab onto a pipe to prevent being drawn underwater. Unknown to anyone on the scene, the ditch led to a 64-inch concrete drainpipe that was not equipped with any type of grating. Firefighter Crump and another firefighter were summoned by the calls of citizens; both entered the water to rescue the woman. As they made their way to the woman, Firefighter Crump was immediately drawn under the water. Citizens assisted the other firefighter from the water, he returned to rescue the woman, and then turned his efforts toward attempting to locate Firefighter Crump. Approximately 5 hours later, Firefighter Crump’s body was located by a police officer near an outlet of the storm water system. His cause of death was listed as drowning.

8/20/2000  John Paul “J.P.” Pritchett, Sr., Forestry Crew Chief Career, Wildland, Age 56
Mississippi Forestry Commission, Webster County, MS Overrun by Wildfire

Forestry Crew Chief Pritchett and a forester from the wood products company that owned the land that was on fire were teamed together. The assignment for the pair was to use a tractor-plow (operated by Forestry Crew Chief Pritchett) to cut a firebreak to tie in the rear and contain the right flank of the fire. As the tractor-plow worked, the brush between the tractor line and the burned area was set ablaze by the forester using a drip torch so that future spread could be prevented.

The backfire became too intense, so the decision was made to stop the backfire part of the operation. As the forester continued to follow the tractor-plow, he encountered a bee’s nest that had been plowed through by the tractor-plow. The forester, who was allergic to bee stings, made attempts to get through the area but was forced to return to the road to avoid them.

About the same time, Forestry Crew Chief Pritchett made a turn toward the fire in an attempt to locate the perimeter. Visibility was poor due to intense undergrowth and smoke. He inadver-
tently positioned himself in front of a finger of the fire that was making a rapid run. By the time
time he saw the crowning head fire rolling toward him, it was too late for a retreat. He used his dozer
to create a safety zone. He laid face down in the center and covered himself with dirt in an
attempt to protect himself as the fire passed over him. Forestry Crew Chief Pritchett was exposed
for about 15 seconds. Forestry Crew Chief Pritchett rose from the ground, extinguished a small
fire involving his tractor-plow, and drove the tractor-plow out to a point where he met some
other firefighters. He sustained second- and third-degree burns to his arms, back, neck, and face.

Forestry Crew Chief Pritchett was transported to a local hospital by a local police chief and later
transferred to a burn center where he was treated for his injuries. He died suddenly and unex-
pectedly on 11/3/2000, 2 weeks after his injury. The cause of death was listed as massive bi-
ateral bronchial pneumonia as the result of thermal burns with hospital immobilization.

Forestry Crew Chief Pritchett was either not equipped with or failed to use a fire shelter. The
county chief medical examiner’s statement strongly recommended that all Mississippi Forestry
Commission wildland crews be equipped with appropriate fire retardant/resistant protective
clothing. The medical examiner stated that Forestry Crew Chief Pritchett would likely not have
sustained his specific burn injuries had he been wearing protective equipment.

The County Line fire eventually consumed 288 acres. This fire and several others in the area
were caused by arson.

8/23/2000  Michael Todd Bishop, Inmate Firefighter  Wildland Part-Time, Age 27
           Rodgie R. Braithwaite, Inmate Firefighter  Wildland Part-Time, Age 26
            Flame-N-Go Handline Unit, Utah State Prison, UT  Electrocution (Lightning Strike)

Firefighters Bishop and Braithwaite were members of a 20-person, Type 2, hand crew assigned
to the North Stansbury fire, about 40 miles west of Salt Lake City. The crew had been trans-
ported by helicopter to the fire line for work. The crew was assembled for work at about 11:25
a.m. At just after noon, a squad of six firefighters, including Firefighters Bishop and Braithwaite,
proceeded toward their assigned work area. A storm cell with lightning, heavy rain, and marble-
sized hail moved into the area. Firefighters Bishop and Braithwaite and another firefighter took
refuge under nearby trees, and the rest of the squad moved to a lower point. Lightning struck the
trees where the firefighters were located.

Firefighters Bishop and Braithwaite were found in respiratory arrest. The other firefighter was
injured. Emergency procedures, including CPR, were initiated, and the injured firefighters were
removed to the hospital by helicopter. Despite these efforts, Firefighters Bishop and Braithwaite
were later pronounced dead. The cause of death for both firefighters was listed as electrocution
due to lightning.

8/26/2000  Jaime Quinones, Jr., Firefighter  Career, Age 38
            Waterbury Fire Department, CT  Shot

Firefighter Quinones and members of his engine company were parked near a city park con-
ducting a “Fill the Boot” fund drive for the Muscular Dystrophy Association. During the collec-
tion activities, Firefighter Quinones was shot several times by a gunman in a car that pulled up
close to the engine apparatus. Other firefighters summoned EMS and began to treat Firefighter
Quinones, who was transported to a hospital, where he was pronounced dead. The person
responsible for the shooting killed two other people and himself during a 15-minute shooting
spree. The perpetrator was the former husband of Firefighter Quinones’ fiancé.

8/27/2000  Frank Funston, Firefighter  Volunteer, Age 47
            Kootenai National Forest, MT  Unknown

Firefighter Funston was working a Montana wildfire when he became ill and was assisted from
the fireline. He went to the hospital for treatment then returned to his hotel where he died 2
days later of unknown causes.
Lieutenant Voris was responding to the fire station as the driver and sole occupant of his personal vehicle after his department was dispatched to the report of a vehicle fire. An oncoming vehicle crossed the centerline of the roadway and struck Lieutenant Voris’ vehicle head on. Firefighters at the scene of the car fire responded to a page for the vehicle accident and upon their arrival found Lieutenant Voris trapped. Lieutenant Voris was pronounced dead at the scene prior to the completion of extrication. The driver of the other vehicle received minor injuries. Lieutenant Voris was wearing a seat belt at the time of the collision. The cause of death for Lieutenant Voris was listed as multiple blunt force trauma. The cause of the car fire was listed as suspicious.

Lieutenant Ousley was assigned for the day to dispatch duties. While dispatching an alarm, Lieutenant Ousley suffered severe shortness of breath and chest pains. Firefighters treated Lieutenant Ousley, paramedics were called, and he was transported to the hospital. Approximately 6 hours after he became ill, Lieutenant Ousley died. The cause of death was listed as heart failure. Lieutenant Ousley had been hospitalized with shortness of breath a month before his death but had been released to limited duty.

Lance Corporal Yanklin was performing morning checks on his assigned Airport Rescue Fire Fighting (ARFF) vehicle. As a part of the pump test, he was flowing a handline. As he was operating the handline, he was struck by another ARFF vehicle and killed. According to the commanding officer, horseplay and excessive speed were involved in the incident.

Assistant Chief Vanhoy was operating a pump at a live-fire training exercise being conducted by his department and one other fire department. Approximately 1-1/2 hours into the exercise, Assistant Chief Vanhoy fell to the ground, the victim of an apparent heart attack. CPR was started immediately by other firefighters, and Assistant Chief Vanhoy was transported to a local hospital. He was pronounced dead shortly after his arrival. Assistant Chief Vanhoy’s son Billy was the Fire Chief of the department.

Crew Chief Fossett and Pilot Newman were traveling to a public education event in their 1974 UH–1H Huey helicopter. As the aircraft entered Balsam Gap, heavy fog was encountered. The pilot radioed that he was going to land the helicopter until the fog lifted. Shortly after the radio transmission, a rotor struck a tree about 20 feet from the top of a mountain. The rotor was destroyed, and the helicopter came to rest in an inverted position and caught fire. The cause of death for Crew Chief Fossett and Pilot Newman was massive head and body trauma. Additional information related to this incident may be found in National Transportation Safety Board Accident Investigation MIA00GA264.

Firefighter/Paramedic Yahraus was participating as a SWAT/medic member of a police SWAT team. The team was practicing high-risk traffic stops. Firefighter/Paramedic Yahraus was the driver of one of the police vehicles used in the simulation and was standing on the driver’s side of his car after the stop had been made. Another officer, who was playing the role of the suspect in this situation, exited his vehicle and then turned and fired a single shot at the officers who
were acting in the role of police officers. The weapon used was a 38-caliber pistol loaded with blanks. The firing of the blank dislodged a lead plug that was installed in the barrel of the training weapon. The lead plug broke the windshield, ricocheted off the window post, and struck Firefighter/Paramedic Yahraus in the left eye area. Officers began to provide first aid to Firefighter/Paramedic Yahraus while EMS resources were summoned. Upon their arrival, Sarasota County paramedic firefighters provided ALS care and transported Firefighter/Paramedic Yahraus to a helicopter landing site for his trip to the hospital. He was airlifted to the hospital, where he died the next day. Firefighter/Paramedic Yahraus was in the final week of a 5-month law enforcement training program.

An investigation revealed that blank cartridges should not have been used in the training weapon. Gas expelled by the blank when it is fired and debris such as wadding that is in the blank can create pressure and force the lead plug out of the gun. The proper cartridge for use in the training weapon was a primer round.

Maryland Line Volunteer Fire Company, MD Struck by Vehicle
Firefighter Humphrey responded to the scene of a motor vehicle accident in his personal vehicle. He parked his car on the right shoulder of the highway and began to cross the road to assist a battalion chief who had already arrived on the scene. As Firefighter Humphrey crossed, a mid-size sedan struck him. Firefighters arriving in response to the original incident assisted with the treatment of the original accident victim and Firefighter Humphrey. Firefighter Humphrey and the victim of the original accident were transported to the hospital by helicopter. Firefighter Humphrey died later that day in surgery.

9/19/2000   George David Butler, Assistant Chief Volunteer, Age 47
Idalou Volunteer Fire Department, TX Heart Attack
Assistant Chief Butler and members of his department responded to a truck rollover that required extrication. Assistant Chief Butler operated the department’s air bags and was successful in lifting the truck off the driver so that the extrication could be completed. Shortly after the truck driver had departed the scene by ambulance, Assistant Chief Butler collapsed of an apparent heart attack. Other firefighters began CPR immediately, and Assistant Chief Butler was transported to a regional hospital where he was pronounced dead 2 hours later. Assistant Chief Butler had no previous history of major illness.

9/21/2000   Bernard D. (Pete) Scannell, Fire Police Captain Volunteer, Age 70
Waterloo Fire Department, NY Heart Attack
Fire Police Captain Scannell was driving a rescue truck to the scene of a reported car fire. As the unit responded, Fire Police Captain Scannell suffered a heart attack. The rescue truck left the roadway, jumped a curb, and came to a stop in a small flowerbed. Other firefighters immediately removed Fire Police Captain Scannell from the truck and began CPR. An ambulance arrived shortly thereafter and applied a defibrillator. After a shock was administered, a pulse was detected. Fire Police Captain Scannell was transported to the hospital where he died about 1 hour later.

9/24/2000   Kevin Scott Harshbarger, Firefighter/Secretary Volunteer, Age 36
Scenic Loop Volunteer Fire Department, TX Smoke Inhalation
Firefighter Harshbarger and members of his department responded to a structure fire in a residence. The fire was in the attic area. Firefighters made an attempt at an interior attack but were forced from the building by extreme heat and smoke. The order was given to open the roof for ventilation. Firefighter Harshbarger and another firefighter went to the roof of the structure to cut a hole. As the hole was being cut, Firefighter Harshbarger fell through the roof into the main body of fire. Firefighter Harshbarger was not wearing an SCBA. The cause of his death was listed as smoke and soot inhalation.
9/27/2000  Paul Antonio Lyndell Husband, Sr., Firefighter   Career, Age 33
Mobile Fire–Rescue Department, AL   Struck by Apparatus

Firefighter Husband was working an overtime shift when he and members of his ladder company were dispatched to provide vehicle extrication services at a motor vehicle accident with injuries. As the ladder apparatus was leaving the station to respond to the emergency, Firefighter Husband attempted to board the apparatus. Firefighter Husband chased the apparatus on foot as it crossed two lanes of traffic and made a left turn. He had hold of a handle near the cab on the driver’s side when he lost his grip, fell, and was run over by the apparatus. The members of the ladder company provided emergency medical care and additional assistance was called. Firefighter Husband was transported to the hospital by ambulance. He was pronounced dead about 1/2 hour after the incident. The cause of death was listed as multiple blunt force injuries.

10/1/2000  Thomas G. Gotkowski, Captain   Volunteer, Age 55
Tinley Park Volunteer Fire Department, IL   Heart Attack

Captain Gotkowski and his engine company were assisting the police department with the ventilation of a condominium. A resident of the home had passed away of natural causes 2 weeks previously. Captain Gotkowski assisted with the placement of a ventilation fan and assisted with the repositioning and stacking of fans. Captain Gotkowski felt ill and was sitting on the back of an engine. He walked to a nearby ambulance where it was determined that he was experiencing a heart attack. He was transported to the hospital where he died. This incident was the fifth call of the shift for Captain Gotkowski.

10/8/2000  Albert Roger “Bo” Rathbun, Firefighter   Volunteer, Age 69
Sundance Volunteer Fire Department, WY   Overrun by Wildfire

Firefighter Rathbun was severely burned while cutting a firebreak with hand tools. A change of wind “blew up” a pile of smoldering debris at a wildland fire in an area that was thought to be safe. Firefighter Rathbun attempted to outrun the advancing flames, but he fell and was severely burned. Firefighter Rathbun was transported to a burn unit at a hospital in Greeley, CO, with third-degree burns over 40 percent of his body and second-degree burns over 10 percent. Firefighter Rathbun suffered a stroke while in the hospital and died on 11/8/2000.

In an interview that he gave to a local newspaper the day before the fire, Firefighter Rathbun said that he had fought his last fire and that he was retiring from his department. The day after the interview, Firefighter Rathbun and his son were working on their ranch when they saw smoke, they responded and helped to control the fire.

10/10/2000  Richard J. LeClair, Captain   Career, Age 53
Federal Fire Department San Diego, CA   Internal Hemorrhage

Captain LeClair had returned to duty after a 6-month battle with cancer. During his fourth workday since his return, Captain LeClair became ill with flu-ike symptoms on duty and was transported to a hospital by helicopter. Captain LeClair died the next day as a result of internal hemorrhaging.

10/13/2000  David C. Fitzgerald, Firefighter   Career, Age 63
Somerville Fire Department, MA   Heart Attack

Firefighter Fitzgerald and his ladder company responded to assist with treatment and cleanup at a collision involving a tractor/trailer and a recycling truck. Firefighter Fitzgerald assisted with patient treatment and packaging and then assisted other firefighters as 55 bags of absorbent were distributed over a fuel spill. The incident lasted for over 2 hours. At the scene of the collision, Firefighter Fitzgerald complained of shoulder pain, but dismissed it as a strain. He collapsed at the fire station after another emergency incident due to a heart attack. Other firefighters attempted to revive him. Firefighter Fitzgerald was rushed to the hospital by ambulance but was pronounced dead on arrival.
10/16/2000  Kenneth T. Miller, Captain  Volunteer, Age 65  
Cape Charles Volunteer Fire Company, VA  Heart Attack  
Captain Miller was the backup person on a 2-1/2-inch line that was being operated on a three-story wood-frame residence. Captain Miller collapsed and medical care was immediately initiated by the firefighter that had been on the nozzle. Captain Miller was treated by EMS personnel on the scene and transported to the hospital. He was later pronounced dead at the hospital, the victim of a heart attack. The fire was caused by arson.

10/26/2000  James Reavis, Captain  Volunteer, Age 69  
North Stone Northeast Barry County Fire Protection District, MO  Heart Attack  
Captain Reavis was the first firefighter to arrive at the scene of a residential fire. As fire apparatus began to arrive, Captain Reavis assisted with stretching lines and setting up equipment. Once things were underway, Captain Reavis drove his personal vehicle to the fire station to retrieve the department’s tanker (tender). The station was a short distance from the fire. Captain Reavis was stricken with a heart attack and ran into a parked pickup truck that belonged to a firefighter working on the scene. Several firefighters were diverted from the fire to provide aid to Captain Reavis. Despite their efforts, Captain Reavis was pronounced dead at the scene.

10/31/2000  Robert M. Samanas, Firefighter/Paramedic  Part-Time, Age 52  
Rural/Metro Fire Department, Bethlehem Steel, IN  Cardiac  
Firefighter/Paramedic Samanas had completed his yearly physical agility test and stopped to take a break. About 40 minutes after completing the test, Firefighter/Paramedic Samanas returned to assist other firefighters with the test. At this point, he became short of breath. He was placed on oxygen, started feeling better, and then began to experience chest pain. ALS cardiac procedures were started; however, Firefighter/Paramedic Samanas collapsed before a monitor defibrillator could be attached. Firefighter/Paramedic Samanas was transported to a local hospital where he later died. No autopsy was performed.

11/2/2000  Jared Conner McCormick, Firefighter  Volunteer, Age 19  
Bono Fire Protection District, AR  Struck by Vehicle  
Firefighter McCormick attended the weekly meeting and work night at his fire department. It was determined that a piece of apparatus was in need of fuel. Two firefighters, including Firefighter McCormick as the passenger, mounted the truck and headed for a fuel station. On the way, the apparatus stalled and could not be restarted. Firefighter McCormick radioed the fire station, told them about their vehicle trouble, and requested assistance. Other firefighters brought another fire truck and the chief’s pickup to the location of the broken truck. After the truck was removed from the roadway, an attempt was made to boost or jump-start the fire truck using the chief’s vehicle. When this failed, it was decided that the broken truck would be towed back to the station by the other fire truck. The chains needed for the job were aboard the other fire truck. At this time, the broken truck and the chief’s vehicle were off the road and the fire truck that was to tow the broken truck back to the station was parked across the street due to construction in the area. The area was dark, and the four-way flashers on the chief’s vehicle and the working fire truck were in operation.

Firefighter McCormick began to cross the road to retrieve the chains. Firefighter McCormick signaled to an approaching minivan to stop. As his attention was focused on the minivan, a tractor/trailer that approached from the other direction struck him. Firefighter McCormick was thrown into the path of the minivan and was struck a second time. Firefighters on the scene rushed to Firefighter McCormick’s aid and he was transported to the hospital, where he was pronounced dead. The cause of death was listed as massive blunt trauma.

11/2/2000  Gail Lynne VanAuken, Firefighter  Volunteer, Age 41  
Overisel Township Fire Department, MI  Apparatus Rollover  
Firefighter VanAuken was the passenger in a tanker (tender) responding to a mutual-aid structure fire involving a turkey farm. Firefighter VanAuken’s husband was driving the 2,000-gallon tanker
with lights and siren in operation. As the apparatus approached an intersection, a pickup truck approaching the intersection from the other side street appeared to be yielding the right of way to the tanker. The tanker slowed before going through the stop sign. As the tanker proceeded through the intersection, it was struck by the pickup at the left rear axle. The tanker rolled over, the water tank separated from the chassis, and both firefighters were trapped in the cab.

Firefighters from other departments responding to the fire came upon the accident scene and provided aid. Both firefighters were extricated from the cab and transported to the hospital by ambulance. The extrication took about 30 minutes. The injuries to the other firefighter and the driver of the pickup were not life threatening. Firefighter VanAuken received crushing blunt force chest injuries; her cause of death was listed as mechanical and positional asphyxiation.

11/9/2000  James G. Hill, Sr., Firefighter/Safety Officer Volunteer, Age 67 Daingerfield Volunteer Fire Department, TX Heart Attack

Firefighter/Safety Officer Hill responded with other members of his department to a mutual-aid structure fire involving a mobile home. Firefighter/Safety Officer Hill assisted with support duties on the fireground and moved inside of the mobile home to assist other firefighters that were performing overhaul. There was a very light smoke condition inside the mobile home. Firefighter/Safety Officer Hill became short of breath and on-scene paramedics began treatment. While en route to the hospital by ambulance, Firefighter/Safety Officer Hill suffered a heart attack. He was revived but suffered another heart attack in the hospital and died.

11/15/2000  Kenneth W. Kerr, Firefighter Career, Age 44 New York City Fire Department, NY Heart Attack

Firefighter Kerr and members of his engine company had just returned from fighting a stubborn fire in an elevator cab in a six-story building. At the scene, Firefighter Kerr told other firefighters that he did not feel well but refused medical aid. When his company returned to quarters, Firefighter Kerr spent some time with other firefighters in the kitchen and then headed for the shower. He was found collapsed in the shower by other firefighters. Medical treatment was administered immediately by other firefighters, but Firefighter Kerr died.

11/16/2000  Kyle Allen Hendrick, Firefighter Volunteer, Age 19 Gott Volunteer Fire Department, KY Apparatus Rollover

Firefighter Hendrick was the driver of a 1,500-gallon fire department tanker (tender) participating in a water shuttle drill. The passenger in the truck was a 17-year-old trainee. Neither Firefighter Hendrick nor the trainee was wearing a seat belt. As the tanker traveled down the road, the vehicle’s right wheels dropped off the roadway. Firefighter Hendrick overcorrected to the left and came back on the road, riding the centerline. He corrected again and went off the roadway on the right-hand side. The tank separated from the vehicle, and the cab came to rest on its top. Firefighter Hendrick was partially ejected from the vehicle. The trainee was fully ejected from the vehicle. Firefighter Hendrick was removed from the vehicle and transported to the hospital by ambulance. He was pronounced dead at the hospital approximately 1 hour after the collision. The trainee was severely injured.

11/16/2000  Phillip Dewey Smith, Driver/Operator Engineer Career, Age 49 Department of Defense Fire Department, Fort McPherson and Fort Gillem Fire and Emergency Services, GA Heart Attack

Driver/Operator Engineer Smith was a participant in wildland firefighting training. He was the crew boss and helped his crew dig a firebreak as a part of the exercise. As the work was completed, Driver/Operator Engineer Smith fell to the ground and went into seizures. Firefighters that had been involved in the exercise provided immediate care and an ambulance was summoned. Driver/Operator Engineer Smith was transported to the hospital where he died of a heart attack.
Tunkhannock Township Volunteer Fire Company, PA Heart Attack

Fire Police Lieutenant Hazaz responded to the scene of a motor vehicle accident with members of his department. When he arrived on the scene in his personal vehicle, Fire Police Lieutenant Hazaz received orders from the fire chief by radio. As he passed the scene en route to his assignment, he waived the fire chief over to his pickup. The chief opened the door of the pickup and repeated his orders. Fire Police Lieutenant Hazaz waved to acknowledge the order and placed his hands on the wheel. The chief closed the pickup’s door and noted that the vehicle did not move. The chief opened the door and discovered that Fire Police Lieutenant Hazaz was suffering a heart attack. Firefighters removed Hazaz from his pickup, CPR was started, and an ambulance was called. The ambulance that was on scene for the initial accident had already departed for the hospital. Despite efforts on the scene and on the way to the hospital, he was pronounced dead at the hospital. The cause of death was listed as atherosclerotic cardiovascular disease.

11/25/2000  Marvin Maurice Bartholemew, Professional Career, Age 30
Firefighter II Smoke Inhalation
Pensacola Fire Department, FL

Firefighter Bartholemew responded as a member of an engine company to a report of a residential fire. Upon arrival on the scene, the first company officer reported a working fire with approximately 50 percent of the building involved. Firefighter Bartholemew was assigned to join the crew of a rescue and perform a search of the structure. A handline was stretched by the search crew and carried into the structure. Five to 10 minutes after arrival, the company officer from the rescue realized that fire was spreading behind them. He ordered his crew to abandon their efforts and leave the house. All three firefighters headed for the exit as the flashover occurred. The company officer and the firefighter from the rescue emerged from the structure; both were burned. Firefighter Bartholemew was not with them. The company officer reported Firefighter Bartholemew missing. At least four searches were completed before Firefighter Bartholemew was located—approximately 1 hour after the flashover. He had apparently become disoriented and ended up in the kitchen at the back of the house. The cause of death was listed as asphyxia due to smoke inhalation. The carboxyhemoglobin level in Firefighter Bartholemew’s blood was 69.5 percent. The fire was caused when a pan caught fire on top of the stove and extended. The occupants of the house had evacuated prior to the arrival of the fire department.

11/26/2000  Daniel I. King, Firefighter Volunteer, Age 21
Cliffside Park Fire Department, NJ MVA

Firefighter King was responding in his personal vehicle to an automatic fire alarm. He was not displaying emergency or courtesy lights, but he was flashing his headlights and honking his horn. As he responded, a vehicle emerged from a side street on his right. Firefighter King swerved into the oncoming lane to avoid the collision, his vehicle began to fishtail, and he hit a transit bus head on. Firefighters responded to the scene and extricated Firefighter King from his vehicle; he died later that day. The cause of death was listed as internal trauma. Firefighter King was wearing a seat belt.

11/29/2000  Elwood Queen, Firefighter Volunteer, Age 67
Irvona Volunteer Fire Company, PA Apparatus Rollover

Firefighter Queen was the driver of a fire department ambulance that was transporting a cardiac arrest patient to the hospital. As the ambulance was en route to the hospital, Firefighter Queen experienced a heart attack. The ambulance left the road, hit a utility pole, rolled 2-1/2 times, and ended up in its roof. A paramedic and two EMTs riding in the ambulance received minor injuries and provided treatment for Firefighter Queen. They were able to revive him on the scene, but Firefighter Queen died the next day. The patient that was being transported expired on the scene. The ambulance involved in the accident was 2 months old and was destroyed.
12/1/2000  George H. Cardozo, Firefighter Volunteer, Age 80
Westport Volunteer Fire Department, CT Heart Attack

Firefighter Cardozo worked on the scene of a residential structure fire in his role as fire department photographer. At the scene of the incident, Firefighter Cardozo complained of indigestion but refused help from EMS personnel at the scene. He returned home at the conclusion of the incident and suffered a heart attack after midnight. A police officer was the first to reach Firefighter Cardozo’s home and applied an AED. Firefighters provided CPR and assisted EMS personnel. Firefighter Cardozo was transported to a local hospital where he was pronounced dead. The fire was caused by arson. December 1st was Firefighter Cardozo’s 50th wedding anniversary. He responded to the fire after the celebration.

Bethel Volunteer Fire Department, VT Struck by Vehicle

Firefighter Russ was on his way to work when he stopped to assist the occupant of a car that had spun out of control and hit a guardrail. Firefighter Russ found that the occupant of the vehicle was not injured severely, and he turned his attention to directing traffic around the car to avoid subsequent collisions. After only a few minutes on the scene, Firefighter Russ was struck by a pickup truck that was traveling at a speed estimated at 70 miles per hour. He was killed instantly. A state highway truck was also on the scene. The driver had just begun preparations to move the truck to the other side of the road to protect the site of the original collision. The driver of the vehicle involved in the original collision was intoxicated and was later charged with driving while intoxicated.

12/17/2000  Charles E. H. Lauber, Jr., Commissioner Volunteer, Age 55
Smithtown Fire Department, NY Trauma

Commissioner Lauber and other members of his department had just completed the department’s annual Christmas parade. Commissioner Lauber was on top of a fire truck attempting to reset the motor of a garage door opener that had malfunctioned. He fell off the top of the truck and suffered a severe head injury. Commissioner Lauber was transported to the hospital where he died on 12/24/2000.

12/17/2000  Keith P. Purcell, Firefighter Volunteer, Age 47
Southold Fire Department, NY Heart Attack

Firefighter Purcell and members of his department responded to a report of a structural fire. As Firefighter Purcell advanced a hoseline toward a fully involved detached two-car garage, he collapsed. Other firefighters came to his aid immediately and CPR was started. Members of the Southold Fire Department provided ALS care and transport to the hospital. Firefighter Purcell was pronounced dead approximately 1 hour later at a local hospital. The cause of death was a heart attack. Firefighter Purcell had been diagnosed with leukemia several years prior to his death.

12/18/2000  Ronald Haner, Deputy Chief Career, Age 61
Portage Fire Department, MI Smoke Inhalation

After warning his wife, Deputy Chief Haner was overcome by smoke and fumes while trying to escape from a structure fire at his residence.

12/23/2000  David A. Anderson, Firefighter Career, Age 43
Manchester Fire Department, NH Heart Attack

Firefighter Anderson responded with his engine company to a structure fire involving a three-family residence. Upon arrival, firefighters found a working fire with reports of people trapped inside. Firefighter Anderson assisted with fire control and search-and-rescue functions. Two unconscious boys were located and removed from the fire building by firefighters. After 20 minutes inside the structure, Firefighter Anderson came outside, sat on the rear step of an engine, stood up, and collapsed. Firefighters provided assistance immediately and Firefighter Anderson was transported by ambulance to the hospital, where he died. The cause of death for Firefighter
Anderson was listed as a heart attack. Two boys, ages 14 and 17, were also killed in the fire, which was caused by an overloaded electrical extension cord. The 17-year-old boy had reentered the house in an attempt to save his younger brother.

12/23/2000  Scott P. Gillen, Lieutenant  Career, Age 37  
Chicago Fire Department, IL  Struck by Vehicle

Lieutenant Gillen and members of his truck company were dispatched to the site of a motor vehicle collision on an expressway to provide a traffic shield with their apparatus and to assist ambulance personnel. Two state police cars were positioned behind the ladder in a further attempt to divert traffic. As the incident was being concluded, Lieutenant Gillen walked around the truck to make sure that everything was ready to go. As Lieutenant Gillen walked, a passenger car ran over a line of flares in an attempt to slip by traffic. The car then struck a tractor/trailer truck, spun, and pinned Lieutenant Gillen between the car and the ladder truck. Lieutenant Gillen was treated at the scene and then airlifted to the hospital. His legs were crushed in the collision, and he had lost a lot of blood. He died 10 hours later.

The driver of the car that struck Lieutenant Gillen was under the influence of alcohol and was driving on a suspended driver’s license. He was later charged with reckless homicide. There were no injuries in the original collision.
Alphabetized Firefighter Fatalities and Date of Incident

Acey, Vencent, 1/28/1994
Adams, Robert L., Sr., 5/17/1990
Adams, John R., 10/29/1991
Adams, Norman, 4/8/1996
Adams, Stanley, 4/24/1996
Adkins, Raymond, 4/30/1993
Ainsworth, James "Frank", 10/28/1995
Alexander, Mathe A., 5/7/1990
Alfred, Joseph J., 2/16/1991
Allgood, Harold B., 11/15/1993
Almond, Norman Neal, 11/24/1998
Altic, James William, 1/17/2000
Altieri, Ronald C., 1/19/1991
Alves, Lionel, 8/3/1992
Anderson, Vidar D., 2/19/1990
Anderson, Kaye F., 4/19/1990
Avery, Thomas James, Jr., 4/9/1998
Armstrong, Gary W., 11/15/1993
Arnone, Craig, 12/8/1996
Arthur, Eddie, 6/1/1991
Augustin, Walter, 11/7/1995
Ayers, Wendell, 2/14/1995
Ayers, Carl L., 1/7/1997
Babka, William W., 4/20/1997
Bachman, Sandra J., 6/26/1990
Bacon, Richard Clarence, 8/5/1999
Baker, Loren E., 4/15/1993
Baker, Francis J., 10/12/1993
Baltic, Peter, 6/17/1990
Bankert, Gary Lynn, Sr., 1/15/2000
Barnes, Robert D., 9/30/1992
Barrera, David, 6/7/1995
Bartier, David, 6/18/1994
Bartholemew, Marvin Maurice, 11/25/2000
Batten, Lisa, 2/13/1995
Bauentlien, Eugene, 10/19/1996
Baughn, Michael R., 4/11/2000
Bayer, Kenneth E., 9/5/1997
Beadle, Charles H., 11/20/1993
Beck, Richard, 7/6/1993
Beck, Kathi, 7/6/1994
Belcher, Randolph F., 6/21/1991
Bennett, James A., 1/21/1992
Bennett, Paula, 3/16/1998
Benton, Leon L., 12/27/1990
Berggren, Corey, 8/24/1995
Berry, Scott M., 12/17/1997
Bethune, William Malcolm, 10/5/1999
Biancon, Thomas N., 5/17/1990
Bibbee, Robert, 6/29/1996
Bice, Martha Ann, 10/18/1996
Bickett, Tami, 7/6/1994
Biedron, Fred P., 12/16/1991
Birchmore, Floyd, 8/8/1996
Bishop, Michael Todd, 8/23/2000
Bitting, Jason L., 12/22/1999
Bjorkland, Paul K., 7/4/1992
Black, Matthew Eric, 6/23/1999
Blackmon, Eugene William, Jr., 5/19/1998
Blackmore, James, 6/5/1998
Blankenship, Arnold, Ill, 4/30/2000
Blanusa, George, 3/10/1993
Blecha, Scott, 7/6/1994
Blizzard, Robby Dean, 11/6/1998
Bohan, James F., 12/18/1998
Bonner, William E., Sr., 2/25/1998
Bookout, Roger DeWayne, 11/18/1998
Boomer, Robert, 7/12/1994
Boothe, Joseph Jay, 4/2/1994
Bopp, Christopher M., 12/18/1998
Borwegan, Peter "Butch", 6/6/1995
Boster, Jonathan C., 4/8/1996
Boswell, Jospeh A., 12/26/1992
Boudoin, Keith, 10/13/1996
Bow, Joseph R., 10/21/1991
Boyce, Samuel Isaac, 3/15/1993
Boyert, Anthony L., 4/21/1990
Boyle, Charles S., Ill, 11/5/1997
Brain, Frederick L., 3/18/2000
Brathwaite, Rodgie R., 8/23/2000
Brannon, Robert Cowey, Jr., 4/26/2000
Brashears, Thomas D., 6/19/1990
Brekner, Richard V., 2/20/1990
Brentzel, John, Jr., 12/23/1993
Bricker, Walter L., 8/12/1996
Bricker, Jessie F., Jr., 5/3/1997
Bridges, William, 4/11/1994
Brinkley, Levi, 7/6/1994
Brinkley, David M., 9/21/1998
Broadhead, Ralph M., 8/26/1990
Brooks, Jerry, 8/8/1991
Brooks, Thomas, 2/14/1995
Brotherton, Paul Arthur, 12/3/1999
Brousard, Henri Fred, 11/18/1999
Brown, Mary Jo, 11/20/1994
Brown, James, 1/5/1995
Brown, Craig Daniel, 11/24/1998
Browning, Robert, 7/6/1994
Bruecher, Bert Andrew, 11/14/1999
Bryant, Steven E., 6/22/1991
Bryant, Raymond L., 7/28/1991
Bryant, Jimmy, 2/25/1995
Bryant, John, 11/9/1996
Bryant, Kendall O., 3/31/2000
Buc, Robert, 8/13/1994
Buchholtz, Evan, 12/26/1994
Buckert, Walter Douglas, 10/2/1997
Buff, Thomas, Jr., 11/11/1995
Buhler, Robert W., 3/6/2000
Bullard, Anthony, 6/29/1994
Bullard, Martha, 12/16/1991
Burger, Dwight, 12/6/1994
Burkhalter, Dale, 1/26/1996
Burley, Clyde A., 11/21/1991
Burnett, Brian K., 10/28/1999
Burnett, James Alan, 8/11/2000
Burke, Dennis L., 6/2/1998
Butchee, Charles, 3/5/1994
Butler, George David, 9/19/2000
Buttram, Bill, 7/28/1995
Byers, John M., 8/25/1992
Calhoun, Anthony V., 10/12/1992
Campbell, Herbert B., 3/2/1992
Campbell, James Shannon, 8/31/1992
Cannon, Brian Allen, 1/16/98
Cannonico, Michael, 11/25/1995
Capps, Jackson, 10/24/1996
Cardozo, George H., 12/1/2000
Carletti, Robert G., 1/21/1998
Carrown, Anthony J., 11/1/1992
Carr, Marcus, 1/3/1994
Carrasco, Brian, 8/31/1998
Carter, William F., Sr., 11/30/1990
Carter, John M., 10/24/1997
Carter, Gregory Scott, 1/21/1998
Cash, Bedford, 2/26/1994
Cashman, Kenneth C., 9/13/1999
Cassano, Eric Noel, 5/3/1999
Castillo, Victor Clement, 5/7/1998
Castro, David, 8/8/1994
Cavalieri, Joseph P., 12/18/1998
Caywood, Paul E., Sr., 9/23/1990
Certain, James, 9/22/1994
Chacon, Joseph L., 6/26/1990
Chambers, William, 11/12/1996
Champney, Gordon A., 3/1/1992
Chapin, Tony B., 9/24/1998
Chappell, James A., 2/24/1991
Charmello, Nick, 1/28/1994
Chesney, Charles Brant, 12/27/1996
Chesnut, James E., Jr., 5/1/1990
Chesnut, Burton Frank, 2/18/1999
Chisholm, Robert D., 8/31/1997
Chilian, Jerome H., Jr., 7/25/1997
Christian, Loren N., 12/24/1990
Gielicki, Michael J., 12/20/1991
Gilberto, George, 1/22/1994
Girrito, Phillip P., 6/9/1999
Clancy, John, 12/31/1995
Clark, Mark, 4/23/1996
Clark, James Everett, III, 8/5/1999
Clawson, Corey R., 8/28/1992
Clinch, Kenneth F., 7/30/1999
Coates, Allan F., 7/14/1993
Cockrell, Gary, 6/22/1995
Cohen, Rudolf, 6/2/1999

Cole, Robert A., 12/19/1991
Collins, Donald, 4/19/1996
Collins, Brian William, 2/15/1999
Colona, Steven, 12/27/1994
Colton, Todd D., 9/6/1990
Concannon, Thomas J., 12/18/1998
Conklin, Edwin R., 6/29/1993
Conroy, Patrick, 2/14/1995
Contreras, Alex S., 6/26/1990
Cooper, Paul Eugene, 2/11/2000
Coppen, Jerry Wayne, 3/7/2000
Copple, Gene K., 11/18/1990
Cormican, Bruce, 8/21/1995
Cotran, James J., 12/17/1992
Cottrell, Donald C., 3/8/1993
Coulter, Leonard, 8/21/1996
Coyne, Thomas E., Jr., 12/18/1991
Craft, Willie, 4/24/1996
Craco, Roy Kenneth, 12/7/1999
Crane, George, Jr., 7/11/1996
Cribley, Kinnison F., 12/13/1991
Croppr, Leroy, 4/24/1995
Crowe, Bobby, 3/13/1995
Crown, Peter, 7/21/1995
Crump, Robert Wayne, 8/17/2000
Crutchfield, Robert T., III, 1/28/1990
Cupp, Michael Eugene "Cuppie", Sr., 8/5/1999
Cussen, Greg, 5/5/1995
Cutter, Clayton M., 2/19/1990
Dame, James E., 3/7/1991
Daughenbaugh, Donald L., 3/24/1991
Dauzat, Clifton Jay, 8/5/1999
Davis, Rob, 12/10/1990
Davis, George A., 11/18/1997
Davis, Rickey Levi, 4/20/2000
Dawson, Timmy Roger, 8/31/1999
De Leon, Juan Gilberto, 1/17/2000
Dear, Edgar, 12/21/1990
Dearing, Dennis Jr., 2/27/1994
Deer, Ronald, 5/24/1995
DeFlumere, Albert, 10/26/1996
DeLane, Michael, 10/29/1994
Delvecchio, Joseph D., Sr., 8/25/1993
Denney, James L., 6/26/1990
Derryberry, Clark, 10/12/1996
Deshazor, Vernon D., 1/28/1990
Derry, Earl Sr., 9/3/1994
Devine, Richard F., 7/29/1999
Dibbles, Jerald, 1/22/1996
Dillon, Brian T., 1/28/1991
Doherty, Martin, 9/21/1996
Donahue, Jerry David, 6/27/1998
Dorr, Thomas, 1/7/1996
Dougherty, Edward P., Jr., 4/8/1990
Dougherty, Patrick J., 4/7/1993
Drennan, Robert J., 12/11/1990
Drennan, John, 3/29/1994
Melloni, Richard C., 2/18/1993
Medlicott, Robert, 7/29/1992
Meegan, Vincent D., Jr., 12/23/1993
Melandy, Victor, 1/28/1995
Mello, Donald V., 3/12/1991
Mellon, William C., 6/19/1997
Melloni, Richard H., Sr., 10/19/1993
Melton, Justin, 8/29/1998
Mendonca, Tony F., 1/26/1993
Mercado, Jesus, 5/7/1998
Mercer, Larry L., 4/17/1997
Meredith, Kim, 7/15/1992
Meshell, Ronald Wade, 8/8/1999
Mets, Brian E., 2/27/1993
Michael Smith, Michael, 6/22/1995
Michener, Brad A., 12/2/1999
Mikkelsen, Curtis D., 1/12/1991
Miller, Eugene, 3/13/1991
Miller, Daniel J., Jr., 12/6/1991
Miller, Guy C., 6/19/1992
Miller, Kenneth T., 10/16/2000
Million, Robert F., 2/15/1991
Mills, Leonard E., Sr., 7/28/1990
Mills, Dustin, 3/22/1994
Milner, Don L., 11/17/1992
Minehan, Stephen, 6/24/1994
Mitchell, Mark, 3/2/1994
Mondy, Delmar M., 7/27/1993
Moore, Mark A., 7/30/1990
Moore, Ricky G., 6/28/1997
Moore, Clifford Thomas, 6/16/1999
Moree, Don, 4/24/1996
Morgan, Newt, 2/7/1994
Morgan, Corey, 2/5/1996
Moriarty, Michael, 5/28/1991
Morris, Calvin, 8/16/1992
Morrison, Dana, 3/27/1995
Morton, Reed, Sr., 1/19/1996
Mosher, David, 1/3/1994
Mousley, Prince Albert, Jr., 1/6/1998
Mullins, Gerald, 1/8/1994
Mullins, Dennis, Jr., 1/12/1994
Munter, Robert W., 5/29/1998
Murdock, Edward W., Sr., 1/10/1991
Murphy, Stephen Earl, 1/27/98
Murphy, Joseph R. "Dick", 1/29/1999
Murphy, John E., 4/8/1999
Murray, Gerald, 8/27/1994
Myers, Brian D., Sr., 1/1/1997
Myers, Gerald "Jerry", 2/9/1999
Myers, Terry Lee, 2/15/1999
Nagel, Gary D., 10/5/1998
Nakovics, Raymond, 4/29/1998
Nall, David Thomas, 8/26/1999
Nam, Darrell R., 2/28/1992
Navarro, John A., 10/29/1992
Negron, Carlos A., 3/20/1993
Nelboeck, Dale, 11/28/1994
Netsch, Lisa, 6/22/1995
Neuner, Michael E., Sr, 6/22/1997
Newcomb, Russell T., 12/14/1993
Newman, David Timothy, 9/7/2000
Nichols, Francis M., 1/23/1993
Nickell, Kenneth Allen, 4/6/1999
Nicosia, John A., 1/17/1991
Northam, William Jack, 6/16/1997
Novosad, Joe, 4/30/1995
Nutter, John, 8/3/1994
Oatman, Johnson "Jack", 11/6/1997
O'Boyle, Thomas, 9/26/1995
O'Brien, Shawn, 2/22/1995
O'Connell, Daniel J., 1/8/1999
O'Conner, John M., 2/1/1993
Ogbum, Warren R., 2/24/1993
Oliver, Josh, 7/28/1995
Oliver, Terry "Ted", 2/19/1999
Olsen, Carl Arnold, 1/5/1999
Olson, Dennis R., 3/6/1993
O'Rourke, Ronald L., 1/4/1993
Osdaczz, Ronald J., 1/11/2000
Osmun, Jeffrey G., 12/5/1992
O'Toole, Robert J., 1/12/1998
Ottonello, Eugene, 11/13/1997
Ousley, George William, 5/18/1992
O'verman, William M., Jr., 4/24/1993
Ovsiovitch, Elias, 10/1/1994
Pache, John, 9/8/1995
Pacheco, Jesse, Jr., 12/6/1993
Pacheco, Gregory Edwin, 10/3/1999
Pack, David Merle, 10/29/1999
Packard, David L., 3/16/1999
Paris, Daniel G., 6/19/1991
Parker, Robert L., 3/30/1991
Parker, Tommy A., 11/4/1992
Parks, David Vernon, 7/12/1999
Parris, Cogdill Jacob, Jr., 5/21/1993
Parsons, William L., 7/4/1996
Passaro, Gary M., 1/18/1990
Patterson, Preston Edgar, 9/27/1998
Payne, Carl Ray, 5/7/2000
Payton, Donald J., Sr., 9/8/1997
Pearson, Arthur Lo, 10/25/1992
Pemberton, Robert, 4/26/1996
Perry, Aaron J., 6/27/1990
Perry, Henry E., 9/14/1997
Pescatore, Nathan Andrew, 7/2/2000
Peters, George, 9/6/1995
Peters, Robert F., 8/29/1998
Peters, Robert D., 4/15/1999
Petersen, Lance J., 11/1/1990
Peterson, Clyde, 6/8/1999
Petit, Arthur, 7/13/1996
Phillips, Anthony Sean, Sr., 5/30/1999
Phillips, Ronald Gregory, 6/18/1999
Pierce, Everett C., 8/15/1993
Pierce, Bradley Scott, 8/6/2000
Sherman, Kris, 7/27/1996
Shockley, Jesse, Jr., 12/10/1994
Shoemaker, Gregory, 1/5/1995
Shortt, Mike, 3/15/2000
Shue, James, 12/14/1995
Siegling, John R., 10/16/1991
Sienknecht, John H., 12/8/1991
Simmons, Nonnan L., 10/7/1991
Simpson, Edwin L., 7/14/1990
Sims, Randy, 9/14/1998
Sims, Michael J., Sr., 11/2/1999
Sippel, Albert, 7/16/1997
Siverton, Walter E., Jr., 1/8/1993
Sligar, Arch Russell, Jr., 6/13/1999
Smartt, "Randy", 12/9/1997
Smith, Frank Albert, 5/26/1992
Smith, Sam, 7/12/1994
Smith, Wayne, 8/7/1994
Smith, Herbert, 8/18/1994
Smith, Dwight, 9/6/1994
Smith, Daren, 10/6/1994
Smith, Lathan Grant, Jr., 1/26/1995
Smith, Michelle, 6/9/1996
Smith, Kevin Rex, 4/6/1999
Smith, Kimberly Ann, 2/14/2000
Smith, Lyndell J., 5/31/2000
Smith, Warren J. C., 8/13/2000
Smith, Phillip Dewey, 11/16/2000
Smitherman, William "Sam", Sr., 12/20/1997
Snell-Dean, Phillip Wayne, 2/15/99
Somay, John H., 11/12/1993
Soper, Edward E., 1/26/1991
Sorenson, Adam, 7/15/1995
Soupene, Gary, 7/10/1995
Sowle, Ingrid H., 2/19/1990
Spangler, John E., 10/29/1991
Spencer, John H., 4/14/1991
Spencer, Thomas Edward, 12/3/1999
Spink, Richard Owen, 2/13/2000
Springfield, Curtis E., 6/26/1990
Stanbery, Ralph William, 4/22/1998
Stanmire, Robert C., Sr., 2/16/1999
Stark, Roger, 6/19/1992
Stark, Richard, 8/2/2000
Starr, Julius C., 8/15/1990
Stavel, James H., III, 6/30/1992
Steele, Lee Allen, 6/23/1996
Stephen E. Bovey, Ralph F., 9/30/1990
Stephenson, Roy, 10/13/1994
Sterenchuk, Kevin Francis, 3/27/2000
Stevens, Leo A., 6/3/1997
Stevens, Douglas George, 2/6/2000
Stiles, Martin Michael, 7/18/1999
Stine, Timothy M., 11/13/1990
Stivers, Dania, 5/12/1995
Strain, Kenneth Alan, 5/2/1999
Strall, Sam, 9/14/1996
Staub, James D., 3/26/1990
Streever, Allen L., 11/1/2000
Stroud, Ronald L., 1/29/1990
Strube, Howard E., 9/7/1997
Struble, L. Wayne, 4/13/1991
Sulzinski, Stephen, 10/29/1995
Sutch, Kevin, 6/12/1995
Sutton, Brian D., Sr., 11/8/1994
Swan, John William, II, 8/6/1996
Swenson, Leroy, 11/2/1997
Swindle, James T., 7/5/1991
Swinehart, Roy J., 4/21/1992
Tagliareni, Joseph F., Jr., 5/31/1999
Talley, Raymond E., 1/18/1992
Taylor, Jerome, 3/12/1999
Tebo, James H., 7/13/1997
Teethan, Whitney C., Jr., 6/25/2000
Templin, Frederick W., 10/14/1991
Terlicker, Randall, 1/5/1995
Theisen, David P., 2/5/1998
Thomas, Keith C., 2/17/1998
Thomason, Curtis C., 4/22/1990
Thompson, Arthur, 7/19/1995
Thompson, Jeffrey Scott, 10/4/1999
Thorn, Glen, 1/21/1994
Thrash, James, 7/6/1994
Thrower, Lawrence D., 10/24/1998
Tillman, Aubrey R., 4/2/1999
Tippins, Steve Austin, 12/9/1998
Tobias, Samuel James, 5/15/2000
Tolan, James R., 1/16/1999
Toledo, Frankie, 4/22/1993
Toomey, Tracy, 10/10/1999
Trice, Steve, 11/9/1996
Trick, Grant F., 8/13/2000
Trotzchaud, Donald, 9/18/1998
Trygar, Raymond, 8/20/1995
Tuck, Arthur K., 3/13/1992
Tuck, Nathan R., 12/22/1999
Tvedten, John H., 12/20/1999
Tyler, Richard, 7/6/1994
Ulrich, Robert Charles, 10/28/1999
Vagnier, Joseph M., 7/11/1997
Valdez, Roberto, 1/29/1992
Valentino, Louis, 2/5/1996
Van Calbergh, Michael E., 6/30/1990
Van Wert, Richard L., 12/10/1999
VanAuker, Gail Lynne, 11/2/2000
Vanhoy, Howard William, 9/5/2000
Vaughan, Walter F., 10/29/1999
Vert, Frank, Jr., 12/20/1991
Viloria, Marshal E., 3/1/1991
Vinson, Raymond, 2/11/1996
Vodak, Charles James "Chuck", 3/16/1999
Voris, Albert Leonel, Jr., 9/1/2000
Vrabel, Scott Alan, 11/14/1997
Vreeland, Rick A., 2/5/1993
Wade, Walter, 2/6/1994
Walker, Wayne E., 6/8/1992
Walker, Keith A., 3/7/1993
Walker, John M., 8/20/1998
Wall, Thomas Oscar, 10/5/1998
Walling, James D., 12/9/1991
Wallingford, Robert, 8/27/1996
Walls, Nathan E., 10/11/1991