American Petroleum Institute

2007 Process Safety Performance Measurement Report

American Petroleum Institute
Statistics Department
June 2008

American Petroleum Institute

2007 Process Safety Performance Measurement Report

Prepared by:
Jeff Obermiller
Statistics Department
American Petroleum Institute

June 2008

Data published in the 2007 API Process Safety Performance Survey Report are based on data voluntarily reported by petroleum companies operating in the United States. Although API reviews reported data to identify internal inconsistencies and unusual period-to-period changes, in general API is not able to verify the accuracy of reported data. API therefore cannot guarantee the accuracy of the reported data, and disclaims any liability in connection with the data.

CONTENTS

2007 PSP Participating Companies

- American Refining Group Inc.
- Aux Sable Liquid Products, Inc.
- Big West Oil/Flying J Oil
- Chevron
- CHS Inc.
- Citgo Petroleum Corporation
- Coffeyville Resources LLC
- Cross Oil Refining & Marketing Inc.
- Davis Gas Processing
- Devon Energy Corporation
- Duke Energy Field Services
- Dynergy Midstream Services LP
- El Paso Exploration & Production
- Elkhorn Gas Processing LLC
- Enbridge Energy Co. Inc.
- Encana Oil & Gas (USA) Inc.
- Enerfin Resources I LP
- Enterprise Products
- Ergon Refining, Inc.
- ExxonMobil Refining & Supply Co.
- Flint Hills Resources LLP (Alaska)
- Giant Industries Inc.
- Hess Corporation
- Holly Corporation
- Hunt Oil Company
- Hunt Refining Company
- Interline Resources Corporation
- Kern Oil & Refining Co.
- Kentucky Hydrocarbon
- Lunday-Thagard Company
- Montana Refining Company
- Motiva Enterprises LLC
- Murphy Oil Corporation
- ONEOK Field Services
- Petro-Hunt, LLC
- Petro Star Inc.
- Placid Refining Company LLC
- Pursue Energy Corporation
- Questar Market Resources
- San Joaquin Refining Co. Inc.
- Seneca Resources Corporation
- Shell Oil Products U.S.
- Silver Eagle Refining/Woods Cross
- Southern Union Gas Services, Ltd.
- Sunoco Inc.
- Suncor Energy (USA), Inc.
- Tesoro
- Thums Long Beach Company
- Total Petrochemicals USA, Inc.
- U. S. Oil & Refining Company
- Valence Midstream Ltd.
- Valero (Benicia Refinery)
- Western Refining Co. LP
- Williams Midstream
- WTG Gas Processing, LP
- Wynnewood Refining Company
- Wyoming Refining Company
- XTO Energy

INTRODUCTION

Safety is an essential and integral part of the petroleum industry. The safety of what we do—exploring, producing, refining, marketing and transporting—and of those who do it—our employees—is our greatest responsibility. Because this is truly our conviction, we continually strive to keep safety awareness and practice at a high level. The detailed safety data in this publication—which reflects the year 2007 operations — are a reflection of our industry's continuing commitment to safely refine and process the crude oil and natural gas needed to keep America going strong.

This edition of the Process Safety Performance (PSP) Measurement Report marks our ninth annual report on process related incidents such as fires, explosions, and releases in U.S. oil refineries and gas processing plants.

Since its beginnings in 1999, the PSP has been fuelled by our desire to provide a consistent, reliable and accurate industry metric for measuring and tracking process safety trends in the petroleum industry's refining and gas processing segments, and to promote its continuous improvement. We see the PSP as an integral part of our ongoing effort to reach out to members of the public, governments, and environmental organizations, as well as to our employees. To this end, we are committed to continuing our work toward further minimizing the risks and impacts on the environmental and personal health and safety of our workers, and on those living in our shared environment.

In this issue, as in the preceding eight, the PSP is limited to domestic U.S. oil refineries and gas processing plants. It is, however, envisioned that in time other petroleum industry operating segments such as exploration, production, transportation, and marketing terminals will be included as well.

We are optimistic about the progress we have made so far. But, we are equally mindful of the public's expectations of us as well as our expectations of ourselves — expectations which we take seriously in our quest for an appropriate balance between economic growth, sustainable development, and a clean and safe work place while striving to achieve society's environmental objectives.

Washington, D. C.
June 2008

SUMMARY

Overview

In 2007:

- 54 refining and gas processing companies with 246 facilities participated in the Process Safety Performance (PSP) Measurement Report. These participating companies represent % of the total U. S. operable refining capacity* and % of the total U. S. operable gas processing capacity.*

In 2007:

- Most participating companies reported zero incidents at their facilities while those with incidents (property damage and/or injury/illness and/or fatality) reported a total of 69 incidents and 10 injury/illnesses (5 of the 69 incidents accounted for the 10 injury/illnesses).

In 2007:

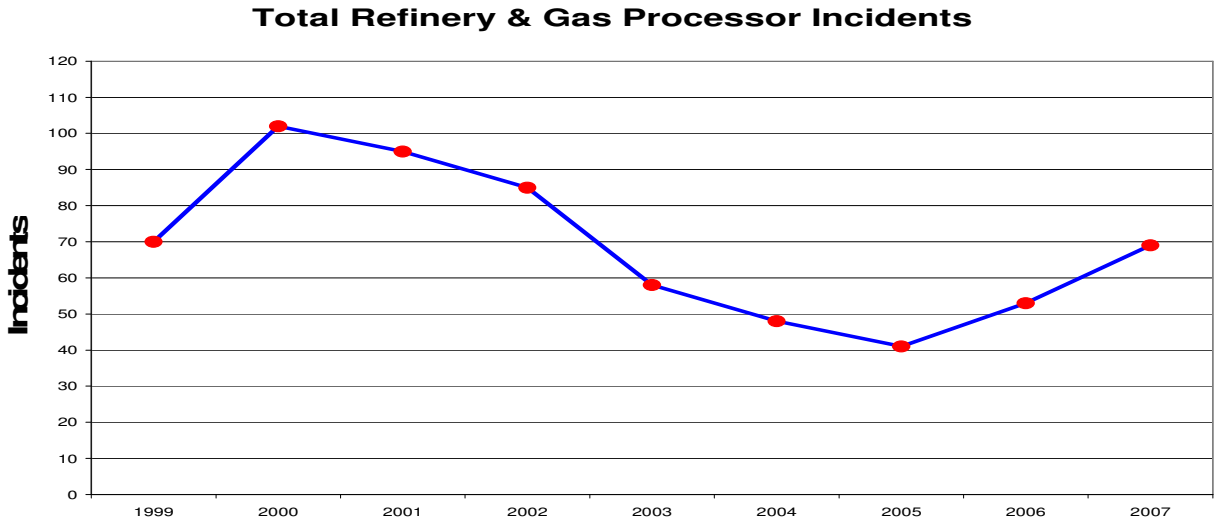
- Spills/releases accounted for the majority of all incidents—57%—followed by fires at 33%, fires/explosions/releases resulting in injury/illness/fatality at 6% and explosions at 4%.

In 2007:

- Estimated incident costs totaled nearly $44 million. The average estimated cost per incident in 2007 was $629,710 while the estimated median cost per incident fell in the <$25K range.

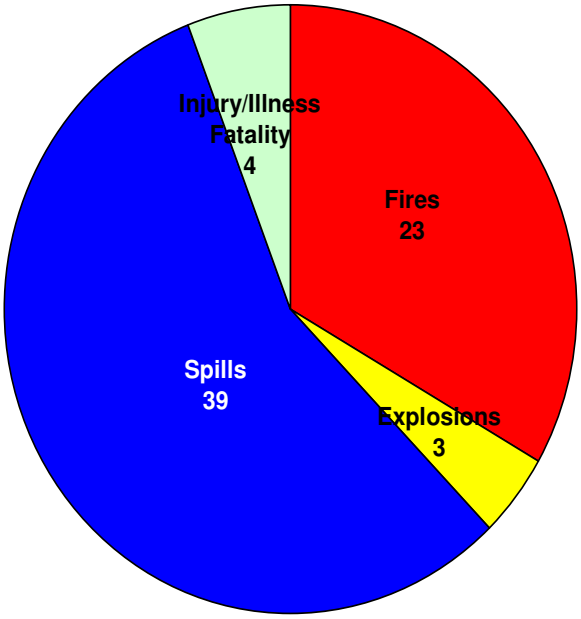
In 2007:

- For the ninth year in a row, the most number of property damage costs associated with process related incidents were in the first three costs ranges—$0, <$25K and $25K-$250K. (Due to incidents involving no related property damage, in 2007, there were 20 refinery incidents with $0 costs). In 2007, 77% of all property damage costs fell somewhere in these three cost ranges.

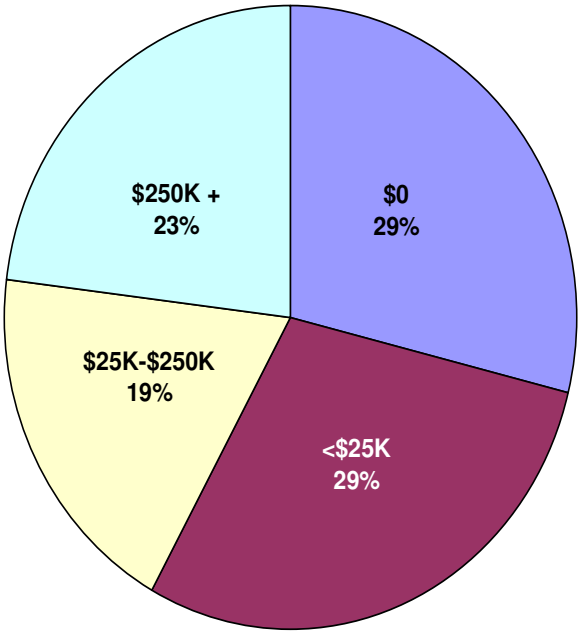


** See Refineries (P.3) & Gas Processing Plant (P.9) Summaries for data and sources.*

TOTAL INCIDENTS 2007



TOTAL INCIDENT COST RANGES 2007



The Correlation of Injuries & Fatalities to Process Safety Incidents*

1999
Reported incidents that resulted in onsite injuries = 16%
Reported incidents that resulted in offsite injuries = 1%
Reported incidents that resulted in onsite fatalities = 1%
Of the incidents that resulted in injuries, the average number of injuries per incident = 1.8
Of the incidents that resulted in fatalities, the average number of fatalities per incident =1

2000
Reported incidents that resulted in onsite injuries = 15%
Reported incidents that resulted in offsite injuries = 0%
Reported incidents that resulted in onsite fatalities = 0%
Of the incidents that resulted in injuries, the average number of injuries per incident = 2.7
Of the incidents that resulted in fatalities, the average number of fatalities per incident =0

2001
Reported incidents that resulted in onsite injuries = 16%
Reported incidents that resulted in offsite injuries = 0%
Reported incidents that resulted in onsite fatalities = 1%
Of the incidents that resulted in injuries, the average number of injuries per incident = 2.3
Of the incidents that resulted in fatalities, the average number of fatalities per incident =1

2002
Reported incidents that resulted in onsite injuries = 12%
Reported incidents that resulted in offsite injuries = 0%
Reported incidents that resulted in onsite fatalities = 2%
Of the incidents that resulted in injuries, the average number of injuries per incident = 1.6
Of the incidents that resulted in fatalities, the average number of fatalities per incident =1

2003
Reported incidents that resulted in onsite injuries = 22%
Reported incidents that resulted in offsite injuries = 0%
Reported incidents that resulted in onsite fatalities = 0%
Of the incidents that resulted in injuries, the average number of injuries per incident = 1.4
Of the incidents that resulted in fatalities, the average number of fatalities per incident =0

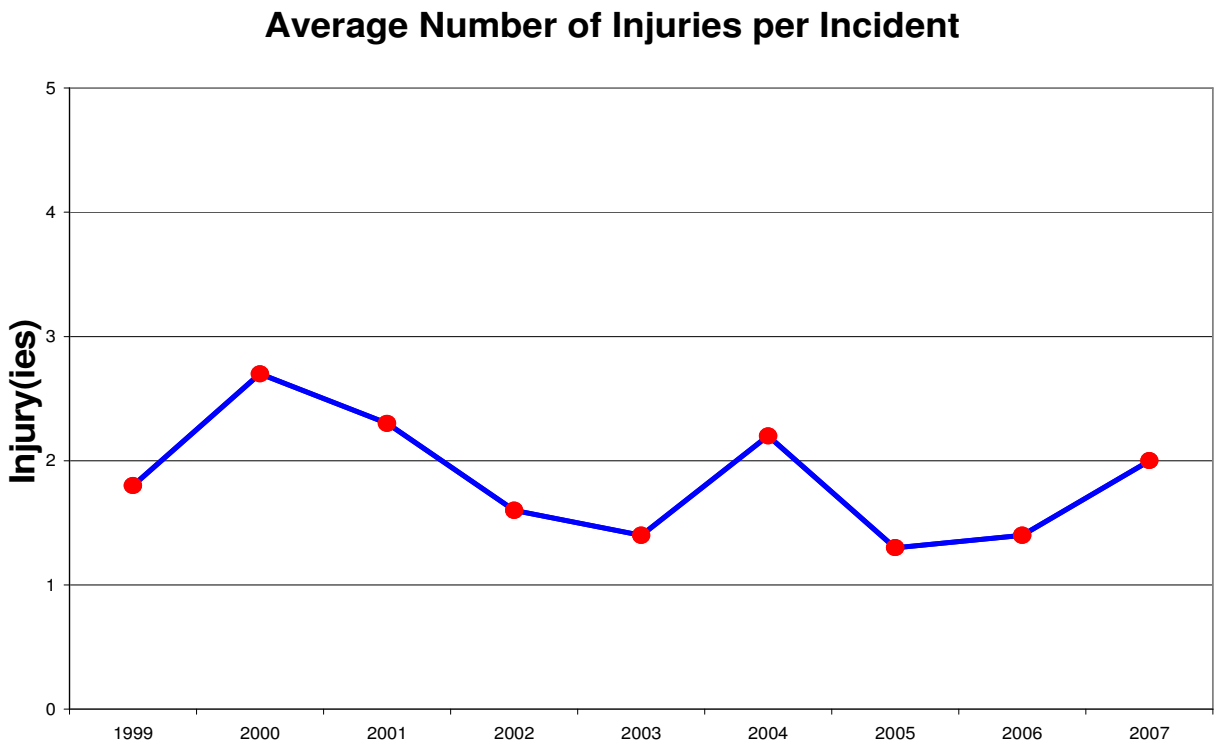
2004
Reported incidents that resulted in onsite injuries = 13%
Reported incidents that resulted in offsite injuries = 0%
Reported incidents that resulted in onsite fatalities = 2%
Of the incidents that resulted in injuries, the average number of injuries per incident = 2.2
Of the incidents that resulted in fatalities, the average number of fatalities per incident =1

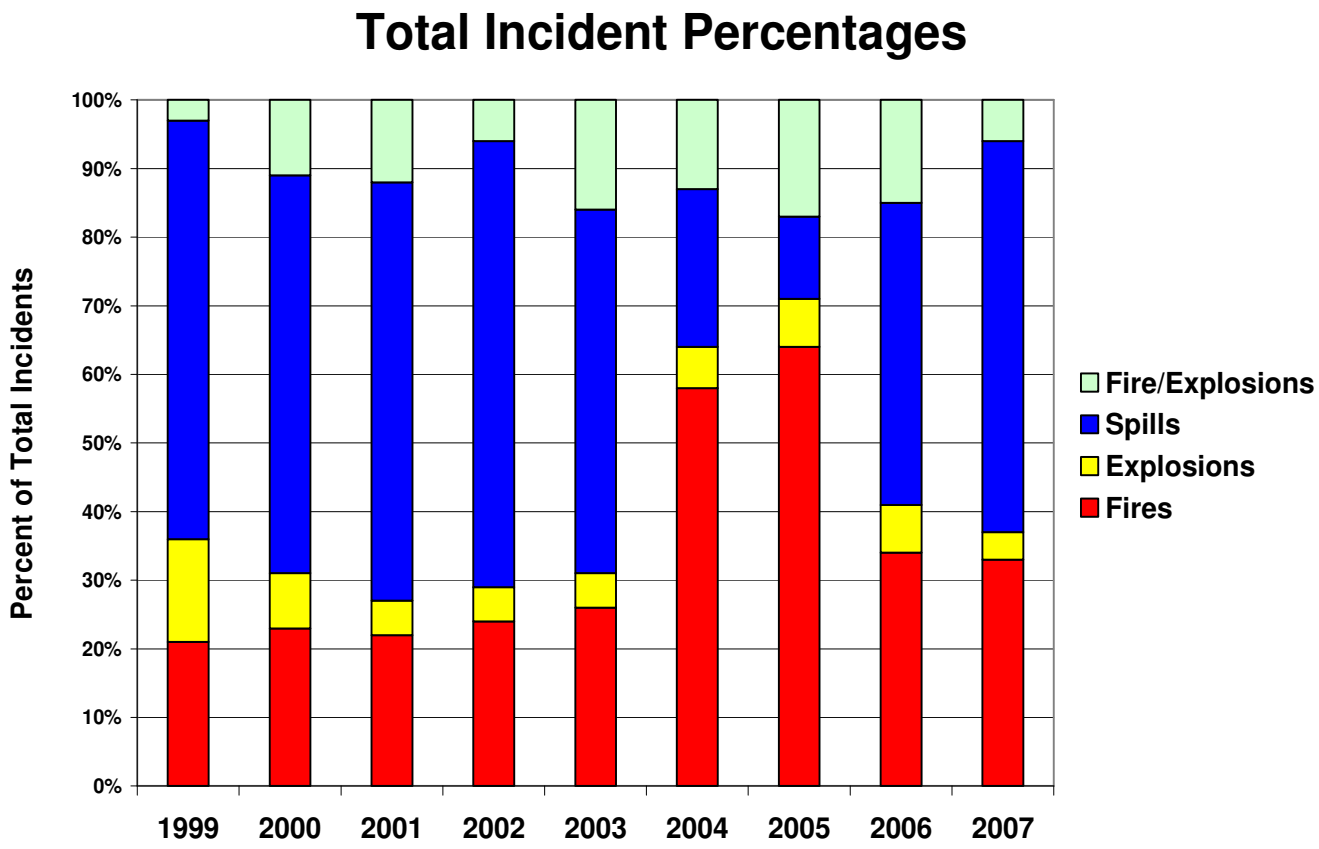
2005
Reported incidents that resulted in onsite injuries = 15%
Reported incidents that resulted in offsite injuries = 2%
Reported incidents that resulted in onsite fatalities = 2%
Of the incidents that resulted in injuries, the average number of injuries per incident = 1.3
Of the incidents that resulted in fatalities, the average number of fatalities per incident =1

2006
Reported incidents that resulted in onsite injuries = 17%
Reported incidents that resulted in offsite injuries = 0%
Reported incidents that resulted in onsite fatalities = 0%
Of the incidents that resulted in injuries, the average number of injuries per incident = 1.4
Of the incidents that resulted in fatalities, the average number of fatalities per incident =0

2007
Reported incidents that resulted in onsite injuries = 7%
Reported incidents that resulted in offsite injuries = 0%
Reported incidents that resulted in onsite fatalities = 0%
Of the incidents that resulted in injuries, the average number of injuries per incident = 2.0
Of the incidents that resulted in fatalities, the average number of fatalities per incident =0

**All reported injury/illnesses and fatalities.*


Average Number of Injuries per Incident
Injury(ies)
5
4
3
2
1
0
1999
2000
2001
2002
2003
2004
2005
2006
2007


Total Incident Percentages
Percent of Total Incidents
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1999
2000
2001
2002
2003
2004
2005
2006
2007
Fire/Explosions
Spills
Explosions
Fires

SUMMARY

Refineries

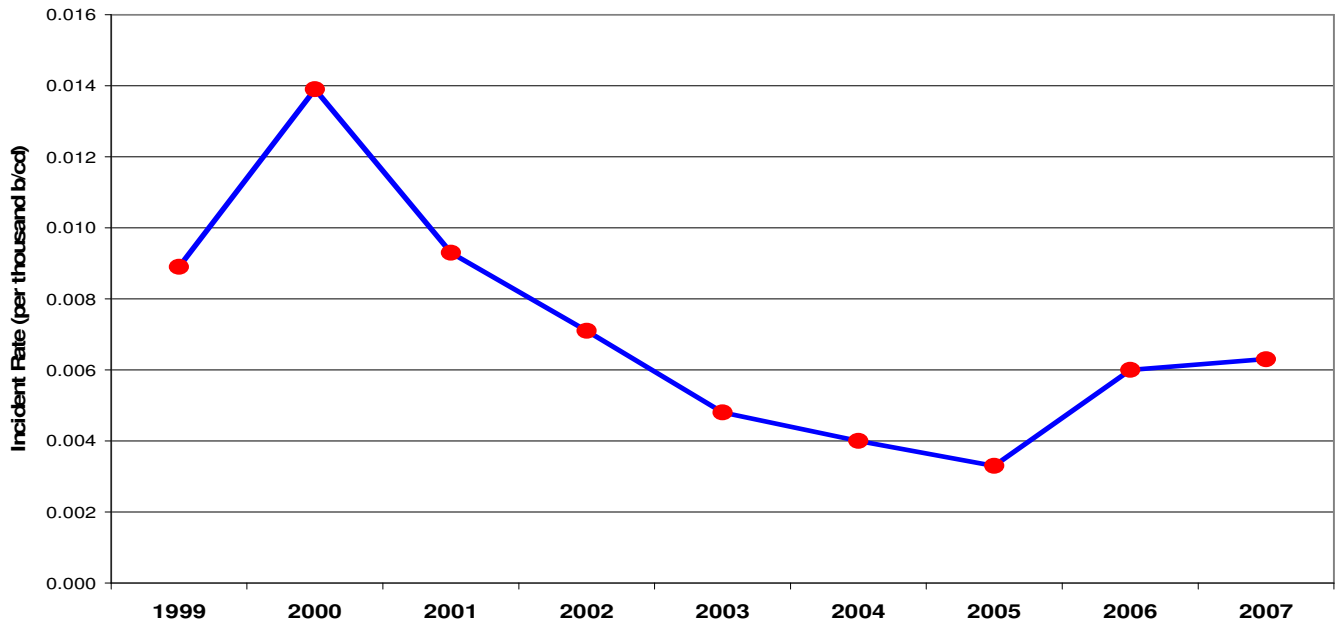
Of the top 15 refining companies listed in the December 24, 2007 issue of the *Oil & Gas Journal* as owning the most capacities in the U. S., 8 responded (some in part) to the 2007 PSP. In all, 32 refining companies responded to the PSP. Twenty companies or 63% of the total reported no incidents while the remaining 12 refining companies reported 67 incidents.

In 2007, spills/releases represented 57% of total incidents, followed by fires at 34%, fires/explosions/releases resulting in injury/illness/fatality at 4% and explosions at 4%. The total incident rate in 2007 was 0.0063 incidents per thousand barrels daily of refining capacity.

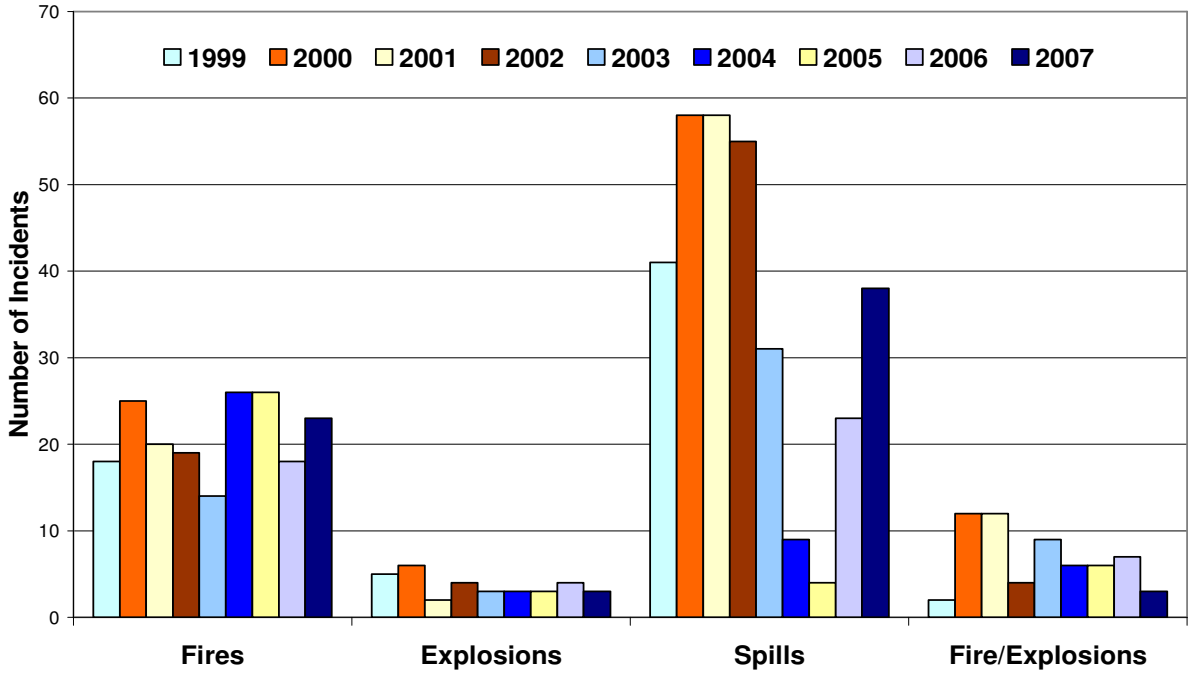
The majority of incident related property damages fell within the $0 to $250K per incident cost ranges. In 2007, these three cost ranges account for 76% of all refinery-related incidents. In 2006 it was 71%. In 2005 it was 65%. In 2004—60%. In 2003, it was 73% and in 2002—83%. In 2001, it was 82%. In 2000— 84% and in 1999—77%.

In the nine years the survey has been conducted, refinery **fires** have most frequently occurred in (1) the atmospheric crude distillation, (2) the hydrocracking unit, and (3) the vacuum crude distillation; **spills** have most often occurred in (1) the fluidized catalytic cracking unit, (2) the sulfur recovery unit, and (3) the atmospheric crude distillation; and **explosions** most frequently in (1) atmospheric storage and (2) other.

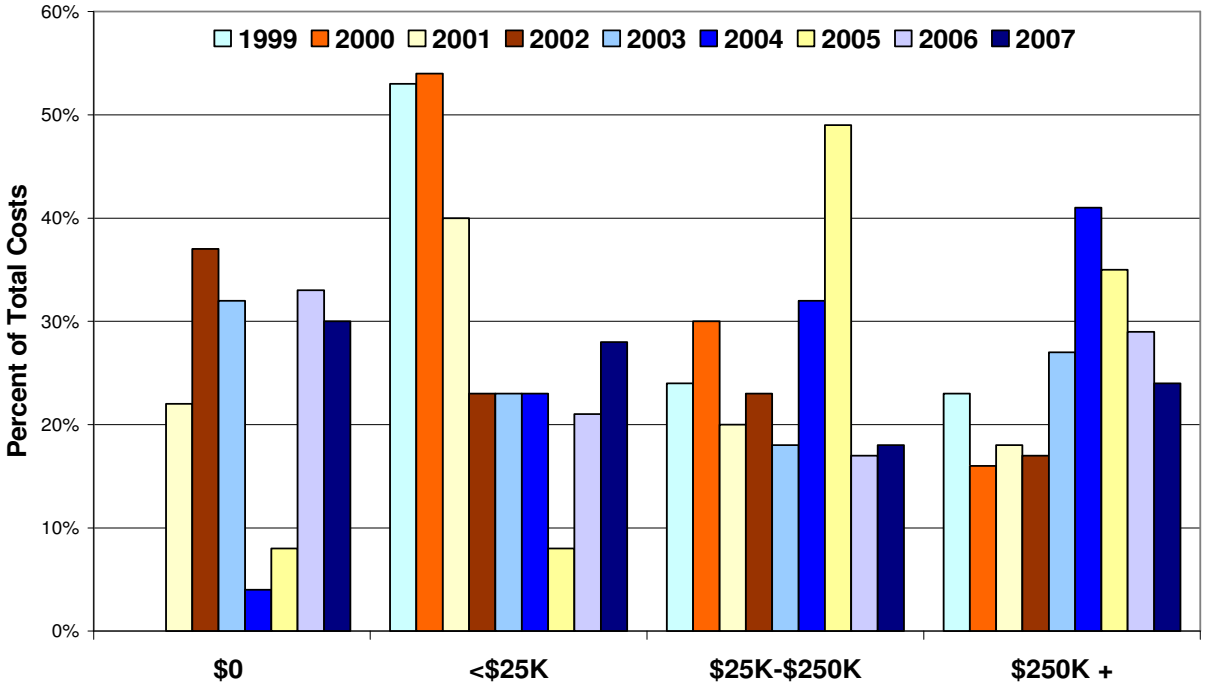
Total Refinery Respondent Incident Rate 1999-2007



Total Refinery Incidents



Total Refinery Incident Costs



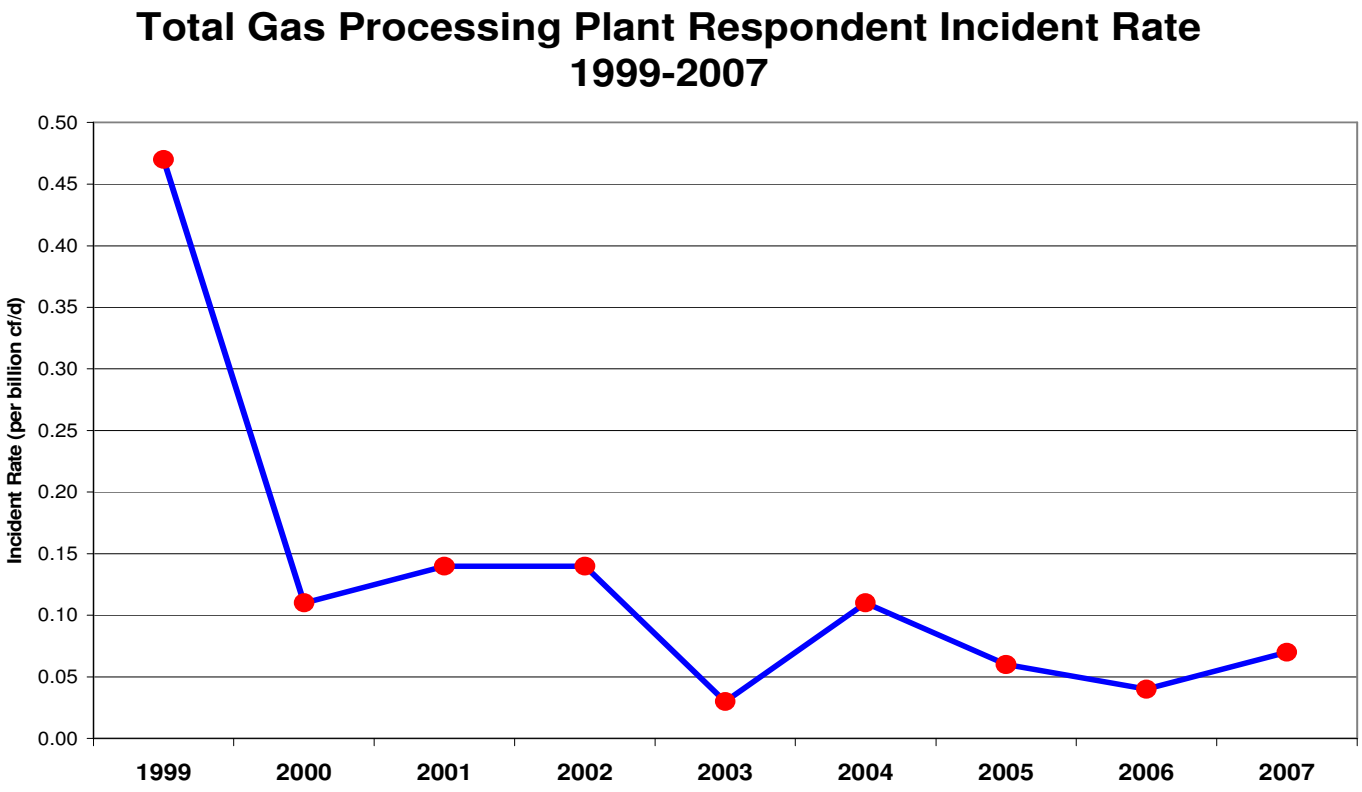
SUMMARY

Gas Processing Plants

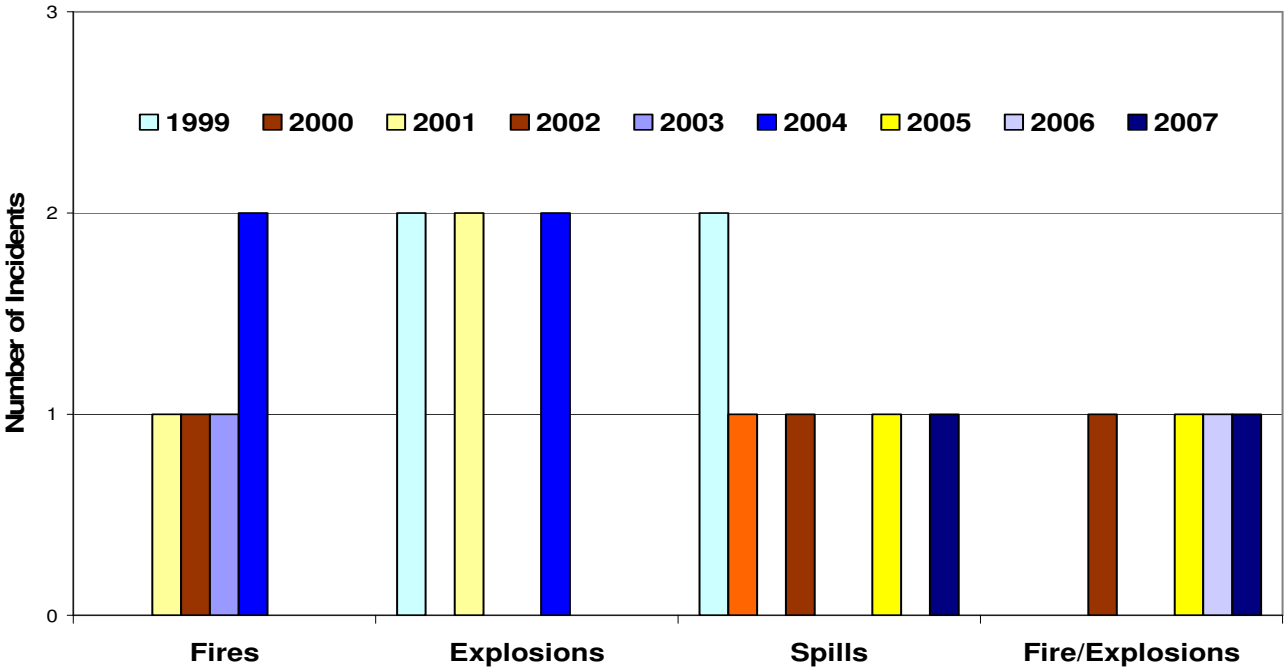
In 2007, 22 gas processing companies—accounting for 177 gas processing plants—responded to the PSP. Of these responding companies, 21—or 96% of the total—reported no incidents.

One gas processing plant reported two incidents—a fire/explosion/release resulting in injury/illness/fatality and a release. One incident fell in the <$25K incident cost category; the other fell in the $25K-$250 K cost category. The total incident rate was 0.00007 incidents per million cubic feet daily of processing capacity or 0.07 incidents per billion.

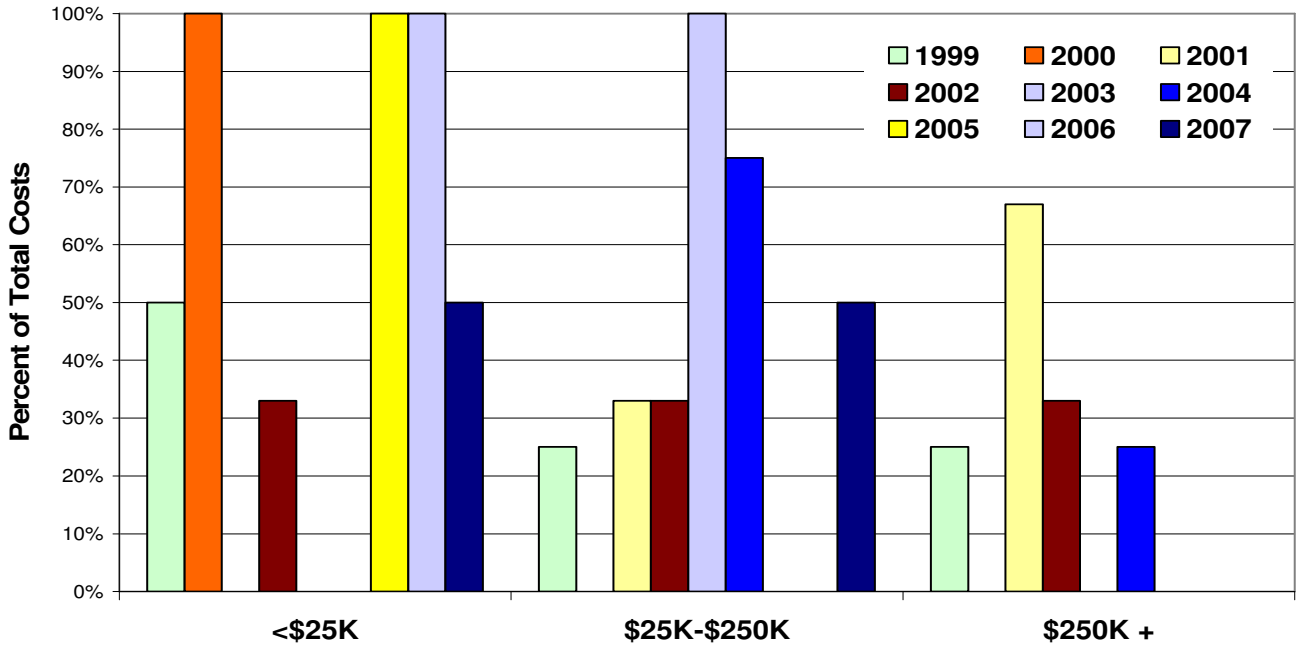
In the nine years this survey has been conducted, there have been only twenty-one incidents at gas processing plants—6 explosions, 6 spills/releases, 5 fires and 4 fire/explosions/releases resulting in injury/illness/fatality. These incidents have occurred mainly in the gas plant operation area and the pipeline between units/areas.



Total Gas Processing Plant Incidents



Total Gas Processing Plant Incident Costs



Section I: Refineries

1999 - 2007 PSP Data Summary (Refineries)

	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of Responding Companies	14	22	34	30	41	46	43	34	32
Number of Responding Companies with 0 Incidents	6	9	13	14	30	32	26	22	20
Number of Responding Facilities (Refineries)	46	56	81	76	72	99	71	71	69
Number of Responding Facilities with 0 Incidents	21	20	25	17	54	72	44	42	42
Number of Incidents	66	101	92	82	57	44	39	52	67
U.S. Refining Capacity (Mb/cd)[1]	15,802	16,539	16,564	16,623	16,894	17,126	17,339	17,443	
Respondents Refining Capacity (Mb/cd)	7,400	7,290	9,939	11,576	11,962	11,018	11,698	8,646	10,594
PSP Capacity Response Rate	47%	44%	60%	70%	71%	64%	67%	50%	
Total Respondent Incident Rate (per Mb/cd)	0.0089	0.0139	0.0093	0.0071	0.0048	0.0040	0.0033	0.0060	0.0063

Incident Types	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**% of 2007**
Fires	18	25	20	19	14	26	26	18	23	34%
Explosions	5	6	2	4	3	3	3	4	3	4%
Spills	41	58	58	55	31	9	4	23	38	57%
Injury/Ill/Fatality	2	12	12	4	9	6	6	7	3	4%
Total	**66**	**101**	**92**	**82**	**57**	**44**	**39**	**52**	**67**	**100%**

Incident Costs	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**% of 2007**
$0 Cost[2]	0	0	20	30	18	2	3	17	20	30%
<$25K	33	54	37	19	13	10	3	11	19	28%
$25K-$250K	15	30	18	19	10	14	19	9	12	18%
$250K-$500K	1	5	6	5	6	4	1	4	1	1%
$500K-$1MM	3	6	3	3	2	3	4	3	7	10%
$1MM-$5MM	8	6	3	4	5	8	3	4	2	3%
>$5MM	2	0	5	2	3	3	6	4	6	9%
Total[3]	**62**	**101**	**92**	**82**	**57**	**44**	**39**	**52**	**67**	**100%**

[1]EIA, Refinery Capacity as of January 1, 2007, Table 5; thousand barrels capacity daily.
[2]Incidents with no property damage have no costs.
[3]Costs not available for 4 incidents in 1999.

2007 Cost Frequency Table[1] (Refineries)

Cost	Number of Incidents	Proportion
$0	20	30%
< $25	19	28%
$25-$250K	12	18%
$250-$500K	1	1%
$500-$1M	7	10%
$1M-$5M	2	3%
>$5M	6	9%
Total	67	100%

Onsite Fires

Cost	Number of Fires	Proportion
$0	0	0%
< $25	2	9%
$25-$250K	10	44%
$250-$500K	1	4%
$500-$1M	3	13%
$1M-$5M	2	9%
>$5M	5	22%
Total	23	100%

Onsite Explosions

Cost	Number of Explosions	Proportion
$0	0	0%
< $25	0	0%
$25-$250K	1	33%
$250-$500K	0	0%
$500-$1M	2	66%
$1M-$5M	0	0%
>$5M	0	0%
Total	3	100%

Onsite Spills

Cost	Number of Spills	Proportion
$0	20	53%
< $25	15	40%
$25-$250K	1	3%
$250-$500K	0	0%
$500-$1M	1	3%
$1M-$5M	0	0%
>$5M	1	3%
Total	38	100%

Onsite Injury/Fatality

Cost	Number of I/F	Proportion
$0	0	0%
< $25	2	66%
$25-$250K	0	0%
$250-$500K	0	0%
$500-$1M	1	33%
$1M-$5M	0	0%
>$5M	0	0%
Total	3	100%

All Onsite Incidents

Cost	Number of Incidents	Proportion
$0	20	30%
< $25	19	28%
$25-$250K	12	18%
$250-$500K	1	1%
$500-$1M	7	10%
$1M-$5M	2	3%
>$5M	6	9%
Total	67	100%

Offsite Fires

Cost	Number of Fires	Proportion
$0	0	0%
< $25	0	0%
$25-$250K	0	0%
$250-$500K	0	0%
$500-$1M	0	0%
$1M-$5M	0	0%
>$5M	0	0%
Total	0	0%

Offsite Explosions

Cost	Number of Explosions	Proportion
$0	0	0%
< $25	0	0%
$25-$250K	0	0%
$250-$500K	0	0%
$500-$1M	0	0%
$1M-$5M	0	0%
>$5M	0	0%
Total	0	0%

Offsite Spills

Cost	Number of Spills	Proportion
$0	0	0%
< $25	0	0%
$25-$250K	0	0%
$250-$500K	0	0%
$500-$1M	0	0%
$1M-$5M	0	0%
>$5M	0	0%
Total	0	0%

Offsite Injury/Fatality

Cost	Number of I/F	Proportion
$0	0	0%
< $25	0	0%
$25-$250K	0	0%
$250-$500K	0	0%
$500-$1M	0	0%
$1M-$5M	0	0%
>$5M	0	0%
Total	0	0%

All Offsite Incidents

Cost	Number of Incidents	Proportion
$0	0	0%
< $25	0	0%
$25-$250K	0	0%
$250-$500K	0	0%
$500-$1M	0	0%
$1M-$5M	0	0%
>$5M	0	0%
Total	0	0%

[1]An incident can have both on and offsite costs.

2007 Incident Location Frequency Table[1] (Refineries)

Location	Fires	Proportion
Coker	5	22%
Atmospheric Storage	4	17%
Other	3	13%
Atmospheric Crude Distillation	2	9%
Sulphur Recovery Unit	2	9%
Hydrogen Production	1	4%
Hydrocracking Unit	1	4%
Isomerization Unit	1	4%
Naptha Reformer	1	4%
Utilities Area	1	4%
Vacuum Crude Distillation	1	4%
Waste Water Treatment	1	4%
Total	**23**	**100%**

Location	Explosions	Proportion
Hydrotreater	2	67%
Utilities Area	1	33%
Total	**3**	**100%**

Location	Injury/Ill/Fatal	Proportion
Utilities Area	1	33%
Waste Water Treatment	1	33%
Other	1	33%
Total	**3**	**100%**

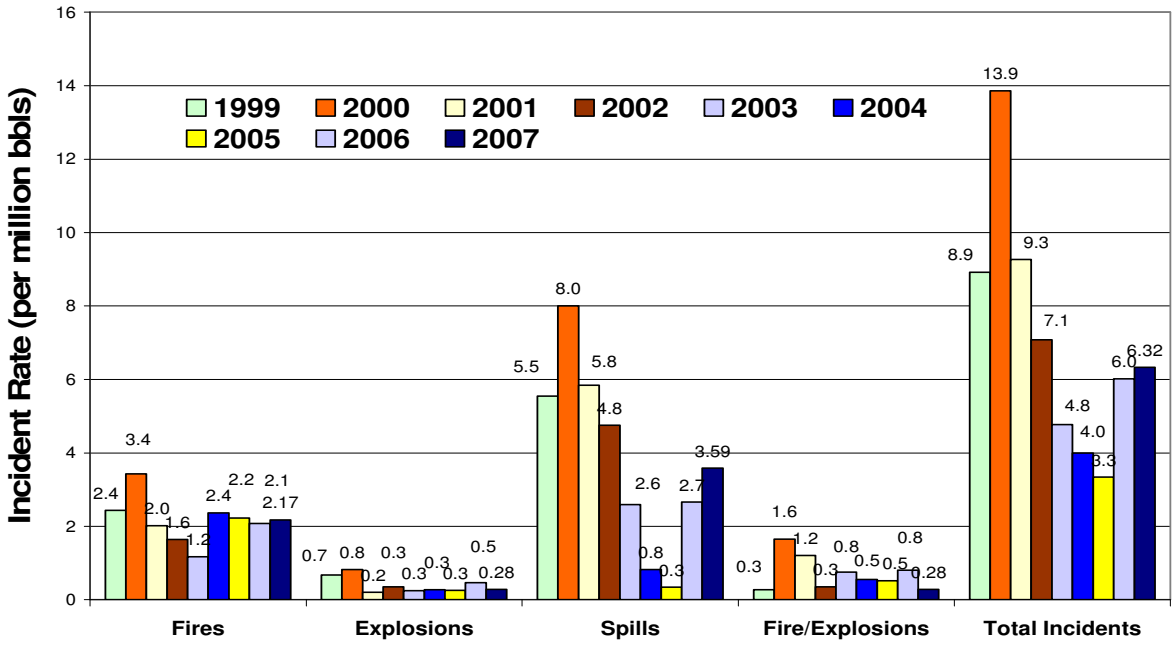
Location	Spills	Proportion
Sulfuric Alkylation Unit	7	17%
Fluidized Cat Cracking Unit	5	12%
Hydrotreater	5	12%
Pipeline vs Units/Areas	5	12%
HF Alkylation Unit	3	7%
Naptha Reformer	3	7%
Sulfur Recovery Unit	3	7%
Atmospheric Storage	2	5%
Gas Plant Operation	2	5%
Hydrocracking Unit	2	5%
Vapor recovery Unit	2	5%
Atmospheric Crude Distillation	1	2%
Vacuum Crude Distillation	1	2%
Other	1	2%
Total	**42**	**100%**

Location	All Incidents	Proportion
Sulfuric Alkylation Unit	7	10%
Hydrotreater	7	10%
Atmospheric Storage	6	8%
Coker	5	7%
Fluidized Cat Cracking Unit	5	7%
Pipeline vs Units/Areas	5	7%
Sulphur Recovery Unit	5	7%
Other	5	7%
Naptha Reformer	4	6%
Atmospheric Crude Distillation	3	4%
HF Alkylation Unit	3	4%
Hydrocracking Unit	3	4%
Utilities Area	3	4%
Gas Plant Operation	2	3%
Vacuum Crude Distillation	2	3%
Vapor Recovery Unit	2	3%
Waste Water Treatment	2	3%
Hydrogen Production	1	1%
Isomerization Unit	1	1%
Total	**71**	**100%**

Other **Locations**	Frequency	Proportion
Crude Process	3	60%
Propane Loading Rack	1	20%
Ethylene Oxide Unit	1	20%
Total	**5**	**100%**

[1] *Incidents can occur in more than one location.*

Respondent Refinery Incident Rates



Taking Action

- In 1999, respondents to the PSP reported 9 process safety incidents for every 1 million barrels of crude operable refining capacity (b/cd) in the U. S.
- In 2000, PSP respondents reported 14 process safety incidents for every 1 million barrels of crude operable refining capacity (b/cd) in the U. S.
- In 2001, PSP respondents reported 9 process safety incidents for every 1 million barrels of crude operable refining capacity (b/cd) in the U. S.
- In 2002, PSP respondents reported 7 process safety incidents for every 1 million barrels of crude operable refining capacity (b/cd) in the U. S.
- In 2003, PSP respondents reported 5 process safety incidents for every 1 million barrels of crude operable refining capacity (b/cd) in the U. S.
- In 2004, PSP respondents reported 4 process safety incidents for every 1 million barrels of crude operable refining capacity (b/cd) in the U. S.
- In 2005, PSP respondents reported 3 process safety incidents for every 1 million barrels of crude operable refining capacity (b/cd) in the U. S.
- In 2006, PSP respondents reported 6 process safety incidents for every 1 million barrels of crude operable refining capacity (b/cd) in the U. S.
- In 2007, PSP respondents reported 6 process safety incidents for every 1 million barrels of crude operable refining capacity (b/cd) in the U. S.

Section II: Gas Processing Plants

1999 - 2007 PSP Data Summary
(Gas Processing Plants)

Gas Processing Summary	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of Responding Companies	9	11	19	28	31	35	30	24	22
Number of Responding Companies with 0 Incidents	7	10	16	25	30	31	28	23	21
Number of Responding Facilities (Gas Processing Plants)	50	53	89	111	190	280	184	183	177
Number of Responding Facilities with 0 Incidents	46	52	86	108	189	276	182	182	176
Number of Incidents	4	1	3	3	1	4	2	1	2
U. S. Gas Processing Capacity (MMcfd)[1]	70,969	71,885	70,745	70,745	70,061	70,277	69,815	70,218	
Respondents Gas Processing Capacity (MMcfd)	8,587	9,404	22,080	20,725	31,813	35,054	30,971	27,163	27,105
PSP Capacity Response Rate	12%	13%	31%	29%	45%	50%	44%	39%	
Total Respondent Incident Rate (per MMcfd)	0.0005	0.0001	0.0001	0.0001	0.00003	0.0001	0.00006	0.00004	0.00007
Total Respondent Incident Rate (per billion cfd)	0.47	0.11	0.14	0.14	0.03	0.11	0.06	0.04	0.07

Incident Types	1999	2000	2001	2002	2003	2004	2005	2006	2007	% of 2007
Fires	0	0	1	1	1	2	0	0	0	0%
Explosions	2	0	2	0	0	2	0	0	0	0%
Spills	2	1	0	1	0	0	1	0	1	50%
Injury/Ill/Fatal	0	0	0	1	0	0	1	1	1	50%
Total	**4**	**1**	**3**	**3**	**1**	**4**	**2**	**1**	**2**	**100%**

Incident Costs	1999	2000	2001	2002	2003	2004	2005	2006	2007	% of 2007
<$25K	2	1	0	1	0	0	2	1	1	50%
$25K-$250K	1	0	1	1	1	3	0	0	1	50%
$250K-$500K	0	0	1	0	0	1	0	0	0	0%
$500K-$1MM	1	0	0	0	0	0	0	0	0	0%
$1MM-$5MM	0	0	1	0	0	0	0	0	0	0%
>$5MM	0	0	0	1	0	0	0	0	0	0%
Total	**4**	**1**	**3**	**3**	**1**	**4**	**2**	**1**	**2**	**100%**

[1] *Oil & Gas Journal, June 18, 2007; million cubic feet daily.*

2007 Cost Frequency Table
(Gas Processing Plants)

Cost	Number of Incidents	Proportion
<$25K	1	50%
$25-$250K	1	50%
$250-$500K	0	0%
$500K-$1M	0	0%
$1M-5M	0	0%
>$5M	0	0%
Total	2	100%

Onsite Spill/Release

Cost	Number of Spill/Rel	Proportion
<$25K	0	0%
$25-$250K	1	100%
$250-$500K	0	0%
$500K-$1M	0	0%
$1M-5M	0	0%
>$5M	0	0%
Total	1	100%

Offsite Spill/Release

Cost	Number of Spill/Rel	Proportion
<$25K	0	0%
$25-$250K	0	0%
$250-$500K	0	0%
$500K-$1M	0	0%
$1M-5M	0	0%
>$5M	0	0%
Total	0	0%

Onsite Fire/Explosions/Release

Cost	Number of Fire/Explosion/release	Proportion
<$25K	1	100%
$25-$250K	0	0%
$250-$500K	0	0%
$500K-$1M	0	0%
$1M-5M	0	0%
>$5M	0	0%
Total	1	100%

Offsite Fire/Explosions

Cost	Number of Fire/Expl	Proportion
<$25K	0	0%
$25-$250K	0	0%
$250-$500K	0	0%
$500K-$1M	0	0%
$1M-5M	0	0%
>$5M	0	0%
Total	0	0%

All Onsite Incidents

Cost	Number of Incidents	Proportion
<$25K	1	50%
$25-$250K	1	50%
$250-$500K	0	0%
$500K-$1M	0	0%
$1M-5M	0	0%
>$5M	0	0%
Total	2	100%

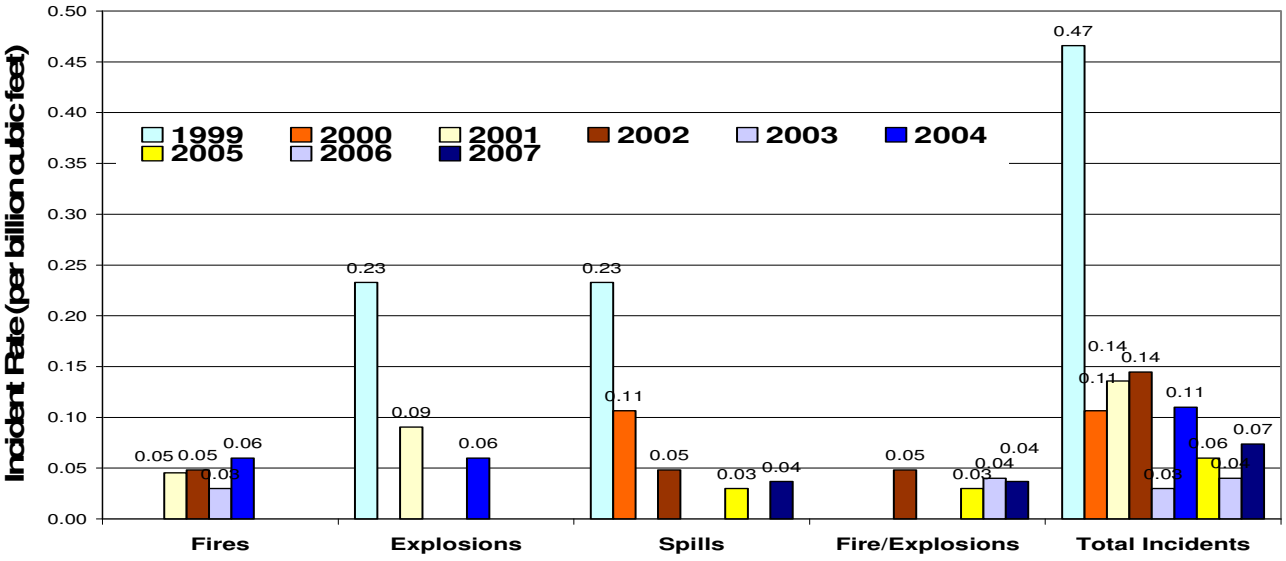
All Offsite Incidents

Cost	Number of Incidents	Proportion
<$25K	0	0%
$25-$250K	0	0%
$250-$500K	0	0%
$500K-$1M	0	0%
$1M-5M	0	0%
>$5M	0	0%
Total	0	0%

2007 Incident Location Frequency Table (Gas Processing Plants)

Location	Spill	Percentage
Atmospheric Storage	1	50%
Location	**Fire/Explo/Spill**	**Percentage**
Pipeline vs Units	1	50%

Respondent Gas Processing Plant Incident Rates



Taking Action

- In 1999, respondents to the PSP reported half a process safety incident for every 1 billion cubic feet of operable gas processing capacity (f/cd) in the U. S. or 1 incident for every 2 billion cubic feet.
- In 2000, PSP respondents reported 1/9th of a process safety incident for every 1 billion cubic feet of operable gas processing capacity (f/cd) in the U. S. or 1 incident for every 9 billion cubic feet.
- In 2001, PSP respondents reported 1/7th of a process safety incident for every 1 billion cubic feet of operable gas processing capacity (f/cd) in the U. S. or 1 incident for every 7 billion cubic feet.
- In 2002, PSP respondents reported 1/7th of a process safety incident for every 1 billion cubic feet of operable gas processing capacity (f/cd) in the U. S. or 1 incident for every 7 billion cubic feet.
- In 2003, PSP respondents reported 1/32nd of a process safety incident for every 1 billion cubic feet of operable gas processing capacity (f/cd) in the U. S. or 1 incident for every 32 billion cubic feet.
- In 2004, PSP respondents reported 1/9th of a process safety incident for every 1 billion cubic feet of operable gas processing capacity (f/cd) in the U. S. or 1 incident for every 9 billion cubic feet.
- In 2005, PSP respondents reported 1/15th of a process safety incident for every 1 billion cubic feet of operable gas processing capacity (f/cd) in the U. S. or 1 incident for every 15 billion cubic feet.
- In 2006, PSP respondents reported 1/27th of a process safety incident for every 1 billion cubic feet of operable gas processing capacity (f/cd) in the U. S. or 1 incident for every 27 billion cubic feet.
- In 2007, PSP respondents reported 1/27th of a process safety incident for every 1 billion cubic feet of operable gas processing capacity (f/cd) in the U. S. or 1 incident for every 27 billion cubic feet.

Section III: Appendix A

Company Information Form (PS-1)

2007 Data

Submit one (1) form for each company

The following company information is needed for quality assurance purposes and will remain confidential. The API report will not include this information.

Company Name: _____

Company Address: _____

_____

_____

Company Contact Person: _____

Phone Number: _____

Fax Number: _____

E-mail Address: _____

Number of Facility Information Forms attached: _____

Number of Incident Report Forms attached: _____

Number of refineries considered for survey: _____

Total Capacity of refineries: _____ **BBL/Day**

Number of gas processing plants considered for survey: _____

Total Capacity of gas processing plants: _____ **CU FT/Day**

Facility Information Form (PS-2)
2007 Data

Submit one (1) form for each facility that had a reportable incident.
(See Instruction Manual for a detailed explanation of a Reportable Incident.).

The following facility-specific information is needed for quality assurance purposes and will remain confidential. The API report will not include your facility name, company or address.

Facility Name: _____

Facility Company: _____

Facility Address: _____

_____

_____

Facility Contact Person: _____

Phone Number: _____

Fax Number: _____

E-mail Address: _____

Number of Incident Report Forms attached: _____

Facility Type:

☐ **Refinery:** _____ ***BBL/Day Nominal Capacity***

☐ **Gas Processing Plant:** _____ ***Cu Ft/Day Nominal Capacity***

Incident Report Form (PS-3)
2007 Data
Fill out this form for each reportable incident

Company Name: _____ **Facility Name:** _____

Required: Date_____ Time_____ AM or PM (circle one)

Section A: Reportable Incidents:

Check the boxes of all reporting criteria that apply.

- ☐ Fire causing more than $25,000 in property damage
- ☐ Explosion causing more than $25,000 in property damage
- ☐ Release of chemical greater than 40 CFR 355.40 reportable quantity for extremely hazardous substances or a release of more than 5,000 pounds of a flammable gas/liquid
- ☐ Serious injury, illness or fatality resulting from a fire, explosion, or chemical accidental release

Section B: Incident Characteristics: Input all applicable information

B1. Chemical Release Information:

Chemical or Material Name (Attach additional sheets if necessary)	CAS No.	Pounds Released

B2. Injury/Illness/Fatality Information:

	Injury/Illness	Fatality
Number ONsite		
Number OFFsite		

B3. Incident Costs: Check appropriate range of property damages associated with incident (fire, explosion, release, or injury/illness/fatality)

	ONsite	OFFsite
Less Than $25,000	☐	☐
$25,000 - $250,000	☐	☐
$250,000 - $500,000	☐	☐
$500,000 - $1MM	☐	☐
$1MM - $5MM	☐	☐
More than $5MM	☐	☐

B4. Other Impacts

Check applicable impacts

- ☐ OFFsite Emergency Responders used
- ☐ Significant Media Coverage
- ☐ OFFsite population protection
  - Evacuation: Number of person ____
  - Reportable Shelter-in-place: Number of persons ____

B5. Location of Incident

- ☐ Acid Plant Operation
- ☐ Amine Treating Unit
- ☐ Atmospheric Crude Distillation
- ☐ Atmospheric Storage
- ☐ Coker
- ☐ Cooling Tower
- ☐ Fluidized Catalitic Cracking Unit
- ☐ Gas Plant Operation
- ☐ Gasoline Treating/Blending
- ☐ Heavy Oils Unit
- ☐ Other: _____
- ☐ HF Alkylation Unit
- ☐ Hydrocracking Unit
- ☐ Hydrogen Production
- ☐ Hydrotreater
- ☐ Isomerization Unit
- ☐ Laboratory
- ☐ Marine Facilities
- ☐ Naphtha Reformer
- ☐ Oil/Gas Separation
- ☐ Pilot Plant
- ☐ Pressured Storage
- ☐ Slop Oil Systems
- ☐ Storage Cavern Operations
- ☐ Sulfur Recovery Unit
- ☐ Sulfuric Alkylation Unit
- ☐ Utilities area
- ☐ Vacuum Crude Distillation
- ☐ Vapor Recovery Unit
- ☐ Waste Water Treatment
- ☐ Pipeline between units/areas