

# *Loss Lessons*

**51st Annual Canadian Chemical  
Engineering Conference**

# *Guiding Principles*

★ “ Those who cannot remember the past are condemned to repeat it “

- George Santayana

★ “ The first duty of business is to survive, and the guiding principle of business economics is not maximizing profit, it is the avoidance of loss ”

– Peter Drucker

# *Outline*

- ★ **10 largest losses in last 30 years.**
- ★ **10 largest losses so far in 2001.**
- ★ **Specific loss lessons.**
  - **Fire at a cooling tower**
  - **Fire at a lube oil refinery**
  - **Tank fire at an oil refinery**
  - **Fire at a flammable liquids filling operation**

# *Top 10 losses in last 30 years*

- ★ **Phillips- Pasadena, Texas Oct 23, 1989**
  - \$812 million (physical damage only)
- ★ **Shell- Norco, Louisiana May 5, 1988**
  - \$314 million
- ★ **Total- La Mede France November 9, 1992**
  - \$297 million
- ★ **Shell- Bintulu, Indonesia December 25, 1997**
  - \$275 million
- ★ **Hoechst Celanese Corp- Pampa, Texas  
November 14, 1987**
  - \$274 million

# *Top 10 losses in last 30 years*

- ★ **Fuji Oil- Sodegaura, Japan October 16, 1992**
  - \$183 million
- ★ **Nipro- Flixborough, UK June 1, 1974**
  - \$170 million
- ★ **Qatar Petroleum- Umm Said, Qatar April 3, 1977**
  - \$167 million
- ★ **Unocal- Lemont, Illinois July 23, 1984**
  - \$167 million
- ★ **Pemex- Cactus Gas Plant July 26, 1996**
  - \$139 million

# *10 Largest Losses- 2001*

- ★ **Reliance Petroleum**
- ★ **Jamnager refinery**
- ★ **Gujarat, India**
- ★ **January 26**
- ★ **Earthquake measuring 7.9 on the Richter scale**
- ★ **Loss estimate US\$46 million**

# *10 Largest Losses- 2001*

- ★ **Chevron Phillips Chemical Company LP**
- ★ **St. James, Louisiana**
- ★ **February 11**
- ★ **Fire of styrene vessel internals**
- ★ **Loss estimate- US\$18 million physical damage**
- ★ **7 months of downtime**





# *10 Largest Losses- 2001*

- ★ **Tata Chemicals Limited**
- ★ **Mithapur, India**
- ★ **March 2**
- ★ **Fire in on-site power plant**
- ★ **Loss estimate- US\$20.8 million**
- ★ **Partial recovery within 24 days, 4 to 5 months until full operations resume.**



# *10 Largest Losses- 2001*

- \* **El Paso Corporation**
- \* **Aruba, Caribbean**
- \* **225,000 bbl/day oil refinery**
- \* **April 10**
- \* **Fire in the crude oil processing area**
- \* **Loss estimate- US\$120 million**



# *10 Largest Losses- 2001*

- \* **Conoco Inc.**
- \* **Humber Refinery**
- \* **Grimsby, UK**
- \* **180,000 bbls/day**
- \* **April 16**
- \* **Vapour cloud explosion**
- \* **loss estimate US\$260 million**



# *10 Largest Losses- 2001*

- \* **Tosco Corporation**
- \* **Carson Refinery**
- \* **Carson, California**
- \* **125,000 bbls/day**
- \* **April 23**
- \* **Fire in Coker Unit**
- \* **Loss estimate- US\$120 million**





# *10 Largest Losses- 2001*

- \* **Tosco Corporation**
- \* **Wood River Refinery**
- \* **Roxana, Illinois**
- \* **286,400 bbls/day**
- \* **April 28**
- \* **Fire in crude unit #2**
- \* **Loss estimate- US\$60 million**

# *10 Largest Losses- 2001*

- ★ **Ultramar Diamond Shamrock**
- ★ **Three Rivers Refinery**
- ★ **Three Rivers, Texas**
- ★ **98,000 bbls/day**
- ★ **July 9**
- ★ **Fire in alkylation unit**
- ★ **Loss estimate US\$10 million plus loss of profits**



# *10 Largest Losses- 2001*

- ★ **Citgo Petroleum (division of PdVSA)**
- ★ **Lemont, Illinois**
- ★ **167,000 bbls/day**
- ★ **August 16**
- ★ **Fire at crude unit**
- ★ **Loss estimate \$25 million plus loss of profits**



# *10 Largest Losses- 2001*

- \* **AtoFina**
- \* **Toulouse France**
- \* **September 15**
- \* **US\$700 million**
- \* **Massive detonation of ammonium nitrate pile.**



# *US- EPA finding 2001*

- ★ Out of 14,500 facilities filing government-required risk-management plans, 1,145 reported 1,913 accidents between June 1994 and 1999. Those accidents killed 33 workers, injured nearly 1,900 and sent 217 people outside the plants to the hospital.