

# **MULTIPLE-DEATH FIRES FOR 2005**

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**September 2006**



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## **Acknowledgments**

NFPA wishes to thank the U.S. fire service for its contributions, without which this report would not be possible. The author would like to thank his co-workers for their guidance in the completion of this report.

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On September 21, storm clouds formed along the Texas and Louisiana coast, setting the stage for the largest multiple-death fire in 2005.

Hurricane Rita was the second Category 5 hurricane in the Gulf of Mexico in a month. All eyes were on this large and dangerous storm and on September 22, evacuation orders were posted along the Gulf Coast of Texas.

Following evacuation orders, a nursing home in Bellaire, Texas (in the Houston area) prepared. Families picked up most of the residents, but two busloads of residents and staff members were dispatched to sister facilities in Dallas.

One bus loaded with 38 patients and 6 health care workers left the nursing home at 3 PM. On board the bus were two patients using oxygen, 18 oxygen cylinders, wheelchairs, and walkers were stored below the passenger compartment. The second bus departed a short time later. Gridlocked highways turned the four-hour trip into a 15-hour to 16-hour ordeal.

Between 4 AM and 6 AM on September 23, one bus had a flat right rear tire and the driver pulled off the road. He called for assistance and the tire was fixed.

Once on the road, at 6:08 AM, a passerby flagged down the bus driver by pulling in front of the bus and slowing down, at which time another passerby informed the bus driver that the bus was on fire.

In his rear-view mirror, the driver saw fire coming from the right rear wheel well. He pulled over and exited the bus to examine the situation.

Then, he, the health-care workers and several passersby started to evacuate the patients. The oxygen cylinders exploded and fire spread very rapidly.

Tragically, 23 of the 38 patients died in the blaze, and many of the survivors were injured. The cause of the fire is still under investigation by the National Transportation Safety Board.

This was one just one of the 20 catastrophic multiple-death fires that killed 134 people (23 of them children under the age of six) in 2005 compared to 2004 when 32 fires killed 152 people. These 20 catastrophic-multiple fires and the 134 deaths are the lowest in recent years. The number of fires was down 12, or 38 percent, and the number of deaths down 18, or 12 percent. Catastrophic multiple-death fires are fires that kill five

or more people in a residential property, or three or more in a nonresidential or nonstructural property.

In the U.S., there were an estimated 1,602,000 fires in 2005 (396,000 in residential properties, 115,000 in nonresidential, and 1,091,000 in nonstructural properties). There were 3,675 civilian deaths (3,055 in residential properties, 50 in nonresidential and 570 in nonstructural properties). The catastrophic multiple-death fires accounted for .001 percent of these fires and 3.6 percent of the deaths.\*

Most of these fires, and the losses that resulted, could have been prevented with simple changes, including use and maintenance of smoke alarms and sprinklers.

### **Catastrophic Residential Fires**

In 2005, the largest number of catastrophic multiple-death fires occurred in residential structures. These 13 residential fires consisted of 11 in single-family dwellings (two of which were manufactured homes), one in a two-family house, and one in a 50-unit apartment building. Residential occupancies accounted for 65 percent of the catastrophic multiple-death fires and their 80 deaths represent 60 percent of the total deaths in catastrophic multiple-death fires. Twenty-three children under the age of six perished in these fires.

Ten of the 13 catastrophic residential fires occurred between 11 p.m. and 7 a.m. Sixty-four people died in these fires, or 80 percent of all who died in residential catastrophic multiple-death fires. See Table 1 for details of each fire.

The largest loss of life residential fire killed 11 people, including three children under the age of six. This fire occurred in March in a two-story single-family townhouse.

A 14-year-old woke to find his bed on fire. Once he told his uncle, the uncle removed the blanket and attempted to extinguish the fire. He then moved the burning mattress downstairs in an attempt to throw it outside. A second adult relative also came downstairs and attempted to open the front door but was not able to because of a deadbolt lock with which the family was unfamiliar. The uncle placed the mattress on some packed cardboard boxes and attempted to open the door. As the boxes started to burn, fire

\*Michael Karter. *Fire Loss in the United States During 2005*, NFPA Journal, September/October 2006.

and smoke forced the two to exit using a rear door, which they left open. A third relative, carrying a small child, exited the structure by way of a second-story window. The adults went around to kick open the front door, but fire was already quickly engulfing the front room and spreading up the stairway to the second story. The victims were all found in second-story bedrooms and a bathroom. The fire began when the bedding was exposed to a candle on the windowsill. The family was just moving into the house and the power was not yet turned on, so candles were used for light. It is unknown if there were any smoke

Another fire killed nine people. This incendiary fire, which occurred in May in a 2-story single-family house, was ignited after gasoline was poured throughout most of the first story. Once ignited, the fire spread rapidly to the second story, trapping the occupants upstairs. The house was equipped with smoke alarms that operated but were not in the area of origin, a factor because of the size and speed of growth of the fire. Due to the accelerant, the fire moved too rapidly for the smoke alarms to alert the occupants in time to escape.

Five fires killed six people each. The first fire broke out in the living room on the first story of a two-story single-family house and spread to the dining area and up the stairway to the second story. The cause of the fire is still undetermined. There were no smoke alarms in the house. Security bars on all doors and windows hindered the escape and rescue of the victims.

The second fire, started by smoking materials, broke out in a bedroom of a one-story single-family house. As the fire spread, it ignited a gasoline-powered scooter located in the kitchen, which fueled the fire. A person who escaped the fire yelled for neighbors to help. Attempts were made to enter a bedroom through a window, but rescuers were hampered by heat, smoke, and security bars. There was a smoke alarm in the house, but it had no battery. One of the victims was under the age of six.

The third fire broke out in a bedroom on the upper level of a split-level single-family house and spread throughout the dwelling, killing a family of four and two visiting children. The dwelling was destroyed and an exact cause could not be determined, although investigators were able to determine that it was unintentional. One smoke alarm

was present on the ground level but it did not operate and the reason was not given. Two of the victims were under the age of six.

The fourth fire was caused by unattended cooking in a manufactured home. The fire spread throughout the structure, trapping four of the children in one bedroom, one in the living room and the mother in the hallway at the bedroom doorway. There were no smoke alarms present. Five of the six victims were under the age of six.

The last six-fatality fire occurred in a two-story house and the victims included two children under the age of six. No details were reported by the fire department.

Six fires killed five people each. The first fire broke out in an apartment on the top floor of a six-story 50-unit apartment building. There was no detection equipment present in the apartment. Two of the victims were under the age of six. No other information was reported on this incident.

The second fire occurred in the living room on the first story of a two-story townhouse. Hot smoke spread via the stairway, which acted as a chimney to the upper floor where the victims were located in one bedroom. The remains of a smoke alarm were found in the first-story hallway with its battery missing. There was a workable alarm on the second-story, but it was not known if it functioned properly. The cause of this fire was listed as unintentional. One of the victims was under the age of six.

The third fire started in the living room of a single-family manufactured home and spread rapidly, trapping the residents. The family was spending their first night in the dwelling and investigators believe they were unfamiliar with the layout, which possibly contributed to their deaths. There was no smoke alarm present. The cause is undetermined. Two of the victims were under the age of six.

The fourth fire broke out in a two-story single-family town house. A lighter was used to start the fire in a second-story bedroom closet. All five victims, children between the ages of six and ten, were trapped in bedrooms on the second story. Four adults who were in the home at the time tried unsuccessfully to rescue the children. There was no smoke detection equipment present.

The fifth fire broke out in a two-story, two-family house. The fire began in the area of a couch in a second-story living room, and spread through the second-story unit of this duplex. The cause is still under investigation. There was full coverage smoke

detection system present, but there is conflicting information about its operation. One resident who escaped said he heard a detector sound, but others say they heard nothing. Upon arrival of the fire department, none was sounding.

The final five-fatality fire occurred in a two-story single-family row house and the victims included two children under the age of six. No details were reported by the fire department.

### **Catastrophic Nonresidential Fires**

Two catastrophic nonresidential structure fires killed 18 people. One fire occurred in a refinery and the other in a plant that processed acetylene. Both these incidents were explosions followed by fire. See Table 2 for details for these fires.

The largest loss of life explosion and fire in nonresidential properties killed 15 people and injured almost 200 others. This occurred at an oil refinery. A flammable hydrocarbon liquid and vapor release from an atmospheric vent in the isomerization unit was ignited by an unknown source. The Chemical Safety Board is still investigating and reviewing the incident. The board expects to release the final report by the end of the year (see [www.csb.gov](http://www.csb.gov)).

An explosion and fire in a one-story shed in an acetylene manufacturing plant killed three people. A faulty seating of a seal allowed acetylene to flow back past a check valve by way of an open water drain in a shed. As the acetylene built up in the unventilated shed, it was exposed to a propane heater and exploded. The victims were outside the shed at the time of the explosion.

### **Catastrophic Nonstructural Fires**

There were five catastrophic fires outside of structures, all in vehicles. These fires killed 36 people, down from 2004 when 10 such fires that killed 37 people. A medical examiner's office or coroner's office verified that the deaths in crashes with ensuing fires were due to fire, not impact.

The largest loss of life incident in nonstructural properties was the bus fire mentioned earlier that killed 23 people.

One fire killed four people. This occurred on a highway when a heating oil tanker truck collided with several other vehicles. An explosion and fire ensued, involving the leaking oil and gasoline from the vehicles. No information was reported by the fire department.

Three fires each killed three people. The first incident occurred when a box of fireworks exploded as it was being transferred from a trailer where it had been stored into another trailer for transportation. That explosion ignited the rest of the fireworks. The cause of the initial explosion was not known. The last two incidents involved motor vehicle crashes and fires on highways. Although officials verified that all of the deaths were due to fire and not impact, no additional information was available.

### **Role of Smoke Alarms and Sprinklers**

Information on detection equipment was reported for 10 of the 13 residential fires, with 58 of the 80 deaths. In five of the properties, there was no automatic detection system present. In these structures, there were 27 deaths. Five residential structures had smoke alarms. One system operated properly, but in a home where an incendiary fire was set throughout the first story, leaving no time for smoke alarms or occupants to react before fire reached them. This fire killed nine people. Two homes had systems that did not operate, resulting in 12 deaths. In one of the two homes, the only smoke alarm was missing its battery. In the other home, the smoke alarm on the ground floor did not have a battery and the operation of the smoke alarm on the second story could not be determined. In the other two fires, with 10 deaths, the operation of the smoke alarms was not known. None of the residential occupancies had any residential sprinkler systems installed.

Information on detection equipment and sprinkler systems was reported for only one of the two nonresidential fires. This property had no smoke detection equipment or sprinkler equipment present.

Smoke alarms have been proven effective in reducing the risk of death in home fires. The most effective arrangement is to use interconnected multiple-station smoke alarms that are supplied by hard-wired AC power with a battery backup. These should be located outside each sleeping area, on each level, and in each bedroom. Occupants should



routinely test smoke alarms according to manufacturers' recommendations. NFPA recommends testing home smoke alarms at least monthly. Batteries should also be replaced according to manufacturers' recommendations, but at least yearly.

Smoke alarms are only effective if occupants exit the building when they sound.

Children should be familiar with the sound of a properly operating smoke alarm. They should follow a practiced escape plan that emphasizes two exits with a designated meeting place outside.

Exit drills in the home are part of many school curricula. Practicing the plan helps families determine whether children and others readily waken to the sound of a smoke alarm. If not, assistance for family members who require it can be factored into the plan.

Practicing fire prevention principles could have prevented many of these fires. These principles include keeping matches and lighters away from children; using deep, sturdy ashtrays; choosing fire-safe cigarettes if you smoke; and making sure cigarettes and ashes are out cold before disposal in a safe location. These principles also include "Watch What You Heat," the safe-cooking theme for this year's Fire Prevention Week.

### **Window Security Bars**

In 2005, security bars over windows and doors hindered or prevented escape of the occupants in at least one of the fires in residential structures. This fire resulted in six deaths.

In a second fire, also resulting in six deaths, there were bars on most windows but it was unknown whether they hindered escape or rescue. In both buildings, the bars were non-releasing and/or non-code compliant. Many of the security measures used to keep criminals OUT are trapping residents IN during emergencies, and they work to keep firefighters from getting in to attempt rescues. NFPA's Public Education Division recommends that all security bars be installed with quick release devices and family members know where and how to use these devices.

## **Where We Get Our Data**

NFPA obtains its data by reviewing national and local news media, including fire service publications. A news clipping service reads all daily U.S. newspapers and notifies the NFPA Fire Analysis and Research Division of catastrophic fires. Once an incident has been identified, we request information from the local fire department or the agency having jurisdiction. NFPA's annual survey of U.S. fire experience and mailings to state fire marshals are additional data sources, although not principal ones. We also contact federal agencies that have participated in the investigation of candidate fires. The diversity and redundancy of these sources enable us to collect the most complete data available on catastrophic fires in the U.S. We understand that in many cases, due to ongoing litigation, a department cannot release information. In addition, in some cases departments have been unable to determine the information we request.

## **Acknowledgments**

NFPA wishes to thank the U.S. fire service for their contributions of data, without which this report would not be possible. The author would like to give a special thanks to Norma Candeloro, and his co-workers for their guidance in the completion of this report.

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**Table 1. Residential Fires**

**LOUISIANA**

**Date, Time of Alarm, Number of Deaths**

March, 5:05 a.m., 11 (three under age 6)

**Number of Stories, Occupancy Type, Construction Type**

Two-story single-family townhouse of unprotected wood-frame construction.

**Smoke Alarm and Other Fire Protection Devices**

Unknown due to extent of destruction.

**Fire Origin and Path**

A candle ignited bedding in a second-story bedroom. Two occupants attempted to remove the mattress from the house. Having difficulties with the front door, they placed the mattress on some cardboard boxes while they worked on the lock, until the mattress began flaming. At this point, these two family members escaped out the rear door. Two others jumped out a second-story window. Some then went to the front door and kicked it open but by then the front room was fully engulfed with fire, and fire was spreading up the stairs to the second story.

**Contributing Factors and Victim Locations**

The family was using candles for light, since they just moved into the house and the electricity had not yet been turned on. Instead of evacuating, occupants attempted to move the mattress out of the dwelling. The occupants were not familiar with the dead bolt lock on the front door. Escaping occupants left the rear door open, allowing the wind to spread the fire. The victims were found in second-story bedrooms and a bathroom.

**OHIO**

**Date, Time of Alarm, Number of Deaths**

May, 2:55 a.m., 9

**Number of Stories, Occupancy Type, Construction Type**

2-story single-family dwelling of unprotected wood-frame construction.

**Smoke Alarm and Other Fire Protection Devices**

There was at least one smoke alarm in the dwelling, located in the hallway between the first- and second-story. The smoke alarm operated.

**Fire Origin and Path**

Gasoline was poured in the first-floor living room and dining room and ignited. The fire spread rapidly throughout the first story and extended upward, trapping occupants on the second story. Firefighters arrived within three minutes of the call and found the house well involved and fire spread to a house next door and a car.

**Contributing Factors and Victim Locations**

A detector operated but fire spread was very rapid due to the accelerant use and trapped the victims in second-story bedrooms.

**OKLAHOMA**

**Date, Time of Alarm, Number of Deaths**

March, 1:11 a.m., 6

**Number of Stories, Occupancy Type, Construction Type**

Two-story single family dwelling of unprotected wood-frame.

**Smoke Alarm and Other Fire Protection Devices**

None

**Fire Origin and Path**

A fire of unknown cause broke out in the first-story living room. The fire spread rapidly to a dining area, throughout the

**Table 1. Residential Fires  
(continued)**

ground floor and up the stairs to the second story. The cause is still under investigation.

**Contributing Factors and Victim**

**Locations**

Security bars on all doors and windows hindered escape and rescue by firefighters. The victims were located in bedrooms on the first story.

**ARKANSAS**

**Date, Time of Alarm, Number of Deaths**

April, 6:08 p.m., 6 (five under age 6)

**Number of Stories, Occupancy Type,**

**Construction Type**

Single-family manufactured home of unprotected wood-frame construction.

**Smoke Alarm and Other Fire Protection Devices**

None

**Fire Origin and Path**

This cooking fire, involving unattended equipment, originated in the kitchen and spread throughout the dwelling.

**Contributing Factors and Victim**

**Locations**

None reported. Four children were trapped in the bedroom, one child was found in the living room and the mother was located at the doorway to the bedroom where the four children were found.

**MICHIGAN**

**Date, Time of Alarm, Number of Deaths**

September, 11:30 p.m., 6 (two under age 6)

**Number of Stories, Occupancy Type,**

**Construction Type**

Two-story single-family dwelling. The type of construction was not reported.

**Smoke Alarm and Other Fire Protection Devices**

No information reported.

**Fire Origin and Path**

No information reported.

**Contributing Factors and Victim**

**Locations**

None reported.

**INDIANA**

Date, Time of Alarm, Number of Deaths  
September, 3:07 a.m., 6 (one under age 6)

**Number of Stories, Occupancy Type,  
Construction Type**

One-story single-family dwelling of unprotected ordinary construction.

**Smoke Alarm and Other Fire Protection Devices**

A smoke alarm was present but had no battery and did not operate.

**Fire Origin and Path**

Careless disposal of smoking materials started a fire in the first-story bedroom which then spread into the adjacent kitchen.

**Contributing Factors and Victim**

**Locations**

Security bars were in place on most the windows, but their effect on the escape or rescue of the occupants is not known. Gasoline in a scooter in the kitchen intensified the fire. Five of the victims were found in bedrooms and one was found in the living room.

**TENNESSEE**

**Date, Time of Alarm, Number of Deaths**

November, 1:50 a.m., 6 (two under age 6)

**Number of Stories, Occupancy Type,  
Construction Type**

Split-level single-family home of unprotected wood-frame construction.

**Smoke Alarm and Other Fire Protection Devices**

There was only one smoke alarm. It did not operate, but no reason was given.

**Table 1. Residential Fires  
(Continued)**

**Fire Origin and Path**

A fire of still undetermined cause began in a bedroom on the upper level. Upon arrival firefighters found the house completely involved in fire and already collapsing.

**Contributing Factors and Victim**

**Locations**

None reported.

**NEW YORK**

**Date, Time of Alarm, Number of Deaths**

January, 2:56 a.m., 5 (two under age 6)

**Number of Stories, Occupancy Type,**

**Construction Type**

Six-story, 50-unit apartment building of unprotected ordinary construction.

**Smoke Alarm and Other Fire Protection Devices**

No detection system present.

**Fire Origin and Path**

A fire of unreported origin broke out on the sixth-story of this apartment house.

**Contributing Factors and Victim**

**Locations**

The victims were located in apartment of origin.

**ARIZONA**

**Date, Time of Alarm, Number of Deaths**

February, 3:52 a.m., 5 (one under 6)

**Number of Stories, Occupancy Type,**

**Construction Type**

Two-story single-family townhouse of unprotected wood-frame construction.

**Smoke Alarm and Other Fire Protection Devices**

The remains of a smoke alarm in first story hallway was missing a battery. There was an operable alarm in the second story hallway, but its operation was unknown.

**Fire Origin and Path**

A fire of unknown cause broke out in the first-story living room. Fire damage was limited to that room, with smoke spreading throughout the rest of the home, the stairway acting as a chimney.

**Contributing Factors and Victim**

**Locations**

The five victims were found in one bedroom on the second story.

**TEXAS**

**Date, Time of Alarm, Number of Deaths**

April, 3:43 a.m., 5 (2 under age 6)

**Number of Stories, Occupancy Type,**

**Construction Type**

Single-family manufactured home of unprotected wood-frame construction.

**Smoke Alarm and Other Fire Protection Devices**

None

**Fire Origin and Path**

A fire of unknown cause broke out in the living room and spread rapidly, trapping the residents.

**Contributing Factors and Victim**

**Locations**

It was the residents' first night in the home and they were believed to have been unfamiliar with the layout.

**PENNSYLVANIA**

**Date, Time of Alarm, Number of Deaths**

June, 7:30 a.m., 5 (five under age 6)

**Number of Stories, Occupancy Type,**

**Construction Type**

Two-story single-family row house. The type of construction was not reported.

**Smoke Alarm and Other Fire Protection Devices**

No information reported.

**Table 1. Residential Fires  
(Continued)**

**Fire Origin and Path**

No information reported.

**Contributing Factors and Victim**

**Locations**

None reported.

**CALIFORNIA**

**Date, Time of Alarm, Number of Deaths**

September, 8:20 a.m., 5

**Number of Stories, Occupancy Type,  
Construction Type**

Two-story single-family townhouse of unprotected wood-frame construction.

**Smoke Alarm and Other Fire Protection  
Devices**

None.

**Fire Origin and Path**

A lighter fire of unknown circumstances began in an upstairs bedroom closet.

**Contributing Factors and Victim**

**Locations**

The victims, all children between the ages of six and nine, were found in bedrooms on the second story. Adults members of the family who were home at the time were unable to reach the children.

**VERMONT**

**Date, Time of Alarm, Number of Deaths**

December, 5:56 a.m., 5

**Number of Stories, Occupancy Type,  
Construction Type**

Two-story, two-family home of unprotected wood-frame construction.

**Smoke Alarm and Other Fire Protection  
Devices**

There were hard-wired smoke alarms in two of the three bedrooms and in the family room outside the bedrooms. One person reported that he was alerted by a smoke alarm and escaped, but no alarms were sounding when firefighters arrived.

**Fire Origin and Path**

A fire of still undetermined cause broke out in the second-story living room in the area of a couch. Fire and smoke spread throughout the living room and into the kitchen, family room, bathroom, master bedroom and a child's bedroom.

**Contributing Factors and Victim**

**Locations**

Four children were found in two of the bedrooms and an adult was found in the livingroom.

## Table 2. Non-Residential Fires

### TEXAS

#### Month, Time of Alarm, Number of Deaths

March, 1:20 p.m., 15

#### Occupancy Type and Use, Number of Stories, Construction Type, Operating Status

Refinery. No information on the facility construction was reported. The facility was operating and there was ongoing construction and maintenance work.

#### Detection Systems, Suppression Systems

Not reported.

#### Fire Origin and Path

An explosion in the area of the pipe racks occurred when flammable liquid and vapor vented from a blowdown drum during the startup of the refinery's isomerization unit and were ignited by an unknown source. The fire is still under investigation by the Chemical Safety Board.

#### Contributing Factors and Victim

##### Location

The CSB reports that there were up to 44 trailers in the vicinity of the isomerization unit. These trailers were in use by contract workers as offices and for equipment storage. All of the fatalities (all contract workers) occurred in or around trailers that were located 121 to 136 feet away from the blowdown drum explosion. Many of the 180 who were injured were in the same area.

### NEW JERSEY

#### Month, Time of Alarm, Number of Deaths

January, 10:36 a.m., 3

#### Occupancy Type and Use, Number of Stories, Construction Type, Operating Status

Acetylene generation and packaging plant; one story of unprotected wood-frame construction, with wood panels built around six recycled water tanks on a concrete slab. The facility was operating.

#### Detection Systems, Suppression Systems

None.

#### Fire Origin and Path

A faulty seating of a seal allowed acetylene to flow back past a check valve into the shed by way of an open drain. As the acetylene accumulated, it came in contact with a hot propane heater and exploded.

#### Contributing Factors and Victim

##### Location

The building was not designed for the presence of acetylene and was not ventilated. The three fatalities were outside the shed.

### **Table 3. Non-Structural Fires**

#### **TEXAS**

##### **Month, Time of Alarm, Number of Deaths**

September, 6:08 a.m., 23

##### **Setting**

Bus fire on interstate.

##### **Climate Conditions**

Pre-hurricane conditions.

##### **Fire Origin and Path**

A fire broke out in the right rear wheel well of the bus. The cause is still under investigation by the National Transportation Safety Board. Fire spread rapidly throughout the bus due to oxygen cylinder explosions.

##### **Factors Hindering Occupant Escape**

The bus carried 38 patients and six staff members being evacuated from a nursing home located in the predicted path of Hurricane Rita. Many of the patients were non-ambulatory. Oxygen was in use by patients on the bus and 18 oxygen cylinders were stored in the luggage area.

#### **NEW YORK**

##### **Month, Time of Alarm, Number of Deaths**

June, 9:00 a.m., 4

##### **Setting**

Motor vehicle crash followed by fire on highway, involving an oil tanker truck and several cars.

##### **Climate Conditions**

Fair weather.

##### **Fire Origin and Path**

Leaking gasoline and oil from the involved vehicles ignited during the collision. Explosions occurred as vehicles became involved in this chain reaction crash.

##### **Factors Hindering Occupant Escape**

No information reported. There were up to eight cars and trucks involved. The tanker truck driver was found in his vehicle, as was the driver of a car pinned against the

guardrail. The two other victim locations were not reported.

#### **ARIZONA**

##### **Month, Time of Alarm, Number of Deaths**

February, 1:33 p.m., 3

##### **Setting**

Motor vehicle crash followed by fire on freeway, involving at least nine cars.

##### **Climate Conditions**

No information reported.

##### **Fire Origin and Path**

No information reported.

##### **Factors Hindering Occupant Escape**

None reported.

#### **KANSAS**

##### **Month, Time of Alarm, Number of Deaths**

August, 10:00 a.m., 3

##### **Setting**

Fireworks were being transferred from a storage trailer to a 29-foot goose neck trailer for transport to a fireworks show.

##### **Climate Conditions**

Not reported.

##### **Fire Origin and Path**

As the safety officer for the loading stood outside the goose neck trailer, he heard a lift charge from one of the boxed fireworks function. As the box was set down, it began to burn, and then exploded, igniting the 17 other boxes that had been transferred. As these fireworks began to ignite and explode, flaming debris and shells were propelled into the storage trailer. The storage trailer then exploded. Investigators believe the prewiring of the fireworks was the most plausible ignition source in the box.

##### **Factors Hindering Occupant Escape**

Two of the victims were in the storage trailer and the third was located in the goose neck trailer.



**Table 3. Non-Structural Fires  
(Continued)**

**CALIFORNIA**

**Month, Time of Alarm, Number of  
Deaths**

November, 1:09 a.m., 3

**Setting**

Motor vehicle crash followed by fire on  
freeway, involving several cars.

**Climate Conditions**

Not reported.

**Fire Origin and Path**

No information reported.

**Factors Hindering Occupant Escape**

None reported.