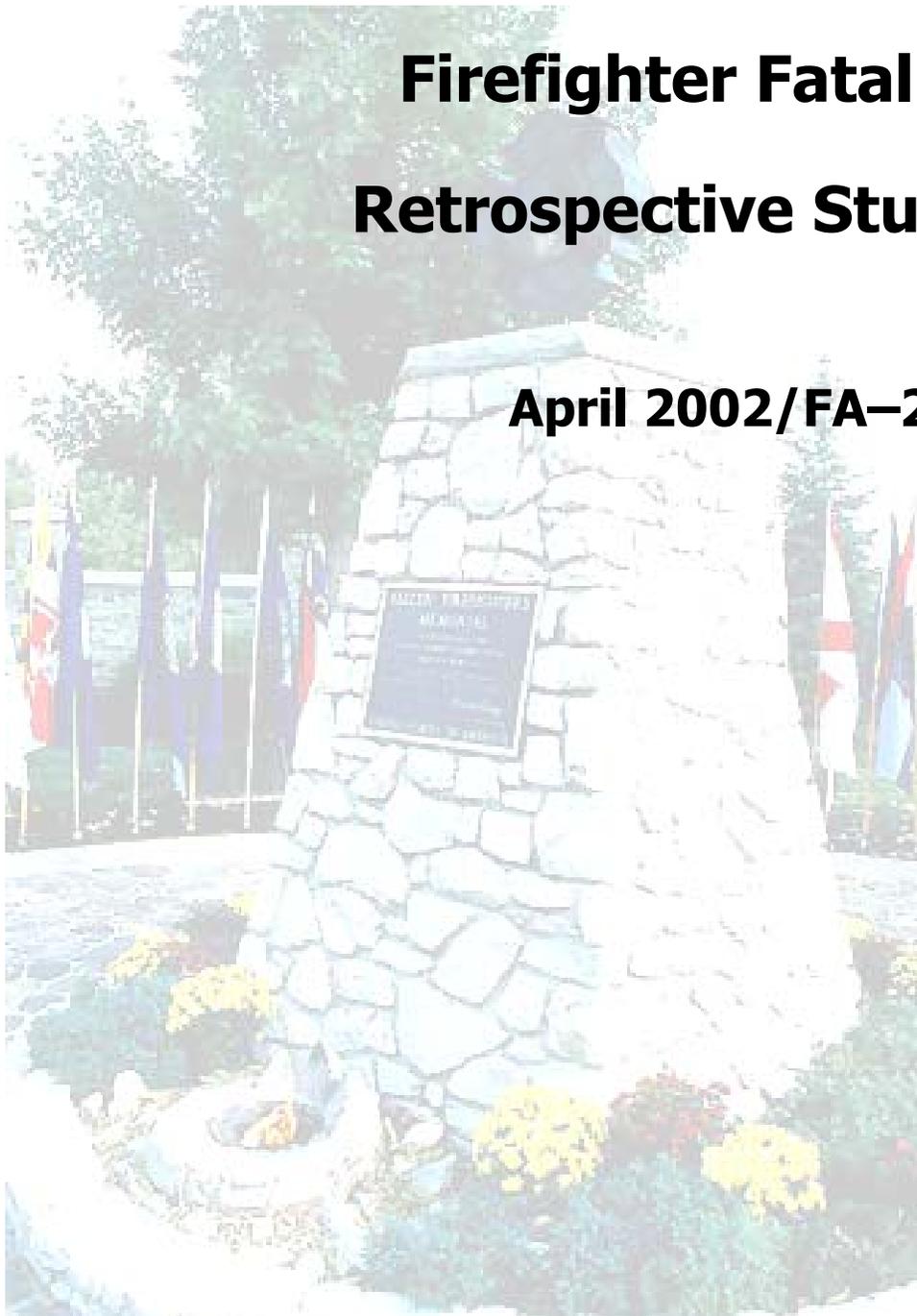


Firefighter Fatality Retrospective Study

April 2002/FA-220



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

Firefighter Fatality Retrospective Study

April 2002

Prepared by

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for

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

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.

CONTENTS

List of Figures	v
List of Tables	vi
Preface	vii
Acknowledgments	viii
Executive Summary	1
Introduction and Objectives	1
Findings	1
Prevention and Resources	3
Introduction	5
Goals and Objectives	6
Methodology	9
Data Sources	9
Development of Database	10
Inclusion Criteria	10
Findings	13
Trend in Firefighter Fatalities	13
Type of Incident	13
Affiliation of Firefighter Fatalities and Type of Agency	14
Rank of Firefighter	16
Gender	18
Age	18
Type of Duty	20
Motor Vehicle Collisions	21
Immediate Cause and Nature of Fatal Injury	23
Comparison to Other Fatality Rates	25
Time of Injury	26
Fixed Property Use	27
Cause of Fire	28
Geographical Distribution of Firefighter Fatalities	29
Comparison of Florida With Pennsylvania	36
Multiple Firefighter Fatality Incidents	37
Self-Contained Breathing Apparatus Depletion	39
Personal Alert Safety System Device Activation	39
Wildland Firefighters	39
Prevention of Firefighter Fatalities	41
Pre-Existing Conditions	41
Training	45
Fireground	46
Motor Vehicle Collisions	48

Resources	51
Fire Service Resources	51
Financial Assistance for Children and Spouses	54
Appendix—Documentation	57
Entity Relational Diagram	57
Field Names and Description of Data	58
Data Dictionary	62
Rules for Coding Data	73
References	75

LIST OF FIGURES

1	Trend in Firefighter Fatalities (1977–2000)	5
2	Firefighter Fatalities (1977–2000)	13
3	Types of Incident Resulting in Fatalities (1990–2000)	14
4	Fire-Incident-Related Firefighter Fatalities per 100,000 Incidents (1977–2000)	14
5	Firefighter Fatalities by Affiliation (1990–2000)	15
6	Career–Volunteer Distribution (1990–2000)	15
7	Type of Agency with Firefighter Fatality (1990–2000)	16
8	Firefighter Fatalities by Rank (1990–2000)	17
9	Rank of Firefighter vs. Type of Duty at Time of Fatal Injury (1990–2000)	17
10	Gender of Firefighter Fatalities (1990–2000)	18
11	Age at Time of Injury (1990–2000)	18
12.	Type of Duty by Age of Firefighter (1990–2000)	19
13	Type of Duty at Time of Fatal Injury (1990–2000)	20
14	Emergency vs. Non-Emergency Duty (1990–2000)	21
15	Leading Types of Training Activities Associated With Fatalities (1990–2000)	22
16	Type of Vehicle Involved in Collision (1990–2000)	22
17	Decedent’s Location in Vehicle (1990–2000)	23
18	Immediate Cause of Fatal Injury (1990–2000)	23
19	Nature of Fatal Injury (1990–2000)	24
20	Percent of Heart Attack Deaths by Year (1984–2000)	24
21	Comparison of Type of Duty for Heart Attack With Non-Heart Attack Fatalities (1990–2000)	25
22	Percent of Injuries by Time of Day (1990–2000)	26
23	Percent of Traumatic vs. Heart Attack Deaths by Hour of the Day (1990–2000)	27
24	Fixed Property Use of Incident Where Injury Occurred (1990–2000) ..	28
25	Cause of Fire, If a Fire Incident (1990–2000)	29
26	Map of Firefighter Fatalities, by State of Affiliation (1990–2000)	31
27	Firefighter Fatalities, by Affiliation Per 10 Million Population	32
28	Firefighter Fatalities, by Type of Incident Per 10 Million Population ...	33
29	Entity Relational Diagram, Firefighter Fatality Database	57

LIST OF TABLES

1	Leading Nature of Fatal Injury by Age (1990–2000)	19
2	Emergency vs. Non-Emergency Duties by Age of Firefighter (1990–2000)	20
3	Comparison of Heart Attack Fatalities by Occupation (1990–2000) ...	26
4	Time of Injury (1990–2000)	27
5	Firefighter Fatalities by State and Per 10 Million Population (1990–2000)	30
6	Type of Incident by State (1990–2000)	35
7	Affiliation by State (1990–2000)	35
8	Nature of Fatal Injury by State (1990–2000)	35
9	Firefighter Fatality Data Elements: Florida and Pennsylvania	36
10	Multiple Firefighter Fatalities	38
11	Nature of Fatal Injury, Single- vs. Multiple-Fatality Incidents	38
12	Nature of Fatal Injury, Wildland Firefighters vs. Non-Wildland Firefighters (1990–2000)	40

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 injuries¹ 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.

¹Traumatic 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

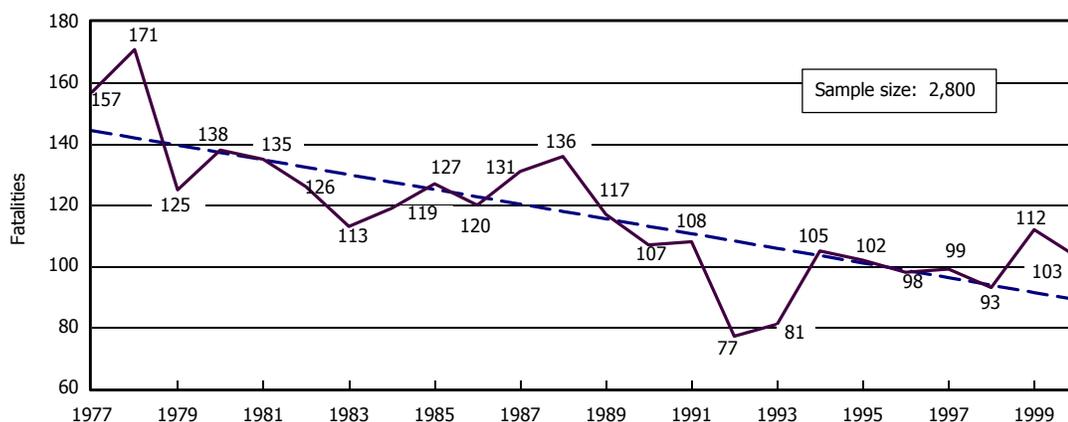
Some circumstances that lead to the deaths of firefighters are simply beyond human control. Generally, however, most firefighter fatalities are the result of a chain of events, which, if detected early, has the potential be broken and prevent many, or even most, fatalities.

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.



Source: USFA.

Figure 1. Trend in Firefighter Fatalities (1977–2000)

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.

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

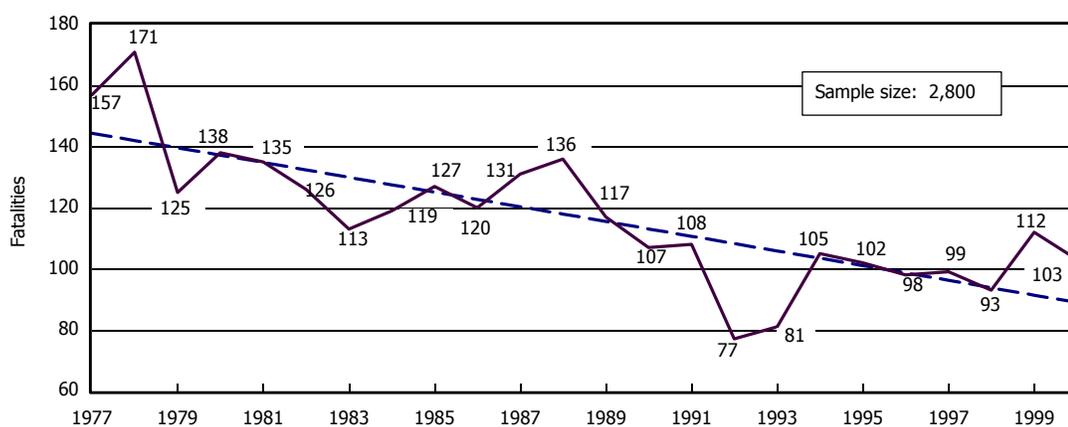
Some desired information was either unavailable or reported as “unknown” on the reports associated with each fatality. To compensate for this problem, the report cites “adjusted percentages” or percentage of valid responses or entries. The unknown items are assumed to be in the same proportion as those 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, multi-year 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.



Source: USFA.

Figure 2. Firefighter Fatalities (1977–2000)

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

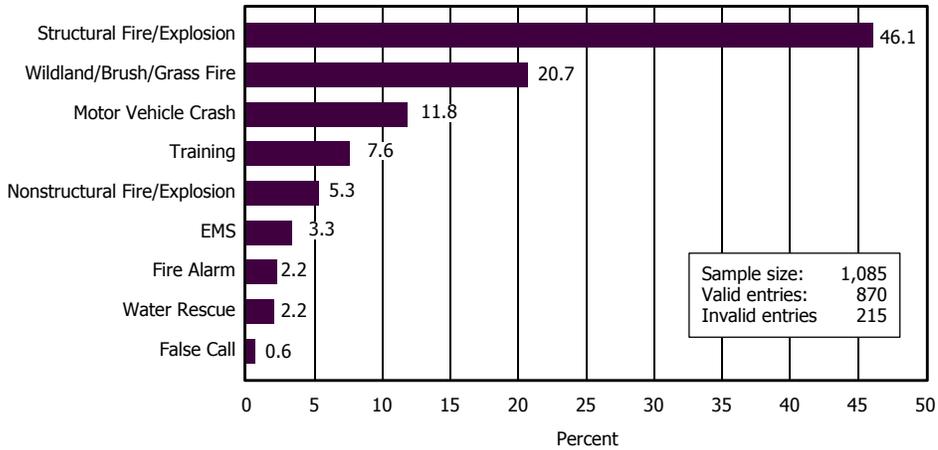
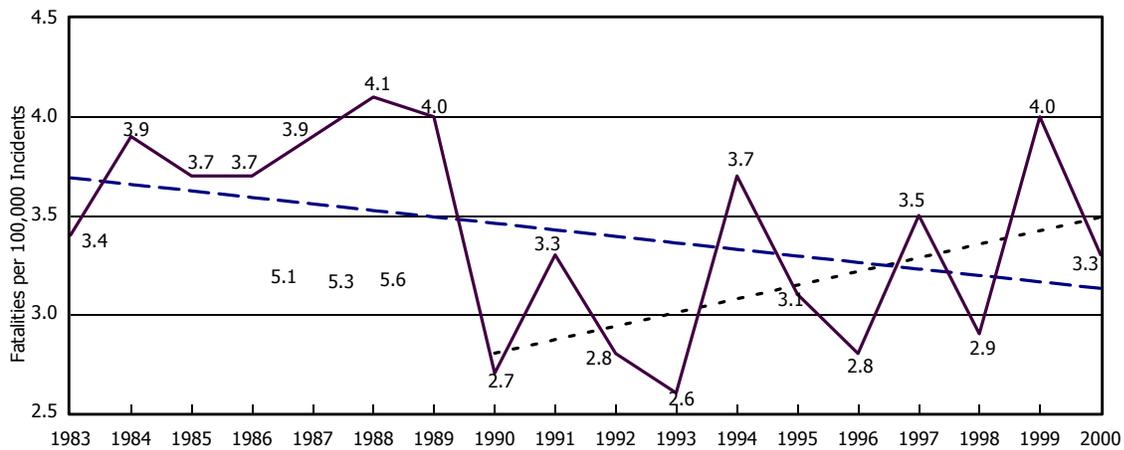


Figure 3. Types of Incident Resulting in Fatalities (1990–2000)



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

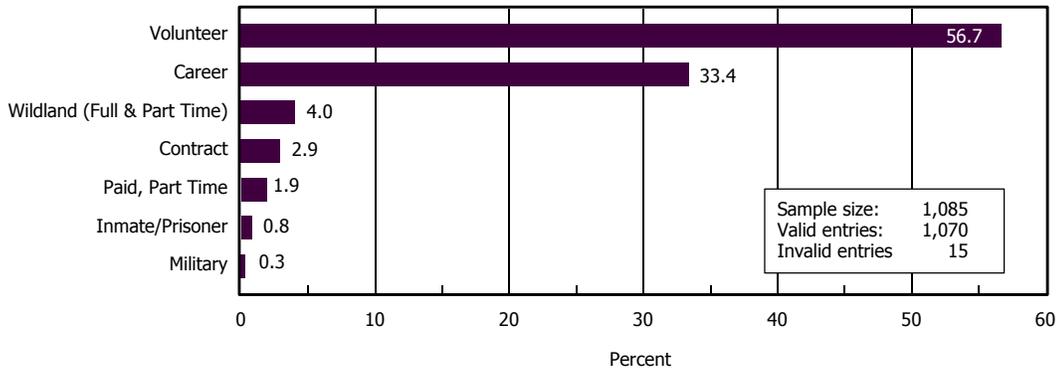


Figure 5. Firefighter Fatalities by Affiliation (1990–2000)

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,

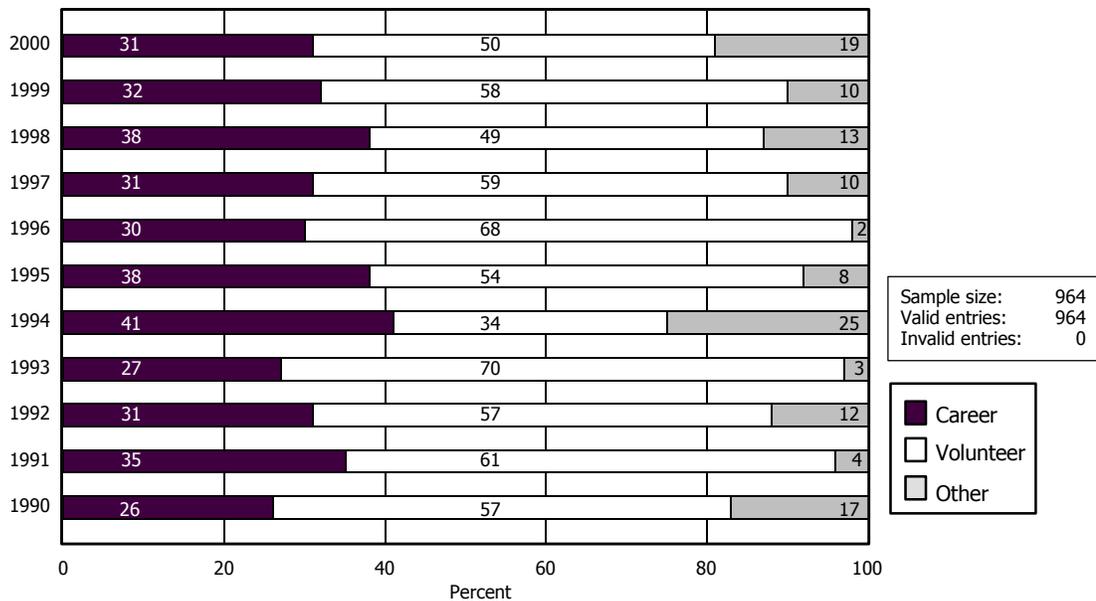


Figure 6. Career–Volunteer Distribution (1990–2000)

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.)

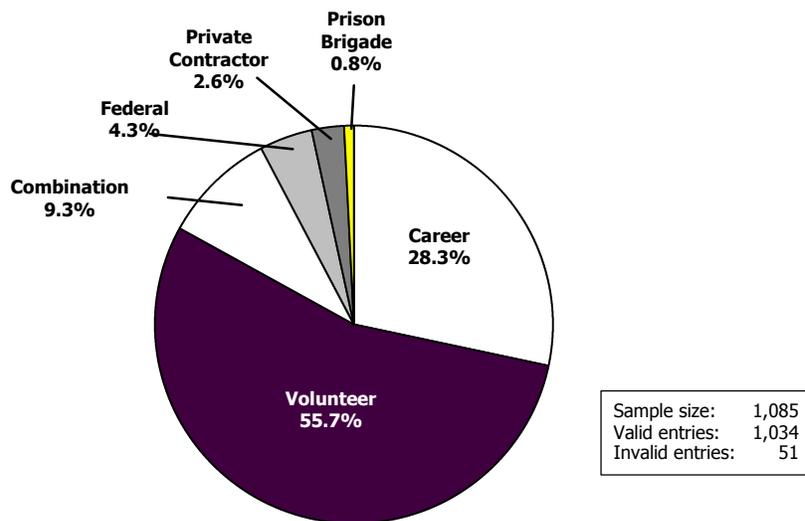
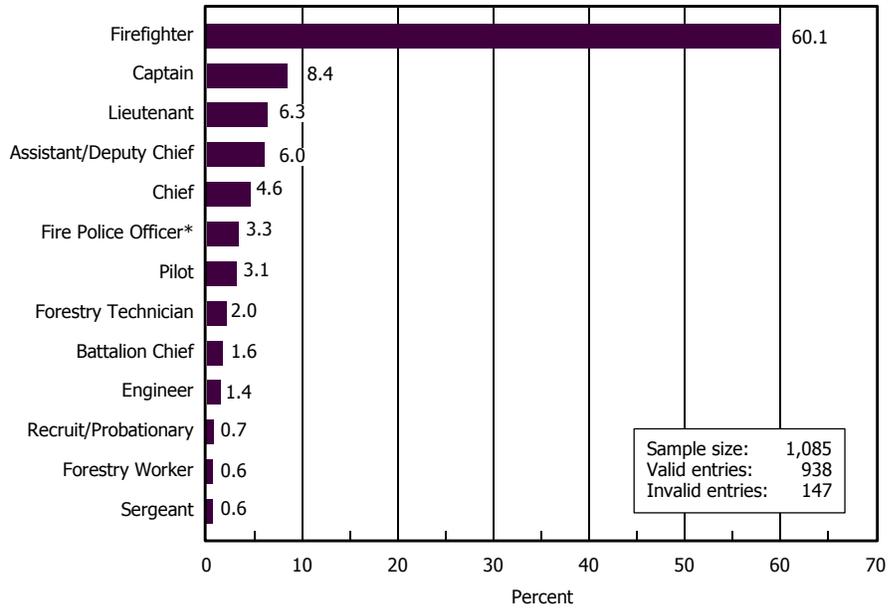


Figure 7. Type of Agency with Firefighter Fatality (1990–2000)

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)

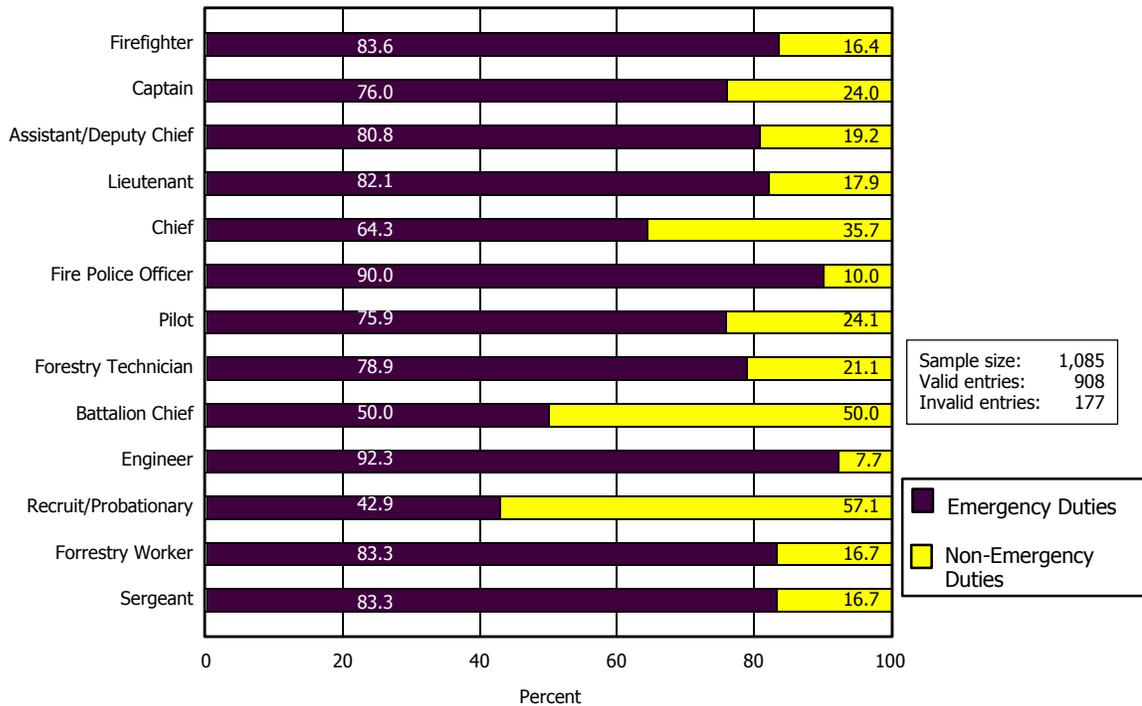


Figure 9. Rank of Firefighter vs. Type of Duty at Time of Fatal Injury (1990–2000)

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.

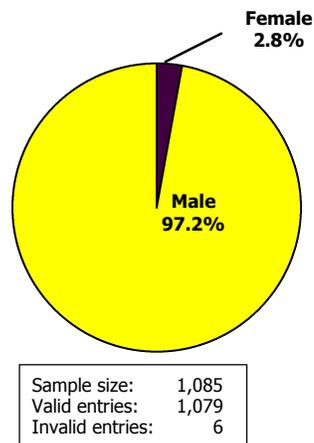


Figure 10. Gender of Firefighter Fatalities (1990–2000)

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.

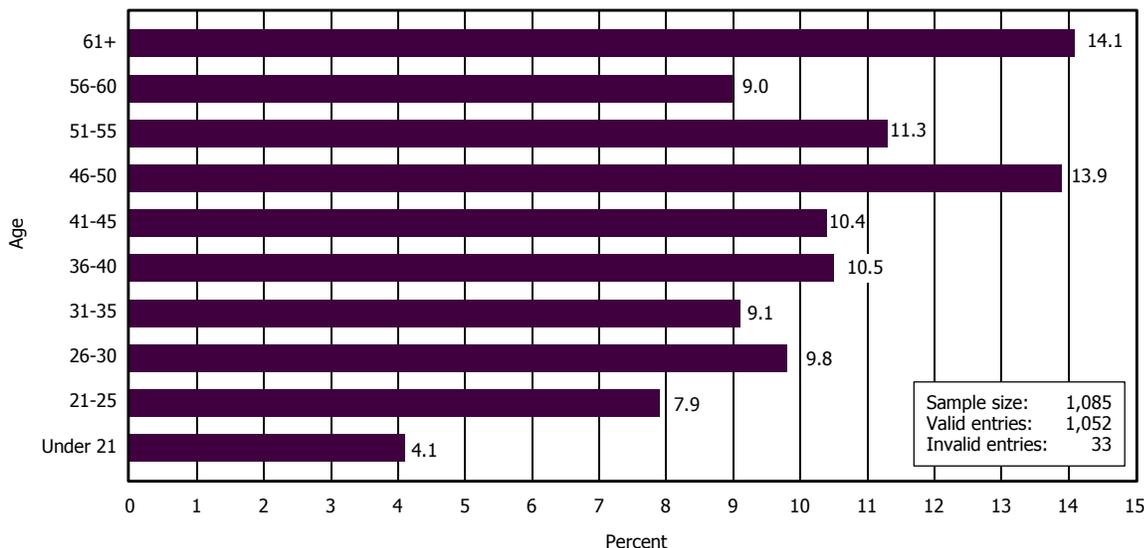


Figure 11. Age at Time of Injury (1990–2000)

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)

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

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.

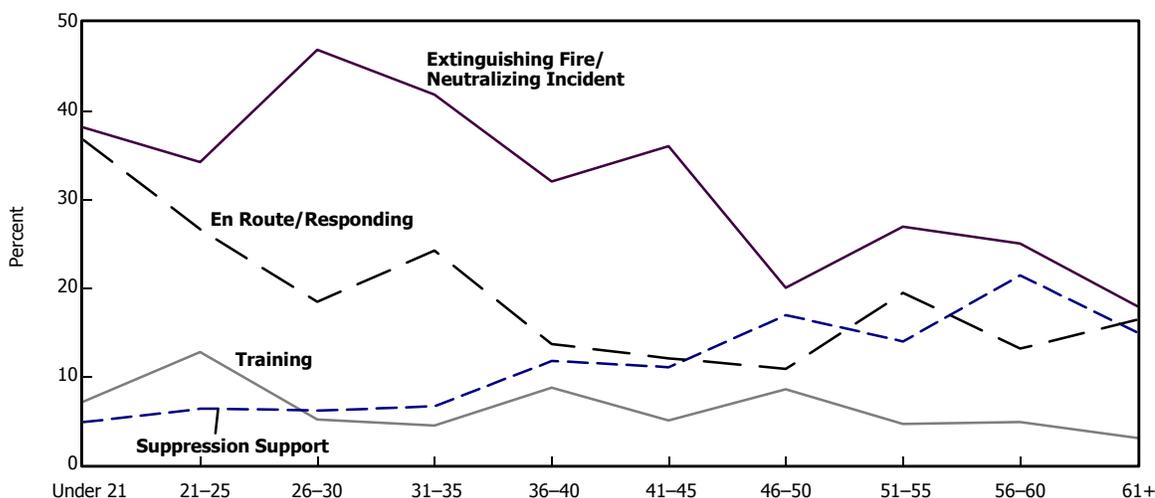


Figure 12. Type of Duty by Age of Firefighter (1990–2000)

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

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

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 fireground³ 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

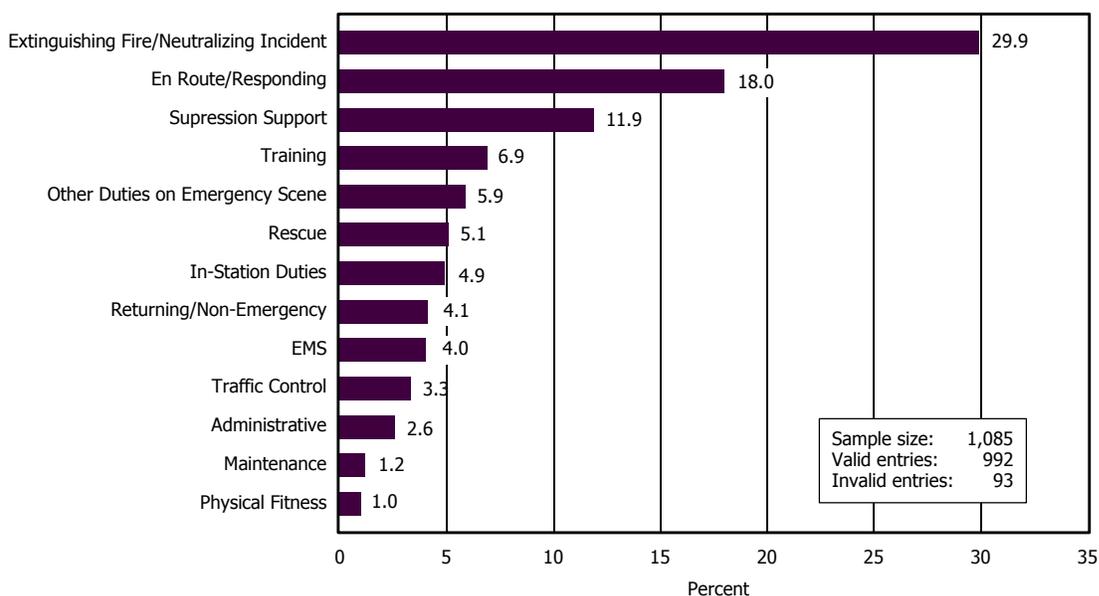


Figure 13. Type of Duty at Time of Fatal Injury (1990–2000)

³For 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.

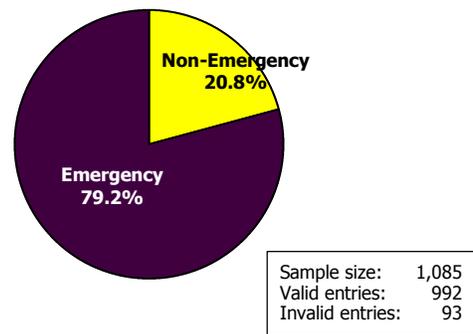


Figure 14. Emergency vs. Non-Emergency Duty (1990–2000)

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

⁴Between 1978 and 1987, however, training accounted for less than 5 percent of firefighter fatalities [Ref. 6].

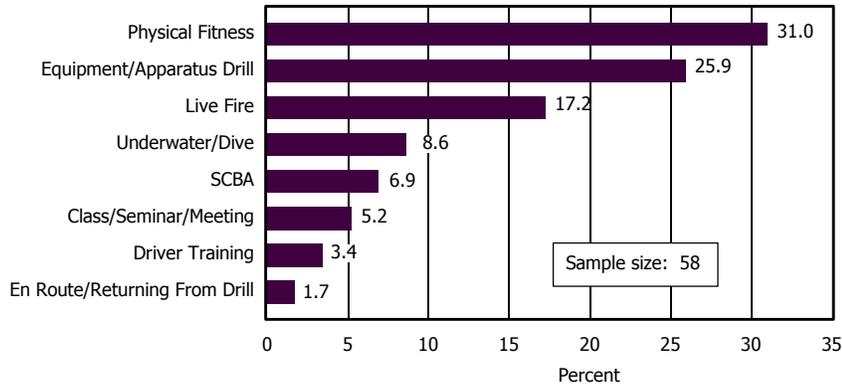


Figure 15. Leading Types of Training Activities Associated With Fatalities (1990–2000)

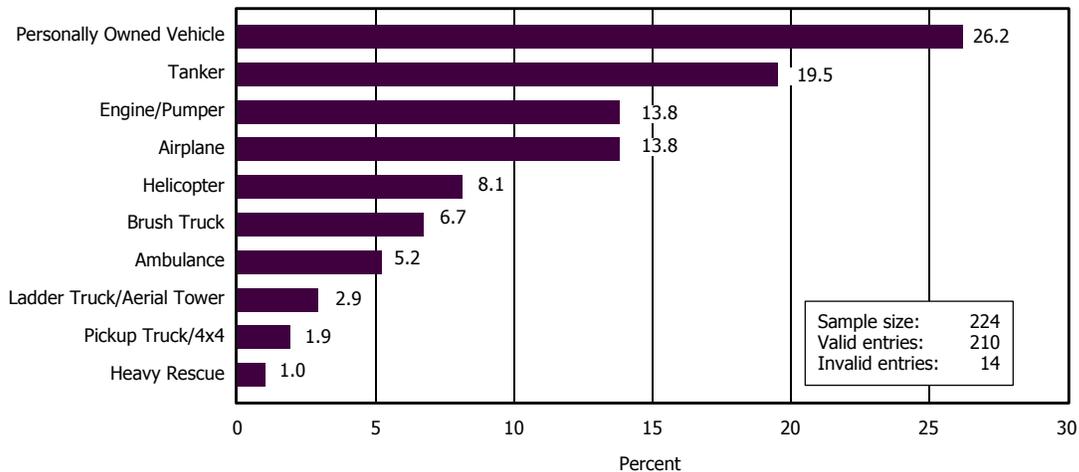


Figure 16. Type of Vehicle Involved in Collision (1990–2000)

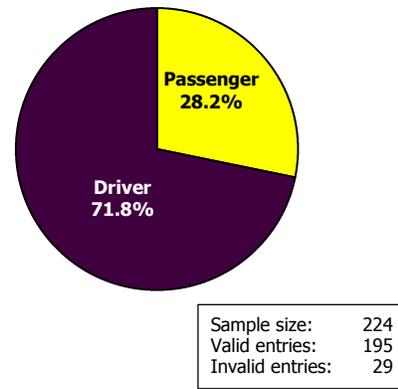
fatalities occur in tanker collisions than in engines and ladders combined. Approximately 27 percent of fatalities in MVCs were ejected from the vehicle at the time of the collision; only 21 percent of these firefighters were reportedly wearing their seatbelts prior to the collision.

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

Figure 17. Decedent's Location in Vehicle (1990-2000)

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).

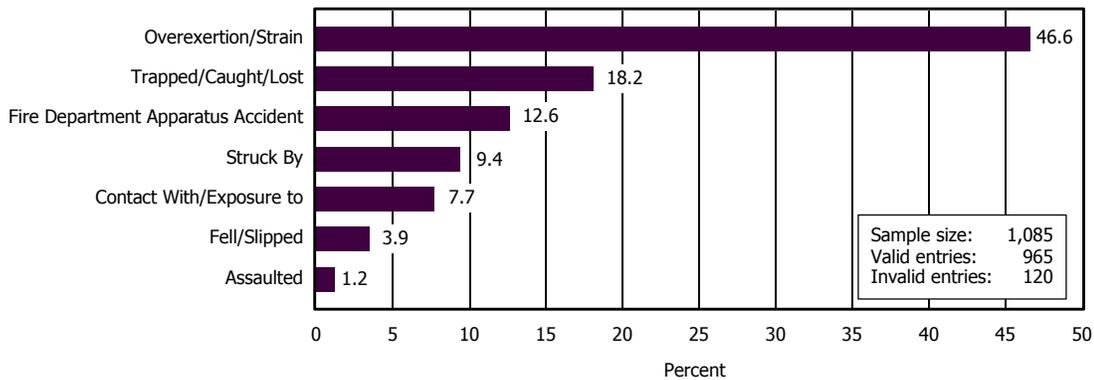


Figure 18. Immediate Cause of Fatal Injury (1990-2000)

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.

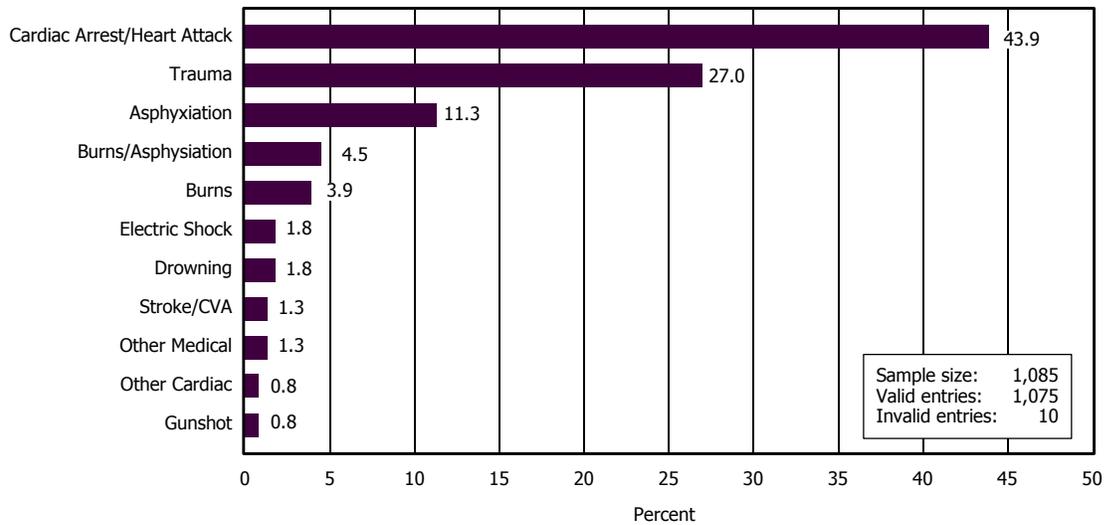
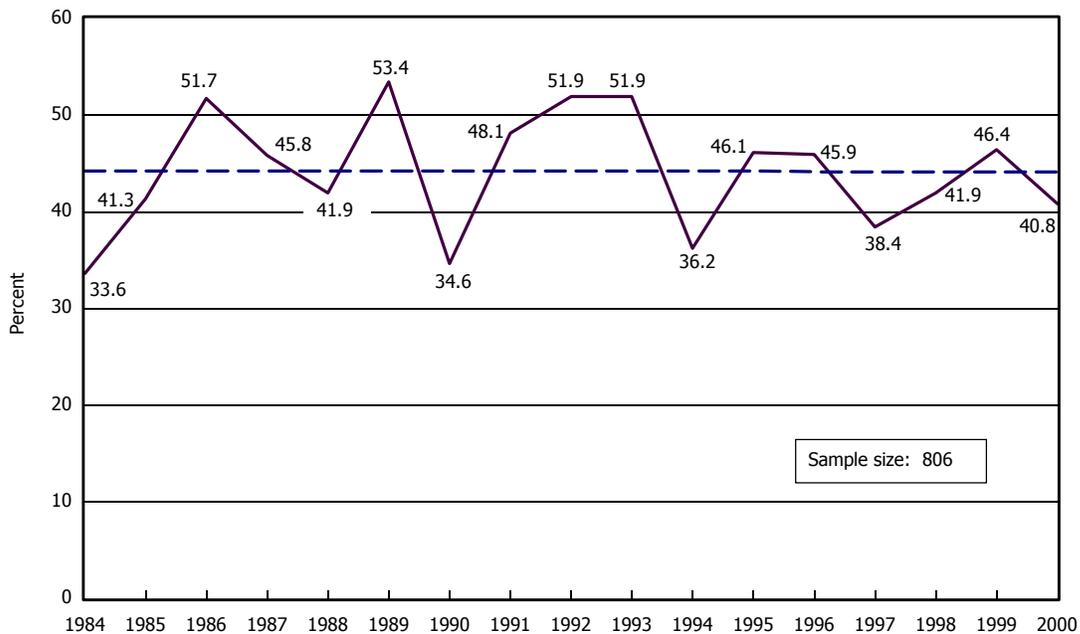


Figure 19. Nature of Fatal Injury (1990–2000)

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,⁵ followed by prior heart attack(s) and hypertension.



Source: pre 1990 data and USFA *Analysis Report on Firefighter Fatalities*, U.S. Fire Administration, FEMA, August 1994.

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

⁵Arteriosclerosis 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).

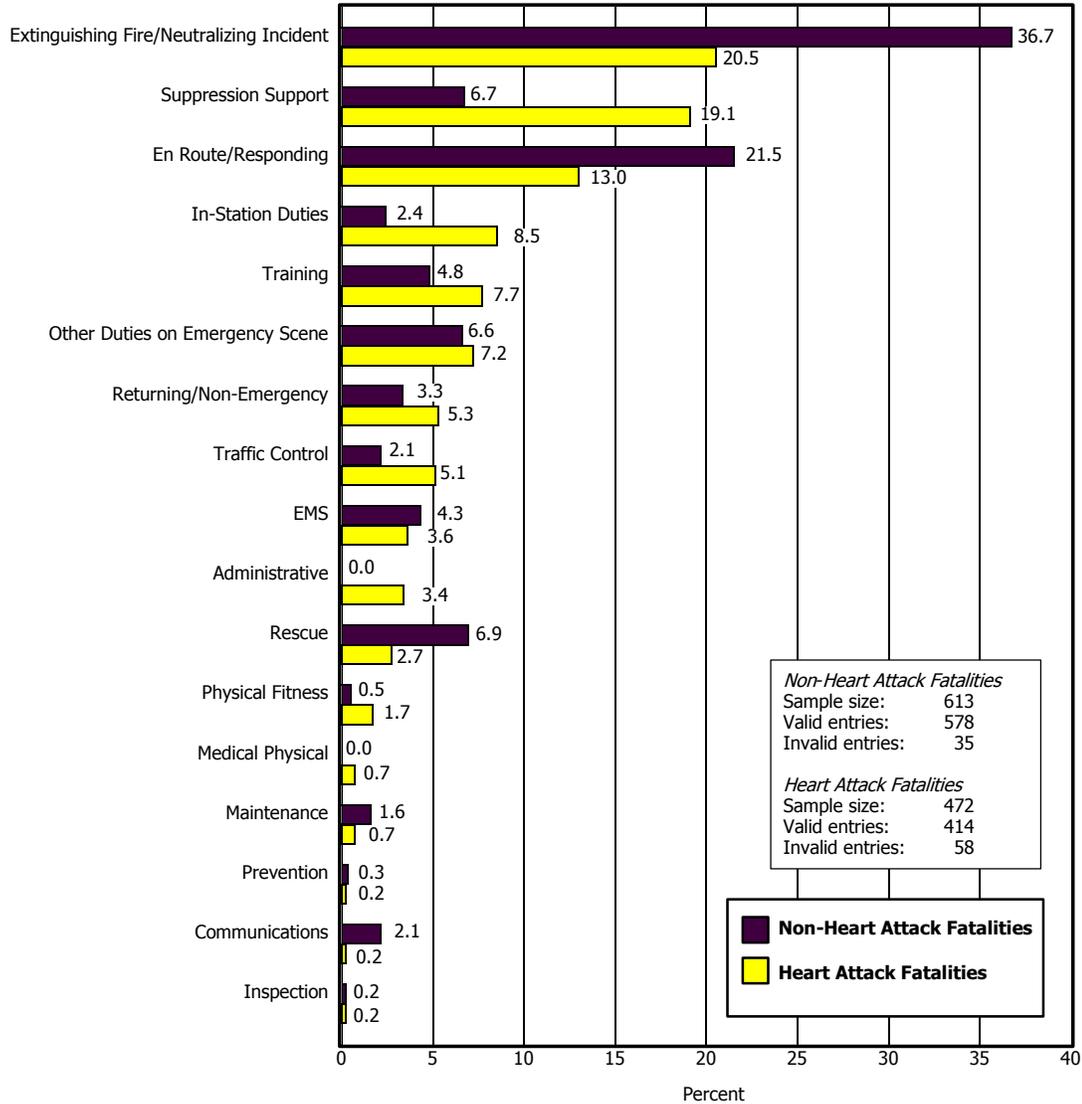


Figure 21. Comparison of Type of Duty for Heart Attack With Non-Heart Attack Fatalities (1990–2000)

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)

Occupation*	Percent of Deaths Due to Heart Attacks
Firefighters	44**
Guards (including supervisors)	25
Police and Detectives	22
All Occupational Fatalities	15
Construction Trades	13
Construction Laborers	10

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.

Source: Excluding firefighter data, Bureau of Labor Statistics.

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 trauma⁶ deaths by hour of the day. Both types of fatalities are more likely to occur during the day than at night.

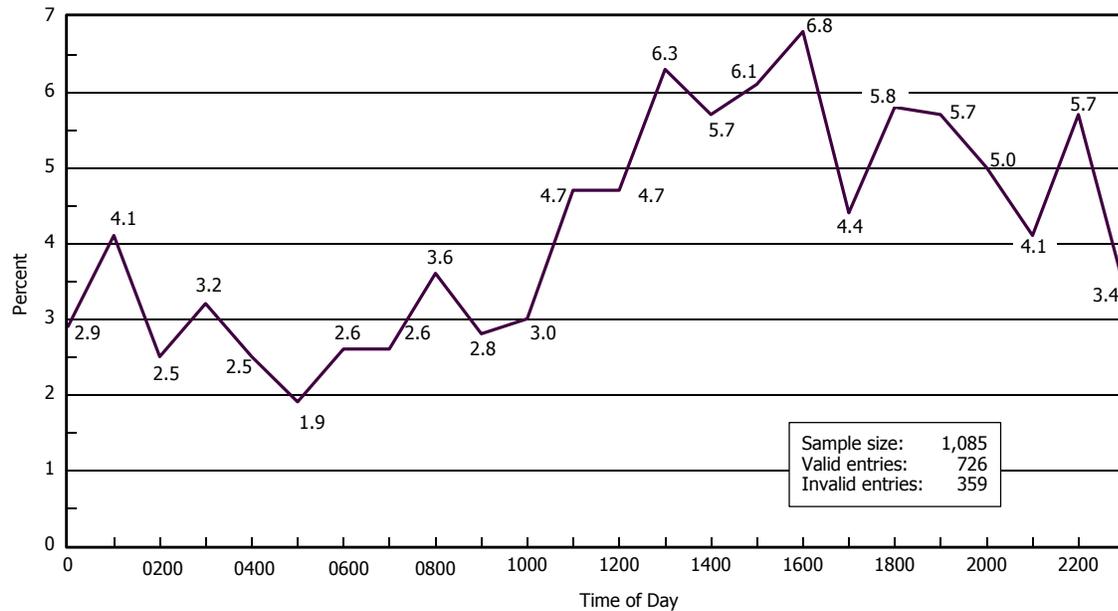


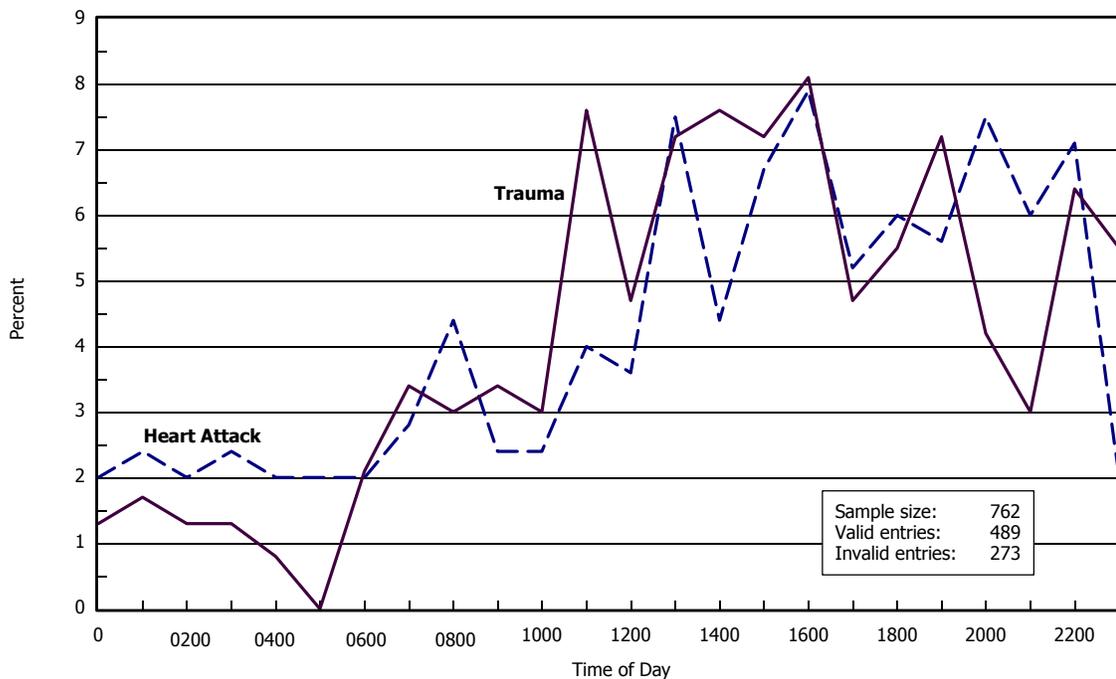
Figure 22. Percent of Injuries by Time of Day (1990–2000)

⁶For this particular analysis, only deaths coded as trauma (internal, head, etc.) were considered.

**Table 4. Time of Injury
(1990–2000)**

Time of Day	Percent of Fatalities
0000–0359	13
0400–0759	10
0800–1159	14
1200–1559	23
1600–1959	23
2000–2359	18

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.

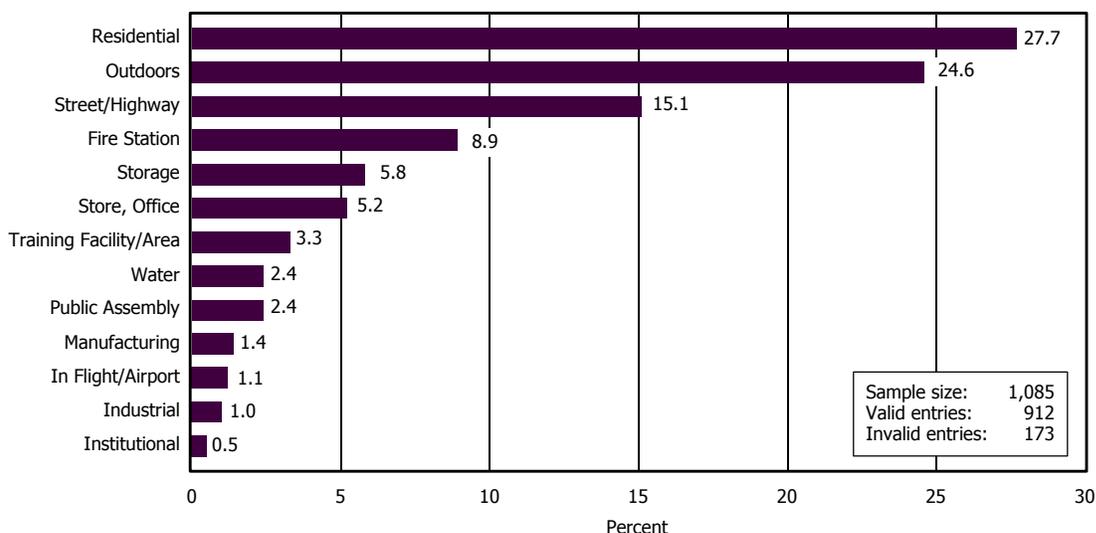


Figure 24. Fixed Property Use of Incident Where Injury Occurred (1990–2000)

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 Fire⁷

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.

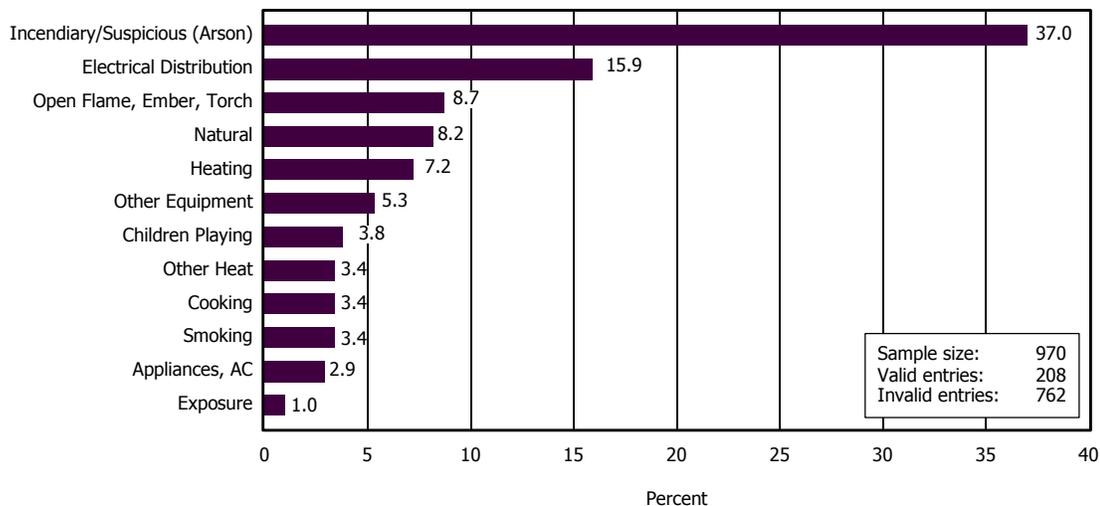


Figure 25. Cause of Fire, If a Fire Incident (1990–2000)

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)*

State	Average 1990–2000 Population	Total Fatalities	Average Fatalities per 10 Million Population by Affiliation	Average Fatalities per 10 Million Population by Incident
Alabama	4,243,844	20	47.1	47.1
Alaska	588,488	2	34.0	34.0
Arizona	4,397,930	15	34.1	34.1
Arkansas	2,512,063	14	55.7	55.7
California	31,815,835	75	23.6	21.7
Colorado	3,797,828	7	18.4	52.7
Connecticut	3,346,341	20	59.8	59.8
Delaware	724,884	3	41.4	41.4
District of Columbia	695,250	4	57.5	57.5
Florida	14,460,152	22	15.2	15.2
Georgia	7,332,335	21	28.6	28.6
Hawaii	1,159,883	4	34.5	34.5
Idaho	1,150,351	10	86.9	69.5
Illinois	11,924,948	32	26.8	36.9
Indiana	5,812,322	44	75.7	55.1
Iowa	2,851,540	14	49.1	49.1
Kansas	2,582,996	14	54.2	54.2
Kentucky	3,863,533	25	64.7	64.7
Louisiana	4,344,475	12	27.6	25.3
Maine	1,251,426	7	55.9	55.9
Maryland	5,038,977	29	57.6	57.6
Massachusetts	6,182,761	27	43.7	43.7
Michigan	9,616,871	22	22.9	22.9
Minnesota	4,647,289	6	12.9	12.9
Mississippi	2,708,937	18	66.4	66.4
Missouri	5,356,142	24	44.8	44.8
Montana	850,630	4	47.0	58.8
Nebraska	1,644,824	6	36.5	36.5
Nevada	1,600,045	5	31.2	37.5
New Hampshire	1,172,519	4	34.1	34.1
New Jersey	8,072,269	37	45.8	45.8
New Mexico	1,667,058	12	72.0	66.0
New York	18,483,456	126	68.2	68.2
North Carolina	7,338,975	25	34.1	34.1
North Dakota	640,500	3	46.8	46.8
Ohio	11,100,128	36	32.4	32.4
Oklahoma	3,298,120	21	63.7	63.7
Oregon	3,131,860	19	60.7	28.7
Pennsylvania	12,081,349	97	80.3	81.9
Rhode Island	1,025,892	4	39.0	39.0
South Carolina	3,749,358	19	50.7	48.0
South Dakota	725,424	2	27.6	27.6
Tennessee	5,283,234	24	45.4	45.4
Texas	18,919,165	60	31.7	31.7
Utah	1,978,010	6	30.3	30.3
Vermont	585,793	8	136.6	136.6
Virginia	6,632,937	22	33.2	33.2
Washington	5,380,407	15	27.9	22.3
West Virginia	1,800,911	16	88.8	88.8
Wisconsin	5,127,722	14	27.3	27.3
Wyoming	473,685	6	126.7	84.4
Puerto Rico	3,665,324	3	8.2	8.2

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.

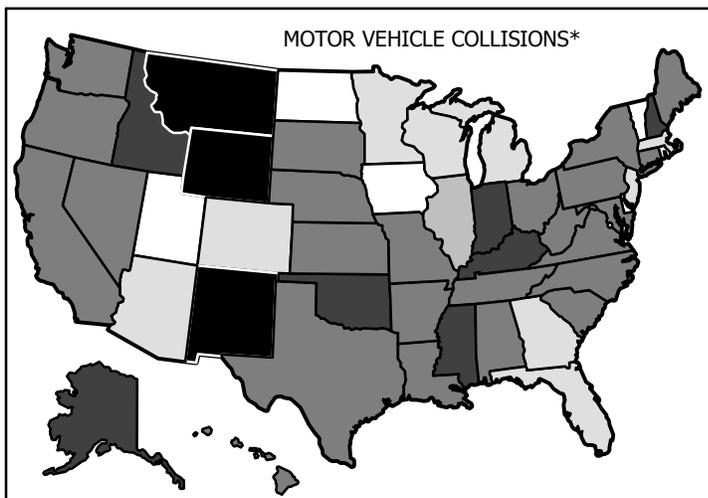
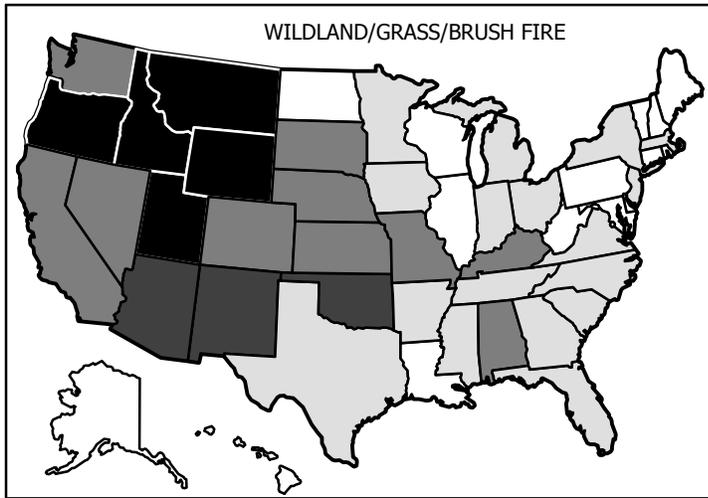
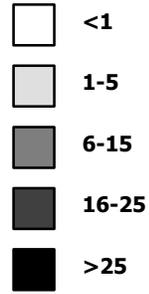
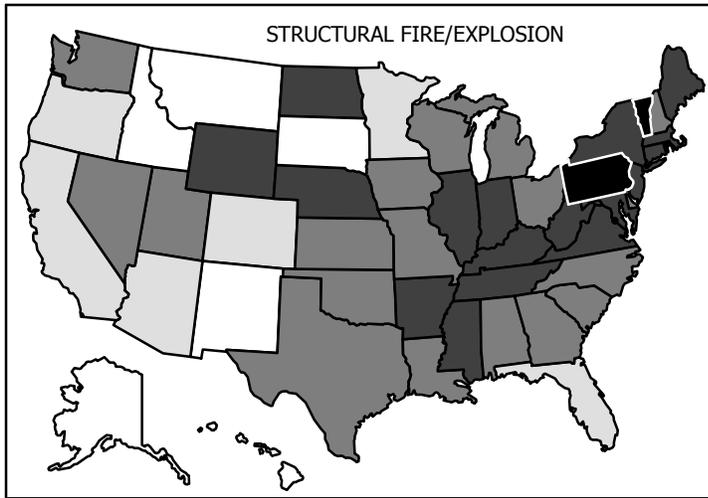


Figure 26. Map of Firefighter Fatalities, by State of Affiliation (1990–2000)

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,



*Reflects incidents where the firefighter fatality was involved in an MVC.

Figure 27. Firefighter Fatalities, by Affiliation Per 10 Million Population

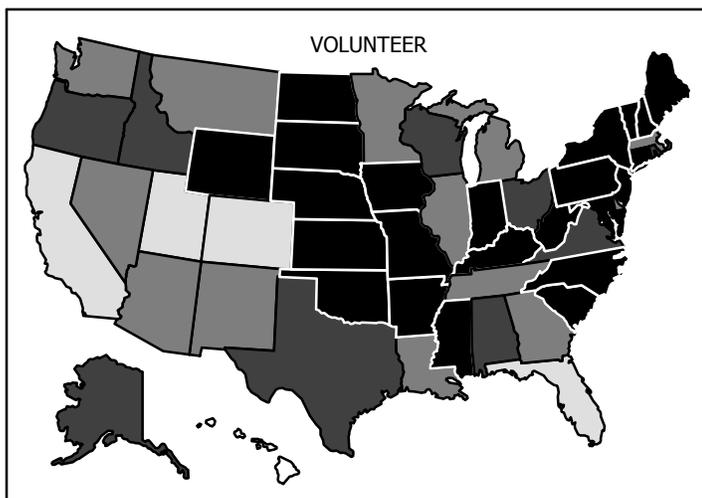
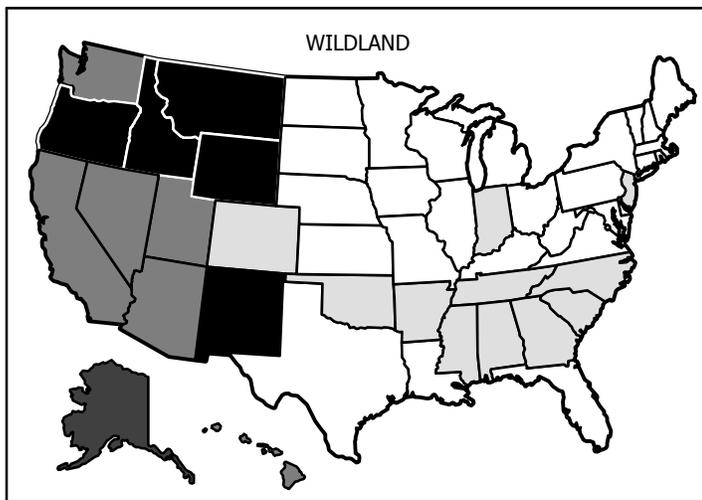
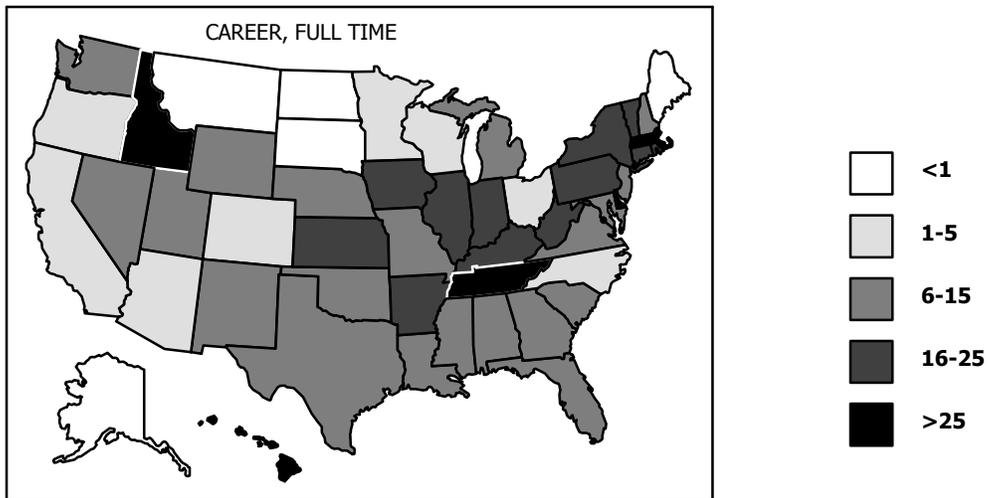


Figure 28. Firefighter Fatalities, by Type of Incident Per 10 Million Population

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)

Type of Incident	New York	Pennsylvania	California	Texas	Minnesota, Wisconsin, Michigan	Florida	Ohio
Population	18,483,456	12,081,349	31,815,835	18,919,165	19,391,882	14,460,152	11,100,128
PERCENT*							
Structural Fire/ Explosion	56	60	20	37	68	40	47
Wildland/Brush/ Grass Fire	2	1	52	25	9	27	10
Nonstructural Fire/Explosion	7	4	0	17	3	0	7
Fire Alarm	4	4	0	0	3	0	0
Motor Vehicle Collisions	20	16	10	10	9	0	10
EMS	3	9	2	4	0	20	10
Water Rescue	0	3	3	0	3	0	3
Confined Space/ Trench Rescue	0	0	2	0	0	0	0
False Call	0	1	0	0	0	0	0
Training	7	3	11	8	6	13	13
Total	100	100	100	100	100	100	100

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

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

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

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

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

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

*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

Data Element	Florida		Pennsylvania	
Average Age	39 years		47 years	
Rank	Firefighter Assistant/Deputy Chief Fire Chief	50% 17% 11%	Firefighter Fire Police Officer Assistant/Deputy Chief	67% 16% 5%
Gender	Male Female	95% 5%	Male Female	99% 1%
Nature of Fatal Injury	Cardiac Arrest Trauma (internal or head) Burns/Asphyxiation	41% 32% 23%	Cardiac Arrest Burns/Asphyxiation Trauma (internal or head)	48% 25% 23%
Type of Duty	Extinguishing Fire/ Neutralizing Incident Other Duties on Emergency Scene EMS	32% 16% 16%	Extinguishing Fire/ Neutralizing Incident En Route/Responding Traffic Control	27% 24% 13%
Affiliation	Full-Time Career Volunteer Wildland, Full-Time	68% 27% 5%	Volunteer Full-Time Career Paid Part-Time	77% 22% 1%
Type of Agency	Career Volunteer Combination	50% 25% 25%	Volunteer Career Combination	76% 22% 4%
Month of Year	August September July	18% 18% 14%	January August December	18% 10% 10%
Type of Incident	Structure Fire/Explosion Wildland/Grass/Brush Fire EMS	40% 27% 20%	Structural Fire/Explosion MVC EMS	60% 16% 9%
Cause of Fire (if a fire incident)	Arson Natural	60% 40%	Arson Electrical Distribution Heating	40% 15% 10%

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 Census, 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.

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

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

Number of Incidents	Fatalities per Incident	Fatalities	Percent of Firefighter Fatalities
893	1	893	82
59	2	118	11
12	3	36	3
3	4	12	1
2	6	12	1
1	14	14	1
970	30	1,085	100

Fatalities:	1,085
Incidents:	970

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

Nature of Fatal Injury	Firefighters in Multiple-Fatality Incidents	Firefighters in Single-Fatality Incidents
Asphyxiation	32%	7%
Burns	12%	2%
Burns/Asphyxiation	15%	2%
Cardiac Arrest/Heart Attack	1%	53%
Drowning	3%	2%
Electric Shock	3%	1%
Gunshot	3%	0%
Trauma	32%	26%
Stroke/CVA	0%	2%
Total	100%	100%

<i>Multiple Fatality</i>	
Sample size:	190
Valid entries:	188
Invalid entries:	2

<i>Single Fatality</i>	
Sample size:	895
Valid entries:	886
Invalid entries:	9

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 fire-ground. 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 12. Nature of Fatal Injury, Wildland Firefighters vs. Non-Wildland Firefighters (1990–2000)

Nature of Fatal Injury	Wildland*	Non-Wildland
Asphyxiation	2%	12%
Burns	4%	4%
Burns/Asphyxiation	23%	3%
Cardiac Arrest/Heart Attack	7%	47%
Drowning	1%	2%
Electric Shock	2%	2%
Trauma	58%	24%
Other Medical	1%	1%
Stroke/CVA	1%	1%
Total	100%	100%

*Including contract personnel and prisoners

<i>Wildland Fatality</i>	
Valid entries:	83
Valid entries:	83
Invalid entries:	0

<i>Non-Wildland Fatality</i>	
Sample size:	1,002
Valid entries:	992
Invalid entries:	10

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, fire-ground, 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 fire-ground
- 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.

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 an 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 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

The Aftermath of Firefighter Fatality Incidents: Preparing for the Worst. United States Fire Administration, Technical Report Series, Report 089.

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

Wildland Firefighter Fatalities in the United States 1990–1998. United States Department of Agriculture, Forestry Service. The report can be downloaded at the Website.

<http://www.usfa.fema.gov/pdf/wildff90-98.pdf>

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> or

United States Fire Administration
Publications Center
16825 South Seton Avenue
Emmitsburg, MD 21727
1-800-561-3356
<http://www.usfa.fema.gov/pdf/usfapubs/fa-156.pdf>

Guide for Investigation of a Line of Duty Death, IAFC. This guide, developed by ICHIEFS Health and Safety Committee, contains procedures and strategies for detailed investigations of line-of-duty deaths and injuries.

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>

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
<http://www.firehero.org/>

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-SIGNAL13 (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.

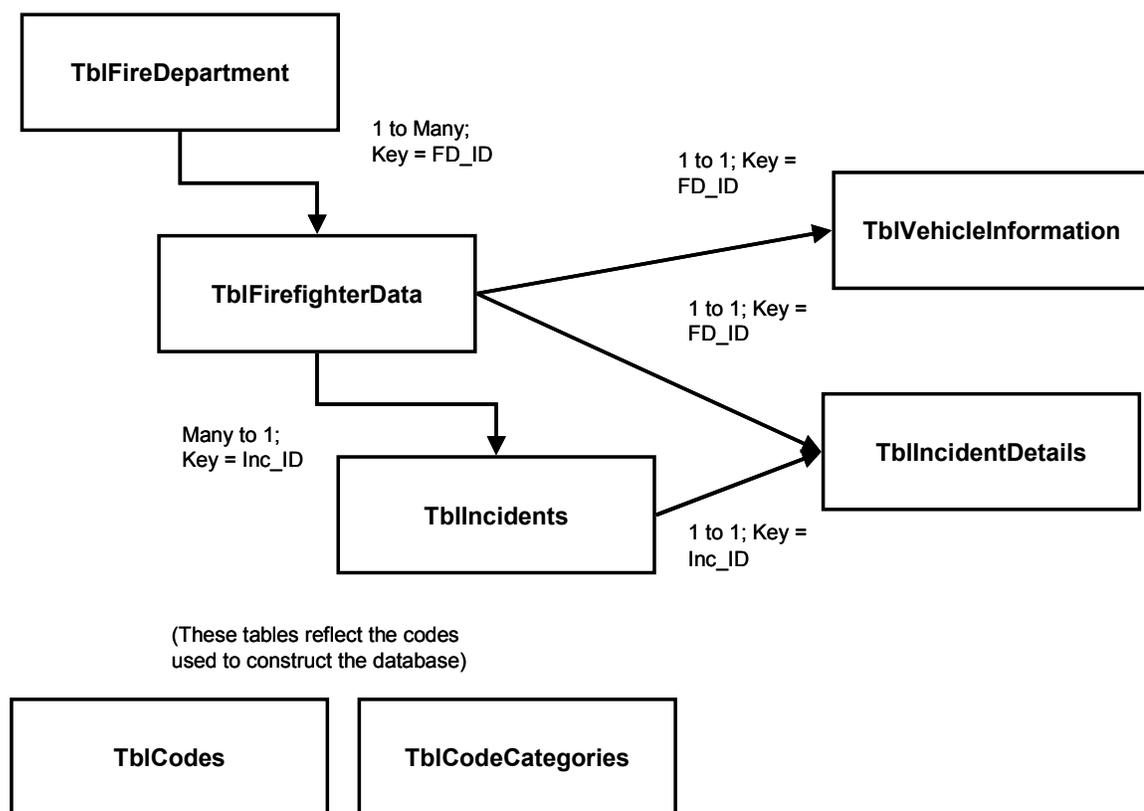


Figure 29. Entity Relational Diagram, Firefighter Fatality Database

Field Names and Description of Data

FIELD NAME	DESCRIPTION
TblCodes	
Code_ID	Structural number used to create the database.
Code_Category	Identifies the data element that the code belongs to
Code_Value	Numeric identifier of data elements for ease of data entry.
Code_Description	Verbal description of code value
Code_Example	Examples to facilitate coding as used in NFIRS coding guide
TblCode_Categories	
Cat_ID	Structural number used to create the database
Cat_Code	Identifies the data element that the code belongs to
Cat_Description	Verbal description of the code values that appear on the Firefighter Fatality Data Collection form
TblFirefighterData	
FF_ID	Decedent identifier used to link information in queries
Inc_ID	Incident identifier, used to link information in queries
FD_ID	Fire department identifier, used to link information in queries
Last Name	Last name of decedent
First Name	First name of decedent
Middle Initial	Middle name or initial of decedent
Rank	Decedent's rank or position in the fire service
Other	Rank not listed above
Gender	Decedent's sex
FF_Year_Birth	Year in which decedent was born
Date of Birth	Decedent's birth date
Affiliation	Decedent's occupational classification with fire department or agency (i.e. career, volunteer, etc.)
FF_Affiliation	Affiliation not listed above
FF_Month_Injury	Month in which decedent's fatal injury occurred
FF_Year_Injury	Year in which decedent's fatal injury occurred
Date of Injury	Date on which decedent's fatal injury occurred
FF_Hour_Injury	Hour in which decedent's fatal injury occurred
Time of Injury	Time of decedent's fatal injury
FF_Month_Death	Month in which decedent's death occurred
FF_Year_Death	Year in which decedent's death occurred
Date of Death	Date of decedent's death
FF_Hour_Death	Hour in which decedent's death occurred
Time of Death	Time of decedent's death
Pre-Existing Conditions	Unused field, all data has been copied to PEC checkboxes
Other	Pre-existing condition not listed under the PEC checkboxes
Smoker within 10 years of death?	Checked if the decedent's records indicate that he smoked within 10 years of his death
Age	Age of decedent at time of fatal injury
FF_Age at Death	Age of decedent at death
FF_PEC_1	Pre-existing condition, checked if the decedent's records indicate that he had a prior heart attack
FF_PEC_2	Pre-existing condition, checked if the decedent's records indicate that he had heart bypass surgery
FF_PEC_3	Pre-existing condition, checked if the decedent's records indicate that he had a cardiovascular condition not described elsewhere
FF_PEC_4	Pre-existing condition, checked if the decedent's records indicate that he had arteriosclerosis

FF_PEC_5	Pre-existing condition, checked if the decedent's records indicate that he had hypertension
FF_PEC_6	Pre-existing condition, checked if the decedent's records indicate that he had diabetes
FF_PEC_7	Pre-existing condition, checked if the decedent's records indicate that he was dehydrated
FF_PEC_8	Pre-existing condition, checked if the decedent's records indicate that he was fatigued
FF_PEC_9	Pre-existing condition, checked if the decedent's records indicate that he had blood clots
FF_PEC_10	Pre-existing condition, checked if the decedent's records indicate that he had a virus or infection
FF_PEC_11	Pre-existing condition, checked if the decedent's records indicate that he had asthma
FF_PEC_12	Pre-existing condition, checked if the decedent's records indicate that he had anemia
FF_PEC_13	Pre-existing condition, checked if the decedent's records indicate that he suffered from seizures
FF_PEC_14	Pre-existing condition, checked if the decedent's records indicate that he had an embolism
FF_PEC_15	Pre-existing condition, checked if the decedent's records indicate that he had an aneurysm
FF_PEC_16	Pre-existing condition, checked if the decedent's records indicate that he had a stroke or cerebral vascular accident (CVA)
FF_PEC_17	Pre-existing condition, checked if the decedent's records indicate that he had pulmonary disease
FF_PEC_18	Pre-existing condition, checked if the decedent's records indicate that he was hearing or vision impaired
FF_PEC_19	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
Incomplete	Checked if information on the decedent is substantially incomplete
TblIncidents	
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
TblIncidentDetails	
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

Incident in Vacant/Abandoned Structure?	Indicates whether the incident involved a vacant or abandoned structure
High-rise Incident?	Indicates whether the incident involved a high-rise building
FI_TrainingActivity	Indicates the type of training activity the decedent was involved in, if any
If training activity, what kind?	Other training activity not classified above
Vehicle Accident/Collision Rollover?	Indicates if decedent was involved in a vehicle accident
Alcohol factor in death?	Indicates if records report the presence of alcohol in decedent's blood
Drugs factor in death?	Indicates if records report the presence of legal or illegal drugs in decedent's body
PASS Worn?	Indicates if records mention that decedent was wearing a PASS device
PASS Status?	Indicates if records mention that decedent's PASS device was in the on or off position
PASS Activated?	Indicates if records mention that decedent's PASS device was activated
PPE Worn?	Indicates if records mention that decedent was wearing PPE
SCBA Worn?	Indicates if records mention if decedent was wearing SCBA
Air Supply Depleted?	Indicates if records mention that the decedent was found with his air supply depleted
Equipment Defects?	Indicates if records report any pre-existing problems with decedent's equipment
Type of Defective Equipment	Unused field, all data has been copied to FI_TOE check-boxes
Other	Field for equipment defects not listed under FI_TOE check-boxes
Contributing Factors	Unused field, all data has been copied to FI_CNF check-boxes
Other	Field for contributing factors not listed under FI_CNF check-boxes
Documented Carboxyhemoglobin Level	Carboxyhemoglobin level as reported in decedent's records
Nature of Fatal Injury	The primary apparent symptom the decedent experienced as a result of his fatal injury
Injury Cause Category	Major headings from NFIRS 4.1 cause of injury
Cause of Injury	The cause of a decedent's fatal injury based upon NFIRS 4.1
PSOB Case #	The case number assigned to the claim of a decedent's family under the Public Safety Officer's Benefit Program
PSOB Approval Status	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
Autopsy performed	Indicates whether an autopsy was performed on decedent
Autopsy copy in file?	Indicates whether a copy of the decedent's autopsy is on file
Source of data	Unused field, all data has been copied to FI_SRC check-boxes
Other	Field for contributing factors not listed under FI_SRC check-boxes
FI_CNF_1	Contributing factor to decedent's death as reported by NIOSH or the NFPA, checked if the contributing factor was a human communication error
FI_CNF_2	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
FI_CNF_3	Contributing factor to decedent's death as reported by NIOSH or the NFPA, checked if the contributing factor was due to insufficient resources

FI_CNF_4	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
FI_CNF_5	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
FI_CNF_6	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)
FI_CNF_7	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
FI_CNF_8	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
FI_SRC_1	Source of data used in the database, checked if the source is the PSOB
FI_SRC_2	Source of data used in the database, checked if the source is the USFA
FI_SRC_3	Source of data used in the database, checked if the source is TriData's files
FI_SRC_4	Source of data used in the database, checked if the source is IOCAD
FI_SRC_5	Source of data used in the database, checked if the source is the NFPA
FI_SRC_6	Source of data used in the database, checked if the source is the NVFC
FI_SRC_7	Source of data used in the database, checked if the source is NIOSH
FI_SRC_8	Source of data used in the database, checked if the source is the IAFF
FI_SRC_9	Source of data used in the database, checked if the source is the Fallen Firefighter's Foundation
FI_SRC_10	Source of data used in the database, checked if the source is from the internet
FI_SRC_11	Source of data used in the database, checked if the source is from the media
FI_SRC_12	Source of data used in the database, checked if the source is the decedent's death certificate
FI_SRC_13	Source of data used in the database, checked if the source is the decedent's autopsy
FI_SRC_14	Source of data used in the database, checked if the source is the decedent's hospital records
FI_SRC_15	Source of data used in the database, checked if the source is from the decedent's fire department.
FI_SRC_16	Source of data used in the database, checked if the source is the decedent's toxicology report
FI_SRC_17	Source of data used in the database, checked if the source is an eyewitness statement
FI_SRC_18	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
FI_TOE_1	Type of equipment defect, checked if the defective equipment is the SCBA
FI_TOE_2	Type of equipment defect, checked if the defective equipment is the PASS device
FI_TOE_3	Type of equipment defect, checked if the defective equipment is the radio

FI_TOE_4	Type of equipment defect, checked if the defective equipment is the helmet
FI_TOE_5	Type of equipment defect, checked if the defective equipment is the PPE
FI_TOE_6	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
TblFireDepartment	
FD_ID	Fire department specific record identifier, used to link the information in queries
FD_Name	Name of the decedent's fire department
FD_City	City where the fire department is located
FD_State	State where the fire department is located
FD_Zip	Zip code where the fire department is located
FD_US_Protectorate	Checked if the fire department is located in a territory of the United States
FD_IncidentZip	Zip code if the incident occurred far from the decedent's home fire department
Community_Population Size	Size of the fire department's response area
Latitude	Latitude of the fire department based on the fire department's zip code
Longitude	Longitude of the fire department based on the fire department's zip code
X-Y Coordinates	Unused field
Type of Agency	Describes the type of organization decedent belonged to (i.e. volunteer, prison brigade, etc.)
Other	Type of agency not listed above
TblVehicleInformation	
FF_ID	Decedent identifier used to link information in queries
Decedent's Status in Vehicle	Indicates whether decedent driving the vehicle or a passenger in the vehicle
Location in Vehicle	Indicates location of decedent in vehicle when injury occurred
VI_LocationInVehicle_Other	Location in vehicle not listed above
Type of Vehicle	Describes the apparatus or POV that decedent was driving or a passenger in
VI_TypeofVehicle_Other	Type of vehicle not listed above
Wearing Seatbelt?	Indicates if records mention that decedent wore a seatbelt
Was Ejected?	Indicates if records mention if decedent was ejected from vehicle
Driver Speeding?	Indicates if the decedent or the driver of the vehicle in which the decedent was riding was speeding

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.

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

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 seat-belt 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.

- 1 Yes
- 2 No
- 3 Unknown
- 4 Not Applicable

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

- 3 Battalion/District Chief
- 4 Captain
- 5 Lieutenant
- 6 Sergeant
- 7 Engineer
- 8 Firefighter
- 9 Paramedic
- 10 EMT
- 11 Pilot
- 12 Forestry Worker
- 13 Forestry Technician
- 14 Fire Police Officer
- 15 Auxiliary Member
- 16 Fire Marshal
- 17 Inspector
- 18 Junior Firefighter
- 19 Recruit/Probationary
- 20 Other

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

- 1 Paid (Full-time)
- 2 Paid (Part-time)
- 3 Volunteer
- 4 Contract
- 5 Inmate/Prisoner
- 6 Military
- 7 Wildland (Full time)
- 8 Wildland (Fart time)
- 9 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.

- 1 Prior Heart Attack
- 2 Heart Bypass
- 3 Cardiovascular Other
- 4 Arteriosclerosis
- 5 Hypertension
- 6 Diabetes
- 7 Dehydration
- 8 Fatigue
- 9 Blood Clots
- 10 Virus/Infection
- 11 Asthma
- 12 Anemia
- 13 Seizures
- 14 Embolism
- 15 Aneurysm
- 16 Stroke/CVA
- 17 Pulmonary Disease
- 18 Hearing/Vision Impaired
- 19 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.

- 1 Yes
- 2 No
- 3 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.

1. Fell/Slipped	
101	In hole, outside structure.
102	In hole burned in floor
102	In hole burned in roof
103	In unguarded opening in floor.
104	In unguarded opening in roof.
105	Over object.
106	On wet surface.
107	On icy surface.
108	On flat surface.
109	On steps/stairs.
110	From ladder.
111	From structure.
112	From emergency apparatus (safety bar/belt not fastened).
113	From emergency apparatus (safety bar/belt failed).
114	In or into emergency apparatus.
115	Off station sliding pole.
116	Over/off curb.
199	Fell/Slipped not classified above.
100	Fell/Slipped; insufficient information to classify further.
2. Caught/Trapped — In, By, Between	
201	Collapsing roof.
202	Collapsing wall.
203	Collapsing floor.
204	Collapsing ceiling.
205	Fire progress.
206	Back draft.
207	Flashover
208	Explosion.
209	Falling object(s).
210	Between objects.
211	Lost inside building.
212	Fire department apparatus.
213	Earth cave-in.
214	Underwater object(s) or obstacle(s).
299	Caught/Trapped not classified above.
200	Caught/Trapped; insufficient information to classify further.
3. Struck By	
Use when injury-producing object moved toward injured person.	
301	Collapsing roof.
302	Collapsing wall.
303	Collapsing ceiling.
304	Pieces of wall.
305	Ceiling being pulled by self.
306	Ceiling being pulled by others.
307	Dirt particles.
308	Flying glass.
309	Glass broken by self.
310	Glass broken by others.
311	Water stream, hand line.
312	Water stream, master stream.

313	Portable extinguisher stream.
314	Ladder.
315	Hand tools/equipment.
316	Hose.
317	Coupling.
318	Fire department apparatus.
319	Non-fire department vehicle.
320	Falling object(s).
321	Thrown objects, non-malicious (see 803 for Malicious).
322	Apparatus and compartment doors.
323	Other doors.
324	Fire station equipment.
325	Other personnel (not intentional).
399	Struck By to classified above.
300	Struck By; insufficient information to classify further.
4. Contact with/Exposure to	
401	Heat.
402	Embers.
403	Hot metal.
404	Hot tar, etc.
405	Fire.
406	Splinters.
407	Nails.
408	Glass.
409	Water.
410	Steam.
411	Smoke/toxic fire products.
412	Unusual fumes, gases.
413	Chemicals.
414	Radioactive material.
415	Electricity.
416	Utility flames, flairs, torches, etc.
417	Underwater objects.
418	Insects.
419	Poisonous plants.
420	Contagious disease.
421	Extreme weather.
499	Contact with/Exposure to not classified above.
400	Contact with/Exposure to; insufficient information to classify further.
5. Overexertion/Strain	
Use if related to the activity at the time injury is received.	
501	While lifting hose.
502	While lifting ladder.
503	While lifting hand tools, saws, etc.
504	While lifting victim (during rescue from fire operation).
505	While lifting property/contents.
506	While lifting during rescue operation.
507	While lifting other, not classified above.
508	While carrying hose.
509	While carrying ladder.
510	While carrying hand tools, saws. etc.
511	While carrying victim (during rescue from fire operation).
512	While carrying property/contents.
513	While carrying during rescue operation.
514	While carrying, not classified above.
515	While pulling hose.

516	While pulling ladder.
517	While pulling hand tools, saws, etc.
518	While pulling victim (during rescue from fire operation).
519	While pulling property/contents.
520	While pulling during rescue operation.
521	While pulling other, not classified above.
522	While in rescue operation.
523	While climbing ladders.
524	While climbing stairs.
525	While climbing cliff or wall.
526	While climbing not classified above.
599	Overexertion/Strain not classified above.
500	Overexertion/Strain; insufficient information to classify further.
6. Exiting or Escaping — Jumped	
601	From ladder.
602	From wall, ledge, or window.
603	From roof.
604	From other part of structure.
605	From fire department apparatus.
699	Exiting or Escaping — Jumped not classified above.
600	Exiting or Escaping — Jumped; insufficient information to classify further.
7. Fire Department Apparatus Accident	
701	Collision with other vehicle.
702	Collision with pedestrian
703	Collision with stationary object(s).
704	Collision not classified above.
705	Collision; insufficient information available to classify further.
706	Left road (no collision).
707	Overtaken (no collision).
799	Fire Department Apparatus Accident not classified above.
700	Fire Department Apparatus Accident; insufficient information available to classify further.
8. Assaulted	
801	Struck by individual(s) (deliberate act).
802	Struck by individuals (crowd action pushing or shoving).
803	Struck by thrown object(s).
804	Cut/stabbed.
805	Gunshot.
806	Bitten.
899	Assault not classified above.
800	Assault; insufficient information available to classify further.
9. Other Cause	
999	Cause of Fire Fighter Injury not classified above.
000	Cause of Fire Fighter Injury undetermined or not reported

Miscellaneous

PSOB Case #

PSOB Approval Status

- 1 Approved
- 2 Denied
- 3 Unknown, Other

Autopsy performed?

- 1 Yes
- 2 No
- 3 Unknown

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.

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Firefighter Fatality Summaries

April 2002



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

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Firefighter Fatality Summaries 1990 - 2000

April 2002

Prepared by:

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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

Date of Incident	Full Name	Affiliation	State	Department
1/1/90	Joseph M. Wilt	Volunteer	IA	West Burlington Fire Dept
1/1/90	William T. Klein	Volunteer	IA	West Burlington Fire Dept
1/10/90	James E. White	Career	TX	Carswell AFB Fire Dept
1/15/90	Carrol D. Marvel	Volunteer	AL	Valley Vol Fire Dept
1/18/90	Francis N. McKenzie	Volunteer	ME	Newport Fire Dept
1/18/90	Gary M. Passaro	Volunteer	CT	Tolland Fire Dept
1/26/90	John W. Folds	Volunteer	GA	Heard County Emergency Services
1/28/90	Robert T. Crutchfield, III	Career	VA	Danville Fire Dept
1/28/90	Vernon D. Deshazor	Career	VA	Danville Fire Dept
1/28/90	Willard C. Kuhn	Unknown	PA	Goodwill Fire Co #1
1/29/90	Ronald L. Stroud	Career	OK	Nichols Hills Fire Dept
2/19/90	Clayton M. Cutter	Career	CA	USDA Forest Service
2/19/90	Ingrid H. Sowle	Volunteer	NY	Port Washington Fire Dept
2/19/90	Vidar D. Anderson	Volunteer	CA	Long Valley Fire Dept
2/20/90	Richard A. Havens	Volunteer	MI	A1mont Fire Dept
2/20/90	Richard V. Brekrus	Career	IN	South Bend Fire Dept
2/26/90	Dale M. Seib	Volunteer	NY	Plainville Fire Dept
3/10/90	Roger A. Houghton	Volunteer	MA	Templeton Fire Dept
3/11/90	Robert E. Lee	Volunteer	SC	Cowpens Fire Dept
3/13/90	Robert L. Hitchcock	Volunteer	NY	Blenheirn Hose Co
3/18/90	Floyd M. Price	Volunteer	VA	Luray Vol Fire Dept
3/18/90	John L. Kelley, Jr.	Volunteer	NY	Canisteo Vol Fire Dept
3/26/90	James D. Straub	Volunteer	MO	Western Taney County Fire Protection Dist
3/30/90	William P. Grimes	Volunteer	WV	Cool Springs Vol Fire Dept
4/6/90	Nicholas W. Hart	Volunteer	IN	Moorefield Community Fire Dept #1
4/8/90	Edward P. Dougherty, Jr.	Volunteer	OK	Fallis Rural Fire Fighters Association
4/19/90	Karl J. Drews	Career	FL	San Carlos Park Fire Dist
4/19/90	Kaye F. Anderson	Career	FL	Upper Captiva Vol Fire Dept
4/21/90	Anthony L. Boyert	Career	SC	St. Paul's District Fire Dept
4/22/90	Curtis C. Thomason	Volunteer	GA	Cornelia Fire Dept
5/1/90	James E. Chestnut, Jr.	Volunteer	PA	Hustontown Area Vol Fire Co
5/1/90	Richard L. Hershey	Volunteer	PA	Hustontown Area Vol Fire Co
5/1/90	Thomas L. Lane	Volunteer	PA	Hustontown Area Vol Fire Co
5/7/90	Mathe A. Alexander	Volunteer	MS	Long Creek Vol Fire Dept
5/10/90	Heriberto T. Rivera	Career	CT	Waterbury Fire Dept
5/10/90	Howard A. Hughes	Career	CT	Waterbury Fire Dept

Date of Incident	Full Name	Affiliation	State	Department
5/12/90	William McAdams	Volunteer	OR	Aurora Rural Fire Protection Dist
5/13/90	Mark A. Wunch	Volunteer	PA	Lake Shore Vol Fire Dept
5/15/90	James R. Ray	Career	AL	Montgomery Fire Dept
5/17/90	Robert L. Adams, Sr.	Volunteer	PA	Cresson Vol Fire Dept
5/17/90	Thomas N. Bianconi	Volunteer	PA	Cresson Vol Fire Dept
5/23/90	Hector M. Segura	Career	MA	Haverhill Fire Dept
5/28/90	Jerry A. Reed	Volunteer	MN	Deer River Fire Dept
6/1/90	Daniel R. Joslyn	Volunteer	NY	Maple Springs Vol Fire Dept
6/13/90	Frederick J. Heimann, Jr.	Volunteer	PA	Neffs Fire Co
6/14/90	Karl Richter	Volunteer	NY	Wantagh Fire Dept
6/17/90	Curtis McClain	Volunteer	WV	Ravenswood Aluminum Co. Security & Fire Protection
6/17/90	Peter Baltic	Volunteer	WV	Ravenswood Aluminum Co. Security & Fire Protection
6/19/90	James Goode, Jr .	Career	DE	Wilmington Fire Dept
6/19/90	Thomas D. Brashears	Career	KY	Hopkinsvil1e Fire Dept
6/20/90	Ken M. Herington	Volunteer	IL	Washburn Fire Protection Dist
6/26/90	Alex S. Contreras	Volunteer	AZ	Arizona State Land Dept
6/26/90	Curtis E. Springfield	Volunteer	AZ	Arizona State Land Dept
6/26/90	James E. Ellis	Volunteer	AZ	Arizona State Land Dept
6/26/90	James L. Denney	Volunteer	AZ	Arizona State Land Dept
6/26/90	Joseph L. Chacon	Volunteer	AZ	Arizona State Land Dept
6/26/90	Sandra J. Bachman	Volunteer	AZ	Arizona State Land Dept
6/27/90	Aaron J. Perry	Volunteer	CA	California Dept of Forestry & Fire Protection
6/27/90	Victor Ferrera	Volunteer	CA	California Dept of Forestry & Fire Protection
6/30/90	Michael E. Van Calbergh	Volunteer	MI	Gibraltar Fire Dept
7/9/90	Daniel J. Raskin	Volunteer	MD	Chestnut Ridge Vol Fire Co
7/10/90	Fred R. Garber	Volunteer	PA	New Danville Fire Co
7/14/90	Edwin L. Simpson	Volunteer	NY	Mellenville Vol Fire Dept
7/17/90	George J. Karl	Volunteer	NY	Main Transit Fire Dept
7/27/90	John J. Meyer	Volunteer	OH	Craig Beach Village Fire Dept
7/28/90	Leonard E. Mills, Sr.	Career	TX	Midland Fire Dept
7/30/90	Mark A. Moore	Career	CA	USDA Fire Service
8/6/90	Toni J. Godsil	Volunteer	WA	Grand Coulee Vol Fire Dept
8/13/90	Kenneth E. Enslow	Career	CA	California Dept of Forestry & Fire Protection
8/15/90	Julius C. Starr	Career	OR	USDA Forest Service
8/21/90	Rufus J. Harrison	Volunteer	FL	Wetumpka Vol Fire Dept

Date of Incident	Full Name	Affiliation	State	Department
8/22/90	Mark E. Polan	Volunteer	VA	Blacksburg Vol Fire Dept
8/24/90	Barry M. Gray	Volunteer	KY	East Golden Pond Vol Fire Dept
8/25/90	Thomas Weeks	Volunteer	MD	Level Vol Fire Co
8/26/90	Blake V. Wright	Career	UT	Utah State Lands and Forestry
8/26/90	Ralph M. Broadhead	Career	UT	Utah State Lands and Forestry
9/6/90	Todd D. Colton	Career	KS	Sedgewick County Fire Dept
9/11/90	Robert P. Wiebe	Volunteer	WA	Colville Indian Agency, Contractor to BIA
9/23/90	Paul E. Caywood, Sr.	Volunteer	NY	Fabius Fire Dept
9/25/90	Robert J. Ely	Volunteer	IL	Holbrook Fire Dept
9/30/90	Ralph F. Glasgow	Volunteer	WA	USDA Forest Service -Contractor
9/30/90	Stephen E. Bovey	Volunteer	WA	USDA Forest Service -Contractor
10/11/90	George S. Labance	Volunteer	NJ	Franklin Fire Dept
10/12/90	Steve L. Giradot	Volunteer	GA	Damascus Rural Vol Fire Dept
10/19/90	Ronnie E. Hoots	Volunteer	NC	Edneyville Fire and Rescue Dept
10/20/90	Charles R. Lowery, II	Volunteer	NC	Lowell Vol Fire Dept
10/24/90	Lydia A. Sexton	Volunteer	TX	Spillway Fire Dept
10/27/90	Bruce A. Rhinehart	Career	NY	Jamestown Fire Dept
11/1/90	Lance J. Petersen	Career	CA	Oakland Fire Dept
11/5/90	Richard A. Penning	Unknown	WI	Kohler Fire Dept
11/11/90	Bennie B. Collins	Career	CA	Los Angeles City Fire Dept
11/13/90	Timothy M. Stine	Volunteer	PA	Lebanon City Bureau of Fire
11/14/90	Ronnie M. McAndrew	Career	TX	Arlington Fire Dept
11/18/90	Gene K. Cople	Volunteer	NE	Homer Vo1 Fire Dept
11/30/90	William F. Carter, Sr.	Volunteer	NY	Alcan Rolled Products Co. Fire Brigade
12/10/90	Robbie Davis	Volunteer	TN	Newmansville Vol Fire Dept
12/11/90	Robert J. Drennan	Volunteer	MS	Collins Vol Fire Dept
12/16/90	Thomas E. Hicks	Volunteer	PA	Citizens Vol Fire Co
12/20/90	James C. Winters	Career	FL	Spring Hill Fire and Rescue Dist
12/21/90	Edgar Dear	Volunteer	TX	Somerset Vol Fire Dept
12/22/90	Ralph L. Hoppenjans	Volunteer	IN	Ferdinand Vol Fire Dept
12/23/90	Thomas H. Maxeiner	Career	IL	Decatur Fire Dept
12/24/90	Loren N. Christian	Volunteer	WA	Chewelah Fire Dept
12/27/90	Leon L. Benton	Career	FL	Jacksonville Fire Dept
12/30/90	Ray J. Shenefield	Volunteer	KY	John's Creek Vol Fire Dept
1/1/91	Frank A. Quadrel	Career	NJ	Montclair Fire Dept
1/9/91	James E. Howe	Career	CA	Los Angeles County Fire Dept
1/10/91	Charles Love	Volunteer	MI	Boardman Twp Fire Dept
1/10/91	Edward W. Murdock, Sr.	Volunteer	NY	Port Ewen Fire Dept

Date of Incident	Full Name	Affiliation	State	Department
1/12/91	Curtis D. Mikkelsen	Volunteer	SD	Hurley Vol Fire Dept
1/17/91	George Hollowniczky	Volunteer	PA	Summer-Hill Twp Vol Fire Dept
1/17/91	John A. Nicosia	Career	NJ	Paterson Dept of Public Safety
1/19/91	Ronald C. Altieri	Career	CT	Hamden Fire Dept
1/20/91	Lynn E. Maricle	Volunteer	VA	Front Royal Vol Fire Dept
1/25/91	Robert Henry	Volunteer	MD	Trappe Vol Fire Dept
1/26/91	Edward E. Soper	Volunteer	PA	Leraysville-Pike Vol Fire Dept
1/27/91	John N. Plummer	Career	MD	Baltimore City Fire Dept
1/28/91	Brian T. Dillon	Career	NY	Buffalo Fire Dept
2/15/91	Robert F. Million	Volunteer	AZ	Avra Valley Fire Dist
2/15/91	William H. Marshall, Jr.	Volunteer	NY	Roosevelt Fire Dist
2/16/91	Joseph J. Alfred	Career	TX	Galveston Fire Dept
2/23/91	Wylie J. Morvant	Volunteer	LA	Coteau Vol Fire Dept
2/24/91	David E. Holcombe	Career	PA	Philadelphia Fire Dept
2/24/91	James A. Chappell	Career	PA	Philadelphia Fire Dept
2/24/91	Phyllis McAllister	Career	PA	Philadelphia Fire Dept
3/1/91	Marshal E. Vioria	Volunteer	CA	Newberry Springs Vol Fire Dept
3/5/91	Alfred E. Ronaldson	Career	NY	New York City Fire Dept
3/7/91	James E. Dame	Career	WY	Natrona County Fire Dept
3/8/91	Randall P. McDonald	Volunteer	MO	Caruthersville Fire Dept
3/12/91	Donald V. Mello	Career	CA	Los Angeles City Fire Dept
3/13/91	Eugene Miller	Volunteer	NY	Port Chester Fire Dept
3/13/91	Jennifer L. Kibbey	Volunteer	OH	Hilliar Twp -Centerburg Vol Fire Dept
3/15/91	Daniel E. Wannagot	Volunteer	CT	Shelton Fire Dept
3/15/91	Lou Falconer	Volunteer	CA	Boulevard Fire & Rescue Dept
3/19/91	Joseph D. Farrell	Volunteer	NY	Bayport Fire Dept
3/24/91	Donald I. Daughenbaugh	Volunteer	MI	Romulus Fire Dept
3/26/91	Frank L. Butler	Volunteer	KS	Marysville Vol Fire Dept
3/28/91	Alston F. Hill, Sr.	Volunteer	NY	Jamison Road Fire Dept
3/30/91	Robert L. Parker	Volunteer	VT	East Montpelier Vol Fire Dept
4/4/91	Brooks Cowgill	Volunteer	OH	Plain Twp Fire Dept
4/13/91	L. Wayne Struble	Volunteer	AZ	Williamson Valley Vol Fire Dept
4/14/91	John H. Spencer	Career	IL	Quincy Fire Dept
4/15/91	Timothy P. Scarborough	Volunteer	WV	Amstrong Creek Vol Fire Dept
5/28/91	Michael Moriarty	Volunteer	CT	Canterbury Vol Fire Co
5/31/91	Scott T. Laverty	Volunteer	NY	Hempstead Fire Dept
5/31/91	William F. Martin	Career	ID	USDA Forest Service, Nezperce National Forest
6/1/91	Eddie Arthur	Career	MD	Baltimore City Fire Dept

Date of Incident	Full Name	Affiliation	State	Department
6/9/91	Alfornia Hollis	Career	GA	Atlanta Fire Dept
6/9/91	Charles H. Boyle	Volunteer	PA	Greenwood hose Co #1
6/19/91	Daniel G. Paris	Volunteer	PA	Oscoluwa Engine and Hose Co
6/21/91	Henry Young Hi Kim	Career	NM	USDA Forest Service
6/21/91	Randolph F. Belcher	Volunteer	NY	Horseheads Fire Dept
6/22/91	Steven E. Bryant	Volunteer	KY	Feds Creek Fire Dept
6/24/91	Albert F. Robibero	Volunteer	NJ	Stanhope Fire Dept
6/25/91	James Hugh Lee	Volunteer	NC	Wilson's Mills Vol Fire Dept
6/29/91	Robert D. Morris, II	Career	SC	Charleston City Fire Dept
7/2/91	Marshall F. Sarles	Volunteer	NY	Mamaroneck Village Fire Dept
7/5/91	James T. Swindle	Volunteer	TN	Sumner County Vol Fire Dept
7/6/91	Wayne Ronald Russell	Career	FL	Orange County Fire Dept.
7/7/91	John G. Dugan	Volunteer	PA	Jim Thorpe Fire Dept
7/11/91	Joseph P. Kail	Volunteer	MI	New Buffalo City Fire Dept
7/16/91	Russell E. Dunham	Volunteer	NY	Highland Hose Co #1, Inc
7/26/91	Gifford Keeth	Career	CA	USDA Forest Service, Stanislaus National Forest
7/28/91	Raymond L. Bryant	Volunteer	MS	Bailey Vol Fire Dept
8/8/91	Jerry Brooks	Volunteer	SC	North Greenville Fire Dept
8/19/91	Robert J. Lucier, Sr.	Volunteer	NY	Alplaus Vol Fire Dept
8/21/91	Wayne L. Pulley	Career	CA	Ventura County Fire Dept
9/2/91	James D. Sapp	Career	FL	New Smyrna Beach Fire Dept
9/2/91	Mark A. Wilkes	Career	FL	New Smyrna Beach Fire Dept
9/7/91	Johnny Lewis, Jr.	Career	LA	New Orleans Fire Dept
9/12/91	Kevin C. Kane	Career	NY	New York City Fire Dept
9/15/91	Craig W. Keith	Volunteer	ND	Sherwood Fire Dept
9/16/91	Raymond Hazuka	Volunteer	KS	Wakeeney City Fire Dept
9/18/91	Kevin D. Keel	Career	CO	USDA Forest Service, Routt National Forest
9/28/91	Arthur R. Denny, II	Volunteer	OH	Franklin Twp Fire Dept
10/7/91	Nonnan L. Simmons	Career	GA	Savannah Fire Dept
10/11/91	Nathan E. Walls	Volunteer	MS	Calhoun City Vol Fire Dept
10/14/91	Frederick W. Templin	Career	MN	Saint Cloud Fire Dept
10/16/91	John R. Sieglinger	Career	CA	USDA Forest Service R5, Los Padres National Forest
10/16/91	Robert A. Shaw	Career	CA	USDA Forest Service R5, Los Padres National Forest
10/18/91	George S. Winckler	Career	IL	Naperville Fire Dept
10/20/91	James M. Riley, Jr.	Career	CA	Oakland Fire Dept
10/21/91	Joseph R. Bow	Volunteer	NY	Pearl River Fire Dept

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10/22/91	John A. Du Chateau	Volunteer	WI	Luxemburg Fire Dept
10/29/91	John E. Spangler	Volunteer	KY	Neon Vol Fire Dept
10/29/91	John R. Adams	Volunteer	KY	Neon Vol Fire Dept
10/29/91	Robert H. Foster, Sr.	Career	WV	Wheeling Fire Dept
11/4/91	Gregory E. Williams	Volunteer	NY	Holland Vol Fire Dept
11/5/91	Francis E. Nason	Volunteer	ME	Saco Fire Dept
11/6/91	John A. Kucich	Career	NJ	West New York Fire Dept
11/11/91	Gordon O. Schmidt	Volunteer	NY	St. Paul Boulevard Fire Dept
11/21/91	Clyde A. Burley	Volunteer	MD	Corriganville Vol Fire Dept
11/24/91	Joseph P. McCarthy	Career	NJ	Newark Fire Dept
11/29/91	John R. Cochran	Volunteer	AL	Mount Vera Vol Fire Dept
12/1/91	Mark S. Rice	Volunteer	IL	South Pekin Vol Fire Dept
12/3/91	Albert R. Smith	Career	PA	Pittsburgh Fire Dept
12/6/91	Daniel J. Miller, Jr.	Volunteer	NY	Getzville Fire Co
12/8/91	John H. Sienknecht	Volunteer	IA	Clutier Fire Dept
12/9/91	James D. Walling	Volunteer	MS	Woolmarket Vol Fire Dept
12/13/91	George R. Whiteside	Career	TX	Odessa Fire Dept
12/13/91	Kinnison F. Cribley	Volunteer	OH	Oregon Fire Dept
12/16/91	Fred P. Biedron	Volunteer	IN	Hammond Fire Dept
12/18/91	Thomas E. Coyne, Jr.	Career	OH	Brooklyn Fire Dept
12/19/91	Robert A. Cole	Volunteer	CT	Beacon Hose Co #1
12/20/91	David G. Emanuelson	Volunteer	PA	Hilltop Hose Co #3
12/20/91	Frank Veri, Jr.	Volunteer	PA	Hilltop Hose Co #3
12/20/91	Michael J. Cielicki	Volunteer	PA	Hilltop Hose Co #3
12/20/91	Richard A. Frantz	Volunteer	PA	Hilltop Hose Co #3
12/20/91	Stephen D. Yale	Career	PA	Philadelphia Fire Dept
12/23/91	Larry H. Brooks	Career	VA	Portsmouth Fire Dept
1/5/92	James W. Schott	Volunteer	PA	Good Year Hose Co
1/12/92	Kenneth M. Hedrick	Volunteer	MD	Prince George's County Fire Dept
1/16/92	Robert G. Reits, Sr.	Volunteer	MI	Paw Paw Fire Dept
1/18/92	Raymond E. Talley	Volunteer	PA	Concordville Fire Co
1/21/92	James A. Bennett	Career	AL	Birmingham Fire Dept
1/29/92	Roberto Valdez	Career	TX	Laredo Fire Dept
2/5/92	Elwood M. Gelenius	Career	IN	Indianapolis Fire Dept
2/5/92	John J. Lorenzano	Career	IN	Indianapolis Fire Dept
2/23/92	Daniel L. Maturen	Career	MI	Battle Creek Fire Dept.
2/24/92	Thomas A. Williams	Career	NY	New York City Fire Dept
2/28/92	Darrell R. Nam	Career	HI	Honolulu Fire Dept

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3/1/92	Gordon A. Champney	Volunteer	VT	Bolton Vol Fire Dept
3/2/92	Herbert B. Campbell	Volunteer	MD	Middle River Vol Fire Co
3/4/92	Clifford L. Hennan	Career	ID	USDA Forest Service
3/13/92	Arthur K. Tuck	Career	NY	New York City Fire Dept
3/15/92	Nelson Margerum	Volunteer	PA	Yardley-Makefield Fire Co
3/23/92	Billy Ray Powell	Volunteer	AR	Lepanto Vol Fire Dept
4/4/92	Richard C. Heller, Jr.	Volunteer	IL	Elk Grove Twp Fire Dept
4/21/92	Roy J. Swinehart	Volunteer	OH	Carroll County Vol Fire Dept
5/18/92	George William Ousley	Volunteer	OK	Cowskin Fire Dept
5/26/92	Frank Albert Smith	Career	FL	Cape Coral Fire Dept
6/8/92	Wayne E. Walker	Career	KS	Kansas City Fire Dept
6/14/92	Roland Waters	Career	MI	Detroit Fire Dept
6/16/92	Thomas I. Horvath	Career	PA	Lancaster Bureau of Fire
6/19/92	Guy C. Miller	Volunteer	PA	Light Street Community Fire Co
6/19/92	Roger Stark	Contract	CA	California Dept of Forestry and Fire Protection
6/20/92	Robert S. Heide, Sr.	Volunteer	CT	Plainfield Fire Co # 1
6/29/92	Richard E. Wilson	Volunteer	CO	Glenwood Springs Dept of Emergency Services
6/30/92	James H. Stavely, III	Volunteer	MD	Braddock Heights Vol Fire Dept
7/4/92	Paul K. Bjorkland	Volunteer	WA	Benton County Fire Protection Dist #1
7/12/92	Bryan Lo Weeks	Career	MO	Potosi Fire Dept
7/15/92	Kim Meredith	Volunteer	IL	Sangamon Valley Fire Protection Dist
7/27/92	Lupe Guerrero	Volunteer	TX	Menard Vol Fire Dept
7/29/92	Patrick J. Luby	Career	IL	Oak Park Fire Dept
7/29/92	Robert Medlicott	Career	IL	Berwyn Fire Dept
7/30/92	Julie Ann Young	Seasonal	ID	USDA Forest Service
7/31/92	Dean O. Pucker	Volunteer	WI	Lamartine Vol Fire Dept
8/3/92	Lionel Alves	Career	MA	New Bedford Fire Dept
8/9/92	David K. Lumbra	Volunteer	NH	Charlestown Fire Dept
8/16/92	Calvin Morris	Volunteer	AZ	Mayer Fire Dist
8/25/92	John M. Byers	Career	FL	Ocean Reef Vol Fire Dept
8/28/92	Corey R. Clawson	Volunteer	MT	Libby Vol Fire Dept
8/31/92	James Shannon Campbell	Contract	OR	Oregon Dept of Forestry
9/1/92	Heather L. Dzioba	Career	WI	Milwaukee Fire Dept
9/5/92	Charles E. Fierson	Volunteer	PA	Stroudsburg Fire Dept
9/9/92	Eldon W. Harrison	Volunteer	IL	Depue Fire Dept
9/20/92	Earle V. Dudley, III	Volunteer	NH	Middleton Vol Fire Dept
9/28/92	Mark W. Langvardt	Career	CO	Denver Fire Dept

Date of Incident	Full Name	Affiliation	State	Department
9/30/92	Robert D. Barnes	Volunteer	PA	Minersville Rescue Hook & Ladder Co
10/1/92	Charles F. Sheridan	Contract	CA	USDA Forest Service
10/1/92	Chester F. Warner	Volunteer	RI	Prudence Island Fire Dept
10/1/92	Leonard D. Martin	Contract	CA	USDA Forest Service
10/12/92	Anthony Vo Calhoun	Volunteer	LA	DeSoto Fire Dist #8
10/14/92	Michael D. Hoover	Volunteer	NC	Tabernacle Fire Dept
10/16/92	Victor E. Eager	Volunteer	PA	Brecknock Twp Fire Co #1
10/20/92	Gwyn L. Ellis	Volunteer	VA	LaCrosse Vol Fire Dept
10/24/92	Gary S. Porter	Career	IL	Alton Fire Dept
10/24/92	Tim L. Lewis	Career	IL	Alton Fire Dept
10/25/92	Arthur Lo Pearson	Volunteer	KS	Ogden Fire Dept
10/29/92	John A. Navarro	Volunteer	MI	Sandusky Fire Dept
10/30/92	Harold J. Lyons, Sr.	Volunteer	NY	Brookhaven Fire Dept
11/1/92	Anthony J. Carugno	Volunteer	NJ	Egg Harbor City Fire Dept
11/4/92	Tommy A. Parker	Volunteer	TX	Mineral Wells Fire Dept
11/6/92	Roc E. Manchester	Career	CA	Fire Dept MCAS El Toro
11/8/92	Wilbert L. Dyer	Volunteer	KS	Jefferson County Fire Dist 11
11/17/92	Don L. Milner	Volunteer	IA	Elliott Fire Dept
11/22/92	William N. Jones, Jr.	Volunteer	SC	Iva Fire Dept
12/1/92	Rebecca Ann LeClaire	Volunteer	TX	Brazos County Precinct #4 Fire Dept
12/5/92	Jeffrey G. Osmun	Volunteer	TX	Crowley Fire Dept
12/17/92	James J. Cothran	Volunteer	AL	Pine Level Vol Fire Dept
12/26/92	James D. Hill	Career	TN	Memphis Fire Dept
12/26/92	Jospeh A. Boswell	Career	TN	Memphis Fire Dept
12/28/92	George Delbert Weischman	Career	AR	Stuttgart Fire Dept
12/31/92	Arthur E. Schumacher	Volunteer	OH	Valley City-Liverpool Fire Dept
1/2/93	Cecil A. Fain	Volunteer	KY	Jessamine County Fire Dist
1/2/93	Harry B. Garis	Volunteer	PA	Logan Fire Co 1
1/2/93	William M. Wheeler	Volunteer	KY	Jessamine County Fire Dist
1/4/93	Ronald L. O'Rouke	Volunteer	NY	Roosevelt Dist Fire Dept
1/8/93	Walter E. Siverton, Jr.	Career	VA	Newport News Fire Dept
1/9/93	Norman G. Schunk, Jr.	Volunteer	NY	East Eden Fire Co.
1/10/93	Richard A. Hartley	Volunteer	PA	East Derry Volunteer Fire Dept
1/16/93	Joseph A. Hummel	Volunteer	PA	Friedensburg Fire Dept
1/23/93	Francis M. Nichols	Volunteer	NE	Imperial Fire Dept
1/26/93	Tony F. Mendonsa	Volunteer	CA	Turlock Rural Fire Dept
1/29/93	Howard R. Schmitt	Career	NY	Albany Fire Dept
1/29/93	Peter S. Sadowski	Volunteer	MA	Webster Fire Dept

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1/31/93	Douglas K. Konecny	Career	CO	Denver Fire Dept
1/31/93	William Grounds	Volunteer	TX	Neches Volunteer Fire Dept
2/1/93	John M. O'Conner	Career	CT	New London Fire Dept
2/5/93	Rick A. Vreeland	Career	FL	Gray Gables Nassau Village Vol Fire Dept
2/18/93	Richard C. McQuaide, Sr.	Volunteer	TX	Granite Shoals Fire Dept
2/24/93	Warren R. Ogbum	Career	NY	White Plains Fire Dept
2/27/93	Brian E. Metts	Volunteer	OH	North Georgetown Fire Dept
2/27/93	Christopher P. Savage	Volunteer	NY	Sir William Johnson Fire Dept
3/6/93	Dennis R. Olson	Career	IL	Monmouth Fire Dept
3/7/93	Keith A. Walker	Volunteer	FL	Gray Gables Nassau Village Vol Fire Dept
3/8/93	Donald C. Cottrell	Career	OH	Toronto Fire Dept
3/10/93	George Blanus	Volunteer	CT	Branford Fire Dept
3/13/93	Dennis Rodd	Volunteer	NY	Coram Fire Dept
3/15/93	John F. Lombardo	Volunteer	PA	Pittston City Fire Dept
3/15/93	Leonard C. Insalaco, II	Volunteer	PA	West Pittston Hose Co
3/15/93	Samual Isaac Boyce	Volunteer	VA	Shawnee Fire Co
3/19/93	Troy V. Henderson	Volunteer	WV	Frost Vol Fire Dept
3/20/93	Carlos A. Negron	Career	NJ	Jersey City Fire Dept
3/30/93	Jeffrey Langley	Career	CA	Los Angeles County Fire Dept
4/1/93	Lewis R. Sheats	Both	NJ	Chatham Boro Fire Dept
4/7/93	Patrick J. Dougherty	Volunteer	NC	Gamer Vol Fire Dept
4/10/93	Gary L. Kennicutt	Volunteer	NY	Greene Fire Dept
4/15/93	Loren E. Baker	Volunteer	NH	Holdemess Fire Dept
4/22/93	Frankie Toledo	Seasonal	NM	USDA Forest Service
4/24/93	William M. Overman, Jr.	Volunteer	MD	Anne Arundel County Fire Dept
4/30/93	Raymond Adkins	Volunteer	KY	Big Creek Vol Fire Dept
5/21/93	Jacob Cogdil Parris, Jr.	Volunteer	NC	Balsam-Willets-Ochre Hill VFD
5/24/93	Michael J. Wilcom, Jr.	Volunteer	MD	New Market Dist Fire Dept
6/20/93	David M. Dunkerley	Volunteer	VA	Louisa Vol Fire Dept
6/29/93	Edwin R. Conklin	Volunteer	IL	Earlville Fire Protection Dist
7/3/93	Randy W. Reynaga	Volunteer	CA	Fountain Valley Fire Dept
7/6/93	Richard Beck	Volunteer	NY	Owego Fire Dept
7/9/93	Richard E. Gleason, Sr.	Volunteer	NY	Lake Mohegan Dist Fire Dept
7/14/93	Allan F. Coates	Volunteer	OH	Lafayette-Jackson Twp Fire Dept
7/27/93	Delmar M. Mondy	Volunteer	IL	Seneca Vol Fire Dept
8/5/93	Larry R. Harris, Jr.	Volunteer	GA	Morgan County Vol Fire Dept
8/5/93	Louis T. Powers	Volunteer	GA	Morgan County Vol Fire Dept
8/15/93	Everett C. Pierce	Volunteer	FL	Georges Lake Area Fire Dept

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8/20/93	Arthur Ruezga	Career	CA	Los Angeles County Fire Dept
8/20/93	Christopher D. Herman	Career	CA	Los Angeles County Fire Dept
8/22/93	John F. Hargreaves	Career	RI	Pawtucket Fire Dept
8/24/93	James R. Lafon	Volunteer	SC	Horry County Fire Dept
8/25/93	Joseph D. Delvecchio, Sr.	Career	PA	Dunmore Fire Dept
8/27/93	Joseph E. Kozlowski	Federal	PA	Tobyhanna Army Depot
8/28/93	Arthur Karr	Volunteer	PA	Shohola Vol Fire Dept
9/6/93	Brian L. Hill	Seasonal	OR	Department of Forestry
9/18/93	Jimmy L. Jackson	Volunteer	TX	Fort Stockton Fire Dept
10/12/93	Francis J. Baker	Career	MA	Boston Fire Dept
10/13/93	Patrick Lafferty	Volunteer	NY	Greenville Vol Fire Dept
10/19/93	Richard H. Melloni, Sr.	Career	MA	Wareham Fire Dept
10/22/93	Christopher C. Rutledge	Career	CA	Lucerne Valley Fire Dept
11/11/93	Wilbert F. Hansen	Volunteer	WY	Laramie County Fire Dept
11/15/93	Gary W. Armstrong	Volunteer	KY	Mount Washington Fire Dept
11/15/93	Harold B. Allgood	Volunteer	KY	Mount Washington Fire Dept
11/15/93	John H. Somay	Volunteer	NJ	Southard Fire Dept
11/20/93	Charles H. Beadle	Volunteer	NY	Walton Fire Department
11/23/93	Steven J. McNamee	Career	IL	Chicago Fire Dept
11/30/93	Guy E. Post	Volunteer	KS	Bourbon County #3 Fire Dept
12/6/93	Dale E. Linkroum	Volunteer	NY	Deposit Fire Dept
12/6/93	Jesse Pacheco, Jr.	Career	MA	New Bedford Fire Dept
12/14/93	Russell T. Newcomb	Volunteer	NJ	South Amboy Fire Dept
12/15/93	Mark R. Hinson, Sr.	Volunteer	TN	Pairs Landing Vol
12/23/93	John Brentzel, Jr.	Volunteer	NJ	Carlstadt Fire Dept
12/23/93	Vincent D. Meegan, Jr.	Career	NY	Buffalo Fire Dept

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** **Career, Age 26**
Venus Volunteer Fire Department, FL **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** **Career, Age Unknown**
United States Forest Service **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** **Volunteer, Age 27**
Auburn Hills Fire Department, MI **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** **Volunteer, Age 26**
Pawcatuck Fire Department, CT **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 flash-over 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** **Volunteer, Age 54**
Warren Community Fire Department, OK **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** **Volunteer, Age 34**
Miami Township Fire Department, OH **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** **Volunteer, Age Unknown**
Grundy County Rural Fire Protection District, MO **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** **Volunteer, Age 22**
Capron Fire Department, OK **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** **Career, Age 49**
James Young, Firefighter **Career, Age 31**
Christopher Seidenburg, Firefighter **Career, Age 25**
New York Fire Department, NY **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 over-run by a fast moving grass fire.

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

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

4/11/1994 Michael Mathis, Lieutenant Career, Age 39
William Bridges, Private Career, Age 27
Memphis Fire Department, TN Trapped

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**
Oceanside Fire Department, NY **Affiliation and Age Unknown**
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**
Baltimore City Fire Department, MD **Career, Age 54**
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**
Newport News Fire Department, VA **Career, Age 42**
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**
New York City Fire Department, NY **Career, Age Unknown**
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**
Neptune Fire Company #1, PA **Volunteer, Age 37**
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**
Parkersburg Fire Department, WV **Affiliation Unknown, Age 37**
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**
Lake Havasu Fire Department, AZ **Career, Age 46**
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**
West Terre Haute Volunteer Fire Department, IN **Volunteer, Age 58**
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**
Boston Fire Department, MA **Career, Age 44**
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**
Rusk Volunteer Fire Department, TX **Volunteer, Age 50**
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** **Career, Age 42**
Greenville Fire Department, TX **Cerebral Hemorrhage**

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**
Briles 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 Seasonal Wildland, Age Unknown
United States Forestry Service 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 Career, Age 58
Randy Lynn, Pilot Career, Age 44
Neptune, Inc. (Contract to USFS) 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 Career, Age 28
Louisville Division of Fire, KY 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 Career, Age 37
New York City Fire Department, NY 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.
- 8/13/1994 Robert Buc, Flight Crew Age Unknown
Joe Johnson, Flight Crew Age Unknown
Shawn Zaremba, Flight Crew Age Unknown
Hemet Valley Flying Service, CA 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 Volunteer, Age 39
Greenwood Fire Department, IN Heart Attack**
- Firefighter Harvey suffered a fatal heart attack during training.
- 8/18/1994 Herbert Smith, Firefighter Affiliation and Age Unknown
Shelby Volunteer Fire Department, AL Heart Attack**
- Firefighter Smith suffered a fatal heart attack at a fire.
- 8/18/1994 Sam McCarty, Firefighter Affiliation and Age Unknown
Harding County Fire District #2 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 Age Unknown
United States Fire Service 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**
Highview Fire District, KY **Burns**
- 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**
Oregon Department of Forestry **Overrun by Wildfire**
- Firefighter Maplesden died when he was overrun by a wildfire while attempting to cut a fire-break with a bulldozer.
- 8/27/1994** **Paul MacMurray, Firefighter** **Volunteer, Age 30**
Hudson Falls Volunteer Fire Department, NY **Trapped**
- 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**
Windham Hose Company #1, NY **MVA**
- Assistant Chief Murray died when his personal vehicle crashed while responding to a fire.
- 9/1/1994** **James Harris, Firefighter** **Affiliation and Age Unknown**
Mechanicville Fire Department, NY **Heart Attack**
- 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**
Union Township Fire Department, OH **Heart Attack**
- 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**
Memphis Fire Department, TN **Cardiac**
- 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**
Metro-Dade Fire and Rescue Department, FL **Trauma**
- 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**
Sallisaw Fire Department, OK **Heart Attack**
- 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** **Career, Age 31**
Santa Monica Fire Department, CA **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** **Career, Age 45**
United States Forest Service **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** **Age Unknown**
United States Forest Service **Shot (Accidental)**
- Fire Management Officer Evans was killed when a 106mm rifle exploded during training for avalanche control, part of his collateral duties.
- 11/28/1994** **Dale Nelboeck, Firefighter** **Affiliation Unknown, Age 38**
Mayfield Heights Fire Department, OH **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** **Volunteer, Age Unknown**
South Danesville Volunteer Fire Department, NY **Apparatus Crash**
- Firefighter Burger died in an apparatus crash en route to an emergency.
- 12/10/1994** **Jesse Shockley, Jr., Captain** **Career, Age 38**
Fort Bragg Fire Department, NC **Heart Attack**
- Captain Shockley died after suffering a heart attack during a training session on ladders.
- 12/24/1994** **Lionel Hoffer, Firefighter** **Career, Age 44**
Milwaukee Fire Department, WI **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** **Volunteer, Age 46**
Poy-Sippi Fire Department, WI **Heart Attack**
- Firefighter Buchholtz suffered a fatal heart attack while performing duties at a house fire.
- 12/27/1994** **Steven Colona, Chief Engineer** **Volunteer, Age 18**
Melfa Volunteer Fire Department, VA **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** **Career, Age 30**
New York City Fire Department, NY **Carbon Monoxide**
- Firefighter Wylie suffered carbon monoxide poisoning in a structure fire. He died in 1995.

1/5/1995	Walter Kilgore, Lieutenant Gregory Shoemaker, Lieutenant James Brown, Firefighter Randall Terlicker, Firefighter Seattle Fire Department, WA	Career, Age Unknown Career, Age Unknown Career, Age Unknown Career, Age Unknown Trapped
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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 Winchester Fire Department, TN	Affiliation and Age Unknown Heart Attack
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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 Tennessee Division of Forestry, TN	Affiliation and Age Unknown Heart Attack
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Forestry Technician Frizzell suffered a fatal heart attack while returning from a fire.

1/26/1995	Lathan Grant Smith, Jr., Chief East Providence Volunteer Fire Department, AL	Volunteer, Age 37 Heart Attack
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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 Stoughton Fire Department, MA	Career, Age 47 Trapped
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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 Jared Lee Wright, Firefighter Claude Volunteer Fire Department, TX	Volunteer, Age 15 Volunteer, Age 18 Apparatus Struck by Train
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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 Willard Fire Department, NM	Volunteer, Age 56 Apparatus Rollover
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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.

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| 2/8/1995 | Glenn Scott, Chief
Era Volunteer Fire Department, TX | Volunteer, Age Unknown
Heart Attack |
| | Chief Scott died from a heart attack while returning from an emergency call. | |
| 2/13/1995 | Lisa Batten, Firefighter
Gilmer County Fire Department, GA | Affiliation and Age Unknown
MVA |
| | Firefighter Batten died from traumatic injuries she received in a car accident while returning from a paramedic class. | |
| 2/14/1995 | Thomas Brooks, Captain
Patricia Conroy, Firefighter
Marc Kolenda, Firefighter
Pittsburgh Fire Department, PA | Career, Age 42
Career, Age 43
Career, Age 27
Asphyxiation |
| | Three Pittsburgh (PA) Fire Department firefighters died after a stairway collapsed, trapping them in the basement. Captain Brooks, Firefighter Conroy, and Firefighter Kolenda died from asphyxiation when they ran out of air while operating a hose line in the basement. Investigations by the City of Pittsburgh and others after the fire indicated that problems with incident command and accountability were key factors contributing to the firefighters' deaths. Other factors included a possible lack of crew integrity and a failure of the crew to take emergency survival actions that may have helped them escape. All of the deceased firefighters were wearing PASS devices that were found in the "off" position. The fire was incendiary and a suspect was arrested. As part of the Major Fires Investigation Project, the U.S. Fire Administration conducted a detailed analysis of this incident, and its findings are contained in the report, "Three Firefighters Die in Pittsburgh House Fire." | |
| 2/14/1995 | Wendell Ayers, Firefighter
Pacific Grove Fire Department, CA | Volunteer Age 53
Heart Attack |
| | Firefighter Ayers collapsed and died of an apparent heart attack while attempting to assist in the rescue of two people on a yacht that had run aground. | |
| 2/22/1995 | Shawn O'Brien, Firefighter
Franklin Volunteer Fire Department, ME | Volunteer, Age Unknown
Heart Attack |
| | Firefighter O'Brien collapsed and died of a heart attack after a structure fire. | |
| 2/25/1995 | Jimmy Bryant, Chief
Indian Field Fire Department, SC | Affiliation and Age Unknown
Heart Attack |
| | Chief Bryant died of a heart attack after discovering a fire at a campground. The fire was deliberately set. | |
| 3/3/1995 | Neil Hyland, Firefighter
Massapequa Volunteer Fire Department, NY | Volunteer, Age Unknown
MVA |
| | Firefighter Hyland died in an automobile accident while responding to a fire call. | |
| 3/5/1995 | Raymond Schiebel, Lieutenant
New York City Fire Department, NY | Career, Age 49
Heart Attack |
| | Lieutenant Schiebel went into cardiac arrest while operating at a fire in Brooklyn. He died 2 days later at a hospital. An investigation into the incident revealed that a paramedic allegedly failed to properly intubate Lt. Schiebel during resuscitation efforts, inserting the endotracheal tube into his esophagus instead of into his trachea. | |
| 3/8/1995 | Donald Koebel, Firefighter
Johnson County Fire District #2, KS | Career, Age 33
Trapped |
| | Firefighter Koebel died when he became trapped in the basement of a house fire and ran out of air. Firefighter Koebel was part of the initial entry crew attempting to locate the seat of the fire | |

when the floor collapsed beneath him. Heavy smoke and fire conditions prevented other fire-fighters 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.
- 4/13/1995** **Herloff "Ted" Hansen III, Firefighter** **Career, Age 39**
 Hobart Fire Department, IN **Trapped**
- Firefighter Hansen was killed while conducting search operations for two reported trapped victims at a house fire. Firefighter Hanson 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.

- 4/17/1995** **Judith Luster–Stauss, Engineer** **Volunteer, Age 50**
Michael Lohbeck, Firefighter **Volunteer, Age 47**
Castella Volunteer Fire Department, CA **Apparatus Rollover**
- 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.
- 4/23/1995** **Earl McNeil, Jr., Lieutenant** **Volunteer, Age Unknown**
Princess Anne Volunteer Fire Department, MD **Heart Attack**
- Lieutenant McNeil died of a heart attack after fighting a brush fire. Lt. McNeil was a retired career firefighter with the Boston Fire Department.
- 4/24/1995** **Leroy Cropper, Firefighter** **Volunteer, Age 52**
Ocean City Volunteer Fire Department, MD **Heart Attack**
- Firefighter Cropper suffered a heart attack after fighting a fire in a hotel. Cropper was hospitalized and died on 4/28/1995.
- 4/30/1995** **Joe Novosad, Firefighter** **Volunteer, Age 57**
Porter Volunteer Fire Department Station 2, TX **Heart Attack**
- Firefighter Novosad died of a heart attack while responding to a plane crash at Williams Airport.
- 5/5/1995** **Greg Cussen, Firefighter** **Volunteer, Age Unknown**
Noble Township Volunteer Fire Department, IN **MVA**
- Firefighter Cussen was killed when his car collided with another fire department vehicle at the scene of a reported explosion at a school.
- 5/9/1995** **Travis McCormick, Firefighter** **Volunteer, Age 68**
New Union Volunteer Fire Department, AL **Heart Attack**
- Firefighter McCormick suffered a fatal heart attack at the scene of a mobile home fire.
- 5/12/1995** **Ray Parnell McKay, Jr., Chief** **Volunteer, Age 46**
Northeast Lamar County Fire Department, MS **Heart Attack**
- Chief McKay suffered a fatal heart attack as he was leaving the fireground.
- 5/12/1995** **Dania Stivers, Firefighter** **Volunteer, Age 23**
North Pulaski Fire Protection District, AR **Apparatus Rollover**
- 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.
- 5/13/1995** **Robert Lapp** **Volunteer, Age 44**
Grantsville Volunteer Fire Department, MD **Heart Attack**
- Firefighter Lapp died of an apparent heart attack while transporting a patient to the hospital from the scene of a motor vehicle accident.
- 5/24/1995** **Ronald Deer, Firefighter** **Volunteer, Age 23**
Wayne Township Fire Department, IN **Apparatus Rollover**
- 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** **Affiliation and Age Unknown**
Pipestone–Berrien Township–Eau Claire Fire **Heart Attack**
Department, MI

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** **Volunteer, Age 35**
Rock Community Fire Protection District, MO **Heart Attack**

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

6/6/1995 **Peter “Butch” Borwegan, Lieutenant** **Career, Age Unknown**
Edison Division of Fire, NJ **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** **Affiliation and Age Unknown**
Eagle Pass Fire Department, TX **Seizure**

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

6/10/1995 **Richard Hogan, Firefighter** **Career, Age Unknown**
Christopher Rizac, Firefighter **Career, Age Unknown**
Sheppard Air Force Base, TX **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** **Affiliation and Age Unknown**
Levittown Fire Department, NY **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)** **Career, Age 33**
Lisa Netsch, Pilot (Aero Union Corporation) **Career, Age 31**
Michael Smith, Pilot (United States Forest Service) **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** **Volunteer, Age Unknown**
Brookville–Timberlake (VA) Volunteer Fire **Drowning**
Department

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.

- 6/29/1995** **John Woodward, Fire Protection Specialist**
New York State Office of Fire Prevention and
Control, NY **Career, Age Unknown**
Heart Attack
- Fire Protection Specialist Woodward died of a heart attack while conducting a fire inspection.
- 7/6/1995** **Randy Williford, Lieutenant**
North Little Rock Fire Department, AR **Career, Age 44**
Heart Attack
- Lieutenant Williford suffered a heart attack after attempting to complete an agility test required for a promotion to the rank of captain. He died of heart failure at a hospital on 7/9/1995.
- 7/10/1995** **Gary Soupene, Firefighter**
Riley County Rural Fire Department, KS **Volunteer, Age 48**
MVA
- Firefighter 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.
- 7/10/1995** **John Schuyler, Firefighter**
Weldon Fire Company, PA **Affiliation and Age Unknown**
Heart Attack
- Firefighter Schuyler suffered a fatal heart attack while responding on foot to the firehouse after a vehicle fire had been reported.
- 7/14/1995** **John Weingart, Firefighter**
Detroit Fire Department, MI **Career, Age 56**
Heart Attack
- Firefighter Weingart suffered a fatal heart attack while hooking up to a fire hydrant at a residential dwelling fire.
- 7/15/1995** **Edward Pitcher, Assistant Chief**
Sharon County Volunteer Fire Department, CT **Volunteer, Age 39**
Electrocution
- Assistant Chief Pitcher was electrocuted when he came in contact with a downed power line during the cleanup of debris after a storm.
- 7/15/1995** **Adam Sorenson**
Ruth Volunteer Fire Department, NV **Volunteer, Age Unknown**
Apparatus Crash
- 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.
- 7/19/1995** **Arthur Thompson, Fire Commissioner**
Freeport Fire Department, NY **Volunteer, Age Unknown**
Heart Attack
- Mayor 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.
- 7/20/1995** **Lyle Garlinghouse, Firefighter**
Osceola Fire Department, FL **Career, Age 45**
Heart Attack
- Firefighter Garlinghouse suffered a fatal heart attack at an EMS incident.
- 7/21/1995** **Peter Crown, Firefighter**
Honolulu Fire Department, HI **Career, Age 39**
Helicopter Crash
- Firefighter 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.
- 7/25/1995** **Mitch Weaver, Firefighter**
Tunnelton Volunteer Fire Department, WV **Affiliation and Age Unknown**
Heart Attack
- Firefighter Weaver died of a heart attack while at the scene of a vehicle accident.

- 7/28/1995** **Bill Buttram, Firefighter** **Volunteer, Age 31**
Josh Oliver, Firefighter **Volunteer, Age 18**
Kuna Rural Fire Department, ID **Overrun by Wildfire**
- Firefighters Buttram and Oliver were killed when the 1955 brush truck they were driving stalled and they were overrun by a fast moving wildfire.
- 7/30/1995** **William Luker, Chief** **Volunteer, Age 29**
Cedar Creek Volunteer Fire Department, MS **Apparatus Rollover**
- 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.
- 8/1/1995** **June Fitzpatrick** **Volunteer, Age Unknown**
Rocky Point Fire District, NY **Stroke/CVA**
- Ms. Fitzpatrick died of a stroke while en route to the fire station for an emergency.
- 8/5/1995** **William Marks, Firefighter** **Volunteer, Age Unknown**
Munhall Fire and EMS, PA **Apparatus Rollover**
- Firefighter Marks was killed when the engine on which he was riding jumped a curb and overturned en route to an electrical fire in a row house. He was riding on the tailboard of the engine at the time of the accident. Several other firefighters were seriously injured.
- 8/7/1995** **Eric Mangieri, Firefighter** **Affiliation and Age Unknown**
New Kensington Fire Company, PA **Trapped**
- Firefighter Mangieri was killed when he became trapped while trying to escape from a house fire during a flashover.
- 8/16/1995** **Christopher Garneau, Firefighter** **Volunteer, Age 17**
Warrenton Volunteer Fire Company, VA **Heart Attack**
- Firefighter Garneau died of a heart attack while responding to an emergency incident. An autopsy revealed that Firefighter Garneau, age 17, had an enlarged heart.
- 8/20/1995** **Raymond Trygar, Battalion Chief** **Career, Age Unknown**
California Department of Forestry, CA **Exposure**
- Battalion Chief Trygar was exposed to an unknown illness on 8/20; he died 12/20/1995.
- 8/21/1995** **Bruce Cormican, Firefighter/EMT** **Affiliation and Age Unknown**
Black River Falls Fire Department, WI **Drowning**
- 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 Fall 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.
- 8/24/1995** **Corey Berggren, Rescue Diver** **Affiliation and Age Unknown**
Knoxville Volunteer Rescue Squad, TN **Asphyxiation (while diving)**
- 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.
- 8/27/1995** **James Greg Hinson, Firefighter** **Volunteer, Age Unknown**
Mebane Fire Department, NC **Drowning**
- 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

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**
Eflinwild 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** **Affiliation and Age Unknown**
Kentucky Tech Fire/Rescue Training, KY **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** **Career, Age 31**
New York City Fire Department, NY **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** **Career, Age 53**
Indianapolis Fire Department, IN **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** **Affiliation and Age Unknown**
Friendship Fire Company, WV **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** **Volunteer, Age 66**
Hicksville Fire Department, NY **Heart Attack**
 Firefighter Sulzinski suffered a fatal heart attack while attending a fire service activity in Albany.
- 11/7/1995** **Walter Augustin, Assistant Chief** **Volunteer, Age Unknown**
Congers Fire Department, NY **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** **Career, Age Unknown**
Industrial Fire Brigade **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** **Affiliation and Age Unknown**
Blaney Volunteer Fire Department, SC **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** **Volunteer, Age 45**
Hanna Township Volunteer Fire Department, IN **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** **Volunteer, Age 52**
Andover Township Fire Department, NJ **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.

- 12/10/1995** **Henry W. Howe, Firefighter** **Volunteer, Age 50**
Brownsville Rural Fire District, OR **Trauma**
 Firefighter Howe was struck by a vehicle while clearing a downed tree from a road.
- 12/14/1995** **James Shue, Captain** **Volunteer, Age Unknown**
Locke Township Volunteer Fire Department, NC **Apparatus Rollover**
 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.
- 12/31/1995** **John Clancy, Lieutenant** **Career, Age 35**
New York City Fire Department, NY **Burns**
 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.
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- 1/5/1996** **James B. Williams, Firefighter** **Career, Age 38**
New York City Fire Department, NY **Burns**
 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.
- 1/5/1996** **William R. Favinger, Sr., Firefighter** **Volunteer, Age 55**
West End Fire Company, PA **Heart Attack**
 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.
- 1/6/1996** **Guy R. Pollard, Firefighter** **Volunteer, Age 64**
Owego Fire Department, NY **Heart Attack**
 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.
- 1/7/1996** **Thomas Dorr, Firefighter** **Volunteer, Age 50**
Pleasantville Fire Department, NY **Stabbed**
 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.
- 1/7/1996** **Willard Hopley, Firefighter** **Volunteer, Age 59**
Rockaway Borough Fire Department, NJ **Heart Attack**
 Firefighter Hopley 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.
- 1/13/1996** **Dale Zimmerman, Chief** **Volunteer, Age 40**
Pecatonica Fire Protection District, IL **Asphyxiation**
 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.

- 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 rhabdomyolysis (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 wild-fires 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 Durlinger, Firefighter** **Volunteer, Age 72**
Alexandria Volunteer Fire Department, NE **Heart Attack**
- Firefighter Durlinger 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 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.

- 7/27/1996** **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.
- 7/28/1996** **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.
- 8/6/1996** **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.
- 8/8/1996** **Norman Ray, Firefighter** **Volunteer, Age Unknown**
Fruitland Fire Department, UT **Cardiac**
 Firefighter Ray suffered cardiac arrest due to overexertion at a grass fire.
- 8/8/1996** **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.
- 8/8/1996** **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.
- 8/12/1996** **Walter L. Bricker, Deputy Chief** **Volunteer, Age 65**
Metal Township Volunteer Fire & Ambulance **Heart Attack**
Company, PA
 Chief Bricker suffered a fatal heart attack while assisting an ambulance crew with patient care. He was pronounced dead upon arrival at the hospital.
- 8/21/1996** **Leonard Coulter, Firefighter** **Volunteer, Age 67**
Gerton Fire Department, NC **Cardiac**
 Firefighter Coulter suffered cardiac arrest while responding to a motor vehicle accident.
- 8/24/1996** **Leslie Hendricks, Deputy Chief** **Career, 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.
- 8/25/1996** **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.
- 8/26/1996** **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 Electrocutation
 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.

- 10/18/1996** **Martha Ann Bice, Firefighter** **Volunteer, Age 59**
West Etowah VFD, AL **Surgical Complications**
- 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.
- 10/19/1996** **Eugene Bauerlien, Firefighter** **Volunteer, Age 72**
Westminster Fire Department, MD **Heart Attack**
- 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.
- 10/24/1996** **Jackson Capps, Captain** **Volunteer, Age 25**
Glassy Mountain Fire Department, SC **MVA**
- 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.
- 10/24/1996** **Jack Grosse, Firefighter** **Career, Age 53**
Cedar Falls Fire Department, IA **Cardiac**
- Firefighter Grosse suffered cardiac arrhythmia and died while asleep in his quarters.
- 10/26/1996** **Albert DeFlumere, Firefighter** **Volunteer, Age 49**
Blauvelt Volunteer Fire Company, NY **Smoke Inhalation**
- Firefighter DeFlumere died of smoke inhalation at a residential structure fire after he returned inside to rescue his son.
- 10/26/1996** **Frank Gilbert, Jr., Firefighter/Paramedic** **Career, Age 39**
Portage Fire Department, IN **MVA**
- Firefighter/Paramedic Gilbert died from complications due to a vehicle accident while transporting a patient to the hospital.
- 11/9/1996** **John Bryant, Firefighter** **Volunteer, Age 21**
Upper Gwynedd Township Fire Department, PA **MVA**
- 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.
- 11/9/1996** **Steve Trice, Firefighter** **Volunteer, Age 24**
Sharptown Volunteer Fire Department, MD **Struck by Vehicle**
- Firefighter Trice stopped at a motor vehicle accident and was struck by a passing vehicle while attempting to extricate a victim.
- 11/12/1996** **Walter Schwinger, Jr., Captain** **Career, Age 52**
Tonawanda Fire Department, NY **Pulmonary Embolism**
- Captain Schwinger died of a pulmonary embolism while asleep in the bunkroom while on duty.
- 11/12/1996** **William Chambers, Firefighter** **Career, Age 49**
Anne Arundel County Fire Department, MD **Heart Attack**
- Firefighter Chambers collapsed and died of a heart attack during response to medical call.

- 11/24/1996** **Donald Manuel, Firefighter** **Volunteer, Age 65**
Highview Fire District, KY **Heart Attack**
 Firefighter Manuel suffered a fatal heart attack upon arrival at the scene of a church fire.
- 11/27/1996** **Edward Ramos, Firefighter** **Volunteer, Age 36**
Branford Fire Department, CT **Trapped**
 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.
- 12/4/1996** **Ruben Lopez, District Chief** **Volunteer, Age 39**
Houston Volunteer Fire Department, TX **Trapped**
 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.
- 12/8/1996** **Craig Arnone, Firefighter** **Volunteer, Age 23**
Somers Fire Department, CT **Electrocution**
 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.
- 12/21/1996** **Stanley Scott, Firefighter** **Career, Age 45**
Chicago Fire Department, IL **Heart Attack**
 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.
- 12/21/1996** **James A. Ellis, Firefighter** **Career, Age 43**
Boston Fire Department, MA **Trauma**
 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.
- 12/21/1996** **Laura Halsey, Firefighter** **Volunteer, Age 23**
Stroh Volunteer Fire Department, IN **MVA**
 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.
- 12/23/1996** **James Warick, Firefighter** **Volunteer, Age 52**
Burnet Volunteer Fire Department, TX **Struck by Vehicle**
 Firefighter James Warick was struck by a vehicle while directing traffic at an incident.
- 12/27/1996** **Charles Brant Chesney, Firefighter** **Volunteer, Age 36**
Forsyth County Fire Department, GA **Trauma**
 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.
- 12/29/1996** **Raymond Emmrich, Chief** **Volunteer, Age 54**
Kimball Township Fire Department, WI **Heart Attack**
 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.

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- 1/1/1997** **Brian D. Myers, Sr., Engineer** **Volunteer, Age 47**
Schuylerville 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**
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**
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**
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**
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**
Branchport Fire Department, NY **Heart Attack**
- Chief Hathaway collapsed due to a heart attack immediately following a meeting at the fire-house.
- 1/10/1997** **Harold Hester, Firefighter** **Volunteer, Age 52**
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**
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**
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** **Career, Age 47**
Oakland Fire Department, CA **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** **Volunteer, Age 29**
Terlton Community Fire Department, OK **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** **Volunteer, Age 43**
Conover Fire Department, WI **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** **Career**
Detroit Fire Department, MI **Heart Attack**
- Firefighter Fogel suffered from a heart attack while on duty at the firehouse.
- 2/5/1997** **Kevin C. Seaburg, Assistant Chief** **Volunteer, Age 38**
Selkirk Fire District, NY **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** **Age 21, Career**
Brett A. Laws, Firefighter **Age 29, Career**
Stockton Fire Department, CA **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** **Volunteer, Age 36**
Geneva Fire Department, NY **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** **Volunteer, Age 75**
Trumansburg Fire Department, NY **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** **Career, Age 29**
Lexington Fire Department, KY **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 **Heart Attack**
 County, MD

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 **Russett "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, **Asthma Attack**
 Julian, CA

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

5/3/1997 **Jessie F. Bricker, Jr., Fire Apparatus Operator** **Career, Age 47**
 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, **Cardiac**
North Collins, NY

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 **Heat Stroke**
Corps, Julian, CA

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 **Aircraft Crash**
Management, AZ

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
Robert Douglas Good, Firefighter/Paramedic **Career, Age 30**
Rural Metro Ambulance **Electrocution**

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** **Career, 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.

- 6/19/1997** **William C. Mellon, President** **Volunteer, Age 58**
Bay Ridge Volunteer Fire Department,
Lake George, NY **Heart Attack**
- Firefighter Mellon suffered from a heart attack while preparing to respond in his personal vehicle to a fire alarm.
- 6/20/1997** **Michael F. Drobitsch, Firefighter** **Career, Age 46**
Chicago Fire Department, IL **Dive Accident**
- Firefighter Drobitsch's death occurred during a diving training session.
- 6/22/1997** **Michael E. Neuner, Sr., Lieutenant** **Volunteer, Age 35**
Brewster Fire Department, NY **Trapped**
- Lieutenant Neuner died due to injuries sustained at a residential structure fire after becoming trapped in the basement.
- 6/28/1997** **Ricky G. Moore, Firefighter** **Volunteer, Age 29**
Oak Grove/Thach Fire Department, AL **Apparatus Rollover**
- Firefighter Moore was killed when he was thrown from a fire truck after it overturned en route to a fire call.
- 7/1/1997** **Joseph M. Vagnier, Firefighter/EMT** **Volunteer, Age 21**
Monroeville Volunteer Fire Company #4, PA **Drowning**
- 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.
- 7/4/1997** **Michael L. Seguin, Firefighter** **Career, Age 31**
Buffalo Fire Department, NY **Trapped**
- Firefighter Seguin 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 Seguin 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.
- 7/6/1997** **Floyd Dean Hiser, Sr., Pilot** **Career, Age 51**
Sierra National Forest, Clovis, CA **Helicopter Crash**
- Pilot Hiser was killed as a result of a helicopter crash that occurred during a water drop at a wildland fire.
- 7/13/1997** **James H. Tebo, Captain** **Volunteer, Age 61**
Ranker Community Fire Department, Bangor, MI **Heart Attack**
- Captain Tebo collapsed at the scene of a structure fire and later died as a result of a heart attack.
- 7/15/1997** **Malcolm A. Rovero, Firefighter** **Career, Age 34**
Estero Fire Protection and Rescue Service District, FL **Cardiac**
- Firefighter Rovero died from apparent cardiac and respiratory arrest at the scene of a 10-acre brush fire.
- 7/16/1997** **Albert Sippel, Lieutenant** **Volunteer, Age 50**
Bellmore Fire Department, NY **Seizure**
- 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, **Trapped**
Washington, DC

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, **Heart Attack**
 Mount Holly, NJ
- 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, **Apparatus Rollover**
Cleveland, TN
 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.
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- 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/Paramedic** **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.
- 3/8/1998** **Edward J. Matter, Jr., Firefighter** **Volunteer, Age 56**
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.
- 3/9/1998** **David John Good, Firefighter** **Volunteer, Age 36**
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.
- 4/13/1998** **Michael Curtis Wiborg, Firefighter** **Paid-On-Call, Age 46**
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 wild-land 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.
- 5/9/1998** **Daniel W. Mumford, Firefighter/Driver** **Volunteer, Age 48**
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 NIOSH Fire Fighter Fatality Investigation 98-F-17.

6/26/1998 **Douglas L. Rohrbaugh, Fire Police Lieutenant** **Volunteer, Age 52**
 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; **Aircraft Crash**
 Gila National Forest, NM

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.
- 6/29/1998** **Timothy D. Allen, Firefighter** **Volunteer, Age 25**
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.

- 8/16/1998** **Larry Joe King, Sr., Firefighter** **Paid-Call, Age 42**
Maury City Fire Department, TN **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.
- 8/18/1998** **Calvin Harbaugh, Sr., Fire Police Officer** **Volunteer, Age 56**
Ebenezer Fire Company, PA **Heart Attack**
- Fire Police Officer Harbaugh was stricken with a heart attack while directing traffic at the scene of a motor vehicle collision.
- 8/20/1998** **John M. Walker, Private** **Career, Age 58**
Memphis Fire Department, TN **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.
- 8/29/1998** **Justin Melton, Firefighter** **Volunteer, Age 22**
Scott Selby, Firefighter **Volunteer, Age 35**
Marks Fire Department, MS **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.
- 8/29/1998** **Robert F. Peters, Lieutenant** **Volunteer, Age 52**
Hastings on Hudson Fire Department, NY **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.
- 8/31/1998** **Brian Carrasco, Inmate Handcrew Firefighter** **Wildland Part-Time, Age 35**
Los Angeles County Fire Department, CA **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 he was riding rolled over. Eleven others were injured.
- 9/4/1998** **Juan Manuel Hernandez Jr., Firefighter** **Wildland Full-Time Seasonal,**
United States Department of Agriculture Forest **Age 24**
Service, NM **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.
- 9/4/1998** **Allen Lawrence Heirtzler, Firefighter** **Volunteer, Age 22**
Slaughter Volunteer Fire Department, LA **MVA**
- Firefighter Heirtzler 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 Heirtzler'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 Heirtzler 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 Heart Attack
Company Number One, MD
 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/Danielstown/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**
Smoke Inhalation
- 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** **Wildland Career, Age Unknown**
Operator **Apparatus Rollover**
California Department of Forestry and Fire
Protection, CA
- 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.

- 12/2/1998** **Steven C. Mayfield, Firefighter** **Career, Age 47**
Houston Fire Department, TX **Heart Attack**
- 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.
- 12/9/1998** **Steve Austin Tippins, Assistant Chief** **Volunteer, Age 37**
Etolie Volunteer Fire Department, TN **MVA**
- 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.
- 12/12/1998** **Stephen E. Gessler, First Assistant Chief** **Volunteer, Age 44**
Little Falls Fire Department, NJ **Cardiac**
- 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).
- 12/18/1998** **James F. Bohan, Firefighter** **Career, Age 25**
Christopher M. Bopp, Firefighter **Career, Age 27**
Joseph P. Cavalieri, Lieutenant **Career, Age 42**
New York City Fire Department, NY **Trapped**
- 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 hall-way sprinklers did not activate due to a closed valve. Six other firefighters were injured in the fire.
- 12/18/1998** **Thomas J. Concannon, Fire Police Lieutenant** **Volunteer, Age 55**
Wormleysburg Fire Company #1, PA **Heart Attack**
- 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.
- 12/31/1998** **Kennon Loy Williams, Captain** **Volunteer, Age 27**
Banks County Fire Department, GA **Trapped**
- 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.

- 1/5/1999** **Carl Arnold Olsen, Firefighter** **Volunteer, Age 51**
Kiln Volunteer Fire Department, MS **Struck by Vehicle**
- 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

material at the time he was struck. Firefighter Olsen's wife is also a volunteer firefighter and was on the scene at the time of the fatal incident.

1/8/1999 **Daniel J. O'Connell, Firefighter** **Volunteer, Age 58**
 Putnam Lake Fire Department, NY **Heart Attack**

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.

1/9/1999 **Jason A. Gouckenour, Firefighter** **Volunteer, Age 22**
 Worthington-Jefferson Volunteer Fire Department, IN **Trapped**

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.

1/10/1999 **Tracy Dolan Toomey, Firefighter** **Career, Age 52**
 Oakland Fire Department, CA **Trauma**

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.

1/11/1999 **Martin Richard Wauson, Forestry Technician** **Wildland Part-Time, Age 55**
 United States Department of Agriculture Forest **Cardiac**
 Service, AR

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.

1/16/1999 **James R. Tolan, Firefighter** **Career, Age 55**
 Dunmore Fire Department, PA **Heart Attack**

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.

- 1/19/1999** **James H. McGroarty, Firefighter/Fire Investigator** **Career, Age 43**
Syracuse Fire Department, NY **Trauma**
- 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 before 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.
- 1/27/1999** **Ralph J. Loyd, Firefighter** **Volunteer, Age 90**
Greenville Fire Protection District, IL **Heart Attack**
- 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.
- 1/29/1999** **Joseph R. "Dick" Murphy, Firefighter** **Career, Age 64**
Boston Fire Department, MA **Heart Attack**
- 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.
- 2/9/1999** **Gerald "Jerry" Myers, Fire Safety Officer** **Volunteer, Age 59**
Sumpter Fire Department, OR **Struck by Apparatus**
- 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.
- 2/12/1999** **Jimmy "Wayne" Kittle, Captain** **Career, Age 49**
Whitfield County Fire Department, GA **Pulmonary Embolism**
- Captain Kittle suffered a massive pulmonary embolism while on duty at the fire station and died.
- 2/15/99** **Brian William Collins, Assistant Fire Chief** **Volunteer, Age 35**
Phillip Wayne Snell-Dean, Captain **Volunteer, Age 29**
River Oaks Volunteer Fire Department, TX
Gary Charles Sanders, Firefighter **Volunteer, Age 20**
Sansom Park Fire Department, TX **Smoke Inhalation/Burns**
- 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** **Volunteer, Age 50**
Vigilant Hose Company, Emmitsburg, MD **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** **Volunteer, Age 52**
Forest Grove Volunteer Fire Company, NJ **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** **Volunteer, Age 67**
Brazos Volunteer Fire Department, TX **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** **Volunteer, Age 58**
Eaton Rapids Fire Department, MI **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** **Volunteer, Age 50**
Anderson County Fire Protection District, KY **Unknown**
- Firefighter Franklin died after returning home from a fire.
- 2/28/1999** **Alan W. Ducheck, Captain** **Paid-on-Call, Age 46**
DeSoto Fire and Rescue, MO **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** **Volunteer, Age 69**
Hillburn Fire Department, NY **Heart Attack**
- Captain Taylor collapsed and died of an apparent heart attack while directing traffic at a structure fire.

- 3/16/1999** **David L. Packard, Firefighter** **Career, Age 56**
Boston Fire Department, MS **Heart Attack**
- 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.
- 3/16/1999** **Charles James "Chuck" Vodak, Firefighter** **Volunteer, Age 45**
Dunning Fire Department, NE **Heart Attack**
- 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.
- 3/17/1999** **Walter J. Flyntz, Firefighter** **Career, Age 44**
Bridgeport Fire Department, CT **Cardiac**
- 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.
- 3/23/1999** **Paul Haislopp, Captain** **Volunteer, Age 50**
Centerville Fire Department, OH **Heart Attack**
- Captain Haislopp experienced a heart attack at his fire station as he moved fire apparatus in preparation for a response to a structure fire.
- 4/2/1999** **Aubrey R. Tillman, Firefighter** **Career, Age 57**
Charleston Fire Department, SC **Heart Attack**
- 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.
- 4/6/1999** **Kenneth Allen Nickell, Captain** **Volunteer, Age 28**
Kevin Rex Smith, Firefighter/EMT **Volunteer, Age 30**
Route 377 Volunteer Fire Department, KY **Overrun by Wildfire**
- 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

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 Paid-on-Call, Age 64
Russell Fire Department, MA 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 Volunteer, Age 59
Clarendon Volunteer Fire Department, VT 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 Volunteer, Age 71
West Lake Fire Department, PA 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 Paid-on-Call, Age 56
Nantucket Fire Department, MA 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 Volunteer, Age 28
Hemby Bridge Volunteer Fire Department, NC 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

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 stooped 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/ Career, Age 64
Technician Dog Attack
District of Columbia Fire Department, Washington DC

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.

7/7/1999 **Lawrence D. Lehman, Fire Police Lieutenant** **Volunteer, Age 51**
South Lebanon Township Fire Police/Friendship **Heart Attack**
Fire Company, PA

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.

7/12/1999 **David Vernon Parks, Firefighter/Photographer** **Volunteer, Age 69**
Washington Township Volunteer Fire Department, PA **Heart Attack**

Firefighter Parks was engaged in routine maintenance of an engine company apparatus when he was stricken with a heart attack and later died.

7/15/1999 **Bryan Christopher Pottberg, Firefighter/Paramedic** **Career, Age 25**
Lee’s Summit Fire Department, MO **Drowning**

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 en 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.

7/18/1999 **Martin Michael Stiles, Inmate Firefighter** **Wildland Part-Time, Age 40**
Los Angeles County Fire Department, CA **Trauma**

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 sloopover 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.

7/27/1999 **David Dwayne Hartwick, Firefighter** **Volunteer, Age 35**
New Braunfels Fire & Rescue, TX **Heart Attack**

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.

7/29/1999 **Richard F. Devine, Firefighter** **Career, Age 49**
Philadelphia Fire Department, PA **Heart Attack**

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.

- 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 dismantled 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**
Cygnets 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 Dausatz, Firefighter** **Volunteer, Age 63**
White Tail Ridge Volunteer Fire Department, TX **Struck by Apparatus**
- Firefighter Dausatz 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 Dausatz 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 he had run over Firefighter Dausatz. It is believed that Firefighter Dausatz lost his footing. The cause of death was listed as severe chest and head injuries.

- 8/8/1999** **Ronald Wade Meshell, Firefighter** **Volunteer, Age 30**
Huttig Fire Department, AR **Burns**
- Firefighter Meshell responded, along with others from his department, to a mutual-aid call for a fire in a motor home. The owner of the motor home had just filled the fuel tank, driven the motor home to his residence, and parked the vehicle at the top of his driveway. Upon arriving home, the owner noticed smoke coming from under the hood; he could not extinguish the fire and called the fire department. Firefighter Meshell and a deputy fire chief arrived in a pumper and parked about 40 feet downhill from the motor home. Firefighter Meshell was ordered to pull a 1-1/2-inch line from the rear of the Huttig pumper to assist a firefighter from another department that had a booster line from the other department's pumper on the fire. Before the line could be charged, the fuel tank on the motor home ruptured and sent a flood of burning fuel down hill toward Firefighter Meshell, another firefighter, and both pumpers. Firefighter Meshell was not wearing any protective clothing, although he had loaded his protective clothing on the pumper prior to response. He was surrounded by flames for an estimated 15 seconds and was burned over 96 percent of his body surface and his airway. He died on 8/16/1999. Additional information about this incident can be found in NIOSH Fire Fighter Fatality Investigation 99-F-34.
- 8/9/99** **Arthur J. Heckman, Firefighter** **Volunteer, Age 66**
Macks Creek Fire Department, MO **Heart Attack**
- Firefighter Heckman was the first to arrive at a wildland fire that was threatening structures. Firefighter Heckman had pulled a pumper behind a house to fill it with water. He was found slumped over the wheel, having suffered an apparent heart attack.
- 8/14/1999** **Frank William Wood, Firefighter** **Volunteer, Age 54**
Flourtown Fire Company, PA **Heart Attack**
- Firefighter Wood and members of his department were fighting a room fire in a nursing home. Firefighter Wood assisted with the rescue of an unconscious staff member and then collapsed of an apparent heart attack. He was rushed to the hospital but subsequently died.
- 8/26/1999** **David Thomas Nall, Assistant Chief** **Volunteer, Age 40**
Town of Jay Volunteer Fire Department, FL **Heart Attack**
- Assistant Chief Nall responded to an emergency medical incident on a high school football field. Chief Nall assisted with the treatment of the patient and was helping to load the child in an ambulance when he complained of chest pains. He collapsed and CPR was initiated. Chief Nall was transported to a local hospital where he was pronounced dead about 1 hour later. No autopsy was performed.
- 8/27/1999** **Stephen Joseph Masto, Firefighter** **Career, Age 28**
Santa Barbara Fire Department, CA **Heat Stroke**
- Firefighter Masto was working as an EMT at a wildland fire, roaming among other firefighters and providing first aid to anyone who became injured. He worked a 6 a.m. to 6 p.m. shift, was equipped with a portable radio, and carried a canteen. He did not return to camp at the end of his shift, and a search was initiated. Firefighter Masto was discovered dead, wearing brush gear, about 12 hours later (on 8/28/1999) in steep terrain. The cause of death was found to be heat stroke; there was no evidence of trauma or other medical conditions that contributed to his death.
- 8/31/1999** **Timmy Roger Dawson, Firefighter** **Volunteer, Age 34**
Center Rock Volunteer Fire Department, SC **Apparatus Rollover**
- Firefighter Dawson was the driver of a 1994 pumper responding to a motor vehicle collision. Two other firefighters were passengers in the pumper. The right wheels of the pumper left the road, and Firefighter Dawson attempted unsuccessfully to bring the truck back under control. He overcompensated and the pumper went off the left side of the road, through a yard, and rolled several times. The pumper's speed was estimated at 60 miles per hour in a 35-mile-per-

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**
McColloch 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** **Wildland Part-Time, 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** **Career, 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** **Volunteer, Age 56**
Wilmont Fire Department, MN **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** **Volunteer, Age 49**
Grant Parish Fire District #5, LA **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** **Volunteer, Age 44**
Hawkins Bar Volunteer Fire Department, CA **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** **Volunteer, Age 77**
Ross Township Fire Department, OH **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** **Volunteer, Age 23**
Robert Charles Ulrich, Captain **Volunteer, Age 57**
Scipio Township Volunteer Fire Department, IN **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 Electrocutation

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.

11/4/1999 William Walter Korte, Firefighter Volunteer, Age 59
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 **Brain Aneurysm**
Company, Inc., MD

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

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).

1/8/2000 **Lee A. Purdy, Pump Operator/Inspector** **Volunteer, Age 57**
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 **Heart Attack**
Department, IA

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

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 Career, Age 48
Javier Lerma, Lieutenant Career, Age 41
Memphis Fire Department, TN 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

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

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.

4/29/2000 **David John Liston, Smokejumper** **Wildland Part-Time, Age 28**
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 broadsided 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**
Payne Flying Service, United States Department of **Aircraft Crash**
the Interior for the Texas Forest Service, TX

Pilot 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 FTW00TA142.

5/8/2000 **Kenneth Jesse, Fire Police Officer** **Volunteer, Age 80**
Harford Volunteer Fire Company, PA **Heart Attack**

Fire Police Officer 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,**
Courtney Aviation, United States Forest Service, CA **Age 49**
Samuel James Tobias, Air Tactical Group Supervisor **Wildland Career, Age 47**
United States Forest Service, Lincoln National **Aircraft Crash**
Forest, NM

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**

Firefighter 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.

6/4//2000 George A. "Bo" Burton, Firefighter/Rotor Craft Pilot Wildland Career, Age 48
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 passenger 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

tently positioned himself in front of a finger of the fire that was making a rapid run. By the 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 unexpectedly on 11/3/2000, 2 weeks after his injury. The cause of death was listed as massive bilateral 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 transported 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 conducting a "Fill the Boot" fund drive for the Muscular Dystrophy Association. During the collection 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.

9/1/2000 **Albert Leonel Voris, Jr., Lieutenant** **Volunteer, Age 63**
Combine Volunteer Fire Department, TX **MVA**

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.

9/4/2000 **Earnest Otis Ousley, Lieutenant** **Career, Age 49**
Roselle Fire Department, NJ **Heart Failure**

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.

9/4/2000 **Daniel H. Yanklin, Lance Corporal** **Career Military, Age 21**
Marine Corps Air Station Yuma, AZ **Struck by Apparatus**

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.

9/5/2000 **Howard William Vanhoy, Assistant Chief** **Volunteer, Age 67**
Austin Volunteer Fire Department, NC **Heart Attack**

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.

9/7/2000 **Michael Robert Fossett, Crew Chief** **Wildland Career, Age 45**
David Timothy Newman, Pilot **Wildland Career, Age 40**
North Carolina Division of Forest Resources, NC **Helicopter Crash**

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.

9/11/2000 **Michael Kenneth Yahraus, Firefighter/Paramedic** **Career, Age 32**
Sarasota County Fire Department, FL **Shot (Training Accident)**

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.

9/17/2000 Robert Wilson Humphrey, Firefighter Volunteer, Age 62
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 -like 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 **Heart Attack**
 District, MO

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, **Heart Attack**
Fort McPherson and Fort Gillem Fire and Emergency
Services, GA

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.

11/17/2000 **Thomas J. Hazaz, Fire Police Lieutenant** **Volunteer, Age 69**
 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.
- 12/11/2000** **Edward A. Russ, Firefighter** **Volunteer, Age 39**
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**
Chicago Fire Department, IL

Career, Age 37
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
Allen, Timothy D., 6/29/1998
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
Anderson, Lewis Edward "Rawhide", 9/27/1999
Anderson, David A., 12/23/2000
Archer, 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
Barter, David, 6/18/1994
Bartholemew, Marvin Maurice, 11/25/2000
Batten, Lisa, 2/13/1995
Bauerlien, 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
Bianconi, 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 Williardk, Jr., 5/19/1998
Blackmore, James, 6/5/1998
Blakemore, William M., 3/8/2000
Blankenship, Arnold, III, 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
Bonnar, 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, Josphe A., 12/26/1992
Boudoin, Keith, 10/13/1996
Bow, Joseph R., 10/21/1991
Boyce, Samual Isaac, 3/15/1993
Boyert, Anthony L., 4/21/1990
Boyle, Charles H., 6/9/1991
Bradner, William S., III, 11/5/1997
Brain, Frederick L., 3/18/2000
Braithwaite, Rodgie R., 8/23/2000
Brannon, Robert Cowey, Jr., 4/26/2000
Brashears, Thomas D., 6/19/1990
Brekrus, 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, Larry H., 12/23/1991
Brooks, Thomas, 2/14/1995
Brotherton, Paul Arthur, 12/3/1999
Broussard, 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

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
 Buroker, Dennis L., 6/2/1998
 Burton, George A. "Bo", 6/4//2000
 Butchee, Charles, 3/5/1994
 Butcher, Marc, 6/13/1994
 Butler, Frank L., 3/26/1991
 Butler, Michael A., 3/23/1998
 Butler, George David, 9/19/2000
 Buttram, Bill, 7/28/1995
 Byers, John M., 8/25/1992
 Calhoun, Anthony Vo, 10/12/1992
 Campbell, Herbert B., 3/2/1992
 Campbell, James Shannon, 8/31/1992
 Cannon, Brian Allen, 1/16/98
 Canonico, Michael, 11/25/1995
 Capps, Jackson, 10/24/1996
 Cardozo, George H., 12/1/2000
 Carletti, Stephen D., 2/5/1998
 Carlson, Ronald, 4/7/1994
 Carpenter, David E., 9/8/1997
 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
 Carugno, Anthony J., 11/1/1992
 Casboni, Matthew P., 7/23/1998
 Cash, Bedford, 2/26/1994
 Cashman, Kenneth C., 9/13/1999
 Casiano, Eric Noel, 5/3/1999
 Castillo, Victor Clement, 5/7/1998
 Castro, David, 8/8/1994
 Cavaliere, 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
 Chestnut, James E., Jr., 5/1/1990
 Chestnut, Burton Frank, 2/18/1999
 Chisholm, Robert D., 8/31/1997
 Chlian, Jerome H., Jr., 7/25/1997
 Christian, Loren N., 12/24/1990
 Cielicki, Michael J., 12/20/1991
 Ciliberto, George, 1/22/1994
 Cirrito, 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
 Cochran, John R., 11/29/1991
 Cockrell, Gary, 6/22/1995
 Cohen, Rudolf, 6/2/1999
 Cole, Robert A., 12/19/1991
 Collins, Bennie B., 11/11/1990
 Collins, Donald, 4/19/1996
 Collins, Brian William, 2/15/99
 Colona, Steven, 12/27/1994
 Colton, Todd D., 9/6/1990
 Concannon, Thomas J., 12/18/1998
 Conklin, Edwin R., 6/29/1993
 Conner, Phillip Arthur "Pip", 8/3/2000
 Conroy, Patricia, 2/14/1995
 Contreras, Alex S., 6/26/1990
 Cooper, Paul Eugene, 2/11/2000
 Coppin, Jerry Wayne, 3/7/2000
 Coppole, Gene K., 11/18/1990
 Cormican, Bruce, 8/21/1995
 Cothran, James J., 12/17/1992
 Cottrell, Donald C., 3/8/1993
 Coulter, Leonard, 8/21/1996
 Covis, Anthony, 6/4/1994
 Cowgill, Brooks, 4/4/1991
 Coyne, Thomas E., Jr., 12/18/1991
 Craft, Willie, 4/24/1996
 Crago, Roy Kenneth, 12/7/1999
 Crane, George, Jr., 7/11/1996
 Cribley, Kinnison F., 12/13/1991
 Cropper, 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 I., 3/24/1991
 Dauzat, Cilton Jay, 8/5/1999
 Davis, Robbie, 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
 Denny, Arthur R., II, 9/28/1991
 Derryberry, Clark, 10/12/1996
 Deshazor, Vernon D., 1/28/1990
 Detty, 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
 Dorsey, Richard, 9/4/1996
 Dougherty, Edward P., Jr., 4/8/1990
 Dougherty, Patrick J., 4/7/1993
 Drennan, Robert J., 12/11/1990
 Drennan, John, 3/29/1994

Drews, Karl J., 4/19/1990
 Drobitsch, Michael F., 6/20/1997
 Drury, Craig, 8/8/1994
 Du Chateau, John A., 10/22/1991
 Ducheck, Alan W., 2/28/1999
 Dudley, Earle V., III, 9/20/1992
 Dugan, John G., 7/7/1991
 Dunbar, Doug, 7/6/1994
 Dunham, Russell E., 7/16/1991
 Dunham, James Melvin, 11/18/1999
 Dunkerley, David M., 6/20/1993
 Dunn, Thomas, 1/4/1994
 Dupee, Joseph C., 3/8/1998
 Durflinger, Vinton, 3/8/1996
 Duvall, Robert, 4/7/1996
 Dyer, Wilbert L., 11/8/1992
 Dzioba, Heather L., 9/1/1992
 Eager, Victor E., 10/16/1992
 Ebert, Arthur R., 1/3/1997
 Elliott, Harold "Ray", 10/15/1997
 Ellis, James E., 6/26/1990
 Ellis, Gwyn L., 10/20/1992
 Ellis, James A., 12/21/1996
 Ely, Robert J., 9/25/1990
 Emanuelson, David G., 12/20/1991
 Emmrich, Raymond, 12/29/1996
 English, Robert, 2/5/1994
 Enslow, Kenneth E., 8/13/1990
 Ernst, Walter A., 5/27/1998
 Ertle, Gerald T., 6/7/1997
 Estavillo, Joseph J., 8/3/1997
 Evans, Roger, 11/23/1994
 Ezernack, Paul Franklin, Jr., 12/15/1999
 Fain, Cecil A., 1/2/1993
 Fairweather, Frederick, 9/23/1995
 Fairweather, William H., 11/15/1997
 Falconer, Lou, 3/15/1991
 Farrell, Joseph D., 3/19/1991
 Farrow, Lisa Ann, 8/9/2000
 Favinger Sr., William R., Sr., 1/5/1996
 Ferrante, Theodore A., Jr., 12/20/1999
 Ferrera, Victor, 6/27/1990
 Fields, Logan D., 8/12/2000
 Fierson, Charles E., 9/5/1992
 Fisher, John, 9/28/1995
 Fitzgerald, David C., 10/13/2000
 Fitzpatrick, June, 8/1/1995
 Floyd, Tracy D., 5/3/1997
 Flyntz, Walter J., 3/17/1999
 Fogel, Wayne M., 2/4/1997
 Folds, John W., 1/26/1990
 Fossett, Michael Robert, 9/7/2000
 Foster, Robert H., Sr., 10/29/1991
 Fowler, Robert E., 2/22/97
 Fowler, Vincent, 6/3/1999
 Frank, William, 5/30/1996
 Frank, Charles Peter, III, 11/8/1998
 Franklin, Arthur Bruce, 2/28/1999
 Franks, Walter, 1/28/1994
 Frantz, Richard A., 12/20/1991
 Freeman, Edward, 11/12/1994
 Frizzell, Henry, 1/24/1995
 Fullbright, Gus, 9/13/1994
 Fuller, Ronnie, 1/1/1994
 Funston, Frank, 8/27/2000
 Garber, Fred R., 7/10/1990
 Garcia, Ernestine, 2/2/1995
 Garis, Harry B., 1/2/1993
 Garlinghouse, Lyle, 7/20/1995
 Garneau, Christopher, 8/16/1995
 Garnett, Jackie Mac, 11/20/1999
 Gass, Walter Harvey, 1/27/2000
 Gates, Jesse, 6/3/1997
 Gazalie, Jack Elias, 8/3/2000
 Geary, Stoy, 1/14/1997
 Geiger, James D., 2/19/2000
 Gelenius, Elwood M., 2/5/1992
 Gessler, Stephen E., 12/12/1998
 Gilbert, Frank, Jr., 10/26/1996
 Gillen, Scott P., 12/23/2000
 Giradot, Steve L., 10/12/1990
 Glasgow, Ralph F., 9/30/1990
 Gleason, Richard E., Sr., 7/9/1993
 Glenn, Marcel, 1/18/1996
 Godsil, Toni J., 8/6/1990
 Goessling, John, 4/23/1996
 Goff, Timothy M., 5/24/1997
 Golden, Bryan J., 2/6/1997
 Good, Robert Douglas, 6/5/1997
 Good, David John, 3/9/1998
 Goode, James, Jr., 6/19/1990
 Goodwin, Tulon Lee, 7/6/1998
 Gosey, Carson L., Sr., 10/24/1998
 Gotkowski, Thomas G., 10/1/2000
 Gouckenour, Jason A., 1/9/1999
 Gray, Barry M., 8/24/1990
 Gray, John, 8/25/1996
 Griffith, James Ted, 4/7/2000
 Grimes, William P., 3/30/1990
 Gross, Tommy T., III, 3/21/1997
 Grosse, Jack, 10/24/1996
 Grounds, William, 1/31/1993
 Guerrero, Lupe, 7/27/1992
 Guilmette, Ronald A., 12/11/1997
 Gushiken, Steven, 2/1/1996
 Gutierrez, Sean, 7/12/1994
 Guyer, George, 7/28/1996
 Hagen, Terri, 7/6/1994
 Haggadone, Robert, 1/19/1996
 Haislopp, Paul, 3/23/1999
 Hale, Timothy, 2/11/1994
 Halsey, Laura, 12/21/1996
 Hamilton, Barvon Coy, 8/1/1998
 Hamler, Robert, 5/1/1996
 Haner, Ronald, 12/18/2000
 Hansen, Wilbert F., 11/11/1993
 Hansen, Herloff "Ted", III, 4/13/1995
 Harbaugh, Calvin, Sr., 8/18/1998
 Hargreaves, John F., 8/22/1993
 Harmon, Monte Jason, 6/23/1996
 Harness, David, 11/19/1995
 Harris, Larry R., Jr., 8/5/1993
 Harris, Clifford, 6/28/1994
 Harris, James, 9/1/1994
 Harrison, Rufus J., 8/21/1990
 Harrison, Eldon W., 9/9/1992

Harshbarger, Kevin Scott, 9/24/2000
 Hart, Nicholas W., 4/6/1990
 Hartley, Richard A., 1/10/1993
 Hartwick, David Dwayne, 7/27/1999
 Harvey, James, 8/13/1994
 Hatcher, Mathew, 4/19/1996
 Hathaway, H. Robert, 1/8/1997
 Hauber, Russett "Rusty" S., 3/15/1997
 Hauk, Brian T., 12/23/1997
 Haungs, Edwin J., Sr., 6/16/1997
 Havens, Richard A., 2/20/1990
 Haviar, John, 11/9/1995
 Hazaz, Thomas J., 11/17/2000
 Hazuka, Raymond, 9/16/1991
 Heckman, Arthur J., 8/9/99
 Hedrick, Kenneth M., 1/12/1992
 Heide, Robert S., Sr., 6/20/1992
 Heimann, Frederick J., Jr., 6/13/1990
 Heinze, Richard Anthony, 6/4/1999
 Heitzler, Allen Lawrence, 9/4/1998
 Heller, Richard C., Jr., 4/4/1992
 Henderson, Troy V., 3/19/1993
 Hendrick, Kyle Allen, 11/16/2000
 Hendricks, Leslie, 8/24/1996
 Hennan, Clifford L., 3/4/1992
 Henry, Robert, 1/25/1991
 Henry, Dewey, 9/11/1994
 Herington, Ken M., 6/20/1990
 Herman, Christopher D., 8/20/1993
 Hernandez, Juan Manuel, Jr., 9/4/1998
 Hershey, Richard L., 5/1/1990
 Hester, Harold, 1/10/1997
 Hicks, Thomas E., 12/16/1990
 Hill, Alston F., Sr., 3/28/1991
 Hill, James D., 12/26/1992
 Hill, Brian L., 9/6/1993
 Hill, James G., Sr., 11/9/2000
 Hinson, Mark R., Sr., 12/15/1993
 Hinson, James Greg, 8/27/1995
 Hirth, Walter John, Jr., 4/20/1997
 Hiser, Floyd Dean, Sr., 7/6/1997
 Hitchcock, Robert L., 3/13/1990
 Hoad, Rex, 6/19/1996
 Hobson, Lawrence, 5/12/1997
 Hocking, Bradley, Sr., 6/3/1995
 Hodges, Paul, 7/27/1994
 Hoeffner, Jake M., 5/26/1998
 Hoffer, Lionel, 12/24/1994
 Hogan, Richard, 6/10/1995
 Holcombe, David E., 2/24/1991
 Hollis, Alfornia, 6/9/1991
 Hollowniczky, George, 1/17/1991
 Holmes, Neil A., 9/28/1998
 Holmgreen, Ronald, 6/14/1994
 Holsapple, Earl, 4/26/1997
 Holtby, Bonnie, 7/6/1994
 Hone, Jack Lee, 11/12/1994
 Honstain, Bruce, 9/10/1996
 Hood, Terri LeAnn, 9/15/1999
 Hoots, Ronnie E., 10/19/1990
 Hoover, Michael D., 10/14/1992
 Hopey, George, Jr., 11/26/1997
 Hopler, Willard, 1/7/1996
 Hoppenjans, Ralph L., 12/22/1990
 Horvath, Thomas I., 6/16/1992
 Houghton, Roger A., 3/10/1990
 Howe, James E., 1/9/1991
 Howe, Henry W., 12/10/1995
 Hudgins, John, Jr., 3/18/1996
 Hudson, M. Edward, 5/8/1997
 Hughes, Howard A., 5/10/1990
 Huisman, Marvin, 10/7/1999
 Hummel, Joseph A., 1/16/1993
 Humphrey, Robert Wilson, 9/17/2000
 Husband, Paul Antonio Lyndell, Sr., 9/27/2000
 Hyland, Neil, 3/3/1995
 Hynes, James E., 10/27/1997
 Insalaco, Leonard C., II, 3/15/1993
 Jackson, Jimmy L., 9/18/1993
 Jackson, Timothy Paul, 12/3/1999
 Jackson, Robert Jeffery, 2/29/2000
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 Jarvis, Joseph, Sr., 4/29/1994
 Jenkins, Richard B., Sr., 8/22/1997
 Jesse, Kenneth, 5/8/2000
 Johnson, Rob, 7/6/1994
 Johnson, Joe, 8/13/1994
 Johnson, Robert L., 9/15/1994
 Johnson, James H., 6/5/1997
 Jones, William N., Jr., 11/22/1992
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 Kaczka, Donald, 3/24/1995
 Kahn, Peter, 2/16/1997
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 Kane, Kevin C., 9/12/1991
 Karl, George J., 7/17/1990
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 Kautz, Martin, 8/31/1995
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 Keeth, Gifford, 7/26/1991
 Keith, Craig W., 9/15/1991
 Kelley., John L., Jr., 3/18/1990
 Kelly, Robert, 7/29/1994
 Kelso, Jon, 7/6/1994
 Kennedy, John Rochford, 7/17/1998
 Kennicutt, Gary L., 4/10/1993
 Kerr, Kenneth W., 11/15/2000
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 Key, Charles Franklin, 6/27/1998
 Kibbey, Jennifer L., 3/13/1991
 Kilgore, Walter, 1/5/1995
 Kim, Henry Young Hi, 6/21/1991
 King, Gary, 3/22/1994
 King, John, 9/23/1994
 King, Marcus, 1/31/1995
 King, Patrick Joseph, 2/11/1998
 King, Larry Joe, Sr., 8/16/1998
 King, Daniel I., 11/26/2000
 Kittle, Jimmy "Wayne", 2/12/1999
 Klein, William T., 1/1/1990
 Koebel, Donald, 3/8/1995

Kolenda, Marc, 2/14/1995
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 Koponen, Leo, 5/15/2000
 Korte, William Walter, 11/4/1999
 Kozlowski, Joseph E., 8/27/1993
 Kroboth, Joseph, Jr., 5/2/1998
 Kroening, John F., 11/7/1997
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 Kuhn, Willard C., 1/28/1990
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 Lafferty, Patrick, 10/13/1993
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 Lancaster, David Zan, 11/7/1999
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 Langley, Jeffrey, 3/30/1993
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 LaPiedra, Scott J., 6/5/1998
 Lapp, Robert, 5/13/1995
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 Laverty, Scott T., 5/31/1991
 Laws, Brett A., 2/6/1997
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 LeClair, Richard J., 10/10/2000
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 Lerma, Javier, 3/8/2000
 Lewis, Johnny, Jr., 9/7/1991
 Lewis, Tim L., 10/24/1992
 Lewis, Alton L. "Al", 11/20/1999
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 Lincoln, John F., Jr., 12/5/1997
 Lindner, Bruce, 7/11/1996
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 Lowery, Charles R., II, 10/20/1990
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 Lucey, Jeremiah Michael, 12/3/1999
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 Luecht, Wayne Robert, 6/11/1999
 Luker, William, 7/30/1995
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 MacMurray, Paul, 8/27/1994
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 Mambretti, Louis, 3/9/1995
 Manchester, Roc E., 11/6/1992
 Mangieri, Eric, 8/7/1995
 Manka, Norman, 3/13/1996
 Manuel, Donald, 11/24/1996
 Mapes, Michael D., 10/2/1997
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 Margerum, Nelson, 3/15/1992
 Maricle, Lynn E., 1/20/1991
 Marks, William, 8/5/1995
 Marshall, William H., Jr., 2/15/1991
 Martin, William F., 5/31/1991
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 Matthews, Lewis Jefferson, 5/30/1999
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 Maxeiner, Thomas H., 12/23/1990
 Maxwell, Elvis Benson, 10/7/1999
 Mayfield, Steven C., 12/2/1998
 Mayfield, Kathryn A., 10/25/1997
 Mayo, Lewis Evans, III, 2/14/2000
 McAdams, William, 5/12/1990
 McAllister, Phyllis, 2/24/1991
 McAndrew, Ronnie M., 11/14/1990
 McCarthy, Joseph P., 11/24/1991
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 McDonald, Randall P., 3/8/1991
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 McElroy, Ernest Alan, 9/9/1998
 McElveen, Terry, 10/27/1997
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 McGary, Dennis, 3/7/1996
 McGinnis, William, 8/8/1996
 McGowan, Harold "Mac" E., 1/2/1997
 McGrath, Paul Francis, 6/17/1999
 McGroarty, James H., 1/19/1999
 McGuirk, Joseph T., 12/3/1999
 McKay, Ray Parnell, Jr., 5/12/1995
 McKenzie, Francis N., 1/18/1990
 McKinney, Patrick Henry, Jr., 5/5/1998
 McLaughlin, Peter, 10/8/1995
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 McNamee, Steven J., 11/23/1993
 McNeer, Bradley Curtis, 12/18/1999
 McNeil, Earl, Jr., 4/23/1995

McQuaide, Richard C., Sr., 2/18/1993
Medlicott, Robert, 7/29/1992
Meegan, Vincent D., Jr., 12/23/1993
Melendy, 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
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Mercer, Larry L., 4/17/1997
Meredith, Kim, 7/15/1992
Merrell, L. C., 4/29/2000
Meshell, Ronald Wade, 8/8/1999
Metts, Brian E., 2/27/1993
Meyer, John J., 7/27/1990
Michael Smith, Michael, 6/22/1995
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Mills, Leonard E., Sr., 7/28/1990
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Minehan, Stephen, 6/24/1994
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Mondy, Delmar M., 7/27/1993
Moore, Mark A., 7/30/1990
Moore, Ricky G., 6/28/1997
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Moree, Don, 4/24/1996
Morgan, Newt, 2/7/1994
Morgan, Corey, 2/5/1996
Moriarty, Michael, 5/28/1991
Morris, Robert D., II, 6/29/1991
Morris, Calvin, 8/16/1992
Morrison, Dana, 3/27/1995
Morton, Reed, Sr., 1/19/1996
Morvant, Wylie J., 2/23/1991
Mosher, David, 1/3/1994
Mousley, Prince Albert, Jr., 1/6/1998
Mullins, Gerald, 1/8/1994
Mullins, Dennis, Jr., 1/12/1994
Mumford, Daniel W., 5/9/1998
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, Warren D., Jr., 2/11/1998
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
Nason, Francis E., 11/5/1991
Navarro, John A., 10/29/1992

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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'Rouke, Ronald L., 1/4/1993
Osadacz, 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
Ousley, Earnest Otis, 9/4/2000
Overman, 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
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Paris, Daniel G., 6/19/1991
Park, Johnnie Ray, 6/27/1998
Parker, Robert L., 3/30/1991
Parker, Tommy A., 11/4/1992
Parks, David Vernon, 7/12/1999
Parris, Cogdil 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
Penning, Richard A., 11/5/1990
Perry, Aaron J., 6/27/1990
Perry, Henry E., 9/14/1997
Pescatore, Nathan Andrew, 7/2/2000
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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

Pinkowski, Phillip M., Jr., 4/12/1999
 Pinnell, Wilbur, 1/7/1995
 Pitcher, Edward, 7/15/1995
 Pizinger, Michael A., 5/2/1998
 Ploeger, Francis, 2/24/1996
 Plummer, John N., 1/27/1991
 Polan, Mark E., 8/22/1990
 Pollard, Guy R., 1/6/1996
 Pollard, Robert Dale, 12/31/1999
 Porter, Gary S., 10/24/1992
 Post, Guy E., 11/30/1993
 Pottberg, Bryan Christopher, 7/15/1999
 Powell, Billy Ray, 3/23/1992
 Powers, Louis T., 8/5/1993
 Prendergast, Thomas E., 7/23/1998
 Price, Floyd M., 3/18/1990
 Prime, Norman, 3/29/1995
 Pritchett, John Paul "J.P.", Sr., 8/20/2000
 Pucker, Dean O., 7/31/1992
 Pulley, Wayne L., 8/21/1991
 Purcell, Keith P., 12/17/2000
 Purdy, Lee A., 1/8/2000
 Quadrel, Frank A., 1/1/1991
 Queen, Michael "Mike" Russell, 3/28/2000
 Queen, Elwood, 11/29/2000
 Quinn, Nathaniel, 2/23/1996
 Quinn, Gregory I., 11/22/1997
 Quinones, Jaime, Jr., 8/26/2000
 Raibley, Donald, 7/21/1996
 Ramey, Jerry Wayne, 11/3/1999
 Ramos, Edward, 11/27/1996
 Raskin, Daniel J., 7/9/1990
 Rathbun, Albert Roger "Bo", 10/8/2000
 Ray, James R., 5/15/1990
 Ray, Norman, 8/8/1996
 Ray, David M., 5/29/1997
 Reavis, James, 10/26/2000
 Redmond, John, 1/28/1994
 Reed, Jerry A., 5/28/1990
 Reick, Jeffrey William, 4/1/1998
 Reid, William, 9/20/1996
 Reiner, Eric F., 3/23/1998
 Reits, Robert G., Sr., 1/16/1992
 Renfroe, James Robert, 8/14/2000
 Renner, Jeffrey, 9/18/1996
 Reveal, Kevin, 9/29/1996
 Reynaga, Randy W., 7/3/1993
 Reynolds, Thomas C., 1/20/1997
 Rhinehart, Bruce A., 10/27/1990
 Rhoads, Stanley, 4/15/1994
 Rice, Mark S., 12/1/1991
 Rice, Richard K., Sr., 3/28/1998
 Rice, Thomas Benjamin, 11/9/1998
 Richter, Karl, 6/14/1990
 Ridings, Phillip, 7/15/2000
 Riggins, John, Jr., 10/25/1995
 Riley, James M., Jr., 10/20/1991
 Rivera, Heriberto T., 5/10/1990
 Rivera-Rivas, Luis A., 2/5/1998
 Rizac, Christopher, 6/10/1995
 Robbins, Rick, 4/24/1996
 Robertson, William J., 4/25/1998
 Robibero, Albert F., 6/24/1991
 Robinson, Reginald G., Sr., 5/8/1997
 Robinson, Costello Nathaniel "Colonel", 7/7/1999
 Roche, Lawrence, 8/26/1996
 Rodd, Dennis, 3/13/1993
 Rodgers, Gregory Eugene, 12/13/1999
 Rodriguez, Evangelino Soto, 2/21/2000
 Roemer, Harold E., Jr., 1/5/1998
 Rohrbaugh, Douglas L., 6/26/1998
 Ronaldson, Alfred E., 3/5/1991
 Rosen, Wayne, 6/22/1999
 Roth, Roger, 7/6/1994
 Rovero, Malcolm A., 7/15/1997
 Rowe, Will Ellis, Jr., 5/9/1997
 Rudd, Charles A., 6/5/1997
 Ruezga, Arthur, 8/20/1993
 Russ, Edward A., 12/11/2000
 Russell, Wayne Ronald, 7/6/1991
 Ruth, Victor, III, 6/10/1994
 Rutledge, Christopher C., 10/22/1993
 Ryan, Thomas P., 12/30/1997
 Sadowski, Peter S., 1/29/1993
 Salisbury, Harold, 1/10/1994
 Samanas, Robert M., 10/31/2000
 Sammons, Jeffrey E., 8/19/1997
 Sanders, Richard, 1/15/1997
 Sanders, Gary Charles, 2/15/99
 Sapp, James D., 9/2/1991
 Sarles, Marshall F., 7/2/1991
 Satterfield, Paul P., 9/28/1998
 Savage, Christopher P., 2/27/1993
 Savage, Karen Jane, 10/16/1999
 Scannell, Bernard D. (Pete), 9/21/2000
 Scarborough, Timothy P., 4/15/1991
 Schaefer, Eric, 9/16/1995
 Schiebel, Raymond, 3/5/1995
 Schmidt, Gordon O., 11/11/1991
 Schmidt, Karl, 10/15/1996
 Schmitt, Howard R., 1/29/1993
 Schott, James W., 1/5/1992
 Schubert, Gene, 9/17/1995
 Schumacher, Arthur E., 12/31/1992
 Schunk, Norman G., Jr., 1/9/1993
 Schuyler, John, 7/10/1995
 Schwinger, Walter, Jr., 11/12/1996
 Scott, Glenn, 2/8/1995
 Scott, Henry, 9/18/1996
 Scott, Stanley, 12/21/1996
 Seaburg, Kevin C., 2/5/1997
 Seguin, Michael L., 7/4/1997
 Segura, Hector M., 5/23/1990
 Seib, Dale M., 2/26/1990
 Seidenburg, Christopher, 3/29/1994
 Selby, Scott, 8/29/1998
 Sexton, Lydia A., 10/24/1990
 Shadrack, Lester Lee, 8/13/2000
 Sharp, David Clements, II, 3/17/2000
 Shaughnessy, Michael, 7/23/1994
 Shaw, Robert A., 10/16/1991
 Sheats, Lewis R., 4/1/1993
 Shenefield, Ray J., 12/30/1990
 Sheppard, Ann F., 2/20/1994
 Sherburn, Phillip, 3/15/1995
 Sheridan, Charles F., 10/1/1992

Sherman, Kris, 7/27/1996
 Shirk, Evan N., 5/27/2000
 Shockley, Jesse, Jr., 12/10/1994
 Shoemaker, Gregory, 1/5/1995
 Shortt, Mike, 3/15/2000
 Shue, James, 12/14/1995
 Sieglinger, 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, Albert R., 12/3/1991
 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
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 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
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 Soupene, Gary, 7/10/1995
 Sowle, Ingrid H., 2/19/1990
 Spangler, John E., 10/29/1991
 Spencer, John H., 4/14/1991
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 Springfield, Curtis E., 6/26/1990
 Stanbery, Ralph William, 4/22/1998
 Stanmire, Robert C., Sr., 2/16/1999
 Stark, Roger, 6/19/1992
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 Starr, Julius C., 8/15/1990
 Stavely, James H., III, 6/30/1992
 Steele, Lee Allen, 6/23/1996
 Stephen E. Bovey, Ralph F., 9/30/1990
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 Stevens, Leo A., 6/3/1997
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 Streeter, Allen L., 1/11/2000
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 Sulzinski, Stephen, 10/29/995
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 Sutton, Brian D., Sr., 11/8/1994
 Sutton, David Paul, 3/4/2000
 Swan, John William, II, 8/6/1996
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 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
 Teehan, 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
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 Thorn, Glen, 1/21/1994
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 Thrower, Lawrence D., 10/24/1998
 Tillman, Aubrey R., 4/2/1999
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 Tobias, Samuel James, 5/15/2000
 Tolan, James R., 1/16/1999
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 Toomey, Tracy Dolan, 1/10/1999
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 Ulrich, Robert Charles, 10/28/1999
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 Valentino, Louis, 2/5/1996
 Van Calbergh, Michael E., 6/30/1990
 Van Wert, Richard L., 12/10/1999
 VanAuken, Gail Lynne, 11/2/2000
 Vanhoy, Howard William, 9/5/2000
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 Veri, Frank, Jr., 12/20/1991
 Vilorio, 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
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 Walling, James D., 12/9/1991
 Wallingford, Robert, 8/27/1996
 Walls, Nathan E., 10/11/1991

Walls, William, 6/5/1995
Walsh, Larry R., 4/9/1998
Wannagot, Daniel E., 3/15/1991
Ward+C406ell, Maurice, Jr., 1/23/1994
Warick, James, 12/23/1996
Warner, Chester F., 10/1/1992
Warren, Alton, 5/30/1994
Warren, Timothy J., III, 2/15/1997
Warren, Stewart, 5/8/1997
Wary, Barry L., 10/13/1998
Washburn, Richard, 9/30/1995
Waskiewicz, Robert, 4/3/1994
Waters, Roland, 6/14/1992
Watson, John McClay, 6/16/1997
Watts, David J., 4/28/1999
Wauson, Martin Richard, 1/11/1999
Weaver, James, 4/2/1995
Weaver, Mitch, 7/25/1995
Weber, Charles Allen, Sr., 2/28/1997
Weeks, Thomas, 8/25/1990
Weeks, Bryan Lo, 7/12/1992
Weingart, John, 7/14/1995
Weischman, George Delbert, 12/28/1992
Wheeler, William M., 1/2/1993
White, James E., 1/10/1990
Whiteside, George R., 12/13/1991
Wiborg, Michael Curtis, 4/13/1998
Wiebe, Robert P., 9/11/1990
Wilcom, Michael J., Jr., 5/24/1993
Wilkes, Mark A., 9/2/1991
Williams, Gregory E., 11/4/1991
Williams, Thomas A., 2/24/1992
Williams, Marilyn, 2/1/1994
Williams, Henry, 3/18/1995
Williams, James B., 1/5/1996

Williams, Charles "Chuck" H., II, 2/17/1997
Williams, David Shawn, 10/22/1997
Williams, Kennon Loy, 12/31/1998
Williams, Lewis Edward, 5/14/1999
Williford, Randy, 7/6/1995
Wilmot, Steven Max, 7/18/2000
Wilson, Richard E., 6/29/1992
Wilson, Ronnie, 4/15/1995
Wilson, William "Junior" T., 5/25/1997
Wilson, Donald R., 3/6/2000
Wilt, Joseph M., 1/1/1990
Winckler, George S., 10/18/1991
Winters, James C., 12/20/1990
Winters, William "Pops" H., 10/10/1997
Womer, David, 10/24/1997
Wood, Frank William, 8/14/1999
Woodward, John, 6/29/1995
Wright, Blake V., 8/26/1990
Wright, Jared Lee, 1/31/1995
Wunch, Mark A., 5/13/1990
Wylie, Thomas, 12/27/1994
Yahraus, Michael Kenneth, 9/11/2000
Yale, Stephen D., 12/20/1991
Yankey, William Dwight, 11/13/1998
Yanklin, Daniel H., 9/4/2000
Y'Barbo, Jessie Lamar, 3/13/2000
Yost, Wayne C., 11/20/1999
Young, Julie Ann, 7/30/1992
Young, James, 3/29/1994
Young, Frank, 3/18/1996
Young, Charles C., 10/18/1999
Young, Ernest John, 1/16/2000
Zaremba, Shawn, 8/13/1994
Zeller, Leonard N., 12/15/1997
Zimmerman, Dale, 1/13/1996