

Prepared by the Washington State Patrol - Office of the State Fire Marshal

Washington State Fireworks-Related INJURY AND FIRE REPORT 2013



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Governor



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STATE OF WASHINGTON
WASHINGTON STATE PATROL

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The extensive information provided in this report would not have been possible without the dedication and assistance of many hospitals and our fire and law enforcement stakeholders in Washington State. Special thanks are due to them for their ongoing efforts in providing important firework incident data to the Office of the State Fire Marshal.

In 2013, we saw a positive increase in the number of hospitals submitting firework injury reports. These submissions, coupled with the incident reports received from the fire service, indicate a steady decline in the total number of firework related incidents occurring in our state. We have seen this encouraging trend over the past five years. It is a trend we wish to see continue well into the future.

The data that we collect helps to identify the improvements that can be made to both product safety and the firework education programs in Washington State. Overall, the statistics indicate that considerable progress is being made toward becoming an informed and safer Washington.

Together, we can continue to advance fireworks safety education.

Sincerely,

A handwritten signature in black ink, appearing to read "C. M. Duffy".

State Fire Marshal Charles M. Duffy
Fire Protection Bureau

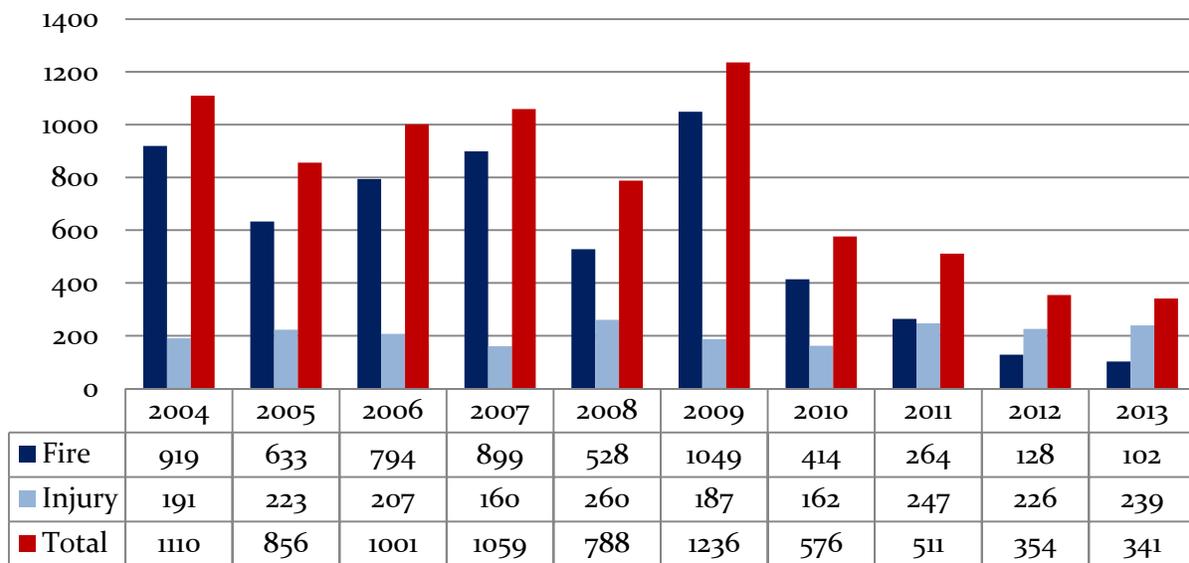


2013 Washington State Fireworks Related Injury and Fire Report

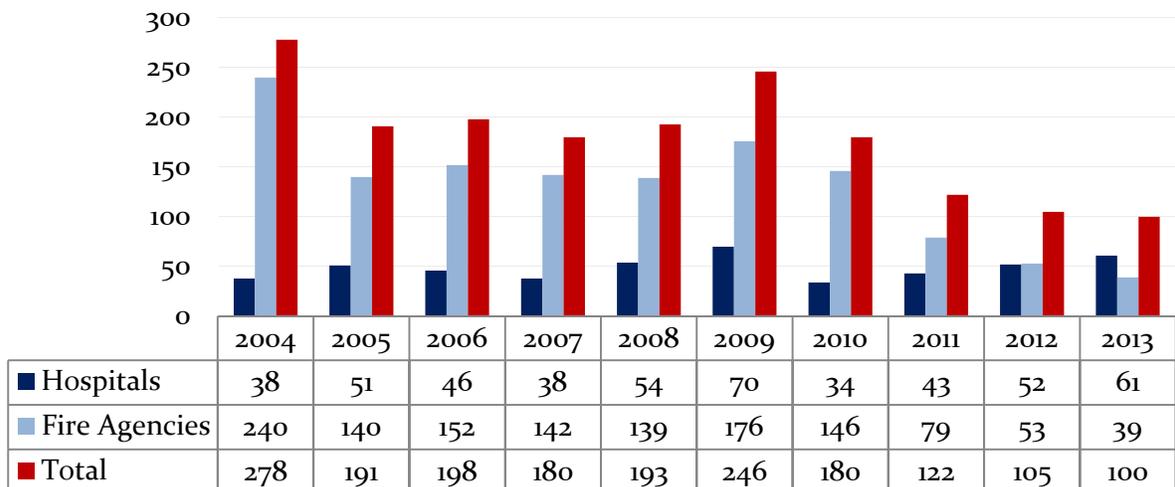
There were 341 fireworks-related injuries and/or fires reported to the Office of the State Fire Marshal in 2013 by fire agencies and hospital emergency rooms. This is a 4% reduction from the previous year's total of 354 reported incidents. Data shown in this report was collected from paper reports submitted by individual fire agencies and hospitals.

Of the 341 reports received, there were 102 fires resulting in \$2,002,650 of property loss and 239 injuries.

Ten-Year Trend Number of Fireworks Related Incidents

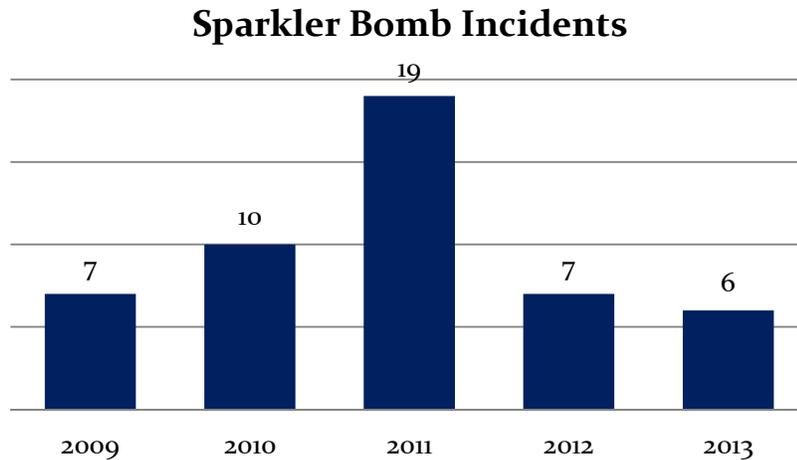


Ten-Year Trend - Number of Agencies Reporting Data



Sparkler Bombs

In 2013 there was a 14% decrease in the number of sparkler bomb incidents reported over the previous year.

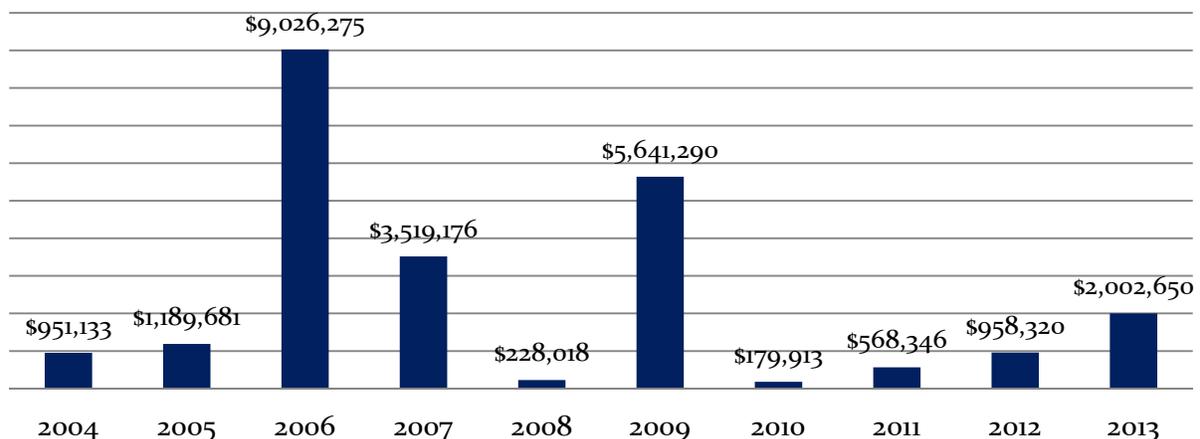


Sparkler bombs are high powered illegal explosive devices. They can be as powerful as a stick of dynamite, igniting accidentally or prematurely by exposure to heat or friction. This often unanticipated discharge is dangerous. In addition to the loud discharge they produce shrapnel from sparklers (metal wire), materials used to make the bomb, and anything the device destroys by projecting debris. This shrapnel can cause life altering injuries such as amputations and severe eye injuries.

Fire Loss

The economic damage caused by fires suspected of being started by fireworks was up by 109% from 2012. A boat storage facility fire, housing multiple boats, resulted in \$1,500,000 or 75% of the total loss in 2013.

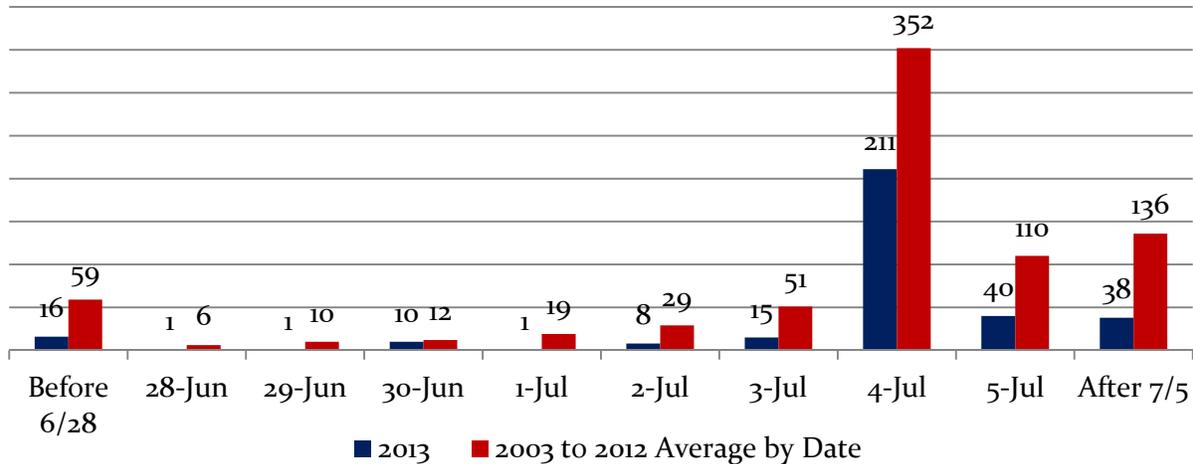
10 Year Trend of Fireworks Caused Fires, Loss



Occurrence of Firework Related Injuries and Fires

Firework-related incidents continue to occur most often on July 4th. This is a trend that has remained constant over the past ten years.

Incidents by Date; 2013 vs. 10 Year Average



Analysis of Fires

In 2013, firework related fires caused an estimated loss of \$2,002,650. The following firework types were identified as to causing (Table 1):

- Illegal fireworks
 - 22 fires (22%) – wildland or vegetation fires occurred the most
 - \$1,500,950 in damage – most to a storage structure housing multiple vessels
- Legal fireworks
 - 33 fires (32%) – wildland or vegetation fires occurred the most
 - \$300,630 in damage – most to residential structures
- Unknown type of fireworks
 - 47 fires (46%) – wildland or vegetation fires occurred the most
 - \$201,070 in damage – most to residential structures

Table # 1
Fires and Dollar Loss By Classification of Fireworks Device

Property Type	Number of Fires				Dollar Loss			
	Illegal	Legal	Unknown	Total	Illegal	Legal	Unknown	Total
Commercial	2	0	1	3	\$ -	\$ -	\$ -	\$ -
Residential	2	1	1	4	\$ -	\$ 290,000	\$ 175,000	\$ 465,000
Vehicle	1	0	4	5	\$ -	\$ -	\$ 19,300	\$ 19,300
Wildland or Vegetation	12	25	29	66	\$ 450	\$ 5,280	\$ 6,400	\$ 12,130
Other*	5	7	12	24	\$ 1,500,500	\$ 5,350	\$ 370	\$ 1,506,220
Total	22	33	47	102	\$ 1,500,950	\$ 300,630	\$ 201,070	\$ 2,002,650

* Other fires include boats, dumpsters, sanikans, etc.

**Table # 1A
Fires and Dollar Loss By Classification of Fireworks Device - 2009 to 2013**

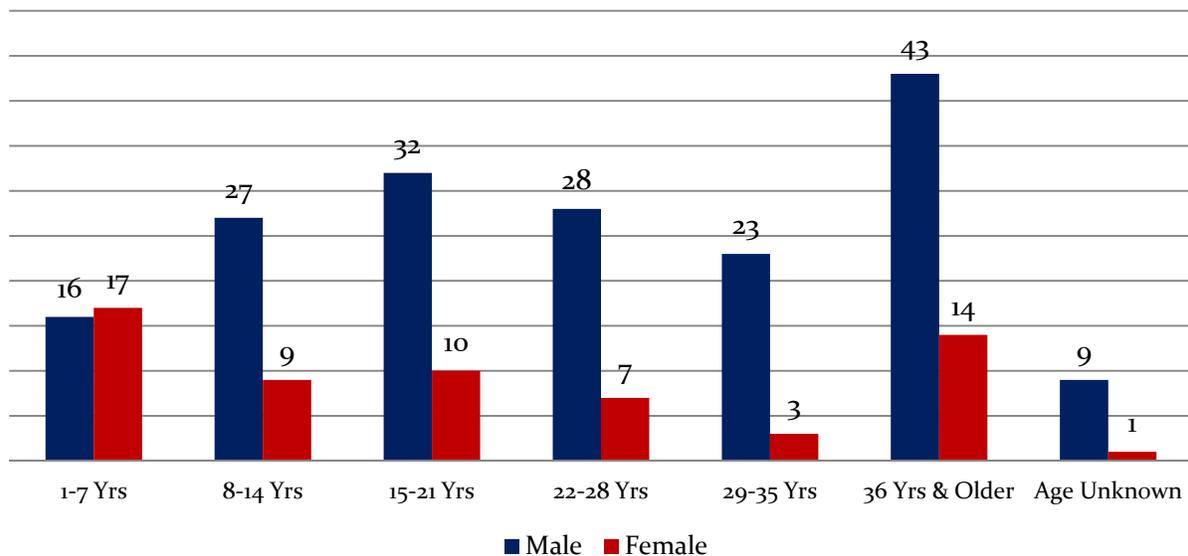
Property Type	Number of Fires				Dollar Loss			
	Firework Type				Firework Type			
	Illegal	Legal	Unknown	Total	Illegal	Legal	Unknown	Total
Commercial	9	5	31	45	\$ 95,352	\$ -	\$ 500	\$ 95,852
Residential	33	20	92	145	\$ 1,047,693	\$ 260,084	\$ 5,702,915	\$ 7,010,692
School	10	3	7	20	\$ 100	\$ -	\$ 10,000	\$ 10,100
Vehicle	9	1	21	31	\$ 46,000	\$ -	\$ 44,650	\$ 90,650
Wildland or Vegetation	159	401	973	1533	\$ 14,945	\$ 70,230	\$ 367,710	\$ 452,885
Other*	25	16	140	181	\$ 1,623,100	\$ 7,050	\$ 60,690	\$ 1,690,840
Total	245	446	1264	1955	\$ 2,827,190	\$ 337,364	\$ 6,186,465	\$ 9,351,019

* Other fires include vessels, dumpsters, etc.

Fireworks Injuries

Fireworks-related injuries by age and gender show that males, 36 years and older are most often injured.

2013 Fireworks Injuries by Age and Gender



Analysis of Injuries

In 2013, there were 239 fireworks related injuries reported. The leading types of injuries reported were (Table #2):

- Burns (First, Second and Third degree combined) – 129 or 54%
- Trauma related from being struck by or holding a firework – 86 or 36%

**Table # 2
Injuries by Classification of Firework Type**

Type of Injury	Firework Type				Injury Site	Firework Type			
	Illegal	Legal	Unknown	Total		Illegal	Legal	Unknown	Total
Amputation	3	1	2	6	Hand or Arm	17	45	26	88
First Degree Burn	4	17	10	31	Head or Face	12	29	27	68
Second Degree Burn	14	54	21	89	Leg or Foot	8	19	7	34
Third Degree Burn	2	3	4	9	Multiple Locations	16	10	15	41
Multiple Injury Type	6	5	7	18	Torso	1	4	3	8
Trauma	25	27	34	86	Total	54	107	78	239
Total	54	107	78	239					

Firework Types Causing Injury

Table #3 shows the types of firework devices that caused injuries.

- Illegal fireworks – 54 injuries, or 22%
- Legal fireworks – 107 injuries, or 45%
- Unknown fireworks – 78 injuries, or 33%

Most commonly used fireworks causing injuries:

Legal fireworks:

- ❖ Multi-Aerials – 36%
- ❖ Roman Candles – 15%
- ❖ Sparklers – 26%

Illegal fireworks:

- ❖ Homemade Devices – 26%
- ❖ Bottle Rockets – 22%
- ❖ Firecrackers & Chasers – 20%

**Table # 3
Injuries by Type of Device**

Device Type	Illegal	Legal	Unknown	Total
Bottle Rockets	8			8
Cannons	2			2
Firecrackers and Chasers	12			12
Homemade Explosive Devices	16			16
M-80's, M-100's, Cherry Bombs	4			4
Missiles and Rockets	1			1
Cones and Fountains fireworks	0	3	0	3
Ground Spinners	0	9	0	9
Multi Aerials /Aerial Shells/ Mortars	7	37	19	63
Novelties	0	1	0	1
Public Display Mortar (1.3g)	4	0	0	4
Roman Candles	0	11	0	11
Smoke Items	0	7	0	7
Sparklers (Sparkler Bombs under Homemade)	0	35	0	35
Other - Punks	0	4	0	4
Unknown			59	59
Total	54	107	78	239

Analysis of Cause

Table #4 shows the leading cause of fireworks-related injuries.

- Holding fireworks in hand – 82 injuries or 34%
- Too close to lit fireworks/hit by fireworks – 65 injuries or 27%
- Leaning over fireworks – 22 injuries or 9%

Table # 4 Cause of Injury	
Action	Total
Duds-relighting or handling dud	14
Holding fireworks in hands	82
Leaning over fireworks	22
Tampering with fireworks	13
Throwing fireworks	14
Unsafe surface for lighting	7
Lighting fireworks	1
Children with sparkler (infant to 7 years)	7
Too close to lit fireworks/hit by fireworks	65
Other	5
Unknown	9
Total	239

**Table # 5
Summary by County and Agency Type Reporting Incidents in 2013**

County	Fire Agencies			Hospitals		Total
	Fire	Injury	Total	Injury	Total	
Adams	0	0	0	1	1	1
Benton	0	1	1	0	0	1
Chelan	0	0	0	1	1	1
Clallam	0	0	0	2	2	2
Clark	0	0	0	16	16	16
Cowlitz	4	0	4	5	5	9
Douglas	1	0	1	0	0	1
Ferry	0	0	0	1	1	1
Franklin	7	0	7	3	3	10
Grant	0	0	0	3	3	3
Grays Harbor	0	0	0	6	6	6
Island	5	1	6	5	5	11
Jefferson	0	0	0	1	1	1
King	45	5	50	49	49	99
Kitsap	6	0	6	14	14	20
Kittitas	2	0	2	0	0	2
Lewis	0	0	0	3	3	3
Lincoln	0	0	0	1	1	1
Mason	0	2	2	6	6	8
Okanogan	0	0	0	2	2	2
Pacific	2	1	3	0	0	3
Pend Oreille	0	0	0	1	1	1
Pierce	1	2	3	29	29	32
Skagit	0	0	0	6	6	6
Snohomish	13	1	14	39	39	53
Spokane	2	0	2	5	5	7
Stevens	0	0	0	4	4	4
Thurston	3	0	3	10	10	13
Walla Walla	5	0	5	2	2	7
Whatcom	5	1	6	1	1	7
Whitman	1	0	1	0	0	1
Yakima	0	0	0	9	9	9
Total	102	14	116	225	225	341

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Publication and Design

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Data Collection

Special thanks to the 100 hospitals, and fire and law enforcement agencies for submitting data.

PREVENT FIRES
IT'S YOUR JOB!