1323308 January 2001

Source : CNN.COM, JANUARY 8, 2001
Location : Truth or Consequences, NEW MEXICO

Injured : 17 **Dead :** 0

Abstract

An explosion and fire occurred injuring seventeen people when a vehicle rolled onto a gasoline station and collided with an 18,000-gallon propane tank that was 85% full. Nearby residents were evacuated. A second tank holding 2,000 gallons of the flammable gas exploded as a result of the first explosion.
[fire - consequence, evacuation, road vehicle, gas - flammable]

Lessons

[None Reported]

1322217 December 2000

Source : CNN.COM NEWS, DECEMBER 17, 2000, (http://www.cnn.com).
Location : Oshkosh, Wisconsin, USA

Injured : 4 **Dead :** 0

Abstract

A rail transportation incident. A fire occurred onboard and box car containing sodium hydrosulphite. Nearby residents were evacuated.
Sodium hydrosulphite is highly flammable that can heat and ignite in the presence of moisture and air.
Four people were affected by fumes.
[fire - consequence, gas / vapour release]

Lessons

[None Reported]

1321013 December 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, DECEMBER 13, 2000, (http://www.chemsafety.gov), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Colonie, New York, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a repair facility causing severe structural damage to the building and equipment. Several explosions resulted from the fire. The remains of two tanks were found approximately 2,000 yards away. Fortunately no one was injured in the incident.
An investigation is underway into the cause of the fire.
[fire - consequence, damage to equipment]

Lessons

[None Reported]

1320509 December 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, DECEMBER 11, 2000, (http://www.chemsafety.gov), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : , SINGAPORE

Injured : 4 **Dead :** 0

Abstract

An explosion and fire occurred on a pipe carrying diesel during routine work in a steam boiler at a chemical plant. Four workers were injured in the incident. An investigation into the incident found that the workers were trying to switch on an additional source of fuel supply to the boiler when the incident occurred. The cause of the incident is unknown.
[fire - consequence, burns, injury, normal operations]

Lessons

[None Reported]

1320707 December 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, DECEMBER 11, 2000, (http://www.chemsafety.gov), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Nitro, USA

Injured : 7 **Dead :** 0

Abstract

A fire occurred in a tank containing bleach at a chemical plant. Seven people were injured in the incident. An investigation into the incident is being carried out. [fire - consequence, injury]

Lessons

[None Reported]

4096 18 November 2000

Source : TIME EUROPE, NOVEMBER 20, 2000.
Location : Kitzsteinhorn, AUSTRIA

Injured : 8 **Dead :** 150+

Abstract

A rail transportation incident. A funicular train caught fire inside a tunnel. The train was carrying more than one hundred and fifty passengers to the top of a ski slope when the incident occurred.
The fire fed by fresh air sucked into the tunnel and up through the train killing nearly all passengers, eight managed to escape. The cause of the fire is not known. An investigation into the incident is underway.
[passenger train, fatality, injury, fire - consequence]

Lessons

[None Reported]

1318517 November 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 17, 2000, (http://www.chemsafety.gov), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Johannesburg, SOUTH AFRICA

Injured : - **Dead :** 11

Abstract

A fire and explosion occurred at a chemical factory killing eleven workers and injuring many more.
The incident occurred when fire reached gas containers, which then exploded. It is thought that the fire started when flammable chemical spilled onto a gas burner.
An investigation into the incident is underway.
[burns, fire - consequence, chemical - flammable, hot surface, injury, fatality]

Lessons

[None Reported]

1323214 November 2000

Source : CHEMICAL & ENGINEERING NEWS, DECEMBER 4, 2000.
Location : , SINGAPORE

Injured : 0 **Dead :** 0

Abstract

A fire occurred on a CO plant causing total shutdown. The cause of the incident is not known. An investigation into the incident is underway. Fortunately no one was injured in the incident and only minor damage occurred.
[fire - consequence, plant shutdown]

Lessons

[None Reported]

1319605 November 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 5, 2000, (http://www.chemsafety.gov), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Sonora, Texas, USA

Injured : 6 **Dead :** 0

Abstract

A fire and several explosions occurred at a chemical warehouse when lightning struck an electrical transformer during a thunderstorm.
The warehouse stored methanol, cleaning solvents and other hazardous chemicals.
Nearby residents were evacuated as a precaution from toxic smoke being released to atmosphere.
The building was completely destroyed in the fire.
[fire - consequence, warehousing, evacuation, gas / vapour release, injury]

Lessons

[None Reported]

1316902 November 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 2, 2000, (http://www.chemsafety.gov), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Ansan, SOUTH KOREA

Injured : 41 **Dead :** 2

Abstract

An explosion and fire occurred at a plastics plant killing two workers and injuring forty-one others. The explosion engulfed the plastics plant and a nearby factory. It is not known what caused the blast and whether toxic fumes were released.
[fire - consequence, fatality, injury]

Lessons

[None Reported]

1319002 November 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, NOVEMBER 2, 2000, (http://www.chemsafety.gov), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Ansan, KOREA

Injured : 41 **Dead :** 2

Abstract

An explosion and fire occurred at a plastics factory killing two people and injuring forty-one others. The explosion and fire completely engulfed the factory and nearby buildings. It is not known whether toxic gases were released in the incident. The cause of the incident is not known.
[fire - consequence, fatality, injury]

Lessons

[None Reported]

1316401 November 2000

Source : CNN INTERACTIVE, NOVEMBER 2, 2000, (http://www.cnn.com).
Location : Arizona, USA

Injured : 3 **Dead :** 1

Abstract

A rail transportation incident. Two freight trains, one containing hazardous materials and the other diesel fuel collided causing several carriages to derail. A fire and small explosion occurred as a result. It is reported that three crewmembers were injured and one killed in the incident. Nearby residents were evacuated as a consequence. Fortunately no hazardous materials were released.
An investigation into the incident is being carried out.
[collision, derailment - consequence, fire - consequence, evacuation, injury, fatality]

Lessons

[None Reported]

13193November 2000

Source : BBC NEWS, 6 NOVEMBER 2000, (http://www.bbc.co.uk).
Location : Osun State, NIGERIA

Injured : - **Dead :** 100+

Abstract

A road transportation incident. A petrol tanker exploded into a ball of flames when in collision with a queue of stationary cars. More than one hundred people were killed in the incident.
[road tanker, fire - consequence, explosion, fatality]

Lessons

[None Reported]

1317131 October 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 31, 2000, (http://www.chemsafety.gov), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Mumbai, INDIA

Injured : 6 **Dead :** 0

Abstract

A fire occurred at a chemicals company. The fire occurred near a petroleum storage tank at the facility. Fortunately the tank was not involved in the incident.
Approximately one hundred fire fighters took nearly to hours to control the blaze. Six fire fighters were injured in the incident.
The cause of the fire is not known.
[fire - consequence, storage tanks, injury, unidentified cause]

Lessons

[None Reported]

1309230 October 2000

Source : YAHOO NEWS, OCTOBER 30, 2000, (http://www.yahoo.co.uk),; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 31, 2000, (http://www.chemsafety.gov).

Location : Gloucestershire, UK

Injured : 0 **Dead :** 0

Abstract

A fire and explosion occurred at a chemical factory releasing caustic fumes to atmosphere. The explosion and fire is throught to have been caused by ruptured durms, which released a mixture of toxic chemicals. Nearby residents were evacuated as a precaution due to fumes and nearby flooding. It is now thought that some chemicals have spilled from the damaged containers into the swollen river. Chemical involved; cyanide product, cadmium, mercury and hydrochloric acid]

[fire - consequence, gas / vapour release, evacuation]

Lessons

[None Reported]

1294229 October 2000

Source : ICHEME
Location : , UK
Injured : 0 **Dead :** 0

Abstract

A fire occurred at a chemical plant. An investigation into the incident found that a line below a valve on the pumping pot was leaking severely and had spilled onto the wooden base of a stapling machine, which then caught fire.
The pipework around the leak was stripped revealing no fractures, the diaphragm valve was not damaged either.
It was therefore concluded that the leak occurred due to the failure of one of the polyethylene gaskets.
[fire - consequence, gasket failure]

Lessons

[None Reported]

1316526 October 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 27, 2000, (http://www.chemsafety.gov), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at an oil refinery involving a storage tank that contained naphtha. The incident occurred during the demolition of the tank when it caught fire. No one was injured in the incident.
An investigation into the fire is underway.
[fire - consequence, storage tanks]

Lessons

[None Reported]

1317026 October 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 27, 2000, (http://www.chemsafety.gov), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Richmond, USA

Injured : 0 **Dead :** 1

Abstract

An explosion and fire occurred at a plastic recycling plant killing a worker and forcing the evacuation of nearby businesses and residents as toxic fumes were released to atmosphere.
Damage to the building is estimated to be $2 million (2000).
[fire - consequence, fatality, gas / vapour release, damage to equipment]

Lessons

[None Reported]

1317322 October 2000

Source : CNN INTERACTIVE, OCTOBER 23, 2000, (http://www.cnn.com).
Location : Texas, USA

Injured : - **Dead :** 1

Abstract

An explosion occurred on a road tanker containing 8,000 gallons of liquid propane as it was unloading its contents at a propane storage facility.
It has been reported that the incident occurred when the line exploded causing the tanker to catch fire and then the tanker itself exploded. One person was killed and another is missing. Nearby residents were evacuated as a precaution.
[fire - consequence, fatality, evacuation]

Lessons

[None Reported]

1315112 October 2000

Source : CHEMICAL WEEK, OCTOBER 18, 2000.
Location : Wiesbaden, GERMANY

Injured : 7 **Dead :** 0

Abstract

An explosion and fire occurred on a resins plant causing severe damage to the plant. Seven people including fire fighters were injured in the incident.
An investigation into the cause of the incident is underway.
[fire - consequence, damage to equipment, injury]

Lessons

[None Reported]

1321710 October 2000

Source : BBC NEWS, SEPTEMBER 26, 2000, (http://www.bbc.co.uk).
Location : Kazanlak, BULGARIA

Injured : 1 **Dead :** 1

Abstract

An explosion occurred at a military factory when a chemical caught fire. At least one person was killed and other injured in the incident.
[fire - consequence, fatality, injury, chemicals unknown]

Lessons

[None Reported]

1318610 October 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 11, 2000, (http://www.chemsafety.gov), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Lubbock, Texas, USA

Injured : 3 **Dead :** 0

Abstract

An incident occurred at a high school severely burning three pupils when a flash fire resulted from a bottle of methyl alcohol that had been placed to close to a Bunsen burner.
An investigation into the incident is being carried out.
[fire - consequence, laboratory work, burns, injury]

Lessons

[None Reported]

1269406 October 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 21, 2000, (http://www.chemsafety.gov).

Location : Ojima, JAPAN

Injured : 28 **Dead :** 4

Abstract

An explosion occurred in a distilling tower at a chemical plant that produces hydroxylamine and other chemicals used in making computer chips and pesticides. Four workers were killed and twenty-eight were injured.
It is thought that the explosion may have been caused by the hydroxylamine being manufactured at the plant.
[chemical causes, distillation, fatality, fire - consequence, injury]

Lessons

[None Reported]

1308605 October 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 4, 2000, (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Albany, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a titanium processing plant. The fire occurred on a pipe carrying chlorine gas causing damage. A nearby residential area was evacuated. The fire was brought under control and the leak stopped in about thirty minutes. No injuries were reported.
[fire - consequence, damage to equipment, evacuation]

Lessons

[None Reported]

1308504 October 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 5, 2000, (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Monticello, New York, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a flooring company forcing the evacuation of the surrounding area. The fire released clouds of yellow acrid smoke. The fire fighters doused nearby buildings to reduce the chances of the fire spreading.
Air samples were taken and runoff water checked for contamination and toxins.
[fire - consequence, gas / vapour release]

Lessons

[None Reported]

1308901 October 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 2, 2000, (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Cow Lake, Alberta, CANADA

Injured : 3 **Dead :** 0

Abstract

A fire occurred on an oil rig. The fire went on for approximately twenty minutes before the rig collapsed under the intense heat. Three workers were injured in the incident. One was seriously injured and the other two were treated for burns.
[fire - consequence, exploration, plant / property / equipment, injury]

Lessons

[None Reported]

1308801 October 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 2, 2000, (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Madison, USA

Injured : 1 **Dead :** 0

Abstract

An explosion and fire occurred at a recycling plant. The building was destroyed in the incident.
It is reported that several explosions occurred from propane tanks that were nearby.
One fire fighter was injured in the incident.
An estimated $3 million (2000) worth of damage occurred.
[fire - consequence, damage to equipment, injury]

Lessons

[None Reported]

13180October 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, OCTOBER 12, 2000, (http://www.chemsafety.gov), Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Bamble, NORWAY

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a pile of magnesium at an industrial site. Residents in a one kilometre radius were warned to stay in doors and nearby roads were closed as a precaution due to the danger of an explosion and fallout of hot magnesium.
Fire fighters struggled to control the fire as magnesium reacts with water. Fire fighters attempts to contain the fire with salt failed, as the salt melted in the extreme heat.
[fire - consequence]

Lessons

1321826 September 2000

Source : CNN.COM, SEPTEMBER 26, 2000, (http://www.cnn.com).
Location : New York, USA

Injured : - **Dead :** 1

Abstract

A road transportation incident. An explosion and fire occurred when a road tanker carrying gasoline was in collision with a van. The driver of the van was killed. Nearby residents were evacuated as a precaution.
It is not known whether the road tanker was at full capacity of 9,8000 gallons at the time of the incident.
[fire - consequence, fatality, evacuation

Lessons

[None Reported]

1321925 September 2000

Source : CNN.COM, SEPTEMBER 25, 2000, (http://www.cnn.com).
Location : Florida, USA

Injured : 2 **Dead :** 0

Abstract

A rail transportation incident. A cargo train carrying sugar cane and potash collided with two parked cargo trains triggering a fire. As a result of the collision six cars and three locomotives derailed injuring two people. It was reported that no hazardous materials were onboard at the time of the incident.
[freight train, collision, fire - consequence, derailment - consequence, injury]

Lessons

[None Reported]

1323019 September 2000

Source : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 2000.
Location : Jackson, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a plastics company during the servicing of the air conditioning unit. The building was evacuated. Fortunately no one was injured in the incident.
[fire - consequence, maintenance, evacuation]

Lessons

[None Reported]

1308318 September 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 20, 2000, (http://www.chemsafety.gov).
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Location : Newark, New Jersey, USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred in a laboratory at a University forcing the evacuation of the facility. Fortunately no one was injured.
It is thought the incident occurred due to the building up of hydrogen in an inert atmosphere glove box. The equipment had not been used for a couple of months. Damage occurred to equipment.
An investigation into the actual cause of the incident is being carried out.
[fire - consequence, laboratory work, protective safety equipment]

Lessons

[None Reported]

1307415 September 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 17, 2000, (http://www.chemsafety.gov).
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Location : Phoenix, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at an explosives test facility. The fire occurred when approximately 50 pounds of unknown chemicals were being mixed. Buildings in the surrounding area were evacuated.
The cause of the incident is not known. No one was injured in the incident.
[fire - consequence, mixing, evacuation, unidentified cause]

Lessons

[None Reported]

1306213 September 2000

Source : BBC NEWS, 13 SEPTEMBER, 2000, (http:www.bbc.co.uk).
Location : , UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred at in a fuel storage tank containing 30,000 litres of central heating oil. It is thought that the fire occurred due to a faulty thermostat.
[fire - consequence, instrumentation failure, storage tanks]

Lessons

[None Reported]

1306813 September 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 14, 2000, (http://www.chemsafety.gov).
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Location : Trexlertown, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred during distillation. An operator was injured whilst distilling a chemical. It is thought that a small fire occurred after the explosion. Cause of the incident is not known.
[fire - consequence]

Lessons

[None Reported]

1304412 September 2000

Source : CNN.COM, U.S. NEWS, SEPTEMBER 12, 2000, (http://www.cnn.com).
Location : Winona, Texas, USA

Injured : 7 **Dead :** 0

Abstract

An explosion occurred at a manufacturing plant when a chemical used in making glue overflowed and caught fire. Seven people were injured in the incident. The explosion occurred when workers took the lid off to try and work out what had happened, the mixture got to the open flame on the cooking furnace.
[fire - consequence, container, injury]

Lessons

[None Reported]

1306608 September 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 11, 2000, (http://www.chemsafety.gov).
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Location : West Deptford, USA

Injured : 3 **Dead :** 0

Abstract

A fire occurred at a refinery. It is reported that the fire occurred in a dewaxing unit used in the process of crude oil.
An investigation revealed that diesel fuel leaked from tubes that run through the heater into another heater, the fumes caught fire and released nitrogen oxides as a by-product of the fire.
Two workers and one fire fighter were injured in the incident.
[fire - consequence, gas / vapour release, refining, burns, injury]

Lessons

[None Reported]

1306408 September 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 11, 2000, (http://www.chemsafety.gov).
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Location : Philadelphia, USA

Injured : 2 **Dead :** 0

Abstract

A fire occurred at an oil refinery injuring two people; one suffered serious burns and was transported to hospital.
The fire broke out due to equipment failure in a crude oil unit, thick black smoke was released as a result.
[fire - consequence, mechanical equipment failure, refining, injury]

Lessons

[None Reported]

1306508 September 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 11, 2000, (http://www.chemsafety.gov).
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Location : Rogers City, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a warehouse containing unknown amounts of fertilisers, herbicides, insecticides and pesticides. The fire totally destroyed the building. The cause of the fire is not known.
A half-mile area surrounding the fire was evacuated as a precaution.
[fire - consequence, warehousing, evacuation, unidentified cause]

Lessons

[None Reported]

1306307 September 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, SEPTEMBER 11, 2000, (http://www.chemsafety.gov).
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Location : Milwaukee, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred involving a chemical used as sanitation in water treatment. The chemical caught fire and released toxic fumes and smoke into the atmosphere. Forty workers were evacuated.
The fire was quickly extinguished by fire fighters. No one was injured in the incident.
[fire - consequence, gas / vapour release, evacuation]

Lessons

[None Reported]

1322730 August 2000

Source : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 2000.
Location : Angarsk, SIBERIA

Injured : 3 **Dead :** 1

Abstract

A fire occurred at a petrochemical plant when lightning struck the plant. A worker was killed and three others injured in the incident.
[fire - consequence, fatality, injury]

Lessons

[None Reported]

1304124 August 2000

Source : CHEMICAL WEEK, AUGUST 23, 30, 2000, (http://www.chemweek.com).
Location : Seoul, KOREA

Injured : 13 **Dead :** 6

Abstract

An investigation is underway after an explosion and fire ccurred at an organic peroxides plant killing six people and injuring thirteen others.
[fire - consequence, fatality, injury]

Lessons

[None Reported]

1320222 August 2000

Source : HAZARDOUS CARGO BULLETIN, NOVEMBER 2000.
Location : Oregon, USA

Injured : 0 **Dead :** 0

Abstract

A road transportation incident. A truck carrying 11,000 litres of herbicide caught fire and spilled an unknown quantity of the product into a nearby river. Ecological damage occurred.
[fire - consequence]

Lessons

[None Reported]

1322921 August 2000

Source : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 2000.
Location : Antwerp, BELGIUM

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a refinery forcing the evacuation of the site and injuring a worker. It is thought that the cause of the fire occurred due to work that was being carried out to isolate a pipe within the pipeline network.
[fire - consequence, injury, maintenance]

Lessons

[None Reported]

1302921 August 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 22, 2000, (http://www.chemsafety.gov).
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Location : Huron, USA

Injured : 4 **Dead :** 0

Abstract

An explosion and fire occurred at an ethanol plant injuring four people. Fire fighters were called to the scene and used foam to control the fire that followed the explosion. Two of the four people injured suffered serious burns and were hospitalised.
[fire - consequence, injury]

Lessons

[None Reported]

1301821 August 2000

Source : CNN.COM, U.S. NEWS, AUGUST 19, 21, 2000, (http://www.cnn.com).
Location : New Mexico, USA

Injured : 5 **Dead :** 11

Abstract

An explosion and subsequent fire occurred on a 30-inch underground natural gas pipeline reportedly killing eleven people and injuring at least five others. An investigation into the rupture has revealed that a corroded section of the pipe was ejected in the explosion.
[fire - consequence, fatality, injury]

Lessons

[None Reported]

1301420 August 2000

Source : CNN.COM, U.S. NEWS, 20 AUGUST, 2000, (http://www.cnn.com).
Location : North Carolina, USA

Injured : 0 **Dead :** 0

Abstract

A gas pipeline ruptured forcing the evacuation of a nearby shopping mall. Fortunately no one was injured. The explosion occurred during construction work when workers apparently hit the gas line.
The line was shut off and fire fighters extinguished the fire.
[drilling/digging/ploughing vehicles, fire - consequence]

Lessons

[None Reported]

1303219 August 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 22, 2000, (http://www.chemsafety.gov).
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Location : Texarkana, Texas, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at an ammunitions plant. The fire destroyed and severely damaged parts of the plant. No one was injured in the incident. Workers were evacuated from the facility.
[fire - consequence, evacuation, damage to equipment]

Lessons

[None Reported]

1301718 August 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 18, 2000, (http://www.chemsafety.gov).
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Location : Texas City, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a coker unit at a chemical plant releasing thick black smoke into the atmosphere. Fire fighters brought the fire under control in approximately forty minutes. It was stated that the smoke released did not pose a threat to the public, but the air around the plant is being monitored as a precaution.
The cause of the incident is being investigated.
[fire - consequence, gas / vapour release]

Lessons

[None Reported]

1301618 August 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 18, 2000, (http://www.chemsafety.gov).
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Location : Convent, USA

Injured : 9 **Dead :** 0

Abstract

A fire and explosion occurred at a refinery injuring nine workers; one who was severely burned was taken to the burn unit at the nearby hospital. Minor damage occurred to the refinery.
The cause of the incident is being investigated.
[fire - consequence, burns, damage to equipment, injury]

Lessons

[None Reported]

1301518 August 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 18, 2000, (http://www.chemsafety.gov).
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Location : Columbia, USA

Injured : 1 **Dead :** 0

Abstract

A fire occurred in a laboratory severely burning a student. The incident occurred after a mixture of two unknown chemicals caught fire. The building was evacuated as a precaution.
The fire caused an estimated $12,000 (2000) worth of damage.
[fire - consequence, laboratory work, unwanted chemical reaction, burns, evacuation, damage to equipment, injury]

Lessons

[None Reported]

1322617 August 2000

Source : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 2000.
Location : Visakhapatnam, HINDUSTAN

Injured : 3 **Dead :** 1

Abstract

A fire occurred at a refinery killing a worker and injuring three others. An investigation into the cause of the incident is underway.
[fire - consequence, fatality, injury]

Lessons

[None Reported]

1301217 August 2000

Source : CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 17, 2000, (http://www.chemsafety.gov).
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Location : Vancouver, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a chemical facility holding stocks of propane, chlorine and other chemicals. Fire fighters were called to the scene and extinguished the fire within fifteen minutes.
An investigation into the incident is being carries out.
[fire - consequence]

Lessons

[None Reported]

1299415 August 2000

Source : CNN.COM, U.S. NEWS, AUGUST 15, 2000, (http://www.cnn.com).
Location : Malta, Montana, USA

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. A freight train including tankers containing a poisonous chemical derailed forcing the evacuation of nearby residents and the closure of a highway. Sparks from the derailed tankers caused small fires for several miles.
Three of the tankers contained carbon disulphide, a poisonous, highly flammable chemical used in the making of solvents and cellophane. Two other tankers contained titanium dioxide and posed no threat to the environment. Fortunately no leak occurred.
[derailment, fire - consequence]

Lessons

[None Reported]

1299214 August 2000

Source : BBC NEWS, 15 AUGUST, 2000, (http://www.bbc.co.uk).
Location : Uganda, AFRICA

Injured : 10 **Dead :** 18

Abstract

A fire occurred killing eighteen people and injuring ten when a burning cigarette caused petrol from a fuel tanker to catch fire as villagers were attempting to siphon fuel from the overturned tanker.
[fire - consequence, road tanker, fatality, burns, injury]

Lessons

[None Reported]

1315714 August 2000

Source : HAZARDOUS CARGO BULLETIN, OCTOBER 2000.
Location : Montana, USA

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. Seven cars of a freight train, three containing carbon disulphide and two containing titanium dioxide, derailed. Fortunately no spillage occurred although a number of small fires were reported. Nearby residents were evacuated.
[derailment - consequence, fire - consequence, evacuation]

Lessons

[None Reported]

1297911 August 2000

Source : BBC NEWS, 11 AUGUST, 2000, (http://www.bbc.co.uk).
Location : Cornwall/Devon, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a plastics factory completely destroying the building. Nearby residents were warned to keep their windows and doors closed as a precaution. It is not thought that the chemicals contained in the building are toxic.
[fire - consequence]

Lessons

[None Reported]

1298710 August 2000

Source : CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 14, 2000, (http://www.chemsafety.gov).
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Location : Venice, USA

Injured : 1 **Dead :** 0

Abstract

A fire and explosion occurred at a power plant causing power cuts to surrounding areas.
The incident occurred when oil leaked on the floor of the turbine room and ignited. Fire fighters using hydrogen tackled the fire. Several people from nearby homes were evacuated as a precaution.
[fire - consequence, evacuation]

Lessons

[None Reported]

1297808 August 2000

Source : CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 9, 2000, (http://www.chemsafety.gov).

Location : Gebze, TURKEY

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a refinery. It is reported that the fire apparently occurred due to an overheated tank. A series of explosions followed sending several barrels of oil flying into the air. Fortunately no injuries occurred.
[fire - consequence, refining, overheating]

Lessons

[None Reported]

1297508 August 2000

Source : CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 9, 2000, (http://www.chemsafety.gov).
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Location : Guelph, Ontario, CANADA

Injured : 0 **Dead :** 0

Abstract

A fire and explosion occurred at a factory releasing corrosive gases. Several nearby companies and residents were forced to evacuate. The cause of the incident is not known.
[fire - consequence, gas / vapour release, evacuation]

Lessons

[None Reported]

1322507 August 2000

Source : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 2000.
Location : Borneo, INDONESIA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred in a hydroskimming unit at an oil refinery. An investigation into the cause of the incident found that a leaking pipe was to blame. [fire - consequence]

Lessons

[None Reported]

1294907 August 2000

Source : BBC NEWS, 7 AUGUST, 2000, (http://www.bbc.co.uk),; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 8, 2000, (http://www.chemsafety.gov).

Location : Balikpapan, Borneo, INDONESIA

Injured : 2 **Dead :** 0

Abstract

An explosion and fire occurred at a refinery injuring two workers. It is not known what caused the incident. The plant has been closed for further investigation.

[fire - consequence, refining, plant shutdown, injury]

Lessons

[None Reported]

1295804 August 2000

Source : CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 8, 2000, (http://www.chemsafety.gov).
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Location : Hamilton, Ontario, CANADA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred at a steel mill when water leaked from a furnace. The leak in the furnace's cooling system reportedly caused a safety valve to open to vent pressure, inadvertently allowing oxygen to flow into the vessel, triggering off the explosion and fire. Fortunately no one was injured in the incident.
[fire - consequence, milling]

Lessons

[None Reported]

1295903 August 2000

Source : CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 8, 2000, (http://www.chemsafety.gov).
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Location : Temple, Texas, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a warehouse causing serious damage and the evacuation of the surrounding area due to hazardous smoke being emitted. The fire destroyed several power transformers leaving nearby businesses without power.
An estimated forty million gallons of runoff spilled into a nearby creek and was reported to have killed a number of fish.
[fire - consequence, damage to equipment, warehousing, gas / vapour release, ecological damage]

Lessons

[None Reported]

1320002 August 2000

Source : HAZARDOUS CARGO BULLETIN, NOVEMBER 2000.
Location : , GERMANY

Injured : 1 **Dead :** 0

Abstract

A road transportation incident. A road tanker containing 30m3 of diesel overturned when a tyre blew out causing a diesel spill, which then caught fire. Fortunately the driver managed to escape but received burns.
[fire - consequence, injury]

Lessons

[None Reported]

1295002 August 2000

Source : CHEMICAL SAFETY AND HAZARDS INVESTIGATION BOARD, AUGUST 7, 2000, (http://www.chemsafety.gov).
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Location : Pheonix, USA

Injured : 5 **Dead :** 0

Abstract

A fire occurred at a chemical supply warehouse releasing clouds of toxic smoke. Approximately 100 people were evacuated from the surrounding area. The warehouse stored pesticides, fertilisers, and plastics and possibly cyanide. Five fire fighters were taken to hospital for treatment for exhaustion and smoke inhalation. The fire damaged other businesses in the area. Damage to the warehouse is to be estimated at $100 million (2000).
[fire - consequence, warehousing, damage to equipment, injury, gas / vapour release]

Lessons

[None Reported]

1292531 July 2000

Source : CNN.COM, U.S. NEWS, AUGUST 1, 2000, (http://www.cnn.com).
Location : Utah, USA

Injured : 12 **Dead :** 2

Abstract

Ignition occurred on a long wall face in a mineshaft killing two miners and injuring twelve others. Two of the eight miners taken to hospital were treated and released; the remaining six were treated for burns and smoke inhalation.
The cause of the incident is not known.
[fire - consequence, explosion, fatality, solids processing, injury, mining]

Lessons

[None Reported]

1292831 July 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, AUGUST 1, 2000, (http://www.chemsafety.gov).
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Location : Convent, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred at a phosphate plant. The incident occurred when a 12 inch line carrying processed gas exploded and caught fire an hour after the plant began to shutdown.
Damage is thought to be minor.
[fire - consequence, damage to equipment]

Lessons

[None Reported]

1293231 July 2000

Source : BBC NEWS, 31 JULY, 2000, (www.bbc.co.uk).
Location : Okwabude, AFRICA

Injured : - **Dead :** -

Abstract

An explosion and fire occurred on an oil pipeline, it is not known whether anyone was killed. This is the sixth incident to have involved such vandalism to pipelines.
[fire - consequence, deliberate acts]

Lessons

[None Reported]

1304226 July 2000

Source : FIRE PREVENTION 336, SEPTEMBER 2000.
Location : Frejus Tunnel, ITALY, FRANCE

Injured : 0 **Dead :** 0

Abstract

A road transportation incident. A tunnel linking Italy and France was closed for nine hours after a lorry caught fire one mile inside. The fire was quickly extinguished.
[fire - consequence]

Lessons

[None Reported]

1293425 July 2000

Source : BBC NEWS, 25, 26, 31 JULY, 2000, (www.bbc.co.uk).
Location : Paris, FRANCE

Injured : 0 **Dead :** 113

Abstract

An air transportation incident. Concorde carrying one hundred and nine people crashed into a hotel two minutes after take off. All passengers, crew and four people on the ground were killed as the jet exploded into a ball of flames.
Within minutes dozens of fire engines and ambulances were on the scene to tackle the fire are search for survivors.
An investigation is being carried out into the cause of the crash although it is theorised that a massive rupture to the fuel tank occurred.
[aircraft, explosion , fire - consequence, fatality]

Lessons

[None Reported]

1287225 July 2000

Source : BBC NEWS, 25 JULY, 2000, (http://www.bbc.co.uk).
Location : Warri, NIGERIA

Injured : - **Dead :** 40

Abstract

An explosion and fire occurred on a oil pipeline, the third in the space of a month. It is thought that forty people have been killed in the incident.
It is reported that this is the sixth fire in two months.
[fire - consequence, fatality, deliberate acts, injury]

Lessons

[None Reported]

1286923 July 2000

Source : BBC NEWS, 24 JULY, 2000, (http://www.bbc.co.uk).
Location : Staffordshire, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a warehouse containing a number of canisters of potentially explosive substance. Approximately 1000 nearby residents have been evacuated.
[fire - consequence, evacuation, warehousing]

Lessons

[None Reported]

1315920 July 2000

Source : HAZARDOUS CARGO BULLETIN, OCTOBER 2000.
Location : ,

Injured : - **Dead :** 2

Abstract

A marine transportation incident. An explosion and fire occurred on board a marine tanker containing 2,000 tonnes of diesel. Two people were killed and one missing in the incident.
[fire - consequence, fatality]

Lessons

[None Reported]

1293719 July 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 20, 2000, (http://www.chemsafety.gov).
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Location : Oklahoma City, USA

Injured : 1 **Dead :** 0

Abstract

A fire occurred at a propane warehouse completely destroying the building and threatened a storage tank containing 4,000 gallons of fuel. One worker was injured in the incident.
[fire - consequence, warehousing, damage to equipment, storage tanks, cylinder, burns, injury]

Lessons

[None Reported]

1293619 July 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 21, 2000, (http://www.chemsafety.gov).
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Location : Willoughby, USA

Injured : 1 **Dead :** 0

Abstract

A series of explosions and fires occurred at a plant. The explosion was caused by a spark or static electricity, which ignited gas leaking from overfilled cylinders. One person was injured in the incident.
An investigation found that an estimated 900 of 1,1000 cylinders were leaking from safety relief valves. The building was evacuated.
[burns, fire - consequence, overflow, evacuation, injury]

Lessons

[None Reported]

1286719 July 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 21, 2000, (http://www.chemsafety.gov).
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Location : Quebec, CANADA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a tire shop in a non-residential area. Approximately 100 fire fighters attended the blaze. Propane tanks were moved away from the building out of danger.
An estimated $300,000 worth of damage occurred.
[fire - consequence, damage to equipment]

Lessons

[None Reported]

1287019 July 2000

Source : BBC NEWS, 20 JULY, 2000, (http://www.bbc.co.uk).
Location : , INDIA OFFSHORE

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. A cargo ship ran aground, caught fire and sank off the coast of West Bengal.
Operations of a nearby port are likely to be affected but environmental damage has been ruled out.
The crew of the ship were safely taken ashore by coast guards.
[fire - consequence, ship ran aground, sinking]

Lessons

[None Reported]

1293518 July 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 20, 2000, (http://www.chemsafety.gov).
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Location : Pheonix, USA

Injured : 2 **Dead :** 0

Abstract

A chemical explosion and flash fire occurred at an industrial plant. The incident occurred as two workers were working in an area where chemical sludge is placed on plates and into a furnace to dry out. The two workers were severely burnt in the incident.
An investigation into the cause of the incident is being carried out.
[fire - consequence, burns, processing, injury]

Lessons

[None Reported]

1286416 July 2000

Source : YAHOO NEWS, JULY 17, 2000, (http:/www.yahoo.co.uk).
Location : Houston, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a hot oil furnace at a petrochemical plant. The plant processes over 500,000 tonnes of ethylene a year. The olefins and alcohols made at the plant are used to make plastics, detergents and lubricants.
An investigation into the cause of the incident is being carried out.
[fire - consequence, processing]

Lessons

[None Reported]

1284216 July 2000

Source : CNN.COM, U.S. NEWS, JULY 17, 2000, (http://www.cnn.com),; CHEMICAL WEEK, JULY 26, 2000.
Location : Montreal, CANADA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred at a chemical plant sending a cloud of toxic smoke into the atmosphere and forcing the evacuation of thousands of nearby residents.
The explosion occurred in an acid-transformation plant thought to contain approximately 13,000 gallons of toxic materials, including sulphuric, nitric and hydrochloric acid.
Fortunately no injuries occurred in the incident.
Earth and sand was trucked to the site to prepare for any spill of acid-contaminated water and truck loads of lime were put on standby to neutralise any spilled acid.
The cause of the explosion is not known but it is thought that an electrical or mechanical failure may have contributed to the incident.
[fire - consequence, gas / vapour release, processing, sulphuric acid, nitric acid]

Lessons

[None Reported]

1282716 July 2000

Source : BBC NEWS, 17 JULY, 2000, (http://www.bbc.co.uk) .
Location : Ifie, Ijala, NIGERIA

Injured : - **Dead :** 30+

Abstract

A fire and explosion occurred on a pipeline killing more than thirty people. It is thought that vandals are the main cause of the incident.
This incident occurred less than a week after a similar incident that killed over two hundred people just ten kilometres away in Warri.
[fire - consequence, deliberate acts, fuel, injury]

Lessons

[None Reported]

1282510 July 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 12, 2000, (http://www.chemsafety.gov).
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Location : Lancaster, USA

Injured : 2 **Dead :** 0

Abstract

An explosion occurred at a food packaging plant releasing ammonia into the atmosphere. A worker was seriously burned and a nearby resident affected by the fumes. The building was evacuated.
It is thought that a flange on an air compressor failed causing the safety valve to fly off releasing ammonia. The ammonia may have mixed with oil in the workshop area resulting in the explosion.
The fire started by the explosion was extinguished and the leak stopped within minutes.
[gas / vapour release, burns, fire - consequence, flange failure, injury]

Lessons

[None Reported]

1278405 July 2000

Source : CHEMICAL SAFETY AND AZARD INVESTIGATION BOARD, JULY 10, 2000, (http://www.chemsafety.gov).
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Location : Bayport, Texas, USA

Injured : 2 **Dead :** 0

Abstract

An explosion occurred at a chemical plant when a leak of glycidol occurred causing a runaway reaction and for a 2,000-gallon reactor to explode. Glycidol and methanol were released as a result.
Two people were injured in the incident.
Glycidol is an intermediate chemical used in sealants for windows and film processing. Exposure can cause burns to the skin.
[reactors and reaction equipment, gas / vapour release, fire - consequence, injury]

Lessons

[None Reported]

1278503 July 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 10, 2000, (http://www.chemsafety.gov).
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Location : Hadtings, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a agricultural chemical warehouse that stored farm products, pesticide and herbicide chemicals. A dike was dug round the building to stop any chemicals spilling.
The warehouse was completely destroyed in the fire. There are no reports of injuries.
[fire - consequence, storage, damage to equipment]

Lessons

[None Reported]

1277603 July 2000

Source : BBC NEWS, 3 JULY, 2000, (http://www.bbc.co.uk)
Location : , UGANDA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a coffee-processing plant causing approximately $3 million US (2000). Apparently it is thought the fire may have been started deliberately.
[fire - consequence, deliberate acts]

Lessons

[None Reported]

1274630 June 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 30, 2000, (http://www.chemsafety.gov).
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BBC NEWS, 2 JULY, 2000, (http://www.bbc.co.uk).

Location : Jiangman City, CHINA

Injured : 160+ **Dead :** 36

Abstract

A fire and explosion occurred at a fireworks factory. An estimated thirty six people have been killed and so far one hundred and sixty injured. The report stated that the fire started just as workers were arriving to being their workday.
It is thought that the explosion was caused by sparks made by workers pounding iron nails.
[fire - consequence, fatality, injury]

Lessons

[None Reported]

1274130 June 2000

Source : CNN.COM, U.S. NEWS, JULY 1, 2000, (http://www.cnn.com).
Location : Philadelphia, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a refinery that produces cumene, used to manufacture plastics and synthetics. The fire occurred due to a leak of hydrogen from a ruptured pipeline, which ignited.
The fire was brought under control with in a few hours and fire fighters remained on site to make sure escaping vapours burned out safely.
An investigation into the cause of the incident is being carried out.
[fire - consequence, refining]

Lessons

[None Reported]

1277530 June 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 3, 2000, (http://www.chemsafety.gov).
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Location : Philadelphia, USA

Injured : 1 **Dead :** 0

Abstract

An explosion occurred on a pipeline carrying heated gasoline injuring a worker. The incident occurred as workers were trying to shut down the unit because of a leak.
The fire was eventually brought under control.
[fire - consequence, injury]

Lessons

[None Reported]

1274528 June 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 29, 2000, (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Lahore, PAKISTAN

Injured : 24 **Dead :** 1

Abstract

An anhydrous ammonia leak ignited killing a worker at a storage facility. Approximately twenty-four people were affected as the toxic fumes spread through out the factory. Workers were evacuated.
The fire was extinguished and the gas leak sealed.
[gas / vapour release, fire - consequence, evacuation, fatality]

Lessons

[None Reported]

1277428 June 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 3, 2000, (http://www.chemsafety.gov).
(http://www.chemsafety.gov).
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Location : Huntington, Indiana, USA

Injured : 6 **Dead :** 0

Abstract

A flash fire occurred at an air conditioning plant injuring a worker. The worker suffered severe burns. Five other workers were treated for smoke inhalation. The incident occurred as workers opened a cabinet containing several chemicals. The cause of the fire is not yet known.
Workers were evacuated as a precaution.
[fire - consequence, people, evacuation, injury]

Lessons

[None Reported]

1274327 June 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 28, 2000, (http://www.chemsafety.gov).

Location : Beauregard Parish, USA

Injured : 0 **Dead :** 0

Abstract

A fire and explosion occurred at a crude oil well destroying several pieces of equipment. The well was being overhauled to bring back into production at the time of the incident. No one was injured.
The well did not explode or catch fire.
An investigation is being carried out into the cause of the incident.
[fire - consequence, maintenance, damage to equipment]

Lessons

[None Reported]

1271926 June 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 27, 2000, (http://www.chemsafety.gov).
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Location : Columbus, Ohio, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred on a paint plant forcing the evacuation of the plant. The incident occurred when somehow aromatic naphtha, a solvent used in the mixing room of the plant, reached an open flame. The fire was quickly extinguished.
[fire - consequence, leak]

Lessons

[None Reported]

1270225 June 2000

Source : BBC NEWS, 25 JUNE, 2000, (http;//www.bbc.co.uk),; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 25, 2000, (http://www.chemsafety.gov).
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Location : Al-Ahmedi, KUWAIT

Injured : 49 **Dead :** 3

Abstract

An explosion occurred at an oil refinery killing three and injuring forty-nine people. Most of the injured suffered burns and cuts from flying glass.
Production was shut down and workers evacuated at the 444,000 barrels per day refinery.
The explosion occurred during attempts to try and control a gas leak in one of the pipelines. The force of the blast shattered windows in the office building at the complex.
Damage is estimated at $324 million (2000).
[refining, fatality, people, evacuation, plant shutdown, damage to equipment, fire - consequence, injury]

Lessons

[None Reported]

1269722 June 2000

Source : BBC NEWS, 22 JUNE, 2000, (http://www.bbc.co.uk).
Location : , NIGERIA

Injured : - **Dead :** 10+

Abstract

An explosion and fire occurred on a pipeline. The explosion enveloped people as they siphoned petrol from the pipeline with buckets. It is thought that ten people were killed after the vandalised oil pipeline caught fire.
[fire - consequence, deliberate acts, fatality, gasoline]

Lessons

[None Reported]

1272120 June 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 21, 2000, (http://www.chemsafety.gov).
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Location : Osaka, JAPAN

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred at a gas chemical company. No one was injured in the explosion and fire.
An investigation into the cause of the incident is being carried out.
[fire - consequence]

Lessons

[None Reported]

1272020 June 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 23, 2000, (http://www.chemsafety.gov).

Location : Waimairi, NEWZEALAND

Injured : 0 **Dead :** 0

Abstract

A chemical fire occurred at a yarn factory when a worker added water to a chlorine substance, which caused it to ignite.
Fort-five people were evacuated from the factory along with businesses within a 150-metre radius of the factory.
The fire was quickly extinguished using carbon dioxide fire extinguishers and the smoke was dispersed using the ventilation system.
[fire - consequence, mixing, drums, evacuation]

Lessons

[None Reported]

1271019 June 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 15, 2000, (http://www.chemsafety.gov).
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Location : Cornerplanter Township, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a furnace involving crystallized heptane, a petrochemical, for unknown reasons.
The fire was extinguished with out incident before the fire service arrived.
Fire crews entered the building and confirmed that a heptane leak had occurred.
[fire - consequence]

Lessons

[None Reported]

1267118 June 2000

Source : CNN.COM, U.S. NEWS, JUNE 18, 2000, (http://www.cnn.com).
Location : Socorro, NEW MEXICO

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a tire-recycling plant. The smoke and fumes created by the fire forced 9,000 residents to evacuate.
[fire - consequence, evacuation]

Lessons

[None Reported]

1271115 June 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 15, 2000, (http://www.chemsafety.gov).
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Location : Blue Ash, USA

Injured : 6 **Dead :** 0

Abstract

A flash fire was triggered when a hydraulic fluid leak occurred near a series of electrical switches.
The incident occurred when a worker dropped a mold used in the manufacturing process, the mold hit the hydraulic fluid line causing it to spring a leak. Six workers were affected by smoke.
Slight damage occurred to equipment.
[fire - consequence, flashover, damage to equipment, injury]

Lessons

[None Reported]

1263212 June 2000

Source : BBC NEWS, 12 JUNE, 2000, (http://www.bbc.co.uk)
Location : Lancashire, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a rubber factory forcing the evacuation of nearby residents. The company makes roofing felt. Twenty fire crews attended the scene. Police warned householders in a radius of several miles to keep their windows closed due to the fumes coming from the factory.
[fire - consequence, gas / vapour release]

Lessons

[None Reported]

1308210 June 2000

Source : LOSS PREVENTION BULLETIN 154, 26.
Location : Scotland, UK

Injured : 0 **Dead :** 0

Abstract

A fire broke out at a refinery three days after an explosion occurred in a steam pipe at the facility.
The fire was quickly brought under control and it was reported that there had been no risk to the public safety.
[fire - consequence, refining, near miss]

Lessons

[None Reported]

1253331 May 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 31, 2000, (http://www.chemsafety.gov)

Location : Milwaukee, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a fuel plant when a 2,000-gallon fuel tank exploded. The fire was brought under control in about one and a half hours.
No injuries were reported.
An investigation is underway into the cause of the explosion.
[fire - consequence]

Lessons

[None Reported]

1269629 May 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 31, 2000, (http://www.chemsafety.gov).
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Location : Milwaukee, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a fuelling plant. The incident occurred when a 2,000-gallon storage tank exploded.
The fire was brought under control with in two hours. No injuries were reported.
[fire - consequence, storage tanks, explosion]

Lessons

[None Reported]

1253527 May 2000

Source : CHEMICAL & ENGINEERING NEWS, JUNE 5, 2000,; CNN.COM, U.S. NEWS, MAY 31, 2000, (http://www.cnn.com),; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 31, 2000, (http://www.chemsafety.gov)

Location : Eunice, USA

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. Approximately 3,000 nearby residents were evacuated when a freight train derailed.
One of the derailed cars contained flammable and toxic toluene diisocyanate another contained acrylic acid.
Demolition experts set explosives on the pressurised tankers as handling them would be safer if the toxic substances inside were burned off.
Damage occurred to 1,200 feet of rail track and a 189 foot bridge.
No injuries occurred from the incident.
[derailment, fire - consequence, explosion, evacuation, damage to equipment, flammable chemical]

Lessons

[None Reported]

1269327 May 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 31, 2000, (http://www.chemsafety.gov).

Location : Akron, USA

Injured : 3 **Dead :** 0

Abstract

A fire and explosion occurred three days after an explosion that injured two people. Three workers suffered serious burns.
The incident occurred, as workers were mixing chemicals in a large vat. The force of the explosion blew out a cement wall and caused a fire, which was quickly extinguished.
Damage is estimated at more than $1 million (2000).
It is thought that sparks from a passing forlift truck triggered the explosion.
[fire - consequence, unknown chemicals, injury]

Lessons

[None Reported]

1247927 May 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 27 APRIL, 2000, (http://www.chemsafety.gov),
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Location : Orange, AUSTALIA

Injured : 8 **Dead :** 0

Abstract

An explosion and fire occurred at a substation injuring eight workers. Two of the workers injured sustained burns and the others were treated for the effects of smoke.
The cause of the incident is not known.
An investigation into the incident is being carried out.
[fire - consequence, power plant, injury]

Lessons

[None Reported]

1252225 May 2000

Source : CHEMICAL & ENGINEERING NEWS, JUNE 5, 2000,; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 24 MAY, 2000, (http://www.chemsafety.gov)

Location : Donaldsonville, USA

Injured : 10 **Dead :** 1

Abstract

An explosion and fire occurred in an ammonia processing unit at a fertilizer plant killing one worker and injuring eleven others. The incident occurred as workers were cleaning an empty mixing tank.
The fire was brought under control in about twenty minutes, no chemical leaks occurred.
An investigation into the cause of the explosion is underway.
[fire - consequence, fatality, burns, injury]

Lessons

[None Reported]

1252025 May 2000

Source : BBC NEWS, 26 MAY, 2000, (http://www.bbc.co.uk),; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 26, 2000, (http://www.chemsafety.gov).

Location : Hampshire, UK

Injured : 10 **Dead :** 0

Abstract

A chemical fire occurred at a jacuzzi and spa manufacturers injuring ten people. The chemicals involved in the fire were liquid petroleum gas and fibrous resin. Hundreds of nearby workers and residents were evacuated as a precaution.

Symptoms from smoke inhalation can include irritation and a burning sensation to the eyes, mouth and throat, chest tightness, short of breath, headaches and stomach upsets. The symptoms can take up to eight hours to emerge.

[fire - consequence, evacuation, LPG, injury]

Lessons

[None Reported]

1252824 May 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MAY 26, 2000, (http://www.chemsafety.gov)

Location : Akron, USA

Injured : 2 **Dead :** 0

Abstract

A flash fire occurred at a paint and varnish plant seriously injuring two workers. The incident occurred when four workers were cleaning equipment in the manufacturing area.
They were using a flammable liquid solvent and it is thought that a tow motor passing nearby ignited vapours from the solvent.
The plant was evacuated and the fire was extinguished.
[fire - consequence, hot surface, evacuation, burns, injury]

Lessons

[None Reported]

1250621 May 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 23 MAY, 2000, (http://www.chemsafety.gov)

Location : Summit, USA

Injured : 4 **Dead :** 0

Abstract

A fire occurred at a chemical warehouse injuring four fire fighters. It is not known what caused the fire but fire fighters believe that the point of ignition was some cotton bales stored in the warehouse.
The warehouse also stored 55-gallon drums containing chemical solvents.
[fire - consequence, warehousing, burns, injury]

Lessons

[None Reported]

1251319 May 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 19 MAY, 2000, (http://www.chemsafety.gov)

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Location : Owensville, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a plastic factory forcing the evacuation of a nearby school and nearby residents. Fire fighters dug a trench around the fire to contain runoff of approximately 40,000 gallons of water used in extinguishing the blaze. Some of the runoff reached a nearby river.
It is not known what caused the fire. An investigation is underway.
[fire - consequence, spill]

Lessons

[None Reported]

1251417 May 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 18 MAY, 2000, (http://www.chemsafety.gov)

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Location : Deerfield Beach, Florida, USA

Injured : 0 **Dead :** 0

Abstract

A chemical fire occurred at a laboratory. Fire fighters used dry-chemical extinguishers as they feared that the chemicals involved may react with water. The cause of the fire is not known.
[fire - consequence, laboratory work, unknown chemicals, unidentified cause]

Lessons

[None Reported]

6021 16 May 2000

Source : BBC NEWS, 16 MAY, 2000, (http://www.bbc.co.uk)
Location : East Sussex, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a disused power station forcing the evacuation of nearby residents. Heavy fumes and thick smoke emanated from the building.
The environment agency was called in to assess pollution risks from the fire.
[fire - consequence, evacuation, gas / vapour release]

Lessons

[None Reported]

9293 13 May 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 15 MAY, 2000, (http://www.chemsafety.gov)
Location : Enschede, NETHERLANDS

Injured : 600+ **Dead :** 20

Abstract

An explosion occurred at a fireworks warehouse killing at least 20 people and injuring 601. 13 people are still missing.
The incident occurred when fire fighters were on what they thought was a routine operation when a blaze ignited in the fireworks warehouse. But soon after, approximately 100 tonnes of explosives ignited.
Residents within the vicinity of the warehouse were evacuated.
Total damage has been estimated at more than euros 100 million (US$89,400,600) (2000).
The Dutch authorities have announced a full enquiry into the incident.
[warehousing, fire - consequence, fatality, evacuation, injury]

Lessons

[None Reported]

1284109 May 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JULY 12, 2000, (http://www.chemsafety.gov).
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Location : Louisville, Kentucky, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a distillery at a brewery causing thousands of gallons of bourbon to spill into a nearby river killing more than 227,000 fish.
The spill created an oxygen-depleted cloud.
The company is to pay $499,739 (2000) to replace the fish stock.
The Natural Resource and Environmental Protection Cabinet is considering fining the company over $1 million (2000).
[fire - consequence, gas / vapour release, distillation]

Lessons

[None Reported]

7883 09 May 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 MAY, 2000, (http://www.chemsafety.gov)

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Location : Dwight, USA

Injured : 0 **Dead :** 0

Abstract

A fire and explosion occurred at a trailer manufacturer. The fire and explosion completely destroyed the building.
The cause of the fire is not immediately known. No one was reported injured in the incident.
[fire - consequence]

Lessons

[None Reported]

1251604 May 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 8 MAY, 2000, (http://www.chemsafety.gov)

Location : Adrian, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a plastics company, which recycles plastic automotive parts and grinds them into pellets to manufacture other plastic parts.
Nearby residents were evacuated.
An investigation into the cause of the fire is underway.
[fire - consequence, evacuation, recycling]

Lessons

[None Reported]

1290001 May 2000

Source : HAZARDOUS CARGO BULLETIN, JULY 2000,; LLOYDS LIST.
Location : Merseyside, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a storage facility at a chemical plant, chemical fumes were released in the incident and nearby residents were warned to stay in doors.
[fire - consequence, gas / vapour release]

Lessons

[None Reported]

1251501 May 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 8 MAY, 2000, (http://www.chemsafety.gov)

Location : Perry, Florida, USA

Injured : 1 **Dead :** 1

Abstract

An explosion occurred at a munitions plant. The building destroyed in the explosion, contained magnesium, a highly flammable metal used in flares.
One worker was killed and another was injured in the explosion.
An investigation into the cause of the explosion is underway.
[fire - consequence, fatality, storage, injury]

Lessons

[None Reported]

12504May 2000

Source : THE DALLAS MORNING NEWS, MAY 4, 2000, (http://www.dallasnews.com).
Location : West Dallas, USA

Injured : 1 **Dead :** 0

Abstract

An explosion and fire occurred at a food processing plant seriously injuring a worker.
The incident occurred whilst the worker was mixing dough in the 29,000 square foot plant. More than half an hour after the explosion, part of the building collapsed.
The cause of the explosion is not known.
[fire - consequence, people, injury]

Lessons

[None Reported]

1289928 April 2000

Source : HAZARDOUS CARGO BULLETIN, JULY 2000,; LLOYDS LIST.
Location : Lahore, PAKISTAN

Injured : 0 **Dead :** 0

Abstract

A fire and explosion occurred in the storage area of a foam factory resulting in loss of power and heavy smoke being released.
[fire - consequence, gas / vapour release, plant / property / equipment]

Lessons

[None Reported]

1248025 April 2000

Source : CNN.COM, U.S. NEWS, APRIL 26, 2000, (http://www.cnn.com)
Location : Danville, Kentucky, USA

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. A fire and explosion occurred on a freight train carrying toxic chemicals forcing the evacuation of nearby residents.
The car was carrying 148,000 pounds of sodium dithionite, a flammable product the can produce irritating, corrosive or toxic gasses. The chemical is also known as sodium hydrosulfate.
The car with the chemical still burning was moved approximately one mile south of the city.
No injuries were reported.
[fire - consequence, gas / vapour release]

Lessons

[None Reported]

1247417 April 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 18 APRIL, 2000, (http://www.chemsafety.gov),
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Location : Edmonton, Alberta, CANADA

Injured : 0 **Dead :** 1

Abstract

An explosion occurred during cutting operations at a drywall facility. The incident occurred when a worker burned a hole in the top a 45-gallon drum he was using as a worktable whilst cutting a piece of steel.
[drums, hot work, safety procedures inadequate, fatality, fire - consequence]

Lessons

[None Reported]

1247615 April 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 17 APRIL, 2000, (http://www.chemsafety.gov),
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Location : Ellijay, USA

Injured : 0 **Dead :** 2

Abstract

An explosion and fire occurred at an asphalt plant killing two workers. An investigation into the incident is being carried out.
[fire - consequence, fatality]

Lessons

[None Reported]

1247515 April 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 17 APRIL, 2000, (http://www.chemsafety.gov),
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Location : Burns Habor, USA

Injured : 0 **Dead :** 0

Abstract

A road transportation incident. A road tanker carrying 125,000 cubic feet of flammable liquid hydrogen caught fire when the tankers vent stack malfunctioned. The area within a one-mile radius was evacuated. No one was injured in the incident.
An investigation into the cause of the vent stack failure is underway.
[fire - consequence, mechanical equipment failure, evacuation]

Lessons

[None Reported]

1246813 April 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 APRIL, 2000, (http://www.chemsafety.gov),
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Location : Grand Rapids, USA

Injured : 2 **Dead :** 0

Abstract

Approximately 20,000 gallons of petroleum products including hydraulic oils, starting fluids, automobile carburettor cleaners and racing fuel was spilled during a fire at a warehouse.
55-gallons drums and cases of petroleum products fuelled the fire.
Property damaged was estimated at $1 million (2000). Two fire fighters were treated for smoke inhalation.
[environmental, warehousing, fire - consequence, injury, damage to equipment]

Lessons

[None Reported]

1246713 April 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 APRIL, 2000, (http://www.chemsafety.gov),
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Location : Chrudim, CZECH REPUBLIC

Injured : 11 **Dead :** 0

Abstract

A fire occurred at an agrochemical plant releasing potentially harmful vapour to atmosphere. The fire is believed to have started in a storage area containing chemical substances.
Eleven people were affected.
[fire - consequence, gas / vapour release, injury, unknown chemicals]

Lessons

[None Reported]

1247009 April 2000

Source : CNI NEWS, 10 APRIL, 2000, (http://www.cnionline.com)
Location : Toronto, Ontario, CANADA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a coatings and sealant plant.
Half the building was destroyed in the fire.
An investigation into the cause of the fire is underway.
No one was injured in the incident.
[fire - consequence, damage to equipment]

Lessons

[None Reported]

1246309 April 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 10 APRIL, 2000, (http://www.chemsafety.gov),
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Location : Scarborough, Ontario, CANADA

Injured : 0 **Dead :** 0

Abstract

A fire and explosion occurred at a chemical plant forcing the evacuation of at least 60 residents living nearby. Large plumes of toxic smoke could be seen bellowing out from the plant and being blown away from residential areas out towards a nearby lake.
Water run off is being tested for pollutants and air-monitoring tests are being set up.
The plant uses a variety of chemicals, solvents and raw materials, asphalt, varsol and linseed oil. The most harmful chemical kept on site is hexane, which can produce toxic gases when it is burned.
[fire - consequence, gas / vapour release, toxic fumes]

Lessons

[None Reported]

1245707 April 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 7 APRIL, 2000, (http://www.chemsafety.gov),
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Location : Winterset, USA

Injured : 9 **Dead :** 2

Abstract

A fire and explosion occurred on a fuel tank. The explosion occurred when fire broke out during cutting operations on a rusty fuel tank. Two people were killed and nine others injured in the blast.
[fire - consequence, hot work, fatality, hot surface, injury]

Lessons

[None Reported]

1245906 April 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 7 APRIL, 2000, (http://www.chemsafety.gov),
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Location : Anchorage, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred on a tank at a tank farm. The tank contained 2,000 gallons of jet fuel, which caught fire during cleaning operations. Chemical foam was used to extinguish the fire.
No one was injured in the incident.
[fire - consequence]

Lessons

[None Reported]

1246005 April 2000

Source : BBC NEWS, 5 APRIL, 2000, (www.bbc.co.uk),; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 5 APRIL, 2000, (http://www.chemsafety.gov),

Location : Lillestroem, NORWAY

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. Two freight trains collided when it is thought that one of the trains brakes failed. Two cars of one of the trains contained approximately 90 tonnes of propane gas. The surrounding area was evacuated as a precaution due to a fire that broke out which threatened the cargo of propane.

Firemen used a remote-controlled water cannon to pump thousands of water per minute onto the tank cars to cool them without dousing the flames.

[near miss, collision, brakes faulty, evacuation, fire - consequence]

Lessons

[None Reported]

1240731 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 31 MARCH, 2000, (http://www.chemsafety.gov).

Location : Point Comfort, Texas, USA

Injured : 2 **Dead :** 0

Abstract

A fire occurred on a high-density polyethylene unit at a plastics plant. Two people were injured in the incident.
The cause of the fire is not known. An investigation is being carried out.
[fire - consequence, injury]

Lessons

[None Reported]

1239830 March 2000

Source : CNI NEWS, 31 MARCH, 2000, (http://www.cnionline.com)
Location : Houston, Texas, USA

Injured : 2 **Dead :** 0

Abstract

A fire occurred at a paint factory where two warehouses containing hazardous waste were destroyed.
Nearby residents were evacuated.
Two fire fighters were slightly injured in an effort to control the blaze that was eventually extinguished four hours later.
An investigation into the cause of the incident is being carried out.
[fire - consequence, warehousing, evacuation, injury]

Lessons

[None Reported]

1236827 March 2000

Source : BBC NEWS, 28 MARCH, 2000, (http://www.bbc.co.uk),; CHEMICAL ENGINEERING, MAY 2000, (http://www.che.com),; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 27 MARCH 2000, (http://www.chemsafety.gov)

Location : Pasadena, USA

Injured : 71 **Dead :** 1

Abstract

An explosion and fire occurred at a chemical plant. It is thought the chemicals involved in the incident were butadiene, styrene and cyclohexane. One worker was killed and more than seventy others were injured.

The explosion sparked a fire releasing a huge cloud of black smoke over the area.

An investigation into the incident found that the probable cause was due to a reaction of residual butabiene with styrene-butadiene copolymer (SBC) in a supposedly empty butadiene tank.

The tank was offline and believed to be in a purge mode, but it contained sufficient polymer and butadiene to react. Polymer may have plugged the purge lines of the tank, casuing it to burst.

[fire - consequence, fatality, gas / vapour release, processing, burns, unwanted chemical reaction, injury]

Lessons

[None Reported]

1235023 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 23 MARCH, 2000, (http://www.chemsafety.gov).
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Location : Hempfield Township, USA

Injured : 3 **Dead :** 0

Abstract

An explosion occurred caused by excavation work. The incident occurred as workers were installing underground cable when they pierced a sewer line and a 12-inch natural gas main.
Forty five minutes later an explosion ripped through two.
[human causes, rupture, fire - consequence, injury]

Lessons

[None Reported]

1235222 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 23 MARCH, 2000, (http://www.chemsafety.gov).

Location : Kenedy, Texas, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred on a pipeline causing severe damage. Valves were shut off to stop the flow of natural gas and a nearby road was closed as precaution. The subsequent fire was extinguished in about an hour.
An investigation into the explosion is underway.
[fire - consequence, damage to equipment]

Lessons

[None Reported]

1248622 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 25 APRIL, 2000, (http://www.chemsafety.gov),
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Location : Martinez, California, USA

Injured : 2 **Dead :** 0

Abstract

A fire occurred at a refinery when fire fighting water became contaminated with fuel. An investigation into the incident found a small leak in a closed valve that is meant to separate the fire fighting water used to wash out fuel processing vessels.
Four other valves where meant to serve as backup devices to prevent contaminated water from flowing backward into the fire fighting water. But three were stuck in the open position and the forth one had a broken spring.
The incident occurred when the fire fighting water was sprayed underneath a welding job to quickly extinguish sparks that might ignite any stray vapours from refining units. But the water released a cloud of gas that burst into flames. The worker holding the hose and the welder suffered burns in the fire.
[fire - consequence, contamination, mechanical equipment failure, injury]

Lessons

[None Reported]

1235122 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 23 MARCH, 2000, (http://www.chemsafety.gov).

Location : Sartyera, UZBEKISTAN

Injured : 1 **Dead :** 8

Abstract

An explosion and fire occurred at a storage facility. Eight people were killed and one seriously injured in the blast. It is thought that a natural gas leak caused explosion and fire.
The building was completely destroyed.
[burns, fire - consequence, fatality, damage to equipment, injury]

Lessons

[None Reported]

1234322 March 2000

Source : BBC NEWS, 23 MARCH, 2000, (http://www.bbc.co.uk),; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 MARCH, 2000, (http://www.chemsafety.gov).

Location : Abia State, NIGERIA

Injured : - **Dead :** 50

Abstract

A fire occurred on a pipeline killing approximately 50 people who at the time is thought to have been siphoning gasoline from the pipeline.
It was not immediately clear what started the fire but sabotage is thought to have been the cause.
[fire - consequence, deliberate acts]

Lessons

[None Reported]

1234122 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 MARCH, 2000, (http://www.chemsafety.gov).

Location : Kemerovo, RUSSIA

Injured : 0 **Dead :** 12

Abstract

Twelve rescue workers were killed when a methane explosion occurred at a coal mine.
The rescue workers had evacuated miners from the mineshaft and were attempting to control a fire when the explosion occurred.
An investigation is underway.
[fire - consequence, fatality, evacuation, mining]

Lessons

[None Reported]

1234021 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 MARCH, 2000, (http://www.chemsafety.gov).
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Location : Muncie, USA

Injured : 0 **Dead :** 0

Abstract

A fire and several explosions occurred at a plant causing severe damage.
The fire was made even worse by exploding chemical tanks.
Water from the fire bypassed the plant's wastewater treatment plant and spilled directly into the nearby river.
It is feared that runoff water from the fire may be contaminated.
An investigation into the incident determined that the blaze started in the storage area.
[fire - consequence, damage to equipment, contamination, design or procedure error, unknown chemicals]

Lessons

[None Reported]

1234620 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 MARCH, 2000, (http://www.chemsafety.gov).

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Location : Albuquerque, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a warehouse at a packaging plant. Concern has been raised by nearby residents that half a million gallon of runoff water from the fire may be contaminated.
An investigation into the cause of the fire is being carried out.
[fire - consequence, contamination, warehousing]

Lessons

[None Reported]

1234420 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 MARCH, 2000, (http://www.chemsafety.gov).
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Location : Bello Horizonte, BRAZIL

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. A fire occurred when a 32-car train carrying thousands of gallons of diesel fuel derailed.
Several explosions occurred when the train derailed.
[derailment, fire - consequence]

Lessons

[None Reported]

1234519 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 MARCH, 2000, (http://www.chemsafety.gov).
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Location : Igongwe, TANZANIA

Injured : 40+ **Dead :** 28+

Abstract

A road transportation incident. A fuel tanker overturned and caught fire. The fire occurred when residents in the area rushed to the scene to extract fuel from the overturned tanker, but in the process tampered with the battery, which sparked off the fire.
[fire - consequence, fatality, sabotage, injury]

Lessons

[None Reported]

1233418 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 21 MARCH, 2000, (http://www.chemsafety.gov).
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Location : Iron Mountain, USA

Injured : 0 **Dead :** 0

Abstract

A store holding fertilisers and plant chemicals was destroyed in a fire. Nearby residents and businesses were evacuated due to toxic smoke released by the fire.
An investigation into the fire is being carried out.
[storage, storage equipment, fire - consequence, gas / vapour release, toxic fumes]

Lessons

[None Reported]

1233117 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 20 MARCH, 2000, (http://www.chemsafety.gov).

Location : North Salt Lake City, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred as an employee was checking equipment while a tank truck was being filled at a loading dock at a refinery. Nearby fuel tanks were damaged in the blaze fortunately they did not explode.

The incident occurred when surplus gas from fuel hoses was being emptied into a steel bucket, which apparently built up static electricity and burst into flames. The operator threw the bucket away from his body causing an explosion.

The refinery offices were evacuated and underground pipes transferring petroleum products were shut-off.

[fire - consequence, road transport, damage to equipment, evacuation]

Lessons

[None Reported]

1233017 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 20 OCTOBER, 1999, (http://www.chemsafety.gov).
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Location : Owens Crossroads, Alabama, USA

Injured : 1 **Dead :** 0

Abstract

An explosion occurred at a fireworks factory. The incident occurred whilst a worker was mixing chemical compounds when a reaction occurred, sparking a flash fire and explosion. The worker suffered severe burns to his body.
[fire - consequence, unwanted chemical reaction, unknown chemicals, injury]

Lessons

[None Reported]

1233517 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 20 MARCH, 2000, (http://www.chemsafety.gov).

Location : Albany, Kentucky, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a chemical storage forcing the evacuation of the surrounding area. At the time of the report a building fire had been extinguished but four tanks each containing approximately 2,000 gallons of gasoline continued to burn.
The plant stores gasoline, oil and toluene.
[fire - consequence]

Lessons

[None Reported]

1245516 March 2000

Source : CNI NEWS, 24 MARCH, 2000, (www.cnionline.com),; CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000.
Location : Cologne-Godorf, GERMANY

Injured : 0 **Dead :** 0

Abstract

A fire occurred in one of two distillation units for crude oil at a refinery. The incident occurred when a small fire started in the unit causing an explosion, which led to the main fire.
The fire took fire fighters approximately two hours to extinguish.
Damage is estimated at HFL 1M mark (2000).
No one was injured in the incident.
Nearby residents were warned to keep their windows closed and to remain indoors.
[fire - consequence]

Lessons

[None Reported]

1229814 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 MARCH, 2000, (http://www.chemsafety.gov).
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Location : Florida, USA

Injured : 0 **Dead :** 1

Abstract

A road transportation incident. A road tanker containing aviation fuel overturned on a highway when trying to avoid slower vehicles. The driver was killed in the accident.
[fire - consequence, fatality]

Lessons

[None Reported]

1229714 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 MARCH, 2000, (http://www.chemsafety.gov).

Location : Rock Hill, USA

Injured : 2 **Dead :** 2

Abstract

Two workers were killed and two injured when turpentine fumes ignited during welding operations on a tank at a paper plant.
The tank was used to collect liquid product during the papermaking process.
Approximately fifty workers were evacuated.
[evacuation, fire - consequence, fatality, safety procedures inadequate, injury]

Lessons

[None Reported]

1244514 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 16 MARCH, 2000, (http://www.chemsafety.gov)

Location : Hangzhou, CHINA

Injured : 0 **Dead :** 4

Abstract

Four people were killed during arc-welding operations at a biogas-generating pit.
The incident occurred when the arc-welding device ignited gas in the pit resulting in an explosion.
[hot surface, fatality, fire - consequence]

Lessons

[None Reported]

1229913 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 MARCH, 2000, (http://www.chemsafety.gov).
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Location : Ushuaia, ARGENTINA

Injured : 35 **Dead :** 0

Abstract

An explosion occurred at an industrial park. The explosion occurred in a factory where explosives used in road construction were stored, sparking a fire which quickly spread to several nearby factories and set off a second explosion.
A nearby school was evacuated after the explosion lifted the roof off.
At least five people working in and around the industrial park were taken to hospital for treatment for severe burns.
[fire - consequence, evacuation, storage, injury]

Lessons

[None Reported]

1228513 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 13 MARCH, 2000, (http://www.chemsafety.gov).
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Location : Lat Krabang, THAILAND

Injured : 1+ **Dead :** 1

Abstract

An explosion occurred at a petrol station when an oil tanker was offloading it cargo caught fire. Severe damage occurred to the surrounding area.
It is thought that a spark from an oil pump may have caused the fire and explosion.
[road transport, unloading, fire - consequence, fatality, burns]

Lessons

[None Reported]

1228813 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 13 MARCH, 2000, (http://www.chemsafety.gov).
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Location : Chonburi, THAILAND

Injured : 1 **Dead :** 0

Abstract

A fire occurred at a footwear factory. The factory was totally destroyed in the fire which was fuelled by combustible adhesives and rubber stored inside. An investigation into the incident is being carried out.
[fire - consequence, damage to equipment, storage, injury]

Lessons

[None Reported]

1230412 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 15 MARCH, 2000, (http://www.chemsafety.gov).
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Location : Mexico City, MEXICO

Injured : 1 **Dead :** 0

Abstract

Seven gas lines at a distribution centre caught fire and sparked off several explosions. Fire fighters manage to contain the blaze after three hours one fire fighter was injured.
Each gas pipeline had a 2,600-gallon capacity.
It is thought that the cause of the explosion was due to a high-pressure release from emergency blowout valves.
[explosion, fire - consequence, high pressure, injury]

Lessons

[None Reported]

1228611 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 13 MARCH, 2000, (http://www.chemsafety.gov).

Location : Jiangxi, CHINA

Injured : 10 **Dead :** 33

Abstract

An explosion and fire occurred at a fireworks factory killing thirty-three people and injuring ten others.
An investigation into the incident is being carried out.
[fire - consequence, fatality, burns, management system inadequate, injury]

Lessons

[None Reported]

1226209 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 10 MARCH, 2000, (http://www.chemsafety.gov).

Location : Tampico, MEXICO

Injured : 31 **Dead :** 0

Abstract

A propane tank exploded injuring 31 people and causing damage to equipment. The injured suffered burns.
The cause of the explosion was due to an electrical short near to the tank, which was leaking at the time.
[explosion, short circuit, fire - consequence, injury]

Lessons

[None Reported]

1226308 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 MARCH, 2000, (http://www.chemsafety.gov).

Location : Shanghai, CHINA

Injured : 8 **Dead :** 7

Abstract

An explosion and fire occurred at a food company killing seven and injuring eight people. Nearby residential areas were damaged by the blast. The cause of the incident is under investigation.
[fire - consequence, fatality, damage to equipment, processing, injury]

Lessons

[None Reported]

1226407 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 9 MARCH, 2000, (http://www.chemsafety.gov).
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Location : Lake Alfred, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a fertilizer plant. The incident occurred whilst plant workers were welding a metal bin, which was still containing chemicals.
The fire occurred inside a 12-foot by 30-foot hopper containing a mixture of sludge, or sewage, and ammonium nitrate used to make the fertilizer.
Fifteen workers were evacuated and fire fighters eventually brought the fire under control. Sand was placed around a nearby storm drain to contain the chemicals.
The plant was closed down for repairs and clean up.
No injuries were reported.
[fire - consequence, evacuation, plant shutdown, design or procedure error]

Lessons

[None Reported]

1224307 March 2000

Source : BBC NEWS, 8 MARCH, 2000, (http://www.bbc.co.uk)
Location : Basingstoke, M3, UK

Injured : 1 **Dead :** 1

Abstract

A road transportation incident. A lorry carrying gas canisters was hit by another vehicle while on the hard shoulder after breaking down. Approximately three other vehicles were involved in the incident.
The collision caused 20 to 30 exploding gas canisters to be thrown up to 400 metres.
The blaze was so intense it damaged the road surface.
The driver of the propane lorry was taken to hospital.
[container, explosion, fire - consequence, fatality, injury]

Lessons

[None Reported]

1225005 March 2000

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000,; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 6, APRIL 26, 2000, (http://www.chemsafety.gov).

Location : Radford, USA

Injured : 7 **Dead :** 3

Abstract

An explosion occurred at an auto parts factory killing three people and injuring seven.
Damage is estimated at $30-50 million (2000).
Approximately one hundred workers were in the plant at the time of the explosion.
The cause of the explosion is under investigation but it is thought that a build up of natural gas may have been the cause.
[fire - consequence, damage to equipment, fatality, injury]

Lessons

[None Reported]

1224605 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 7, 2000, (http://www.chemsafety.gov).
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Location : Salt Lake City, USA

Injured : 6 **Dead :** 0

Abstract

A series of explosion occurred at a vineyard plant. The incident occurred when workers were taking a steel sample from a furnace. The molten steel, heated to a temperature of 2,300 degrees, hit a water line, releasing steam and setting off a series of explosion.
[burns, sampling, process causes, fire - consequence, evacuation, injury]

Lessons

[None Reported]

1224001 March 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, MARCH 6, 2000, (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Bristol, USA

Injured : 1 **Dead :** 0

Abstract

A fire and explosion occurred at a hazardous materials recycling plant. One person was taken to hospital and a nearby store was evacuated.
A nearby 500-pound propane tank located in the building was of concern to the fire fighters.
[fire - consequence, evacuation, injury]

Lessons

[None Reported]

1234225 February 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 22 MARCH, 2000, (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Elizabethton, Tennessee, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a chemical plant causing the release of chlorine and ammonia into a watercourse killing hundreds of fish.
The building was severely damaged in the fire.
[fire - consequence, ecological damage, spill, processing]

Lessons

[None Reported]

1221624 February 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 24, 2000. (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Witchita, USA

Injured : 0 **Dead :** 0

Abstract

Approximately 100 students were evacuated from a university when a fire occurred in it's engineering department.
The incident occurred after an experiment had been carried out involving hydraulic fluid. Apparently the hydraulic fluid seeped into a burner and smouldered until it finally caught fire. Damage to equipment is estimated at $50,000 to $75,000 (2000).
[evacuation, fire - consequence, leak, heating equipment]

Lessons

[None Reported]

1221522 February 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 22, 2000. (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Monterey, USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred at a temporary crude oil storage facility. The incident occurred when two oil storage tanks exploded. Within two hours three more storage tanks caught fire. Each tank contained 8,800 and 16,800 gallons of oil.
[fire - consequence, storage tanks,

Lessons

[None Reported]

1222122 February 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 28, 2000. (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : , USA

Injured : 2 **Dead :** 0

Abstract

An explosion occurred at tyre recycling facility.
It is thought the explosion involved a pressure relief piece of equipment at the plant. A small fire occurred as a result of the explosion.
[safety equipment failure, fire - consequence, normal operations, protective safety equipment, injury]

Lessons

[None Reported]

1220717 February 2000

Source : CNI NEWS, 17 FEBRUARY, 2000, (http://www.cnionline.com).
Location : , SINGAPORE

Injured : 0 **Dead :** 0

Abstract

A small fire occurred at a compressor on a styrene monomer plant, forcing the closure of the unit. The 100,000-tonne/year plant was forced to operate at 50 % capacity after carrying out repairs to the compressor unit.
No one was injured.
[fire - consequence, processing]

Lessons

[None Reported]

1220616 February 2000

Source : CNN.COM, U.S. NEWS, FEBRUARY 17, 2000, (http://www.cnn.com).
Location : Calafornia, USA

Injured : 0 **Dead :** 3

Abstract

An air transportation incident. A cargo plane carrying normal industrial freight crashed into a car auction yard and burst into flames. All three crewmembers were killed.
Just before the crash, the pilot reported a problem with the positioning/balance of the plane's load.
[aircraft, fire - consequence, explosion, fatality]

Lessons

[None Reported]

1220414 February 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 15, 2000. (http://www.chemsafety.gov).
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CHEMICAL HAZARDS IN INDUSTRY, APRIL 2000.

Location : Santee, USA

Injured : 3 **Dead :** 0

Abstract

An explosion and fire occurred in an extruder at a plastics manufacturing plant.
The explosion occurred when three workers were mixing polyethylene granules, raw sulphur powder and potassium nitrate granules to produce a semisold.
The explosion occurred after the materials were heated, before any material had emerged from the extruder barrel. The building was evacuated.
The workers suffered third-degree burns and shrapnel injuries.
The cause of the explosion is under investigation.
[fire - consequence, injury]

Lessons

[None Reported]

1219811 February 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 14, 2000. (http://www.chemsafety.gov).
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Location : Zhangshu City, CHINA

Injured : 2 **Dead :** 6

Abstract

A tanker truck exploded whilst unloading oil at a gas station. The explosion killed six and injured two and totally destroyed a nearby three-storey building.
The gas station included five large oil tanks and unknown ammount of oil barrels.
The cause of the explosion is still under investigation.
[fire - consequence, road transport, explosion, fatality, injury]

Lessons

[None Reported]

1220809 February 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 14, 2000. (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Changchun, CHINA

Injured : 6+ **Dead :** 5+

Abstract

An explosion occurred at a coal mine when a fire broke out in a pit. Five miners were killed and eleven are reported to be missing. Six others managed to escape with slight injuries.
[solids processing, fatality, fire - consequence, injury]

Lessons

[None Reported]

1218404 February 2000

Source : CNI NEWS, 4 FEB, 2000, (www.cnionline.com),; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 4, 2000, (http://www.chemsafety.gov). Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : , USA

Injured : 0 **Dead :** 0

Abstract

A large fire occurred at a chemical plant, facility that process 250,000 tonnes a year of ethylene. The incident occurred during maintenance work.
Leaking fuel gas is thought to have ignited causing the fire.
Fire fighters sealing off a hole in the feeder header using a ceramic-paper plug finally put out the fire.
[fire - consequence]

Lessons

[None Reported]

1217929 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 1, 2000. (http://www.chemsafety.gov).
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Location : , USA

Injured : 1 **Dead :** 0

Abstract

A fire and explosion occurred at a refinery on two separate days. The first to occur was an explosion, which slightly injured a worker and badly damaged a platformer.
The fire occurred about a week later and involved a vacuum that feeds into the plant's fluid catalytic cracking unit. Approximately 130 gallons of crude oil had caught fire.
The fire was put out within minutes using hand-held fire extinguishers.
It is thought that a fractured steam line caused the fire.
[fire - consequence, damage to equipment, injury]

Lessons

[None Reported]

1217528 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 28, 2000, (http://www.chemsafety.gov).
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Location : , USA

Injured : 5 **Dead :** 0

Abstract

An explosion occurred during a chemistry experiment at a school injuring five people. All five people were treated for burns.
The incident occurred when methanol was poured into a petri dish with some chemical salts, a procedure that results in flames, when methanol vapours in the air caught fire, a flash fire spread in the room.
[fire - consequence, laboratory work, injury]

Lessons

[None Reported]

1216323 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 23, 2000, (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Platte City, USA

Injured : - **Dead :** 10

Abstract

A road transportation incident. A truck jack-knifed triggering a 24-vehicle pile-up, killing 10 people.
An unexpected covering of ice and snow had covered the highway.
One tractor-trailer involved in the crash, caught fire upon impact. It took over an hour to contain the blaze, which was fuelled by hydrochloric acid leaking from one of the other trucks involved.
[burns, fire - consequence, fatality, collision, spill, weather effects]

Lessons

[None Reported]

1215521 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 21, 2000, (http://www.chemsafety.gov).
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Location : , USA

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. One of 55 33,000-gallon propane cars caught on fire early this morning, causing the local police to evacuate a 1-mile radius and close several schools near the rail yard for fear of an explosion.
It is not known what sparked the fire.
The fire department officials feared that the fire could spread to 54 other cars, each carrying up to 33,000 gallons of propane. Fortunately, crews managed to separate all of the freight cars attached to the burning car by 9:30 a.m.
Officials said they would not try to extinguish the fire until the experts arrive. Flames reaching about 4- to 5-feet high emanated from a valve on the burning car.
Fire officials said the fumes would create a greater explosive danger if they put the fire out.
[fire - consequence, evacuation]

Lessons

[None Reported]

1216821 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 21, 2000, (http://www.chemsafety.gov).
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Location : Flint, USA

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. One of 55 33,000-gallon propane rail cars caught fire causing the evacuation of a 1 mile radius in fear of an explosion.
Fire crews managed to separate all the freight cars attached to the burning car.
Flames reaching about 4 to five feet high emanated from a valve on the burning car.
Fire officials explained that the fumes would create a greater explosive danger if they put the fire out.
[fire - consequence]

Lessons

[None Reported]

1215921 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 28, 2000, (http://www.chemsafety.gov).
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Location : Campeche Bay, MEXICO

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a major oil field. The incident occurred when a nitrogen injection valve caught fire at the oil field. Production was not effected by the impact of the blaze. No injuries were reported.
[fire - consequence, exploration]

Lessons

[None Reported]

1263618 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 19, JULY 21, 2000, (http://www.chemsafety.gov),
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Shreveport, USA

Injured : 2 **Dead :** 0

Abstract

A fire and explosion occurred at a refinery. Injuring two workers one of which is in a critical condition. The chemical involved in the incident was naphtha, the product that boils off in between gasoline and kerosene during distillation.
Naphtha has many uses, it can be used as; an ingredient of gasoline and dry cleaning fuels, a source of synthetic natural gas and a paint and varnish thinner.
The company was later fined $160K (Jul. 2000).
[fire - consequence, separation equipment, injury]

Lessons

[None Reported]

1215415 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 16, 2000, (http://www.chemsafety.gov).
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Location : Balatonfuzfo, HUNGARY

Injured : 1 **Dead :** 0

Abstract

An explosion and fire occurred killing a worker and destroying a gunpowder plant. The cause of the explosion is under investigation.
[fire - consequence, fatality, injury]

Lessons

[None Reported]

1215115 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 15, 2000, (http://www.chemsafety.gov).

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Location : , USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a raw material stock house at a steel company. The stock house is a storage feeding area, which feeds raw materials from storage piles locating in the facility into the blast furnace.
[fire - consequence, storage equipment]

Lessons

[None Reported]

1214813 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 13, 2000, (http://www.chemsafety.gov).
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Location : , USA

Injured : 7 **Dead :** 0

Abstract

An explosion and fire occurred at a metal recycling company, four workers were critically burned and three others were injured.
The incident occurred on a newly installed machine used to strip copper off the tops of military shell casings. A spark from the machine is thought to have somehow caused the explosion.
It is possible some residual powder in the shells, such as magnesium, may have detonated if it came in contact with sparks from the machine.
A full investigation is being carried out into the cause of the explosion.
[fire - consequence, burns, injury]

Lessons

[None Reported]

1214512 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 12, 2000, (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : , USA

Injured : 2 **Dead :** 0

Abstract

An explosion and fire occurred on a food processing plant injuring two workers. The incident occurred when fire fighters responded to a report of an ammonia leak, while they were on site the explosion and fire occurred.
Injuries to workers were reported to be minor. The fire was brought under control after fire fighters used a ladder truck to pour water on the building.
Chemicals involved in the incident: Ammonia (anhydrous).
[fire - consequence, injury]

Lessons

[None Reported]

1214311 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 12, 2000, (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : , USA

Injured : 4+ **Dead :** 0

Abstract

An explosion and fire occurred at a nut company when a forklift truck was being refuelled from a propane tank. The fire damaged the company's roof and gutted it's interior, the fire also spread to an adjacent two storey apartment block.
Three people were hospitalised and one declined medial attention.
[fire - consequence, loading, damage to equipment, injury]

Lessons

[None Reported]

1214010 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 13, 2000, (http://www.chemsafety.gov).
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Location : , EASTERN ARTIC

Injured : 0 **Dead :** 0

Abstract

A fire occurred at an unstaffed military station where it is believed polychlorinated biphenyls (PCBs) and paint were stored. The buildings concerned caught fire. The cause of the fire and whether there was an environmental release is not known.
[fire - consequence, storage]

Lessons

[None Reported]

1213909 January 2000

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 12, 2000, (http://www.chemsafety.gov).
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Location : , USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred on a building under construction. The incident occurred when a propane tank rusted through and leaked propane into a heating unit used to dry drywall. Nearby, approximately 20 propane tanks were in danger of exploding.
Damage was estimated at $35,000 to $40,000 (2000).
[fire - consequence, damage to equipment, spill, corrosion, heating equipment]

Lessons

[None Reported]

1210609 January 2000

Source : BBC NEWS, 11 JANUARY, 2000, (http://www.bbc.co.uk).
Location : , NIGERIA

Injured : 0 **Dead :** 7

Abstract

A marine transportation incident. A fire occurred on an oil slick killing seven people and burning about twenty five vessels and other property.
Barges carrying stolen oil were intercepted by police and then towed away to their station. One of the vessels was found to be leaking. The fire occurred when a local resident lit a match.
[fire - consequence, fatality]

Lessons

[None Reported]

9373 22 December 1999

Source : BBC NEWS, 23 DECEMBER, 1999, (http://www.bbc.co.uk).
Location : Hatfield Forest, UK

Injured : 0 **Dead :** 4

Abstract

An air transportation incident. A cargo plane carrying chemicals on board crashed killing all crew members. It is thought that the plane's cargo included paint, benzene and other chemicals.
[explosion, fire - consequence, fatality]

Lessons

[None Reported]

1210910 December 1999

Source : BBC NEWS, 10 DECEMBER, 1999, (http://www.bbc.co.uk).
Location : Devon, UK

Injured : 16 **Dead :** 0

Abstract

More than 500 people were evacuated from their homes after a fire broke out at a plastics factory.
A cloud of toxic smoke and fumes from the fire drifted into nearby residential areas.
People evacuated were allowed to return home nearly two days after the incident.
Sixteen people, including police and fire fighters, were treated for minor breathing problems, fortunately no-one was seriously injured.
The cause of the fire is not yet known.
[fire - consequence, evacuation, gas / vapour release, injury. toxic fumes]

Lessons

[None Reported]

1237309 December 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, MARCH 2000,; PLAST. NEWS, 10 DEC 1999, (http://www.plastics-news.com).
Location : , USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a plastics plant. Damage caused by the fire is estimated to be more than £2 M (1999).
Fortunately no personnel were in the plant at the time of the fire and no injuries were reported.
[fire - consequence, damage to equipment]

Lessons

[None Reported]

4677 04 December 1999

Source : BBC NEWS, DECEMBER 4, 1999.
Location : Guatemala, SOUTH AMERICA

Injured : 80+ **Dead :** 15+

Abstract

A road transportation incident. An explosion occurred at a chemical warehouse when two lorries collided.
A fire occurred from spilled petrol which then spread to the warehouse. It is thought that the explosion was caused by a spontaneous ignition of fertilisers stored in the warehouse.
The explosion was felt up to 5 km away, destroying cars and shattering windows in nearby buildings.
Hundreds of people including emergency services, helped to combat the flames in a bid to stop them spreading to a nearby refinery.
At least 15 people were killed and 80 injured.
[fire - consequence, collision, fatality, gasoline, injury]

Lessons

[None Reported]

7995 03 December 1999

Source : BBC NEWS, DECEMBER 3, 1999, (http://www.bbc.co.uk),; CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, FEBRUARY 4, 2000, (http://www.chemsafety.gov).

Location : , THAILAND

Injured : 15 **Dead :** 7

Abstract

A fire occurred after an explosion at an oil refinery which killed two people and injured fifteen.
The explosion and fire caused between US$23m-27m (1999) damage.
Four out of the nine oil tanks exploded. The force of the explosion was felt in nearby towns and several kilometres away.
Thirty million litres of petrol stored in the four burned-out tanks was destroyed in the blaze.
It is thought that the explosion occurred after the storage tanks were overfilled and that a spark may have ignited the vapour.
[burns, fire - consequence, refining, damage to equipment, fatality, injury]

Lessons

[None Reported]

1122602 December 1999

Source : BBC NEWS, DECEMBER 2, 1999, (http://www.bbc.co.uk).

Location : Plymouth, UK

Injured : 2 **Dead :** 0

Abstract

An explosion and small fire occurred on an electrical sub-station injuring two work men. The two work men were taken to a nearby hospital where they received treatment for severe burns.
It is not known what caused the explosion.
[fire - consequence, maintenance, electrical, injury]

Lessons

[None Reported]

1236902 December 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, MARCH 2000,; CHEM. WEEK, 15 DEC 1999, 161(48), 17.
Location : Deer Park, Texas, USA

Injured : 2 **Dead :** 0

Abstract

An explosion and fire occurred at a chemical plant. The fire caused major damage to a multipurpose metal alkyl unit. Two workers were injured in the blast. [fire - consequence, damage to equipment, injury]

Lessons

[None Reported]

1217221 November 1999

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JANUARY 24, 2000, (http://www.chemsafety.gov).
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Location : , CHINA

Injured : 1 **Dead :** 3

Abstract

Cleaning operations were being carried out in a storage tank when an explosion occurred killing three workers and injuring another.
The explosion and fire seriously damaged the 34,000 kl tank.
Cigarettes and a lighter were discovered near the workers bodies.
The policy at the refinery strictly forbids taking cigarettes and cellular phones into tanks to be cleaned.
[storage tanks, fire - consequence, fatality, injury]

Lessons

[None Reported]

9685 19 November 1999

Source : CNN.COM, U.S. NEWS, NOVEMBER 19, 1999, (http://www.cnn.com).
Location : Northwest Iowa, USA

Injured : 1+ **Dead :** 2

Abstract

A rail transportation incident. A freight train collided with an empty grain train, killing a conductor and the driver of a van that was parked by the tracks. Six of the freight cars derailed and four others overturned. A fire occurred from a diesel spill from the engine but was quickly extinguished.
The grain train was parked on the main tracks when the freight train collided with it at the junction with a side track.
An investigation is being carried out as to why the freight train didn't go on to the side track.
[collision, derailment - consequence, fire - consequence, fatality]

Lessons

[None Reported]

1176009 November 1999

Source : U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, (http://www.chemsafety.gov).

Location : Mytischi, RUSSIA

Injured : 4 **Dead :** 9

Abstract

A fire occurred at a chemical plant killing nine workers and injuring four. It is thought that the cause of the incident was due to faulty welding equipment. The injured suffered from burns.

[fire - consequence, mechanical equipment failure, fatality, injury]

Lessons

[None Reported]

12370November 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, MARCH 2000.

Location : ,

Injured : 0 **Dead :** 0

Abstract

A fire occurred during start-up of a cold section of a gas-cracker with imported ethylene causing deep cracks to appear in the top 25 m of an ethylene cracker. [fire - consequence]

Lessons

[None Reported]

1206824 October 1999

Source : BBC NEWS, OCTOBER 25, 1999, (http://www.bbc.co.uk).
Location : , PAKISTAN

Injured : 35 **Dead :** 11

Abstract

A gas explosion occurred whilst workers were digging up a gas pipeline, killing at least eleven people and injuring thirty five. The incident was brought under control by cutting the gas supply, but the fires took several hours to burn out.
Several houses were damaged in the blast and local people were evacuated.
[excavation, fatality, evacuation, fire - consequence, injury]

Lessons

[None Reported]

1207021 October 1999

Source : BBC NEWS, OCTOBER 25, 1999, (http://www.bbc.co.uk).
Location : Hebron, MIDDLE EAST

Injured : - **Dead :** 14

Abstract

A fire occurred at a factory, destroying the whole building. The fire was started by an explosion, it is thought this was caused by a canister containing gas which fell on the ground and exploded. Fourteen people were killed.
[fire - consequence, container, fatality]

Lessons

[None Reported]

1208420 October 1999

Source : EUROPEAN CHEMICAL NEWS, 25/31 OCTOBER 1999,; CHEMICAL HAZARDS IN INDUSTRY, JANUARY 2000.

Location : ,

Injured : 2 **Dead :** 0

Abstract

An explosion and fire occurred on an organics intermediates plant. One worker was treated for burns and a second for smoke inhalation.
The incident is being investigated.
[fire - consequence, normal operations]

Lessons

[None Reported]

1207118 October 1999

Source : BBC NEWS, OCTOBER 18, 1999, (http://www.bbc.co.uk).
Location : , THAILAND

Injured : - **Dead :** 2

Abstract

A marine transportation incident. An explosion occurred on an oil tanker killing two crewmembers. A nearby cargo ship was also destroyed in the ensuing fire. [fire - consequence, fatality]

Lessons

[None Reported]

1195205 October 1999

Source : BBC NEWS, OCTOBER 5, 1999, (http://www.bbc.co.uk).
Location : Ladbroke Grove, Paddington, UK

Injured : 150+ **Dead :** 31

Abstract

A rail transportation incident. At least 30 people were killed and over 150 were injured when two passenger trains collided. The force of the collision caused carriages to derail and one train burst into flames.
An investigation is underway, but it is thought that one of the trains ran through a red light.
[collision, fire - consequence, fatality, derailment - consequence, injury]

Lessons

[None Reported]

1209803 October 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; SAFETY ONLINE, 5 OCT 1999, http://www.safetyonline.com
Location : , USA

Injured : 1 **Dead :** 1

Abstract

A fire and explosion occurred on a waferboard plant killing a worker and injuring another. Another explosion occurred approximately thirty minutes later near the paint room. The cause of the fire is being investigated.
[fire - consequence, fatality, injury]

Lessons

[None Reported]

1209501 October 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; PLAST. NEWS, 4 OCT 1999, http://www.plasticsnews.com
Location : ,

Injured : 0 **Dead :** 0

Abstract

515,000 pounds of polyvinyl chloride (PVC) and 30,000 pounds of polypropylene was destroyed by a fire which occurred at a plastics plant. Two of the plants fire doors did not work and there was only time to close one of the fire doors. Maintenance had not been carried out on the doors for a number of years. Fortunately, firewalls prevented the blaze from reaching manufacturing and office areas.
[fire - consequence, safety equipment failure]

Lessons

[None Reported]

1186427 September 1999

Source : BBC NEWS, SEPTEMBER 27, 1999, (http://www.bbc.co.uk).
Location : Celaya, MEXICO

Injured : 348+ **Dead :** 50+

Abstract

Huge explosions ripped through a crowded market in a town of Central Mexico. It is thought that the first explosion occurred in a fireworks warehouse.
Emergency services were attempting to extinguish the fire when further explosions hit the area.
The fire is thought to have caused cooking gas tanks in restaurants to ignite.
Electricity supplies were cut off and the sale of petrol was banned throughout the city until the fire had been extinguished.
[fire - consequence, storage, fatality]

Lessons

[None Reported]

1186620 September 1999

Source : CNN.COM, U.S. NEWS, SEPTEMBER 20, 1999, (http://www.cnn.com).
Location : , GULF OF MEXICO

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. A fire occurred onboard a cruise ship which was carrying 1,700 passengers.
The fire started in the engine room, which was quickly put out, but had damaged the engines. The star-board motor was temporarily restarted, but failed again, stranding the ship 100 miles off the coast.
[fire - consequence, damage to equipment, passenger ship]

Lessons

[None Reported]

1187119 September 1999

Source : BBC NEWS, SEPTEMBER 19, 1999, (http://www.bbc.co.uk).
Location : , THAILAND

Injured : 120+ **Dead :** 23+

Abstract

An explosion occurred at a fruit processing factory, killing 23 and injuring 120 people. The explosion was so powerful that it completely destroyed the factory and flattened 30 nearby buildings. It is thought that sacks of potassium nitrate were involved with the cause of the explosion. (Potassium nitrate, a chemical used both as a fertiliser, food preservative and an ingredient in gun powder).
A report stated that fire fighters were called to prevent a fire from spreading to a 5000 litre fuel tank in the factory grounds.
The factory was used for processing and drying longans, a tropical fruit.
[fire - consequence, container, fatality, damage to equipment, injury]

Lessons

[None Reported]

1176512 September 1999

Source : CNN.COM, U.S. NEWS, SEPTEMBER 12, 1999, (http://www.cnn.com).
Location : New York, USA

Injured : 2 **Dead :** 0

Abstract

A fire occurred in a subway tunnel causing the evacuation of the terminal. Two people were treated for smoke inhalation.
It is thought that the fire started in building materials in a storage room.
[fire - consequence, people]

Lessons

[None Reported]

1176111 September 1999

Source : U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, (http://www.chemsafety.gov).

Location : Quebec, CANADA

Injured : 4 **Dead :** 0

Abstract

An explosion and fire occurred at a plant which manufactures explosives. The blast badly burnt one person and injured three others.
[processing, burns, fire - consequence, explosive, injury]

Lessons

[None Reported]

1176409 September 1999

Source : U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, (http://www.chemsafety.gov).

Location : Quebec, CANADA

Injured : 0 **Dead :** 0

Abstract

A road transport incident. An explosion and fire occurred at a distribution centre whilst propane was being transfered from a truck to a larger tank. No injuries were reported.
[fire - consequence, material transfer]

Lessons

[None Reported]

12093September 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; BUISINESS DAY, 28 SEP 1999, http://bday.net
Location : , USA

Injured : 0 **Dead :** 0

Abstract

Approximately 600 and 700 drums in a warehouse caught fire. Chemicals involved in the incident included glycol ethers, acrylics, epoxy resins, plasticizers, polyurethane and surfactants. Fortunately no one was injured. An investigation into the cause of the incident is being carried out.
[fire - consequence, warehousing]

Lessons

[None Reported]

12094September 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; CHEM. WEEK, 29 SEP 1999, 161(36).
Location : Moscow, RUSSIA

Injured : 4 **Dead :** 9

Abstract

A fire occurred at a plastics warehouse killing nine workers and causing serious burns to four others. It is thought that the cause of the incident was due to a spark from faulty welding equipment.
[fire - consequence, fatality, injury]

Lessons

[None Reported]

1209725 August 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, DECEMBER 1999,; CHEM. WEEK, 26 AUG 1999, http//www.safetyon-line.com/
Location : Marittima, ITALY

Injured : 2 **Dead :** 0

Abstract

A fire occurred in a pumping station at a refinery seriously injuring two workers. Approximately 50 residents had to be evacuated. The cause of the fire and explosion has yet to be determined.
[fire - consequence, evacuation, injury]

Lessons

[None Reported]

1175024 August 1999

Source : YAHOO NEWS UK & IRELAND, SEPTEMBER 3, 1999, (http://www.yahoo.co.uk).
Location : , ENGLISH CHANNEL

Injured : 20+ **Dead :** 0

Abstract

A marine transportation incident. A cargo vessel collided with a cruise liner with more than 2,000 people on board.
Fortunately, the cruise liner was able to reach a nearby port safely despite severe damage to its bow.
The 52,000 tonne container ship, caught fire after the collision. More than 40 of the ships 3,092 containers held hazardous materials two of which carrying cyanide, these were stowed in the centre of the vessel and there was no danger of them being lost overboard. Some of the containers fell into the sea during the impact.
Coast guards reported no sign of trouble before the collision and that no radio message had been taken from either vessel.
[container ship, passenger ship, collision, fire - consequence, near miss, spill, damage to equipment, cyanide product]

Lessons

[None Reported]

1164717 August 1999

Source : BBC NEWS, AUGUST 19, 1999, (http://www.bbc.co.uk),; HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.
Location : , TURKEY

Injured : - **Dead :** -

Abstract

A fire occurred at an oil refinery complex when a fatal earthquake struck the country.
The earthquake struck Turkey's populous north west, an area that accounts for a third of the country's economic output. Many large companies were badly hit.
[fire - consequence, refining, oil, tank, fatality, damage to equipment]

Lessons

[None Reported]

1164414 August 1999

Source : CNN.COM, U.S. NEWS, AUGUST 16, 1999, (http://www.cnn.com).
Location : Georgia, USA

Injured : 8 **Dead :** 1

Abstract

Six workers were injured and one killed in a coal dust explosion and fire at a power generating plant.
Three injured mechanics and electricians were in critical condition at hospital with third degree burns over more than half of their body.
The accident occurred in a unit of the plant's coal burning plant minutes after workers restarted a coal pulverizer.
The pulveriser had been taken off-line for some maintenance work. The mechanics had finished the maintenance and were testing it.
The cause of the explosion is not known.
[fire - consequence, solids processing equipment, fatality, injury]

Lessons

[None Reported]

1174609 August 1999

Source : CNN.COM, U.S. NEWS, AUGUST 9, 1999, (http://www.cnn.com).
Location : , INDONESIA

Injured : 0 **Dead :** 10

Abstract

A marine transportation incident. An oil tanker collided with a tug boat in a thick haze.
The incident occurred in low visibility. Oil leaked from the tanker and caught fire engulfing a nearby cargo ship. Ten of the tanker's crew died.
It is thought that the thick haze is caused by farmers, plantations and timber firms clearing forest areas at the start of the dry season.
[collision, weather effects, human causes, fire - consequence, fatality]

Lessons

[None Reported]

1175308 August 1999

Source : CNN.COM, U.S. NEWS, AUGUST 8, 1999, (http://www.cnn.com),; HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. A chemical tanker of a freight train derailed spilling flammable liquid for about eight hours before clean-up crews contained the leak. All but six cars that jumped the tracks were empty. The cars that derailed contained talc, liquefied petroleum gas, petroleum distillates and plastic pellets.
The leaking car carried approximately 18,000 gallons of petroleum distillates, it was not immediately known how much had been spilled.
A small grass fire started after the derailment but was quickly extinguished.
The cause of the derailment was being investigated.
[derailment - consequence, fire - consequence, spill, kerosene]

Lessons

Distillates are petroleum liquids, such as kerosene, that are produced during the oil distillation process.

1147202 August 1999

Source : BBC NEWS, AUGUST 2, 1999,
(http://www.bbc.co.uk),; HAZARDOUS CARGO BULLETIN, NOVEMBER 1999.

Location : Gaisan, WEST BENGAL

Injured : 1000+**Dead :** 286+

Abstract

A rail transportation incident. An express train collided with a mail train head on killing at least 250 people and injuring at least 1000.
Explosions were heard and initially a bomb attack was suspected, but investigations found that both trains ended up on the same track after a signal failure.
One of the trains was carrying explosives in a military compartment which may have caused the trains to catch fire after the crash.
The engine of the express train was blasted into the air by the impact of the explosion.
[collision, derailment - consequence, rail incidents, explosion, fire - consequence, fatality, explosive, injury]

Lessons

[None Reported]

8243 August 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, NOVEMBER 1999,; J. OCCUP. HEALTH SAF. AUST. N. Z., AUG 1999, 15(4), 298.
Location : , AUSTRALIA

Injured : 0 **Dead :** 0

Abstract

A furniture factory was completely destroyed by two workers. A cigarette lighter was used to ignite a stream of lacquer from a spray gun. Burning vapour was drawn into the extraction system of the spray booth causing the filters to ignite. Despite workers efforts, the fire spread to all parts of the factory.
[fire - consequence, deliberate acts, plant / property / equipment]

Lessons

[None Reported]

1179310 July 1999

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.
Location : ,

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. A fire occurred aboard a container ship. The fire started in a hypochlorite box and then spread to 100 other boxes. The crew had to abandon ship.
[fire - consequence, evacuation]

Lessons

[None Reported]

12873July 1999

Source : ICHEME

Location : ,

Injured : 1 **Dead :** 0

Abstract

An electrician working on a live electrode in a desalter of a distillation unit received an electric shock. Fortunately the electrician was not electrocuted due to his hand being in contact with the equipment, which was earthed when the tool that he was holding touched the live cable.
A small fire developed as the wrench was removed causing an electric arc that immediately ignited residual oil in the sleeve space; fortunately the fire service had been called and was on the scene at the time of the fire. The fire was quickly extinguished.
The electrician suffered severe burns to parts of his hand.
The incident occurred due to working on a live transformer electrode, which was mistaken for another one that had been isolated.
[near miss, fire - consequence, design or procedure error, maintenance, electrical, injury]

Lessons

The following lessons were learned:
1. Visible and durable labels to be attached to electrical and other equipment for easy identification and to minimise human error.
2. Work on electrical apparatus must not start without checking that the power has been isolated and the equipment checked to ensure it is safe.

1124530 June 1999

Source : CNN.COM, U.S. NEWS, 30 JUNE, 1999, (http://www.cnn.com).

Location : Tennessee, USA

Injured : 1 **Dead :** 2

Abstract

Two welders working on a supposedly empty crude oil storage tank near an oil field were killed when the tank exploded, a third worker was air lifted to hospital. People in nearby houses were evacuated.
The fire that followed the explosion was brought under control in half an hour.
It is thought that a spark ignited the explosion, an investigation is underway.
[welding, storage tanks, fire - consequence, evacuation, fatality, injury]

Lessons

[None Reported]

1180425 June 1999

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.
Location : Louisiana, USA

Injured : 0 **Dead :** 0

Abstract

Lightning hit a natural gas well barge causing a fire. Evacuation. The barge was totally destroyed.
[fire - consequence, marine transport, exploration]

Lessons

[None Reported]

1142623 June 1999

Source : C & EN, JUNE 28, 1999.
Location : , USA

Injured : 3 **Dead :** 2

Abstract

An explosion and fire occurred on a chemical complex killing two contract workers and forced the shutdown of the K-Resin section of the plant. Two other of the contract workers and an employee were also injured in the incident.
The workers were performing scheduled maintenance on a K-Resin unit, which produces styrene-butadiene polymers. A 100 million lb per-year expansion of the unit was started up earlier this month, increasing the company's K-Resin production to 370 million lb per year.
The cause of the explosion and fire is being investigated.
The company were fined $204,000 (2000).
[fire - consequence, fatality, injury]

Lessons

[None Reported]

1180123 June 1999

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.
Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred in a k-resins unit at a petroleum plant during maintenance. Two contract workers were killed.
[fire - consequence, fatality, resins]

Lessons

[None Reported]

1180223 June 1999

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.
Location : Quebec, CANADA

Injured : 0 **Dead :** 0

Abstract

A fire occurred during welding activities at a PVC pellet storage warehouse. Nearby residents were evacuated. The building was totally destroyed.
[fire - consequence, evacuation]

Lessons

[None Reported]

1180021 June 1999

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.
Location : Pennsylvania, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a sulphur extraction unit at a refinery after power failure. A plume of smoke was released.
[fire - consequence, power supply failure, gas / vapour release, refining, separation equipment]

Lessons

[None Reported]

1179815 June 1999

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.
Location : Dagestan, RUSSIA

Injured : 0 **Dead :** 0

Abstract

A crude export line was bombed causing oil to leak. A fire ensued.
[fire - consequence, pipeline, crude oil, spill, leak]

Lessons

[None Reported]

1300712 June 1999

Source : LOSS PREVENTION BULLETIN, 148, 25.
Location : Shenzhen, CHINA

Injured : 8 **Dead :** 16

Abstract

A fire occurred at an electronics factory killing sixteen workers and seriously injuring eight others.
The fire quickly set fire to packaging materials and spread to other floors.
Approximately 120 fire fighters attended the scene and within an hour had extinguished the fire.
An investigation into the cause of the fire is underway.
[fire - consequence, fatality, injury]

Lessons

[None Reported]

1271810 June 1999

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, JUNE 27, 2000, (http://www.chemsafety.gov).
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CNN.COM, U.S. NEWS, JUNE 2, 2000, (http://www.cnn.com).

Location : Bellingham, USA

Injured : 0 **Dead :** 3

Abstract

Approximately 277,000 gallons of fuel spilled from a ruptured pipeline killing three people. Nearby residents were evacuated and other parts of the area were asked to conserve water after a pump station was damaged in the fire and explosion.
The pipeline was later tested. During the first test the pipeline ruptured and spilled 10,000 gallons of water.
Further testing was carried out and all defects were found and repaired.
It is thought that the company will apparently be fined an estimated $3.05 million (2000), the largest fine ever sought against a pipeline operator.
[fire - consequence, evacuation, fatality, material of construction failure]

Lessons

[None Reported]

1179610 June 1999

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.
Location : Washington, USA

Injured : 0 **Dead :** 3

Abstract

A leak occurred on a pipeline releasing vapours over a nearby creek. The vapours ignited causing a fireball which killed three people. Approximately 1,100 m3 of gasoline was spilt into the creek.
[gas / vapour release, explosion, fire - consequence, fatality, spill]

Lessons

[None Reported]

1179509 June 1999

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.
Location : , FINLAND

Injured : 0 **Dead :** 1

Abstract

An explosion and fire occurred during maintenance shutdown at a chemical plant killing a worker and destroying a reactor.
[fire - consequence, damage to equipment, reactors and reaction equipment, sodium borohydride, fatality]

Lessons

[None Reported]

1110008 June 1999

Source : EUROPEAN CHEMICAL NEWS, 14-20 JUNE, 1999.
Location : , GERMANY

Injured : 101 **Dead :** 0

Abstract

An explosion and fire occurred at an agrochemicals plant causing an estimated DM100m ($5m) (1999). Around 90 residents of neighbourhoods surrounding the plant suffered slight injuries, along with 11 employees.
Run-off water from the fire fighting was contained, so that it provided no threat to the environment. Samples of carbon, dust, soil and plants are being anylised.
[fire - consequence, processing, injury]

Lessons

[None Reported]

1177708 June 1999

Source : HAZARDOUS CARGO BULLETIN, SEPTEMBER 1999.
Location : Pambla, AUSTRALIA

Injured : 1 **Dead :** 0

Abstract

A road transportation incident. A fire occurred when a road tanker overturned spilling 38,000 l of diesel and gasoline into a river. Fire crews extinguished the blaze and booms were used on the river.
[fire - consequence]

Lessons

[None Reported]

11248June 1999

Source : CNN.COM, U.S. NEWS, 24 JUNE, 1999, (http://www.cnn.com).

Location : Texas, USA

Injured : 4 **Dead :** 2

Abstract

An explosion and chemical fed fire erupted inside a plastics plant, killing two workers and injured four.
The cause of the blast has not been determined, an investigation is underway.
[fatality, fire - consequence, processing, injury]

Lessons

[None Reported]

1142829 May 1999

Source : BBC NEWS, MAY 29, 1999,; BBC NEWS, MAY 31, 1999, (http://www.bbc.co.uk).
Location : , AUSTRIA

Injured : 50 **Dead :** 5

Abstract

A road transportation incident. A fire broke out in a busy motorway tunnel. The accident occurred when a lorry caught fire after colliding with a car at the northern entrance. This was followed by a series of explosions which spread the fire to other vehicles.
The tunnel then filled with smoke, hampering the rescue effort and causing confusion both inside the tunnel and outside.
Up to sixty vehicles were involved in the accident.
[fatality, fire - consequence, collsion]

Lessons

The crash prompted immediate calls for parallel escape routes to be built.

1148224 May 1999

Source : BBC NEWS, MAY 24, 1999,
(http://www.bbc.co.uk).

Location : Yeman, MIDDLE EAST

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred on an oil pipeline. The pipeline carries one hundred and seventy thousand barrels of oil a day.
The explosion occurred along a section which runs through territory of a fiercely independent tribe.
[fire - consequence]

Lessons

[None Reported]

1148423 May 1999

Source : CNN.COM, U.S. NEWS, MAY 24, 1999, (http://www.cnn.com).; BBC NEWS, MAY 24, 1999, (http://www.bbc.co.uk).
Location : Khuzestan, IRAN

Injured : 70 **Dead :** 0

Abstract

An explosion and fire occurred on a gas pipeline injuring 70 workers, 30 seriously, but causing no major damage. The blast occurred whilst workers were repairing the pipeline. The injured workers suffered burns.
It is thought that the cause of the explosion was due to a gas leak.
[fire - consequence, repair, injury]

Lessons

[None Reported]

1143118 May 1999

Source : CNN.COM, U.S. NEWS, MAY 18, 1999, (http://www.cnn.com).

Location : , AFRICA

Injured : 0 **Dead :** 0

Abstract

A fire occurred causing the shutdown of a refinery. The plant is estimated to be down for approximately seven to eight months.
The fire damaged the primary distillation unit and the main crude pipeline supplying the refinery.
[fire - consequence, plant shutdown, refining, damage to equipment, crude oil]

Lessons

[None Reported]

1147916 May 1999

Source : BBC NEWS, MAY 16, 1999,
(http://www.bbc.co.uk).

Location : Pakistan, SOUTH ASIA

Injured : 50+ **Dead :** 40+

Abstract

A road transportation incident. At least 40 people were burnt to death when a petrol tanker caught fire after overturning on a highway.
Hundreds of villagers gathered around the vehicle to collect the leaking fuel, before it caught fire, engulfing people in the flames.
More than 50 victims were taken to hospital with serious burns.
[road tanker, fire - consequence, gasoline]

Lessons

[None Reported]

1199414 May 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.
Location : , SOUTH KOREA

Injured : 3 **Dead :** 0

Abstract

A fire occurred on a unit making kerosene and gas oil at a refinery. The hydrocracker where the fire occurred used fuel oil to make middle distillates and had a desulphuriser which made low sulphur fuel oil. The fire was brought under control within two hours.
At least three people were injured.
At the time of the incident the refinery was operating normally.
[fire - consequence, processing, injury]

Lessons

[None Reported]

1147713 May 1999

Source : CHEMICAL NEWS INTERACTIVE, 14 MAY, 1999.
Location : , SOUTHWESTERN CHINA

Injured : 6+ **Dead :** 0

Abstract

An explosion and fire occurred at a vinyl chloride monomer (VCM) plant injuring several workers, six seriously.
The explosion was so great that it broke glass in surrounding homes.
[fire - consequence, damage to equipment, injury]

Lessons

[None Reported]

1102313 May 1999

Source : EUROPEAN CHEMICAL NEWS, 7-13 JUNE, 1999, PAGE 5.
Location : , INDIA

Injured : - **Dead :** 44

Abstract

An explosion and fire which started in a chemical warehouse claimed the lives of 44 people and injured many others.
The broke out in a two storey warehouse thought to house unlicensed flammable chemicals. The subsequent fire swept through shops in a densely populated area, fanned by a dust storm passing through the city.
[fire - consequence, warehousing, fatality, injury]

Lessons

[None Reported]

1208607 May 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.
Location : , USA

Injured : 1 **Dead :** 0

Abstract

A fire occurred at a refinery causing one of the two coker units to be shut down. One worker was injured in the incident.
[fire - consequence, refining, injury]

Lessons

[None Reported]

1199505 May 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.
Location : , INDIA

Injured : - **Dead :** 5

Abstract

A fire occurred in a hydrogen gas compressor of a hydro cracker unit at a refinery. Five people were killed. All other units in the refinery and supplies from the terminal were not affected by the fire.
[fire - consequence, fatality, refining]

Lessons

[None Reported]

1208504 May 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.
Location : Guadalajara, MEXICO

Injured : 0 **Dead :** 0

Abstract

A fire occurred on a production facility for polystyrene cups and containers. The whole building was destroyed by the fire. Prior to the fire, 300,000 boxes containing 1000 polystyrene cups were being produced each month.
[fire - consequence, processing, damage to equipment]

Lessons

[None Reported]

11022May 1999

Source : CHEMICAL NEWS INTERACTIVE, 11 MAY, 1999.
Location : , USA

Injured : 4 **Dead :** 3

Abstract

A tetrafluoroethylene (TFE) explosion and fire occurred at a plant killing three employees and injuring four others.
The fire was quickly contained and extinguished but the cause of the explosion is under investigation.
TFE is one of the raw materials used in production of fluoro resins. TFE in its purest state is an odourless, colourless gas that will decompose when it contacts high temperatures and oxygen. It is classified as a flammable gas.
[fire - consequence, processing, fatality, injury]

Lessons

[None Reported]

11876May 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a plant causing damage of £1 million (1999). The incident occurred whilst toluene was being transferred from a 10,000 gallon tank to a 55 gallon drum. A spark caused a flash fire. Approximately 1000 gallons of toluene were spilled.
[fire - consequence, damage to equipment, drums, material transfer]

Lessons

[None Reported]

11246May 1999

Source : BBC NEWS, 16 MAY, 1999, (http://www.bbc.co.uk),; CNN.COM, U.S. NEWS, 15 MAY, 1999, (http://www.cnn.com).
Location : , AFRICA

Injured : 0 **Dead :** 0

Abstract

A team of specialist fire-fighters were sent to tackle a huge oil tank fire that had been burning for two days which threatened strategic oil stocks near a refinery.
The refinery next to the burning tank was not seriously threatened, however, one of the 13 tanks in the storage complex contained highly inflammable jet fuel which could have triggered a wider inferno, if the fire had reached it. The fire was eventually extinguished after a two day effort by fire-fighters.
The fire destroyed approximately 30,000 cubic metres of petroleum products.
It is not immediately clear what started the blaze, but witnesses said they heard an explosion before the tank, containing super grade gasoline, caught fire.
[storage tanks, fire - consequence, damage to equipment]

Lessons

[None Reported]

11480May 1999

Source : CHEMICAL WEEK, MAY 19, 1999.
Location : Dacatur, USA

Injured : 2 **Dead :** 2

Abstract

An explosion and fire occurred on a fluoropolymers plant killing two employees and seriously injuring two.
The explosion involved tetrafluoroethylene (TFE), a flammable gas used to make several fluorocarbon resins, including polytetrafluoroethylene resin.
The TFE escaped from a pipeline, but is still under investigation as to whether it leaked from the pipe or burst from a safety valve.
[burns, fatality, fire - consequence, leak, injury]

Lessons

[None Reported]

1237429 April 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, MARCH 2000,; FIRE PREVENTION, JAN 2000, (328), 40
Location : Staffordshire, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a storage yard storing plastic pipes. The fire caused an estimated damage of £750,000 (1999).
The yard contained polyethylene and PVC pipes stacked at heights of 2-6 metres.
Fire fighters and fork lift truck drivers created a fire break between stored stock.
An investigation into the incident found a carelessly discarded cigarette-end in a rubbish bin and the subsequent ignition of a plastic pipe was the most likely cause of the fire.
[fire - consequence]

Lessons

[None Reported]

1200019 April 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred on a catalytic reforming unit at a refinery. No one was injured. The company is assessing the environmental impact.
[fire - consequence, reactors and reaction equipment]

Lessons

[None Reported]

1147412 April 1999

Source : CHEMICAL WEEK, APRIL 21, 1999.
Location : Los Angeles, USA

Injured : 1 **Dead :** 0

Abstract

A small flash fire occurred at a refinery causing a maintenance worker to suffer second and third degree burns. The fire occurred during routine maintenance. [fire - consequence]

Lessons

[None Reported]

1299801 April 1999

Source : LOSS PREVENTION BULLETIN, 147, 27,; BBC NEWS, 2 APRIL, 1999, (http://www.bbc.co.uk).
Location : , IRELAND

Injured : 0 **Dead :** 0

Abstract

A fire occurred at plant releasing toxic fumes into the atmosphere and forcing the evacuation of approximately 700 nearby residents. The blaze badly damaged the plant. Fortunately no one was injured in the incident.
[fire - consequence, damage to equipment]

Lessons

[None Reported]

11996April 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, JULY 1999.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred on a hydrocracker unit at a refinery. There were no injuries and the fire was controlled within two hours.
[fire - consequence, refining]

Lessons

[None Reported]

8099 28 March 1999

Source : ICHEME
Location : , USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at the start of a routine gasoline wash operation of lines containing concentrated TEL fluid. The vent valve inside an enclosed ethyl blending building was inadvertently left open by the operator. The enclosed transite building housed an 8,500 gal weigh tank, scales, eductor, eductor pump and manifold. TEL and gasoline were pumped through the vent line and spilled down on to the transite road. Ignition occurred from an unknown source and the resulting fire caused significant damage to about three quarters of the building transite. The fire was brought under control and extinguished in approximately 35 minutes with no loss of TEL fluid from the storage tanks. Repair work commenced soon after the fire and 3 days later, blending was done from the reserve tank.
[fire - consequence, damage to equipment, operational activities, unidentified cause]

Lessons

The source of ignition is unknown but evidence points to it being immediately outside the front (east) door. Possible sources such as the operator's jeep, another passing vehicle, faulty electrical fixtures, an enclosed light over the doorway, the air-purged instrument panel just inside the front door, several motors inside the building and static electricity have all been considered but no particular reason was pointed at.
Through discussion with TEL suppliers, it was concluded that the following revisions should be made:
1. Relocate vent line from a point just above valve No.12 out through the building to a point a safe distance away. The lateral piping would be installed at a sufficient angle to avoid low spots in the line.
2. Relocate eductor pump to minimise hazards which would occur in the ethyl building from leakage at the pump.
3. Ventilation in the ethyl building will be improved as much as possible.
4. Fire protection - an investigation to determine the feasibility of a fail-safe interlocking device to prevent operation of the gasoline wash valve unless vent valves are closed.

1299925 March 1999

Source : LOSS PREVENTION BULLETIN, 147, 27,; REUTERS NEWS.
Location : California, USA

Injured : - **Dead :** 0

Abstract

An explosion occurred on a hydrocracking unit at a refinery sending towering flames and thick black smoke billowing into the atmosphere.
The explosion occurred in the isomax unit, which processes heavy fuels into gasoline and jet fuel.
Nearby residents were warned to stay inside their homes as fire fighters struggled to control the fire.
[hydrocracker, fire - consequence, processing, gas / vapour release]

Lessons

[None Reported]

1053624 March 1999

Source : BBC NEWS, MAR 23, 1999,
(http://www.bbc.co.uk).

Location : France, Italy, EUROPE

Injured : 30+ **Dead :** 30+

Abstract

A road transportation incident. A fire broke out on board a food truck carrying flour and margarine whilst being driven through a tunnel linking France and Italy.
At least 30 people are reported to have been killed.
Thick smoke trapped about 30 people inside the tunnel, they sought refuge in an emergency tunnel and were later evacuated.
The driver of the truck was unhurt.
[fire - consequence, fatality, evacuation]

Lessons

[None Reported]

1052324 March 1999

Source : YAHOO NEWS, MAR 24, 1999, (http://www.yahoo.com).
Location : Central Iowa, USA

Injured : 1 **Dead :** 1

Abstract

A road transportation incident. A fatal collision between two semi-trucks disrupted traffic on the westbound lanes of an interstate in Central Iowa for nearly 12 -hours.
The driver of one semi was killed when his truck slammed into the rear of another semi. The second truck began to burn when oil in the chocolate it was carrying caught fire. The accident closed down a ten-mile stretch of the interstate until the road was re-opened the next day.
[fire - consequence, fatality]

Lessons

[None Reported]

1245322 March 1999

Source : FIRE PREVENTION 331, APRIL 2000.
Location : Bournemouth, Dorset, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a factory totally destroying the building. An investigation into the incident found that the most likely cause was due to either an electrical fault or was started deliberately.
Estimated loss is thought to be £450,000 (1998).
[fire - consequence, damage to equipment]

Lessons

[None Reported]

1052219 March 1999

Source : YAHOO NEWS, MAR 20, 1999, (http://www.yahoo.co.uk).
Location : Offshore, SCOTLAND

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. A marine tanker carrying flammable chemical fluids caught fire off the northern coast of Scotland, rousing fears of an ecological disaster.
Some 200 residents of two tiny villages were evacuated as the vessel caught fire and drifted just off the rocky coastline.
The tanker was carrying 1,750 tonnes of potentially explosive vinyl acetate which is used in the manufacturing of paints and adhesives, 76 tonnes of bunker fuel and 20 tonnes of fuel oil.
The engine room was sealed and power shut down when the fire was first reported, causing the 102 metre vessel to drift in high winds and stormy seas before being stopped by its anchor less than half a mile from the coastline. The ships captain stayed on board for three more hours, whilst the rest of the crew were airlifted to safety, to set up tow lines, drop anchor and flood the compartment separating the fire from the explosive cargo.
The vessel was eventually towed to a safe haven and the fire was successfully put out.
[evacuation, fire - consequence, near miss]

Lessons

[None Reported]

1051917 March 1999

Source : BBC NEWS, MAR 17, 1999,
(http://www.bbc.co.uk).

Location : Chicago, USA

Injured : 120+ **Dead :** 14+

Abstract

A rail transportation incident. A passenger train derailed when it collided with a road truck on a crossing.
Several carriages derailed and burst into flames after the train crashed into the tractor trailer, which was carrying a heavy load of steel.
More than 200 passengers were on the train.
Investigations are being made into whether the gates and lights at the crossing were working at the time of the incident.
[derailment - consequence, collision, road transport, fire - consequence, explosion, fatality]

Lessons

[None Reported]

1187415 March 1999

Source : CNN.COM, U.S. NEWS, SEPTEMBER 13, 1999, (http://www.cnn.com),; CNN.COM, U.S. NEWS, SEPTEMBER 14, 1999, (http://www.cnn.com).
Location : Bourbonnias, USA

Injured : 11 **Dead :** 122

Abstract

A rail transportation and road transportation incident. A collision between a passenger train and a road truck occurred on a railroad crossing, killing 11 passengers and injuring 122. The crash derailed several cars behind the locomotives. Many of the dead were in a sleeping car which was totally destroyed by a diesel fire. It is not yet known the exact cause of the incident.
The crash caused more than £14 million (1999) in damage.
[derailment - consequence, fire - consequence, damage to equipment, fatality, injury]

Lessons

[None Reported]

1052423 February 1999

Source : CHEMICAL ENGINEERING, MAR, 1999,; LOSS PREVENTION BULLETIN, 146, 24.
Location : Martinez, California, USA

Injured : 1 **Dead :** 4

Abstract

A fire occurred in a distillation unit at a refinery. The unit was shutdown.
Four workers were killed and the other was critically injured when a fireball engulfed them while they attempted to repair a leak in a pipe containing highly flammable naphtha.
[fire - consequence, refining, fatality, burns, injury]

Lessons

[None Reported]

1245217 February 1999

Source : FIRE PREVENTION 331, APRIL 2000.
Location : Oxfordshire, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a factory. The fire started in two large waste containers, which then spread to the plastic windows of the main roller shutter door. Hanging plastic strips located behind the door were also ignited causing the fire throughout the contents of the factory.
The factory contained electrical components packed in polystyrene and cylinders of compressed gas containing nitrogen, oxygen, helium, halon or hydrogen. One cylinder started to vent forcing all personnel to evacuate the building. Eventually the venting stopped and crews were able to isolate and begin damping down procedures.
An investigation into the incident found it unlikely that hot or burning materials were placed in the containers accidentally.
It is thought that the most likely cause was due to deliberate ignition. Estimated loss is thought to be £1,176,000 (1999).
[fire - consequence, evacuation, damage to equipment, storage]

Lessons

[None Reported]

1102611 February 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE, 1999, ISSN 0265-5271,; FIRE PREV, APR 1999, (319), 5.

Location : , USA

Injured : 1 **Dead :** 0

Abstract

A flash fire occurred in a sewer at a refinery injuring a worker.
[fire - consequence, drains & sewers, injury]

Lessons

[None Reported]

1102711 February 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE, 1999, ISSN 0265-5271,; FIRE PREV, APR 1999, (319)5.

Location : , IRELAND

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a zinc mine blocking the exit and trapping a hundred miners underground for several hours.
The miners waited at underground holding stations which had access to good air.
[fire - consequence, operational activities, mining]

Lessons

[None Reported]

1051703 February 1999

Source : BBC NEWS, FEB 3, 1999,
(http://www.bbc.co.uk).

Location : Scilly Isles, OFFSHORE, UK

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. Eleven crewmembers were lifted off an oil rig supply vessel which caught fire 180 miles south of the Scilly Isles. The fire started in the engine room and is believed to have been put out by the ship's carbon dioxide system.
[offshore, fire - consequence]

Lessons

[None Reported]

1137902 February 1999

Source : THE CHEMICAL ENGINEER, FEB 1999,; LOSS PREVENTION BULLETIN 146, 24,; THE CHEMICAL ENGINEER, 11 FEBRUARY, 1999.
Location : , SCOTLAND

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred at an antibiotics manufacturer destroying a three storey building. The explosion is believed to have originated in a drying unit which involved solvents and steam, no pharmaceutical products were involved.
[drier, fire - consequence]

Lessons

[None Reported]

1053501 February 1999

Source : BBC NEWS, FEB 2, 1999,
(http://www.bbc.co.uk).,; CHEMICAL HAZARDS IN INDUSTRY, JANUARY 2000.

Location : Michigan, USA

Injured : 14 **Dead :** 6

Abstract

An explosion and fire occurred in a motor manufacturing plant. Six people were killed and fourteen others were critically injured when an explosion ripped through the generating station at the plant. Hours after the fire began, thick toxic smoke bellowed from the station and spread to other parts of the plant, which at the time of the incident had 4,000 workers on site. The blast cut off all power.
A seven month investigation into the incident found that a build up of natural gas in the furnace chamber after shutdown was the cause of the explosion.
The company was fined $7 million (2000).
[fire - consequence, fatality, power plant, boiler explosion, process causes, injury, toxic fumes]

Lessons

[None Reported]

10591February 1999

Source : YAHOO NEWS, FEB 9, 1999, (http://www.yahoo.co.uk).
Location : , UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a uranium depot. Nearby residents were advised to stay in doors after the blaze swept through a building containing uranium.
No evidence was found of any release of uranium.
[fire - consequence, radioactive]

Lessons

[None Reported]

1298013 January 1999

Source : LOSS PREVENTION BULLETIN 145, 24.
Location : Arkansas, USA

Injured : 3 **Dead :** 3

Abstract

An explosion occurred at an oil refinery killing three people and injuring three others. The explosion occurred as cleaning crew from an independent contractor was working on a valve on a naphtha tank.
All runoff from the foam used to extinguish the fire and water to cool down other tanks had been contained. No harm came to the environment.
[fire - consequence, injury]

Lessons

[None Reported]

1082313 January 1999

Source : ICHEME
Location : , GERMANY
Injured : 0 **Dead :** 4

Abstract

An air transportation incident. A military refuelling plane carrying 18,000 litres of fuel burst into flames upon crashing in a wooded area near a Dutch boarder, killing all four crew members.
It took more than 100 fire fighters approximately three hours to extinguish the burning plane.
[fire - consequence, explosion, aviation fuel, fatality]

Lessons

[None Reported]

1188013 January 1999

Source : CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.
Location : , UK

Injured : 0 **Dead :** 0

Abstract

A company was fined on several occasions, the first occurred on 13 January 1999, when an uncontrolled chemical reaction caused a fire at a chemical plant. The company was fined £15,000 (1999).
The second incident occurred on 20 January 1999, a gas release incident. The company was fined £10,000 (1999).
The third incident occurred when special waste, mixed in a skip, reacted to produce a cloud of steam and formaldehyde causing environmental pollution and harm to human health. The company was fined £15,000 (1999). Employees from an adjacent comapany suffered breathing difficulties and eye irritation.
[unwanted chemical reaction, fire - consequence, gas / vapour release, people]

Lessons

[None Reported]

1082604 January 1999

Source : CHEMICAL WEEK, JANUARY 13, 1999.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

A small fire broke out in the finishing area of a polyethylene plant. The fire was extinguished by the in plant emergency response team, the plant was returned to normal service within 12 hours. No injuries or chemical released were reported. The cause of the fire is being investigated.
[fire - consequence, processing, near miss]

Lessons

[None Reported]

2113 1999

Source : CHEMICAL HAZARDS IN INDUSRY, OCTOBER 1999,; LOSS PREVENTION BULLETIN, 147, PAGE 15-16.

Location : ,

Injured : 0 **Dead :** 0

Abstract

A fire occurred on two separate offshore compressor stations on the same day. Considerably damage occurred to the electrical systems. Purge gas was ignited in both incidents by static generated by a snow-storm. Fires occurred later on, in the power turbine exhaust compressor units. Venting, in one case, caused a severe increase in the stack flame such that the crew had to take shelter.
[fire - consequence, damage to equipment, weather effects, fuel gas]

Lessons

The following recommendations were made:
1. Investigation of the reliability of fuel gas supply.
2. Improvement in the instrument air supply.
3. Check unit vent valves.
4. Review choice of actuators and location of systems under winter conditions and reconsidering certain venting and staffing issues.

128871999

Source : ICHEME
Location : ,
Injured : 0 **Dead :** 0

Abstract

A fire occurred in a vacuum bottoms tank when the roof weld joint failed spilling hot oil in the surrounding dike/bund.
The most probably cause of the weld failure was due to a minor internal explosion or overpressure due to the ignition of flammable vapour by pyrophoric deposits. The tank contents were at an unusually high temperature at the time.
[fire - consequence, overpressurisation, oil - hot]

Lessons

[None Reported]

128771999

Source : ICHEME

Location : ,

Injured : 0 **Dead :** 0

Abstract

Lightning struck two open-top floating roof tanks containing crude oil causing extensive rim seal fires.
The fire was eventually extinguished by using foam and water.
No injuries occurred in the incident.
Damage is estimated at approximately US$1 million (1999) and cost of foam US$114,600 (1999).
[fire - consequence, storage tanks]

Lessons

[None Reported]

128601999

Source : QUARTERLY SAFETY SUMMARY, 1976, VOL.47, NO's. 185, 186,; CHEMICAL HAZARDS IN INDUSRY, OCTOBER 1999,; LOSS PREVENTION BULLETIN 147, PAGE 17.

Location : ,

Injured : 0 **Dead :** 0

Abstract

A monomer charge pump casing ruptured at the joint whilst out of service and unattended on a vinyl chloride monomer (VCM) tank farm. A release of liquid and vapour occurred and explosively ignited.
Many of the possible causes include, accidental starting of the pump when liquid filled and valved off, or the decomposition of instable compounds, or internal vapour/air ignition, the probable one was considered to be a combination of overpressurisation due to liquid VCM expansion in a completely full and leak tight system coupled with a weakened case joint due to over-tightened replacement mild steel studs in weakened holes where high tensile stud should have been fitted.
[gas / vapour release, explosion, fire - consequence]

Lessons

The following recommendations were made:
1. Regular maintenance and corrosion inspections to be carried out.
2. Improvements to operational practice, plant management and Hazop were sugested.

124341999

Source : ICHEME
Location : ,
Injured : 0 **Dead :** 0

Abstract

An explosion occurred in an acid relief neutraliser vessel of an HF alkylation plant. The explosion blew off the top section of the vessel rupturing process and flare lines, the section landed in a pipe bridge some 40 metres away causing damaged to process and utility lines. Fire broke out at both locations.
Amongst the severed lines was the reboiler return line of the main fractionator, causing this column to depressurise into the fire. The failure of utility lines in the pipe track led to the loss of fuel gas, instrument air pressure and cooling water, which in turn led to a cascaded shutdown of the refinery.
No major injuries occurred in the explosion or in the fire fighting effort.
The situation was brought under control in 4 hours and all fires were extinguished in 6 hours. Approximately 5 tonnes of the HF (hydrofluoric acid) inventory was lost to the environment. This loss is thought to have come from the severed reboiler return line because the main fractionator lost pressure and reverse flow occurred in parts of the plant. The firewater absorbed the spilled HF.
Sodium bicarbonate was added to the out-fall canal and helped to control the pH of the effluent water. No damage to the environment has been recorded.
The damage to the equipment by the explosion and subsequent fires was considerable. The refinery was shutdown for 2 weeks and it took 3 months to repair and re-start the alkylation plant.
[damage to equipment, fire - consequence, plant shutdown, processing, mechanical equipment failure]

Lessons

[None Reported]

1044909 December 1998

Source : 1998 REUTERS LIMITED.
Location : , INDIA

Injured : 2+ **Dead :** 50

Abstract

A road transportation incident. Fifty people died when an overcrowded bus hit an oil tanker. The petrol from the tanker caught fire, causing an explosion. Two of the six people who managed to escape from the bus by jumping through the rear door were injured.
The oil tanker driver sustained burn injuries.
[road tanker, fire - consequence, fatality, burns, collision, gasoline, injury]

Lessons

[None Reported]

1232404 December 1998

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 29 JULY, 1999, (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration.

Location : Port Comfort, Texas, USA

Injured : 35+ **Dead :** 0

Abstract

An explosion and fire occurred at a chemical plant, injuring at least 35 people. The incident occurred when a processing tank exploded for unknown reason. An investigation is being carried out.
[fire - consequence, injury, unidentified cause]

Lessons

[None Reported]

11884December 1998

Source : CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.
Location : Pennsylvania, USA

Injured : 0 **Dead :** 2

Abstract

Workers were using a welding/cutting torch in an aerial lift when flammable materials seeped out of a pipe and were ignited by the torch. Two workers died. [leak, fire - consequence, fatality]

Lessons

[None Reported]

1044126 November 1998

Source : CNN.COM, U.S. NEWS, 1998,
(http://www.cnn.com).
CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 99-05-1-WA (http://www.chemsafety.gov).
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Location : Washington State, USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred in a coker of a refinery after a power failure which was caused by recent wind storm. The fire was quickly extinguished.
[fire - consequence, refining, strong winds, electrical equipment failure]

Lessons

[None Reported]

1249818 November 1998

Source : BBC NEWS, NOVEMBER 18, 1998, (http://www.bbc.co.uk).
Location : , UK

Injured : 1 **Dead :** 0

Abstract

An explosion and fire occurred at a fireworks factory forcing nearby residents to be evacuated.
The fire sparked off several explosions inside the building, which were followed by a major explosion.
[fire - consequence, evacuation, injury]

Lessons

[None Reported]

1232718 October 1998

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 29 JULY, 1999, (http://www.chemsafety.gov).
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Location : Moses Lake, USA

Injured : 4 **Dead :** 2

Abstract

An explosion and fire occurred at a silicon materials plant. The incident occurred when a six-inch pipe ruptured. Two people were killed and four others were injured.
[fire - consequence, material of construction failure, fatality, injury]

Lessons

[None Reported]

1232616 October 1998

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 29 JULY, 1999, (http://www.chemsafety.gov).

Location : Trainer, USA

Injured : 0 **Dead :** 0

Abstract

A 55-foot tank containing approximately 16,000 barrels of jet fuel exploded and burned at a refinery.
Approximately 700,000 gallons of fuel burned for more than four hours before being brought under control.
No deaths or serious injuries were reported.
[explosion, fire - consequence, refining]

Lessons

[None Reported]

1232913 October 1998

Source : CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD, 14 OCTOBER, 1999, (http://www.chemsafety.gov).
Disclaimer: The Chemical Incident Reports Center (CIRC) is an information service provided by the U.S. Chemical Safety and Hazard Investigation Board (CSB). Users of this service should note that the contents of the CIRC are not intended to be a comprehensive listing of all incidents that have occurred; many incidents go unreported or are not entered into the database. Therefore, it is not appropriate to use the CIRC database to perfrom statistical analysis that extends conclusions beyond the content of the CIRC. Also, although the CSB never knowingly posts inaccurate information, the CSB is unable to independently verify all information that it receives from its various sources, much of which is based on initial reports. CIRC users should also note that the CSB receives more comprehensive reports about incidents that occur in the U.S.; comparisons made between U.S. incidents and those in other nations should take this fact into consideration,;
CHEMICAL HAZARDS IN INDUSTRY, JANUARY 1999.

Location : Baltimore, USA

Injured : 5 **Dead :** 0

Abstract

An explosion and fire occurred at a chemical plant resulting in the release of benzene and hydrochloric acid. Five people were injured in the incident. Most suffered severe burns; one employee suffered back injuries after falling 30 feet.
The explosion is thought to have occurred in a 3000 gallon reactor in the alkylation unit during routine maintenance. Sediment is believed to have remained in the tank despite having been purged of benzene and hydrochloric acid.
[fire - consequence, reactors and reaction equipment, spill, design or procedure error, injury]

Lessons

[None Reported]

1123911 October 1998

Source : FIRE PREVENTION 325, OCTOBER 1999.
Location : Northamptonshire, UK

Injured : 6 **Dead :** 0

Abstract

A fire occurred at a plastics factory. The purpose built factory manufactured and stored plastic bottles for the food industry.
The building was evacuated and six people were taken to hospital, suffering from the effects of smoke inhalation.
It is thought that the fire was started deliberately by an unknown person.
[fire - consequence, deliberate acts, processing, storage, evacuation, injury]

Lessons

[None Reported]

11955October 1998

Source : CNN.COM, U.S. NEWS, OCTOBER 9, 1998, (http://www.cnn.com).
Location : , USA

Injured : 6 **Dead :** 0

Abstract

An explosion and fire occurred at a computer plant sending poisonous fumes into the atmosphere. Six people were injured.
The fire released a cloud of silicon tetrachloride gas, which can burn the skin and eyes on contact and burns internally if inhaled.
The fire was immediately extinguished and the gas release contained.
[fire - consequence, gas / vapour release, processing, injury]

Lessons

When silicon tetrachloride gas comes in contact with air, it dissipates into fume silica, a sand like material and hydrogen chloride.

11478October 1998

Source : BBC NEWS, MAY 10, 1999,
(http://www.bbc.co.uk).

Location : , OFFSHORE

Injured : 2 **Dead :** 0

Abstract

An explosion occurred on an oil platform injuring two men. The mechanics were installing a pump and motor unit when flammable gases near a drain ignited causing an explosion and fire in which both men suffered burns. The explosion possible resulted from static electricity igniting the gases.
It took 30 minutes to extinguish he blaze but damage to the platform was minor.
The company was fined £20,000 (1999).
[fire - consequence, exploration, offshore, maintenance, injury]

Lessons

[None Reported]

1033225 September 1998

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.
Location : Botany Bay, AUSTRALIA

Injured : 0 **Dead :** 0

Abstract

A fire started after a toxic gas leak of ethylene peroxide and polythene occurred during re-start after a maintenance shutdown. This was the third leak in as many weeks, the previous leaks were butane. All eight of the site plants were on a four year maintenance shutdown.
[fire - consequence, start-up, polyethylene]

Lessons

[None Reported]

1140025 September 1998

Source : ICHEME
Location : , AUSTRALIA
Injured : - **Dead :** 0

Abstract

A series of explosions occurred on the Rich Oil Demethaniser (ROD) of a gas plant. Several explosions continued over a period of about one hour.
The explosions were caused by a release of approximately 10 tonnes of gas and oil from a catastrophic failure that occurred on the ROD bottoms reboiler. The overall loss was 25 tonnes. The vapour cloud was believed to have been ignited at its leading edge which reached operational gas-fired heaters some 130 meters away. The reboiler shell-and-tube heat exchanger functioned normally to heat incoming rich oil on the tube-side by using the heat given-up by lean oil leaving the distillation column and passing through the shell side. Prior to the event the heat exchanger was not functioning properly. It was believed to have been operating with broken tubes allowing rich and lean oil to mix and cause upset to the distillation process. Consequent upon this and other problems the heat exchanger had been allowed to cool to -48 degrees C compared with a normal temperature of 100 degrees C. This temperature drop threatened the integrity of the steel of the reboiler. It is further believed that the actual cause of failure of the reboiler was a short duration surge of hot lean oil pumped into the heat exchanger during one of the many attempts to get some pumps working again. A large number of failures in the operation of the plant was reported.
The official report on the accident concluded that the basic cause was the failure of a weld in the steel of the heat exchanger as a result of low temperature embrittlement and thermal shock caused by a short-duration flow of hot oil into the cold vessel. The underlying cause was inadequacy of training of personnel, the inadequacy of operating procedures and the absence of adequate formalised risk assessment.
[fire - consequence, evacuation, methane, ethane, propane, butane, oil, reboiler, low temperature, management system inadequate, separation, separation equipment]

Lessons

The report stated the following conclusions and lessons:
1. The loss of lean oil circulation was caused when pumps stopped depriving the plant of its heat source which caused the temperature to drop dramatically and to remain some time. This threatened the integrity of the plant.
2. Brittle fracture occurred at a weld possibly caused by a hot lean oil flow.
3. Correct actions following the failure of the pumps would have averted the accident by preventing the hot oil surge. The operators nor the supervisors had knowledge of the effect of cold temperatures. This was attributed to inadequate training.
4. If a HAZOP had been conducted as intended rather than postponed, the hazards evident on the day would have been understood in advance and operating procedures and training would have provided for appropriate responses.
5. Lack of training contributed to the accident.
6. A cold temperature incident that occurred on the 28 August 1998, did not cause or contribute to the accident but had this incident been properly reported and acted upon, the accident could have been averted.

1278622 September 1998

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000,; PPCJ, POLYMERS, PAINT, COLOUR JOURNAL, OCT 1998, 188(4409), 5.
Location : Staffordshire, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a fine chemicals facility damaging a pumphouse and outside storage. No one was injured in the incident.
An investigation into the fire is being carried out but it is thought that a possible cause may have been due to the ignition of one of eight organic chemicals.
[fire - consequence, damage to equipment]

Lessons

[None Reported]

1245422 August 1998

Source : FIRE PREVENTION 331, APRIL 2000.
Location : Gilberdyke, Humberside, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a factory warehouse where waste rubber was processed and remoulded into tyres.
At the time of the incident a worker was welding a bracket in a metal container and had burned through the container's metal wall, which resulted in sparks and molten metal falling onto the floor. The sparks and molten metal ignited diesel residue under an adjacent tank. The building was destroyed in the fire.
Estimated loss is thought to be £810,000.
[fire - consequence, damage to equipment, metal - molten]

Lessons

[None Reported]

1290902 August 1998

Source : ICHEME

Location : ,

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a refinery when a crude splitter pump around line ruptured due to sulphidation corrosion. The rupture released hydrocarbons with a composition from naphtha to diesel. The pump around stream was released as a vapour with an ensuing fire jet ignited by autoignition. The fire caused subsequent ruptures in the main fractionator and other equipment.
No one was injured.
[fire - consequence, gas / vapour release, damage to equipment, refining]

Lessons

[None Reported]

1164601 August 1998

Source : HERTFORDSHIRE COUNTY COUNCIL, FIRE & RESCUE SERVICE. (http://www.fire-uk.org)
Location : Furneux Pelham, Hertfordshire, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a local factory used for manufacturing timber goods. The fire occurred within a dust extraction and saw mill building, resulting in both the building and several nearby stacks of timber to be engulfed in flames by the time fire crews arrived. A severe shortage of water at the remote locality hampered fire fighting efforts and necessitated a regular shuttling of water from a local supply. Nevertheless, by 02:40 hrs the fire was under control, tackled using three jets and nine sets of breathing apparatus.
[fire - consequence, solids processing equipment, damage to equipment, product loss]

Lessons

[None Reported]

1043928 July 1998

Source : CNN.COM, U.S. NEWS, 1998, (http://www.cnn.com).

Location : Indiana, USA

Injured : - **Dead :** 0

Abstract

A huge explosion and fire which rocked a coal fired electric generating station injuring several people.
Heavy black smoke and flames rose from the large steel-framed building.
A power surge was reported at various northern parts of the area about the time of the blast.
[fire - consequence, injury]

Lessons

[None Reported]

868 02 July 1998

Source : ICHEME
Location : , UK

Injured : 0 **Dead :** 0

Abstract

A cooling tower, on an ethylene plant, had been prepared for person-entry. A fitter noticed paint blistering near to the middle entry door.
The emergency services played water onto the tower externals until temperatures fell to 150 degrees C then the tower was repurged with nitrogen.
Prior to the incident, the tower had been purged with nitrogen, then steam purge to remove traces of hydrocarbons, and cooled. An air purge was then used to assist cooling, and the last (middle) of three entry doors removed. It was whilst removing this door that the blistering paint was noticed.
[pyrophoric carbon, iron sulphide, fire - consequence, autoignition]

Lessons

The tower had been shut down to investigate, and remove, blockages of coke and polymer. The coke is carried forward from upstream furnaces, and the polymer forms within the tower during normal operations. Before shutdown, several wash solutions, including xylene, were used to attempt to dissolve the polymer. None of these were successful in removing the blockage so a decision to open up the tower was taken.
Laboratory tests showed that washing with xylene produced fine, sooty carbon deposits that were self-heating in air at the temperatures in the tower. There could then self-ignite at 185 degrees C.
Also, traces of finely divided iron sulphide, also present in the xylene wash sampler, can be pyrophoric.
Either of these mechanisms could have let to glowing-hot sooty carbon, which then ignited the larger coke particles on the tower trays.
Manufacturing managers were recommended to review procedures for cleaning and opening (to air) equipment, containing material of a pyrophoric nature.
An outline procedure was developed, and referred to in the Report.
However, the procedure itself, was not included in the report received.

10272July 1998

Source : CNN.COM, U.S. NEWS, 28 JULY, 1998, (http://www.cnn.com).
Location : Chicago, USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred on a coal fired electric generating station. Emergency crews were on the scene as heavy black smoke and flames rose from the large steel framed building.
A power surge was reported at various points within the area at the time of the blast.
The cause of the incident may have been due to coal dust and at the time of the incident an outside cleaning contractor was vacuuming in the area where possible ignition may have occurred.
[fire - consequence, dust explosion]

Lessons

[None Reported]

9419 06 June 1998

Source : FIRE PREVENTION 325, OCTOBER 1999.
Location : Wales, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a factory. It is thought that the fire was started accidentally by an undetected spark or molten material coming into contact with the exposed timber chipped composite board. This occurred when the contractors used abrasive cutting equipment to remove steel reinforcing bars from the concrete in their preparation work to fit a new hopper.
[fire - consequence, maintenance, hot work]

Lessons

[None Reported]

1265005 May 1998

Source : ENGINEERS AUSTRALIA, JANUARY 2000.
Location : , AUSTRALIA

Injured : - **Dead :** 4

Abstract

A marine transportation incident. A fire occurred onboard a ship when diesel fuel leaked from a burst flexible hose onto a hot engine component in the main machinery space. Four people were killed in the incident.
[fire - consequence, hose failure, hot surface, fatality]

Lessons

[None Reported]

1044022 April 1998

Source : CNN.COM, U.S. NEWS, 1998, (http://www.cnn.com).

Location : Montreal, CANADA

Injured : 35 **Dead :** 0

Abstract

An explosion and fire occurred at an automobile brake pad plant injuring 35 workers. One person was badly burned when an oven exploded, other injured workers complained of breathing difficulties and nervous shock. The explosion did not damage the exterior of the one-storey brick building.
[fire - consequence, burns, processing, injury]

Lessons

[None Reported]

1060608 April 1998

Source : ICHEME

Location : ,

Injured : 0 **Dead :** 0

Abstract

A diesel fire occurred on a production platform as operators were filling the diesel tank for the essential generator. The operator noticed that it was taking too long to fill the diesel tank and began to check for a problem. He found that the float indicator on the diesel tank cover was reading three quarter full. He removed the level gauge to determine the exact fuel level which resulted in fuel spraying into the generator enclosure. The diesel oil contacted the generator exhaust which ignited the fuel.

The cause of this incident is related to the design of the fuel tank and filling system. The safe filling procedure relied entirely on the mechanical level gauge and the operators ability to judge when the tank was full. The design faults are as follows:

1. Inadequate level indication on the tank.
2. No high level alarm or switch.
3. No overfill protection to shut-off pump.
4. Gauge connection located inside enclosure.

[fire - consequence, material transfer, design inadequate, mechanical equipment failure]

Lessons

[None Reported]

1207321 March 1998

Source : FIRE PREVENTION 325, OCTOBER 1999.
Location : Wales, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a plastic factory. The fire brigade were called when a small fire was discovered in some scrap fibreglass.
Two workers attempted to extinguish the fire using carbon dioxide and a powder extinguisher. The premises were evacuated.
By the time the fire brigade had arrived, acetone and fibreglass resin stored on the premises were producing toxic gases, intensifying the fire and smoke.
Severe damage occurred to the building.
It is thought that a spark from welding equipment being used by workers had ignited a fibreglass drum.
[fire - consequence, evacuation, gas / vapour release]

Lessons

[None Reported]

1041404 March 1998

Source : LOSS PREVENTION BULLETIN, 140, 23.; CONGLETON CHRONICLE, 6 MARCH 1998.; CONGLETON CRONICLE, 5 MARCH 1998.
Location : , UK

Injured : 0 **Dead :** 0

Abstract

An explosion occurred in a grain hopper, located within a mill building. The employees working in the mill at the time of the explosion all escaped without injury. Witnesses reported flames and clouds of blue-black smoke being emitted from the mill building after the explosion, which sent debris over a wide area around the mill, including the railway line, which was temporarily closed while checked for any damage caused to the track by flying debris.
[silo/hopper, damage to equipment, milling, fire - consequence, solids processing equipment]

Lessons

[None Reported]

1059819 February 1998

Source : ICHEME
Location : , UK

Injured : 1 **Dead :** 0

Abstract

A packed section of a column which had been steamed and water washed caught fire causing damage in excess of $200,000 (1998). "Smoke" was seen issuing from the top manway, emergency services were called to supply extra water and the majority of manways were closed.
The following causes were found:
1. Air ingress into the VDU main column through opened manways triggered a pyrophoric reaction, even though the packed bed temperatures were measured at below 40 degrees C.
2. Probably poor distribution of cooling water leaving some sections of the packed bed unwashed.
3. Existing thermocouples and other monitoring arrangements were insufficient to detect local hot spots.
[fire - consequence, damage to equipment, design or procedure error]

Lessons

[None Reported]

1060731 January 1998

Source : ICHEME

Location : ,

Injured : 1 **Dead :** 1

Abstract

An explosion and flash fire occurred on the a drilling rig while drilling a well. The explosion on the drilling floor caused one injury and one fatality, both employees of the drilling contractor.

The investigation revealed that gas which broke out from the drilling mud collected in the enclosed space between the drill floor and the pollution pan used to prevent accidental discharge of oil based mud to sea. The gas was ignited by either stray currents or frictional sparks caused by metal parts from the floor covers and supports rubbing together.

It would appear that the basic cause of this incident was a failure in the design to recognise that by installing the collection pan, and thus creating a confined space, there was potential for gas to accumulate below the floor when the rotary motor was not operating providing ventilation for the enclosure.

There is no practical way to prevent gas breakout in the immediate vicinity of the pollution pan.

The rig is designed so that mud returns which do not immediately divert to the mud return line are captured here and drain to the return system.

[fire - consequence, fatality, design or procedure error, injury]

Lessons

The following recommendations from the report focus on preventing gas accumulation, and guarding against ignition possibilities:

1. Ensure that there is adequate ventilation below the drill floor to prevent gas accumulation during all operations.
2. Install gas detectors with visual and audible alarms to monitor gas below the drill floor.

9073 23 January 1998

Source : CNN.COM, U.S. NEWS, 1998, (http://www.cnn.com).
Location : Kuala Lumpur, MALAYSIA

Injured : 0 **Dead :** 0

Abstract

A large fire occurred in a rubbish dump on the outskirts of a city causing a thick cloud of acrid smoke to cover the area.
No casualties were reported.
[fire - consequence, gas / vapour release]

Lessons

[None Reprted]

1040218 January 1998

Source : LOSS PREVENTION BULLETIN, 139, 22.; CNN INTERACTIVE, 18 JANUARY 1998, (http://www.cnn.com).
Location : , RUSSIA

Injured : 5 **Dead :** 4

Abstract

A methane gas explosion at a coal mine killed at least four people, injured five and trapped some twenty five others.
The blast caused the shaft where the miners were working to collapse and set off a fire that raged throughout the day. Emergency crews had trouble extinguishing the blaze and navigating the debris to reach those trapped.
The explosion occurred during the overnight shift, when forty-nine miners were inside the mine at a depth of nearly 3000 feet.
[fire - consequence, fatality, injury, mining]

Lessons

[None Reported]

1109908 January 1998

Source : EAST ANGLIAN DAILY NEWS, 9 JANUARY, 1998.
Location : , UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred over four floors in a grain mill. Workers were evacuated and traffic held up as fire-fighters tackled the blaze.
When fire-fighters arrived they found about two tonnes of grain well alight in a silo. They had problems getting at the fire, and had to cut away sections of the silo and remove quantities of grain.
[fire - consequence, evacuation, silo/hopper]

Lessons

[None Reported]

1040304 January 1998

Source : LOSS PREVENTION BULLETIN, 139, 22.; THE CHEMICAL ENGINEER, 15 JANUARY 1998.
Location : ,

Injured : 1 **Dead :** 0

Abstract

One fire fighter was injured and 3000 people evacuated following a fire at a fertiliser plant. The fire burned for over sixteen hours before being brought under control. The cause is still unknown, however the two explosions which rocked the plant are thought to have involved propane gas tanks.
Fire fighters chose not to douse the flames due to the fear that runoff water would pollute the nearby river. The site contained chemicals including, methyl bromide, ammonium nitrate, paraquat, endosulphan and carbofuran and 400 tonnes of ammonia nitrate bagged on-site. A decision was made to let the fire burn out most of the pollutants before finally being extinguished.
[injury, unidentified cause]

Lessons

[None Reported]

9056 January 1998

Source : CNN.COM, U.S. NEWS, (http://www.cnn.com).
Location : Nevada, USA

Injured : 8 **Dead :** 3

Abstract

An explosion and fire occurred at a chemical plant which manufactures a variety of explosives and chemicals . 12 people were believed to have been inside the plant at the time of the explosions.
A second fire was being allowed to burn itself out amid that there may be more explosives at the plant and that there may be toxic vapours in the air. Because the plant is located in a rural, canyon area, no evacuations were necessary.
[fire - consequence, fatality, toxic fumes]

Lessons

[None Reported]

11883January 1998

Source : CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.
Location : Wales, UK

Injured : 12 **Dead :** 0

Abstract

An explosion and fire ball injured 12 workers at a plant. Contractors were working on roof trusses above the steel plant and steel production was being carried out when the incident occurred. A load of scrap metal was added to the process vessel when an explosion occurred. A fireball reached the men working on the roof. Two workers received 40% and 62% burns. It is thought that the cause of the incident was due to a bottle of liquid petroleum gas being included in the scrap bundle.
[fire - consequence, operation inadequate, processing, injury]

Lessons

[[None Reported]

9054 January 1998

Source : CNN.COM, U.S. NEWS, (http://www.cnn.com).
Location : Kentucky, USA

Injured : 1 **Dead :** 0

Abstract

A fire occurred at a fertiliser plant causing severe damage to the building and the evacuation of 2,500 people within two miles of the surrounding area. The basement of the plant contained 400 tonnes of ammonia nitrate and fears of applying water or foam to the fire which could create dangerous vapour clouds and cause a toxic run-off into the nearby river.
Firefighters avoided run-off by building an impromptu dike and plugging two underpasses and there were no toxic plumes or any odour reported.
[fire - consequence, damage to equipment, processing]

Lessons

[None Reported]

106021998

Source : ICHEME

Location : ,

Injured : 0 **Dead :** 0

Abstract

The failure of a crude tower re-circulating pump's mechanical seal assembly flange caused the escape of oil above its auto-ignition temperature. The resultant fire burned for over an hour before it was extinguished. Fire damage amounted to $340,000 (1998) with additional $670,000 (1998) for lost business opportunity.

The mechanical seal assembly flange is attached to the pump's casing by four nuts and studs.

Due to frequent start-up and shutdown of the hot oil pump (heating/cooling cycles) and the ambient to high temperature variant across the seal over a long period, the flange had loosened releasing oil to atmosphere.

[mechanical equipment failure, fire - consequence, high temperature, low temperature]

Lessons

1. Pumps handling hot oil above the auto-ignition temperature require high integrity mechanical seal arrangements and frequent vibration monitoring.
2. Remotely operated, emergency isolation valves and shutdown arrangements minimise damage/losses from hot oil pump fires.

106031998

Source : ICHEME

Location : ,

Injured : 0 **Dead :** 0

Abstract

During the removal of a 42 inch blind (after maintenance) on an overhead vapour line, fuel gas from the opened flange ignited, resulting in a flash fire.
Fortunately, seven contractors working at the scaffolding platform at the time escaped without injury.
Fuel gas had entered the tower from the flare and overhead drum. The source of ignition was considered to be the hot surface of the temporarily fixed halogen lights located directly
downwind. Steam was injected into the base of the tower to extinguish the flange fire.
The immediate cause of the flash fire was the removal of an isolation blind when there was flammable gas present (reverse flow of fuel gas from the flare system) with potential sources of
ignition nearby.
The basic causes were:
1. Inadequate control and coordination of the various activities that were being carried out simultaneously by the maintenance contractors and operations personnel.
2. Changes to plant conditions after the issue of a hot work permit for the removal of the blind (work on desalters, increase in fuel gas flow to flare).
3. Failure to thoroughly check the unit to identify potential remaining hazards for the deblinding tasks (tower open to flare, use of temporary non-flameproof equipment).
4. Failure to recognise the risks and prepare a written procedure in accordance with in-house rules.
[fire - consequence, design or procedure error]

Lessons

[None Reported]

124331998

Source : ICHEME
Location : ,
Injured : 0 **Dead :** 0

Abstract

An electrical fault occurred on oil filled switchgear in the main electricity intake substation of a chemicals plant. The fault resulted in a serious fire, which lasted for 2 hours and destroyed a section of a 3-section switchboard.
The incident eventually caused the loss of all electrical power to the site. The plant was shutdown.
Fortunately no one was injured.
The cause of the incident was due to an earth fault that occurred, probably in the cable box, downstream of a circuit breaker panel. This earth fault raised the voltage sufficiently to cause the failure of the centre-phase insulator between the busbar oil compartment and the circuit breaker oil compartment in panel 5 resulting in a second, more serious, busbar earth fault. This failure appears to be a random failure on a normally inaccessible component.
An investigation into the incident revealed that the key/key way clearances were too large and the torsional loads were carried by the dowel pin. The pin was overloaded and failed, and the half shaft blew out of the non return valve body.
The high energy of the arc (~7.7 MW), caused a severe over pressure in the circuit breaker oil tank which then burst and deposited the ignited oil in the cellar. The fire in the cable cellar, melted the glands on other cables, letting the cable box grease fall into the cellar, also providing fuel for the fire. The fire also caused the incomer panel cable box, which has oil filled cables, to fail resulting in even more oil deposited into the fire spreading in the basement.
[electrical equipment failure, plant shutdown, fire - consequence, damage to equipment, lack of earthing]

Lessons

[None Reported]

104151998

Source : LOSS PREVENTION BULLETIN, 140, 23.; CNN.COM, U.S. NEWS, 15 FEBRUARY 1998.
Location : ,

Injured : 150 **Dead :** 0

Abstract

A rail transportation incident. More than 150 people suffered burns, 120 critically, after huge flames swept through a crowd of people following the collision of two petroleum tanker trains.
Most of the people were soaked in petrol because, prior to the explosion, they were carrying buckets laden with petrol to and from their houses. Some witnesses suggested the source of ignition was a cigarette from one of the crowd.
The cause of the collision of the two trains is not immediately clear.
[fire - consequence, gasoline]

Lessons

[None Reported]

102791998

Source : CNN.COM, U.S. NEWS, 1998, (http://www.cnn.com).
Location : , USA

Injured : 15 **Dead :** 1

Abstract

A fire control system at a nuclear waste storage site was accidentally activated, killing one and injuring fifteen.
Maintenance work on electrical systems was being carried out when the fire suppression system, which uses carbon dioxide to snuff out flames by removing oxygen from the air, filled the room the workers were in with dangerous gas.
[fire - consequence, radioactive, safety equipment failure, fatality, injury]

Lessons

[None Reported]

1137129 December 1997

Source : LLOYDS LIST, 31 DEC, 1997.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred whilst drillers obtaining soil samples ruptured a pipeline carrying natural gas. Nearby business were evacuated and the road was closed off. [exploration, sampling, fire - consequence, evacuation, transportation]

Lessons

[None Reported]

1040725 December 1997

Source : LOSS PREVENTION BULLETIN, 139, 23.; THE CHEMICAL ENGINEER, 15 JANUARY 1998.
Location : Bintulu, Sarawak, MALAYSIA

Injured : 12 **Dead :** 0

Abstract

An explosion occurred in an air separation unit on a distillate plant. Several major pieces of plant equipment were found approximately 1.3 kilometres from the site of the explosion.
This explosion was consistent with airburst energy of approximately 36GJ, one of the largest ever land-bsed industrial explosions.
The explosion occurred in a cryogenic distillation column, which generates gaseous oxygen and was not related to the distillate synethesis process technology.
The explosive rupture of the column was caused by the massive runaway combustion of sections of the aluminium plate fin type main vaporiser, which is located in the bottom of the low-pressure column above a large inventory of liquid oxygen.
The aluminium is presumed to have been ignited by combustible material, probably formed from hydrocarbons originating from the inlet air, which are assumed to have accumulated undetected on the aluminium surface from the liquid oxygen circulation through the closed sections of the main vaporiser.
The exact mechanism by which the combustion was triggered is at present unknown, and is under detailed investigation.
The fire occurred in two of fourteen product tanks, which contained naphtha and kerosene.
[distillation, fire - consequence, cryogenic equipment]

Lessons

[None Reported]

1139817 December 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , AUSTRALIA

Injured : 6 **Dead :** 2

Abstract

A fire occurred whilst work was being carried out on oil storage tanks. The fire is believed to have been started by a spark from a welder
[fire - consequence, welding, fatality]

Lessons

[None Reported]

1139913 December 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , TAIWAN

Injured : 2 **Dead :** 3

Abstract

An explosion and fire destroyed an LPG tank and nearby gas oil and fuel oil pipelines. Cigarettes and a bottle of wine were found at the site.
[storage tanks, fire - consequence, fatality]

Lessons

[None Reported]

1040609 December 1997

Source : LOSS PREVENTION BULLETIN, 139, 22-23. THE CHEMICAL ENGINEER, 15 JANUARY 1998. CEEFAX, 9 DECEMBER.; CNN.COM, U.S. NEWS, 9 DECEMBER 1997.

Location : , GERMANY

Injured : 100 **Dead :** 0

Abstract

A rail transportation incident. A freight train and passenger train collided injuring some one hundred people, two critically.
Three tanker cars loaded with diesel exploded during the collision. Fire fighters took two hours to extinguish the flames, and prevented the fire from spreading to the remaining nineteen tanker cars on the freight train. The cause of the collision has not yet been identified.
[fire - consequence, explosion, injury]

Lessons

[None Reported]

1059506 December 1997

Source : ICHEME
Location : , POLAND
Injured : 0 **Dead :** 0

Abstract

A small fire occurred on the joint/gasket of a heat transfer oil line.
The fire was extinguished, the damage was estimated at $7,000 (1998). There were no injuries, product spillage or escalation of the fire.
It was later found that the joints/gaskets on the system were of the incorrect material for the hot oil duty.
Investigations into the cause of the incident confirmed that the fire started from a leaking joint/gasket on the ring side flange of a 20mm (three quarter inch) branch valve. This caused hot oil at 260 degrees C and 1.5 bar pressure to soak the insulation on the main heat transfer line.
Spontaneous ignition had most likely occurred as a result of oxidation of the heat transfer oil that had dispersed into the process insulating material.
[fire - consequence, heat transfer, damage to equipment, incorrect equipment installed, joint failure, gasket failure]

Lessons

It is not uncommon for oil soaked insulation to reach the auto-ignition temperature due to the oxidation and exothermic reaction. In this case, the auto-ignition temperature of the oil was 350 degrees C with a flash point of 208 degrees C.

1139002 December 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , CANADA

Injured : 0 **Dead :** 0

Abstract

A fire occurred when natural gas leaked from a 36 inch pipeline. Shutoff valves isolated the affected section and the gas fire burnt itself out.
The fire also ignited a small secondary stubble fire in a nearby field.
The cause of the line break is thought to have occurred due to corrosion.
[fire - consequence, transportation]

Lessons

[None Reported]

1139201 December 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , ANGOLA

Injured : 5 **Dead :** 2

Abstract

A fire consumed a depot's entire stock of solvents and lubricants but was extinguished before spreading to fuel storage tanks at a nearby refinery. The fire was apparently caused by a short circuit.
[fire - consequence, fatality, storage equipment]

Lessons

[None Reported]

1163922 November 1997

Source : LLOYDS LIST, 24 NOV, 1997.
Location : , USA

Injured : 5 **Dead :** 0

Abstract

A sudden chemical reaction set off a flash fire and a small explosion in the cosmetic factory. A sprinkler system limited the damage.
[fire - consequence, unwanted chemical reaction, processing]

Lessons

[None Reported]

1136711 November 1997

Source : LLOYDS LIST, 12 NOV, 1997.
Location : , USA

Injured : 1 **Dead :** 0

Abstract

A fire occurred at a loading terminal of a petroleum storage facility whilst three road tankers were being loaded. A series of explosions occurred as a result. The cause of the fire is not known.
[fire - consequence, unidentified cause, injury]

Lessons

[None Reported]

1139510 November 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , AUSTRALIA

Injured : 3 **Dead :** 0

Abstract

A fire caused damage to two electrical generators in the engine room of an offshore platform.
An initial investigation pointed to a mechanical problem in one of the five turbines in the generator. The vessel was taken to a shipyard for repair. 60 days interruption.
[fire - consequence, damage to equipment]

Lessons

[None Reported]

896 02 November 1997

Source : LLOYDS LIST, 3 NOV, 1997.
Location : , ISRAEL

Injured : 0 **Dead :** 1

Abstract

A fire occurred in a diesel storage tank following explosion caused fatality. Worker had gone for a test sample when the explosion occurred.
[storage tanks, fire - consequence, fatality, sampling, explosion / pressure release]

Lessons

[None Reported]

1139425 October 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , MEXICO

Injured : 0 **Dead :** 1

Abstract

A fire occurred on an offshore platform during the replacement of a valve. The fire was extinguished within 30 minutes. Drilling was suspended and output reduced.
[fire - consequence, maintenance, offshore, fatality]

Lessons

[None Reported]

8782 24 October 1997

Source : ICHEME

Location : ,

Injured : 0 **Dead :** 0

Abstract

Leaking chemical drums on an industrial site had triggered a fire on a lorry on which they were stored.

The police sealed off the area around the industrial estate and fire fighters were alerted. Two 25 littre drums, stored on the lorry parked overnight at the industrial estate, containing benzene and phosphorus oxydichloride had leaked. The chemical gives off toxic fumes when it is in contact with air and especially water.

The fire service, using special absorbent material which acts as an oil and chemical binder, transferred the leaking drums to larger drums which had been sealed.

It was confirmed that the spillage had been contained and that there was no threat to the environment.

[storage, fire - consequence]

Lessons

[None Reported]

1273409 October 1997

Source : CHEMICAL HAZARDS IN INDUSTRY NO: 1, JANUARY 1998.
Location : Frankfurt, GERMANY

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a coatings facility. The fire occurred in a filter unit releasing a vapour cloud that drifted over a residential area. No one was injured in the incident.
It is not know how the fire started.
[fire - consequence, gas / vapour release, carbon monoxide]

Lessons

[None Reported]

11664October 1997

Source : TANKER CASUALTY REPORT NO. 22, TANKER CASUALTY DATA EXCHANGE SCHEME, INTERNATIONAL CHAMBER OF SHIPPING, LONDON.
Location : ,

Injured : 0 **Dead :** 1

Abstract

A fire and explosion occurred in the pump room of a tanker resulting in the death of one crew member.
A tanker was lying at anchor in a harbour after discharging a cargo of crude oil. Residual crude oil was being consolidated by pumping into one or two centre tanks. Leaks had earlier occurred into the pump room from defective lines, pump and valve glands and joints resulting in an oil and water mixture in the pump room bilges. A rag was used to plug one of the leaking seals in a bulk head. The atmosphere in the pump room was checked with an explosimeter but no gas was detected.
An officer and a cadet checked that the transfer was taking place satisfactorily. The officer left the cadet to go to breakfast. Some four minutes later an explosion occurred and smoke poured from the pump room and the two pump room ventilators, and a large amount of debris was blown onto the deck. The alarm was raised and a fire fighting party assembled but could not enter the pump room because of the smoke. The pumpman who was on the deck at the time of the explosion informed that the cadet had gone into the pump room earlier.
Because of concern over the possibility of further explosions and the unlikely possibility that the cadet had survived in the pump room, the pump room door was closed, the ventilators sealed and carbon dioxide released into the pump room to extinguish the fire.
The fire was extinguished some hours later and the pump room entered. The cadet was found dead on the upper pump room grating. The body showed evidence of extensive burning and the post mortem showed that he had died almost immediately.
Investigation showed that the source of ignition in the pump room came from the opposite side of the ship to where the main cargo pump and eductor were operating. Two pump room fans were operating at the time. It was noted that an inspection access plate on one of the fans was missing and it transpired had been missing for some time. The bearings on this fan had collapsed and markings on the fan showed that fan blades had been touching at some time. It was concluded the cause of the explosion was a spark created by the fan blades touching, combined with an explosive air mixture resulting from the oil and water accumulation in the pump room.
The reason why the cadet entered the pump room without the authorisation of a responsible officer was not known, but it was concluded that his action had nothing to do with the explosion.
[fire - consequence, marine transport, unloading, fatality]

Lessons

The incident showed the importance of maintaining bilges dry at all times in order to prevent any possibility of an explosive mixture forming where machinery is operating.
1. Ventilation in pump rooms should be designed to prevent the formation of stagnant air pockets, especially low down. This was shown by the fact that the accident occurred despite consistent explosimeter readings of 5% being recorded over the previous two days. As a result of the accident, the company modified its ships to ensure that ventilation suctions points were below the pump room floor lower grating. Also, all ships with steam fans were modified by removing the fans to outside the pump room and fitting them in the main ventilator trunkings.
2. Regulations regarding unauthorised entry to certain sections should be enforced more strongly.

1139630 September 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , RUSSIA

Injured : 0 **Dead :** 0

Abstract

A fire occurred on a crude oil onshore well following an explosion.
Approximately 5 tonnes of crude oil was spilled.
The well was capped and the fire extinguished.
[fire - consequence, exploration]

Lessons

[None Reported]

8846 23 September 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. REUTER.
Location : , FRANCE

Injured : 0 **Dead :** 1

Abstract

An explosion and fire occurred at a fireworks killing one person, rockets sprayed hundreds of metres and several parked cars were set ablaze.
[fire - consequence, damage to equipment, fatality, processing]

Lessons

[None Reported]

8844 18 September 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. UPI.
Location : Illinois, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred due to an explosion of a forklift truck LPG tank. The fire swept through the warehouse which was storing cardboard and paper. Fire fighters prevented the fire from reaching the store.
[fire - consequence, warehousing]

Lessons

[None Reported]

8831 15 September 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. TRADE WINDS.

Location : ,

Injured : 0 **Dead :** 0

Abstract

A incident. An explosion and fire occurred in the engine room of a laden LPG carrier while at anchor.
[fire - consequence]

Lessons

[None Reported]

1136915 September 1997

Source : LLOYDS LIST, 16 SEP, 1997, 2 OCT, 1997,; OIL AND GAS JOURNAL, 22 SEP, 1997,; THE CHEMICAL ENGINEER, 25 SEP, 1997,; THE GUARDIAN, 18 SEP, 1997.

Location : , INDIA

Injured : 20 **Dead :** 60

Abstract

A leak of LPG occurred on a pipeline whilst unloading a marine tanker causing an explosion and igniting six storage tanks, some containing kerosene. The fire burned for two days and damaged 19 tanks, a two storey office block and five other buildings. The smoke caused the port to be shut down and 100,000 people evacuated.
[fire - consequence, damage to equipment, fatality, evacuation]

Lessons

[None Reported]

8789 14 September 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV,; CHEMICAL HAZARDS IN INDUSTRY NO: 1, JANUARY 1998.
Location : Hindustan, ASIA

Injured : 20+ **Dead :** 45+

Abstract

A fire and explosion occurred at a refinery killing forty-five people and injuring at least twenty others.
The incident occurred when leaking petroleum gas ignited. The explosion ignited a further six storage tanks as fire spread through out the refinery.
Approximately 100,000 were evacuated from their homes.
[fire - consequence, evacuation, fatality, refining, injury]

Lessons

[None Reported]

1106813 September 1997

Source : ICHEME
Location : , USA

Injured : 0 **Dead :** 0

Abstract

During the changing over of vacuum bottoms pumps due to cavitation problems, an electrical switchboard tripped out. This was due to a failure of the vacuum bottoms pump motor windings. The electrical outage caused the shutdown of most pump-around circuits. Loss of pump-around caused the vacuum tower off-gas effluent separator to overflow liquid to the off-gas burner in the furnace. This caused fire within the furnace. Although the fuel gas was shut off, the vacuum tower off-gas supply is separate from the fuel gas system and continued to burn. Feed through furnace coils was continued using turbine driven pumps, but the naphtha preheat convection coils flow was shutdown and a tube in this section burst adding to the fire. Shortly after 17:00 hrs. the South vacuum bottoms pump began cavitating slightly. This continued off and on until approximately 19:45 hrs. when the decision was made to swing to the North pump. The operator pushed the switch to start the North pump and sparks came out of the conduit junction box at the motor. Immediately the call came from the inside operator that the other pumps on the crude and vacuum unit had failed. The operator immediately started the turbine driven raw crude charge and vacuum charge pumps, maintaining flow through the heater coils. Flow of naphtha through the convection section and vacuum bottoms rundown were not lost since these particular pumps motors came from a different electrical supply. When the pumps shutdown, the inside operator reduced the crude rate. Some steam was also cracked open to the furnace passes to maintain velocity. The furnace temperature controllers were left on automatic during this time. The individual motor circuit breakers on the unit's main switch rack were all switched off and attempts were made to reset the switch rack's feeder breaker at the electrical substation without any success. At approximately 20:05 hrs., fire was reported under the furnace and smoke was coming from the stack. The operator checked the fuel gas knock out drum and finding no liquid level shut off the fuel gas to the furnace, including the pilots. Shortly thereafter the crude overhead line was opened to the flare to control the tower pressure. Snuffing steam was put into the furnace and the pass steam was opened fully and the crude and vacuum charge pumps were shutdown. The naphtha charge pump feeding convection back coils was shutdown at approximately 20:10 hrs. The fire continued burning and at 20:30 hrs. a "pop" was heard coming from the furnace, which was the naphtha coil rupturing. At this time the Emergency Response Team was called out. The Vac 2 System effluent off gas was blocked in at the separator at 21:00 hrs. The fire was extinguished at 22:30 hrs.
This incident was initiated by the failure of the North Vacuum Bottoms pump motor and the tripping out of the CrudeVac Unit's primary electrical switch rack. However, the heater fire that followed was caused by the continual combustion of the Vacuum Tower off-gases after the main fuel gas was shut-off and the heater blocked in. The switch to divert this stream was not located near the fuel gas valves and was not activated until later. In addition, the loss of pump-around cooling in the Vacuum Tower resulted in carry over of heavy oil to the heater via a full separator drum. (The high level alarm is located in a satellite control station which was not manned in the emergency and the pumps for discharging the separator were out of action due to the power failure). Fuel was also added to the heater due to back flow from the gas oil stripping tower due to a connection downstream of the main fuel gas emergency isolation valves. A previous safety review had identified a number of shortcomings in instrumentation design and process piping design. This resulted in the emergency fuel shut off valves being relocated in the 1994 turnaround to keep the operator further away from the furnace during emergencies. However, the HAZOP which formed part of the Management of Change procedure did not cover process considerations focusing only on mechanical and installation issues.
The rupture of the naphtha convection coil provided considerable additional fuel to the fire. The naphtha charge pump kept operating because its electrical supply is taken from a separate switch rack, but was shut down 25 minutes after the other pumps lost power. The line ruptured 20 minutes later causing major damage to the heater. After the incident decoking of the radiant bank coils in crude service was required, even though some steam was cracked into the furnace passes, with the charge rate reduced, due to the furnace temperature controllers being left on automatic.
[refining, electrical equipment failure, fire - consequence, furnace, damage to equipment, operation inadequate, mechanical equipment failure]

Lessons

The following recommendations were made:
1. Emergency shutdown procedures must cover the actions for all types of breakdowns/failures.
2. Operator/instrumentation interfaces must be thoroughly evaluated during HAZOPs or safety reviews that form part of the Management of Change procedure.
3. P&IDs must be field checked prior to a HAZOP in case of non-recorded, past modifications.
4. Refresher training must cover all aspects of safe furnace operations including emergency response plans.
5. All fuel sources to be isolated in an emergency to be clearly identified.
The following corrective actions were taken in the refinery:
1. Relocate the vacuum effluent off-gas diversion switch to a position near the emergency fuel gas shut-off valves for the furnaces.
2. As part of an Instrument Upgrade Project, re-route the diversion switch into the Central Control Center.
3. Provide alarms for the vacuum effluent system to the North Inside Operator as part of the Instrument Upgrade Project.
4. Disconnect two tie-ins to the fuel gas line between the emergency shut off valves and the furnace burners. Provide an alternative source of fuel gas for these two existing users that includes the connection with the gas oil stripping tower.
5. When management of change reviews are held for the purpose of relocating process piping, the HAZOP and the P&IDs should be reviewed along with a field check for verification of other process tie-ins and potential process consequences.

1106713 September 1997

Source : ICHEME
Location : , USA

Injured : 0 **Dead :** 0

Abstract

At about 19:45 hrs. on the day of the incident a crude-vacuum unit operator was having suction problems with the "South" vacuum bottoms pump and was in the process of switching to the spare "North" pump when the 1200 amp breaker opened cutting all 480 volt power to the main unit switch rack. The operators attempted to close the substation circuit breaker but were unfamiliar with the switch gear. Electrical personnel successfully closed the substation breaker at 21:30 hrs. A fire occurred in the furnace causing a 10 day shutdown, and during this time the vacuum bottoms pump motor was replaced, the damaged 480 feeder cable was replaced, a 225 amp circuit breaker set at the proper instantaneous trip range. Even though the 1200 amp breaker was tested and found satisfactory, the opportunity was taken to install a modern electronic trip mechanism to replace the old style electro-mechanical trip. The electrical repair costs were $16,000 (£9,552) with a total loss of $1,001,000 (£597,612) (1997).

The facility was supplied with a 480 volt electrical power supply from an original main explosion-proof switch rack and a recently installed smaller switch rack. Both of these switch racks were supplied from separate circuit breakers on different bus bars of a 2000 KVA, double ended, 4160 volt/480 volt unit substation with high resistance grounded Y secondaries.

The "North" vacuum bottoms pump motor was approximately 10 years old and was last tested on a preventive maintenance basis in March, 1994, during the East Side maintenance shutdown. No electrical problems were detected with the motor, its feeder cable, or starter. The CrudeVac 2 480 volt main switch rack, feeder cables, and main 1200 amp circuit breaker at the substation were also tested at the same time and any identified problems were corrected. This included replacing one of the parallel 750 MCM copper main feeder cables from the substation to the switch rack due to poor insulation dielectric test results.

The Third and "B" Street 480 volt substation had a problem for about a year with a recurring intermittent ground fault on an unidentified electrical device connected to the southwest 480 volt bus. Many attempts were made to locate the problem, but none were successful as the problem would disappear before it could be found.

The initial cause of this event was a phase to ground electrical fault on a motor winding lead wire in the motor junction box of the "North" vacuum bottoms pump. This fault escalated to a phase to phase fault when the electrical arc damaged the insulation on another phase wire in the motor junction box. The 225 amp circuit breaker on the motor starter feeding this motor should have tripped on the initial fault but did not because the instantaneous setting also caused mis-coordination with the 1200 amp switch rack feeder breaker. Instead of the 225 amp breaker tripping, the 1200 amp switch rack feeder breaker at Third and B street substation opened, clearing the fault from the system and shutting off all electrical power to the CrudeVac unit main switch rack. The ground fault on the vac bottoms pump motor became an arcing fault because the switch rack already had a grounded phase. The refinery electrical system is designed such that it will continue to operate in an alarmed condition with one phase grounded. But, if a second ground fault occurs on another phase of the same transformer, a phase to phase system short circuit is created and one or both of the affected devices should then trip free of the system if the coordination is correct. In this incident, when one phase wire in the bottoms pump motor shorted to ground while there was already an existing ground on another phase wire in the systems, a system phase to phase fault was created that did not properly clear due to incorrect circuit breaker coordination. The intermittent ground fault connected to the southwest 480 volt bus was finally found and repaired in November,1995, in the 480 volt feed wiring to the Crude 2 first stage desalter grid power transformer.

[fire - consequence, electrical equipment failure, processing]

Lessons

Trip setting for circuit breakers should be set to defined settings and recorded and checked as part of routine maintenance.

Critical spare pump motors should be supplied with power from a separate electrical feed to limit the impact of switch rack trips.

Operators cannot be expected to operate high voltage electrical switch gear in an emergency unless properly trained and competent to do so.

The following corrective actions were taken at the refinery:

1. Install pulsing ground detection systems at all appropriate 480 volt substations to aid in locating ground faults on line while process units are operating.
2. Install more prominent operating instruction labels on switch gear circuit breakers so that individuals who infrequently operate these breakers will be able to operate them in emergency situations.
3. Check the instantaneous over-current trip settings on all other large frame molded case circuit breakers in the refinery to verify that the coordination with the substation breaker is correct.
4. Investigate transferring the electrical power supply of critical spared pump motors at CrudeVac 2 from the main switch rack to the new second switch rack so that critical spared pumps will have an alternative electrical supply in case of emergencies.
5. Communicate to all electrical personnel the importance of correctly setting the adjustable magnetic trip units on all large frame molded case circuit breakers to assure proper coordination with the supplying circuit breakers.

1138513 September 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , TAIWAN

Injured : 21 **Dead :** 7

Abstract

An explosion occurred during maintenance work involving moving an LPG pipeline.
It is thought the explosion occurred due to sparks from nearby motorcycle engines. The fire lasted 12 hours.
[fire - consequence, fatality]

Lessons

[None Reported]

8840 10 September 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. REUTER,; CHEMICAL HAZARDS IN INDUSTRY NO: 1, JANUARY 1998.
Location : Ohio, USA

Injured : 7 **Dead :** 1

Abstract

A fire and explosion occurred at a resin plant killing a worker and injuring seven others.
The incident occurred in a vessel in which phenol, formaldehyde and sulphuric acid were being mixed to make binding agent, which is used in sandings coatings for automotive metal moulding.
An investigation is being carried out into the cause of the incident.
[fatality, fire - consequence, injury]

Lessons

[None Reported]

8822 08 September 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV, REUTER.
Location : , FRANCE

Injured : 16 **Dead :** 10

Abstract

A road transportation and rail transportation incident. A road tanker burst into flames after being struck by a passenger train at a railway crossing. 10 people were killed and 16 injured, a fire then spread to nearby buildings.
[fire - consequence, fatality, injury]

Lessons

[None Reported]

9062 04 September 1997

Source : NANDO NET, THE ASSOCIATED PRESS, COPYRIGHT 1997.
Location : , PARIS

Injured : 53 **Dead :** 1

Abstract

Two explosions occurred in a six story apartment building. A gas leak was found to be the cause of the explosion. Fires that followed both of the explosions were extinguished quickly.
[fire - consequence, fatality]

Lessons

[None Reported]

8824 30 August 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV, LLOYDS LIST.
Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred in a No.1 cargo tank of a barge loading toluene. The fire was extinguished in 15 minutes using foam agent.
[fire - consequence]

Lessons

[None Reported]

8838 30 August 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, NOV. LLOYDS LIST.
Location : , NIGERIA

Injured : 0 **Dead :** 0

Abstract

A fire occurred on a spilling several million litres of gasoline. Fire fighters battled blaze for three days, the spill was possibly due to vandalism.
[fire - consequence, transportation]

Lessons

[None Reported]

1135117 August 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , INDONESIA

Injured : 0 **Dead :** 0

Abstract

A blowout and subsequent fire resulted in an offshore platform catching fire and later sinking into the sea. Two nearby fields were shutdown as a precaution. [fire - consequence, plant shutdown]

Lessons

[None Reported]

2165 11 August 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , JAPAN

Injured : 0 **Dead :** 0

Abstract

A fire broke out when heated residue oil leaked from a pipe extending from the crude distillation unit and caught fire. The leakage occurred when workers were checking a flowmeter in the pipe.
[fire - consequence, inspection]

Lessons

[None Reported]

9063 07 August 1997

Source : YAHOO NEWS, UPI, UNITED PRESS INTERNATIONAL. COPYRIGHT 1997. (http://www.yahoo.com).

Location : Cambridge, USA

Injured : 4 **Dead :** 0

Abstract

Two explosions in an underground electric cable knocked out power to most of a city. The blackout left more that 25,000 people in the dark for more than four hours including rush hour traffic and trapped some office workers in elevators. One person riding a bicycle was struck by a car but wasn't seriously injured. The first explosion occurred just before 6 p.m., knocking out power to about a third of the city. The second happened an hour later, forcing the utility to cut off power to another third of the population. Most of the lights were back on by 11 p.m.
[fire - consequence, electrical equipment failure, injury]

Lessons

[None Reported]

8965 August 1997

Source : THE SAFETY AND HEALTH PRACTITIONER, APRIL, 1997.
Location : Iowa, USA

Injured : 0 **Dead :** 0

Abstract

Contractors carrying out spot welding on the steel doors of an explosive magazine ignited the fireworks within. Approximately 17 tones of fireworks were consumed in the fire. Fortunately no one was injured but in addition to the destruction of the stock, the magazine suffered considerable damage. A permit to work system was not operated containing advise on precautions.
The company was fined £1000.
[explosion, fire - consequence, damage to equipment, permit to work system inadequate]

Lessons

[None Reported]

8920 31 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. LLOYDS LIST.
Location : New Jersey, USA

Injured : 0 **Dead :** 0

Abstract

An air transportation incident. A cargo plane carrying hazardous materials crash landed at an airport, the aircraft was apparently an fire before landing. All crew escaped.
[fire - consequence, chemicals unknown]

Lessons

[None Reported]

8940 29 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. REUTER.
Location : Izmit, TURKEY

Injured : 29 **Dead :** 0

Abstract

A fire occurred following an explosion in a paint mixing department of a car factory. Twenty nine workers fell ill due to toxic fume inhalation.
[fire - consequence, processing, toxic gas]

Lessons

[None Reported]

8794 27 July 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.
Location : Kaohsiung, TIAWAN

Injured : 0 **Dead :** 0

Abstract

A fire and explosion occurred at a petrochemical plant. No injuries were reported. The explosion occurred at an acrylonitrile butadiene styrene (ABS Resin) powder storage facility and affected production at an adjacent palletising unit. ABS resin production was unaffected.
[fire - consequence, processing]

Lessons

[None Reported]

8939 27 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. IRISH TIMES.
Location : Mullagh, IRELAND

Injured : 0 **Dead :** 0

Abstract

A fire destroyed two plastics warehouses. The water used to extinguish the fire contained contaminants which killed 1,000 fish in a nearby river. Water supply was suspended.
[fire - consequence, ecological damage, warehousing]

Lessons

[None Reported]

8653 21 July 1997

Source : LOSS PREVENTION BULLETIN, 136, 24.
Location : ,

Injured : 0 **Dead :** 0

Abstract

Approximately 120 firemen were required to tackle a blaze at a distribution depot. The fire at the company, which make beer barrels and plastic crates for the brewing industry, took three hours to bring under control. Beer barrels stored on the premises exploded during the blaze, and the plume of black smoke of the fire very nearly resulted in the M5 motorway being closed. The cause of the blaze is still under investigation.
[fire - consequence, explosion, storage]

Lessons

[None Reported]

7964 20 July 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , INDIA

Injured : 0 **Dead :** 0

Abstract

A crude oil floating roof tank, which had not been in operation since 13 July 1997, was struck by lightning. Only a portion of the seal of the tank was damaged by a fire.
[fire - consequence, damage to equipment, storage]

Lessons

[None Reported]

8926 19 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997,
Location : , CANADA

Injured : 3 **Dead :** 1

Abstract

An explosion and fire occurred onboard a marine tanker while preparing to load. The fire destroyed the wharf.
[fire - consequence, loading, fatality]

Lessons

[None Reported]

8938 17 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. LLOYDS LIST.
Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

A fire destroyed a chemical storage tank containing a gasoline blending component, the cause was due to a lightning strike. At the time the tank was being emptied for maintenance. There were no injuries.
[fire - consequence]

Lessons

[None Reported]

1133917 July 1997

Source : LLOYDS LIST, 21 JUL, 1997,; LOSS CONTROL NEWSLETTER, 1997.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

Lightning struck a storage tank containing a gasoline blending component causing a fire. Material was being pumped out in preparation for maintenance work. Roadway closed.
[storage tanks, fire - consequence]

Lessons

[None Reported]

1163816 July 1997

Source : LLOYDS LIST, 19 JUL, 1997.
Location : , IRELAND

Injured : 0 **Dead :** 0

Abstract

Dense smoke drifted over a town when a fire caused people to be evacuated within 300 metres and 500 metres down wind. Contaminated water was contained.
[fire - consequence, gas / vapour release, evacuation, contamination]

Lessons

[None Reported]

8923 16 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. LLOYDS LIST.
Location : , IRAN

Injured : 0 **Dead :** 4

Abstract

A marine transportation incident. An explosion and fire occurred in the engine room of a chemship with 9,000 tonnes of naphtha onboard.
[fire - consequence, fatality]

Lessons

[None Reported]

8798 13 July 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.
Location : Tarragona, SPAIN

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a power substation causing an acrylonitrile plant to close. The fire cut the power to the plant and storage area reducing production.
[fire - consequence, power plant]

Lessons

[None Reported]

8795 11 July 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.
Location : , CANADA

Injured : 8 **Dead :** 0

Abstract

Hundreds of residents were evacuated when a fire occurred at a plastics recycling centre released dangerous levels of hydrogen chloride and benzene into the air. Eight fire fighters were injured. The fire started in a 71,000 sq. ft warehouse. It was estimated that about 1 M lbs of scrap plastic were stored in the warehouse.
[fire - consequence, evacuation, warehousing, injury]

Lessons

[None Reported]

1135409 July 1997

Source : LOSS CONTROL NEWSLETTER, 1997,; LLOYDS LIST, 14 JUL, 1997.
Location : , CANADA

Injured : 100+ **Dead :** 0

Abstract

An entire recycling plant was destroyed in the fire. Air was contaminated with benzene and hydrogen chloride released by the burning 400 tonnes of PVC which was being stored at the site. At least 100 firemen were reported as being ill, having worked at the scene. Residents within 8 blocks were evacuated. [fire - consequence, contamination, gas / vapour release, storage, evacuation, injury]

Lessons

[None Reported]

8937 09 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, SEP. UPI.
Location : Ontario, CANADA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a plant holding 500 tonnes of waste plastics. The blaze lasted for four days causing 100 fire fighters to be exposed to toxic fumes and 650 residents to be evacuated. Debris contaminated.
[fire - consequence, evacuation]

Lessons

[None Reported]

1198207 July 1997

Source : ICHEME
Location : , UK
Injured : 0 **Dead :** 0

Abstract

A small fire occurred on a plant after a solvent (ethyl acetate) leak from a pump, the plant was shutdown. Subsequently a storage tank overflowed approximately 10 tonnes.
[fire - consequence, plant shutdown, storage tanks, spill, pump failure]

Lessons

[None Reported]

1119903 July 1997

Source : ICHEME
Location : , UK

Injured : 0 **Dead :** 0

Abstract

During a routine switching over of coke pots at the bottom of a combination tower, hot vacuum tower bottoms oil (VTB) was released to atmosphere and auto-ignited. The resultant fire caused plant damage of $180,000 (1997) and loss of production of $410,000 (1997). It was very fortunate there were no injuries to personnel since operators were working above the coke pots at the time of the incident.
At 1420 hours, the fractionator operator was instructed to switch over the coke pots. These pots are designed to remove coke fines from the bottom of the combination tower on the outlet to the suction side of pump. Only one pot is in service at any one time, the other being on standby. They are normally switched over every Thursday or as necessary. The operation involved taking drain pot B out of service and replacing it with pot A. Before the contents of the pot can be drained, the pot has to be cooled with 32 degrees C/90 degreesF purge oil from 321 degrees C/610 degrees F to 121 degrees C/250 degrees F. At 1450 hours, the fractionator operator was advised by radio from the control board operator that the temperature of the pot was 232 degrees C/450 degrees F. There is no local temperature indicator at the pots, only a temperature transmitter back to the control room.
At 1500 hours, a coke drum change over commenced as this was already planned and also requires the assistance of the fractionator operator. As soon as the fractionator operator had completed the tasks associated with the coke drum change, around 1510 hours, he proceeded to drain the coke pot. The flow from the drain appeared excessive and as he was about to close the drain valve, the fire erupted.
The incident occurred on the last day of the work shift and the last day before a major holiday. It was unusual to have a major coke drum switch at the same time as a coke pot switch. The coke drum switch requires the efforts of three operators including the fractionator operator. The coke pot switch requires the efforts of the fractionator operator plus another operator. Both tasks are coordinated through the control board operator under the supervision of the chief operator. The fractionator operator had completed the switchover from coke pot B to A including alignment for purge oil cool down at 1430 hours without the usual assistance of a second operator. He returned again to the operation after he had finished his tasks associated with the coke drum switch. There is conflicting evidence as to whether the fractionator operator, in fact, had permission to drain the coke pot from the control room (radio communication). Coke fines present in the system tend to make it difficult to operate the valves which are often plugged.
Evidence suggests that the four-inch suction valve from pot B to pump was a quarter open (2-3 rounds) and that the purge oil valve was also open when the fire occurred. The pot had been pressured up and the operator had taken his wrench to #bang# the drain valve in order to clear the system and get flow started. Once the drain broke free, hot oil splashed out of the containment pit.
[operational activities, valve, design inadequate, autoignition, fire - consequence, spill]

Lessons

Effective controls including periodic task observations must be implemented where there is any possibility of oil being released to atmosphere above its auto-ignition temperature.

8889 02 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG.
Location : Kansas, USA

Injured : 1 **Dead :** 1

Abstract

A rail transportation incident. A train carrying hazardous materials unable to stop at a crossing, crashed into another train, a fire then occurred. 1,000 evacuated.
[fire - consequence, collision, evacuation, fatality, chemicals unknown]

Lessons

[None Reported]

8900 02 July 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG,; LOSS PREVENTION BULLETIN, 136, 24.
Location : Valencia, SPAIN

Injured : 0 **Dead :** 18

Abstract

A marine transportation incident. A fire occurred onboard a tanker whilst under construction in a shipyard. A welding spark allegedly ignited diesel fuel being pumped aboard.
[fire - consequence, fatality]

Lessons

[None Reported]

8975 July 1997

Source : CNN INTERACTIVE, US NEWS STORY PAGE, JULY, 1997. CABLE NEWS NETWORK INC, (http://www.cnn.com).
Location : , JAPAN

Injured : 8 **Dead :** 0

Abstract

A series of explosions and fires occurred at a chemical plant injuring eight workers. The plant manufactures catalyst which is used in plastics manufacturing. [fire - consequence, processing, injury]

Lessons

[None Reported]

8961 July 1997

Source : CNN INTERACTIVE, US NEWS STORY PAGE, JULY, 1997. CABLE NEWS NETWORK INC, (http://www.cnn.com).
Location : Indianapolis, USA

Injured : 0 **Dead :** 0

Abstract

A huge gas explosion and fire ripped through a subdivision sending flames shooting into the air and destroying at least seven homes.
[fire - consequence]

Lessons

[None Reported]

8797 30 June 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.
Location : Haifa Bay, ISRAEL

Injured : 0 **Dead :** 0

Abstract

A fire occurred on an aromatic plant. The fire was contained in the xylene unit. There were no casualties.
[fire - consequence]

Lessons

[None Reported]

8792 27 June 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.
Location : Beijing, CHINA

Injured : 64 **Dead :** 3

Abstract

A fire and explosion occurred on a petrochemical plant. The explosions occurred in a storage area for petroleum and liquefied gas. The fire which resulted covered 250 acres and burned for 24 hrs before it was brought under control.
[fire - consequence, fatality]

Lessons

[None Reported]

1135327 June 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , CHINA

Injured : 64 **Dead :** 3

Abstract

A fire occurred as a result of an explosion which sent shards of metal cascading across neighbouring streets and shattered windows up to 1 km away. A fire in a petrol storage area had sparked the blast. Production of ethylene at the factory to be halted for approximately one year.
[fire - consequence, fatality, LPG, injury]

Lessons

[None Reported]

1136025 June 1997

Source : LLOYDS LIST, 7 JUNE, 1997.
Location : , RUSSIA

Injured : 5 **Dead :** 0

Abstract

A fire on the crude oil pipeline was started during repair and maintenance work and was probably caused by the failure or misuse of welding equipment. The oil leaking from the damaged pipe was channelled into a special reservoir dug into the ground. The fire was extinguished in 2 days.
[fire - consequence, design or procedure error, transportation, injury]

Lessons

[None Reported]

1136225 June 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , RUSSIA

Injured : 0 **Dead :** 0

Abstract

A crude oil fire occurred due to failure or careless use of maintenance welding equipment. The situation was aggravated by the high pressure gas pipeline located nearby. The fire was extinguished by foam.
[fire - consequence, design or procedure error]

Lessons

[None Reported]

8788 22 June 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

A fire and explosion occurred disabling an olefins plant, the cause was a suspected air assisted check valve failure.
[fire - consequence]

Lessons

[None Reported]

8909 22 June 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.
Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred in an oilfins plant causing damage to buildings.
[fire - consequence, damage to equipment]

Lessons

[None Reported]

8907 16 June 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. REUTER.
Location : Magurchhara, INDIA

Injured : 4 **Dead :** 0

Abstract

A blowout fire occurred on a gas field causing four injuries and fears for a nearby forest.
[fire - consequence, injury]

Lessons

[None Reported]

8908 16 June 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. ENERGY DAY.
Location : Louisiana, USA

Injured : 0 **Dead :** 0

Abstract

A gas well blowout occurred on a rig/posted barge. The barge caught fire and dry gas flowed and burned until capped.
[offshore, fire - consequence]

Lessons

[None Reported]

1135215 June 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , BANGLADESH

Injured : 4 **Dead :** 0

Abstract

A fire broke out after drilling operation hit trapped gas. The drilling rig and all equipment were destroyed. It took approximately 1 month to extinguish the blaze. Thousand of villagers were evacuated from the area. Total losses as a result of the fire were approximately US$50 million (1997).
[drilling/digging/ploughing vehicles, damage to equipment, evacuation, fire - consequence, exploration, product loss, drill, injury]

Lessons

[None Reported]

8893 12 June 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.
Location : Lobito, ANGOLA

Injured : 0 **Dead :** 0

Abstract

A ation incident. A fire occurred in the holds of a cargo ship involving maize and sorghum this was due to ignition of fumes of chemicals used earlier and poor ventilation.
[fire - consequence]

Lessons

[None Reported]

1135912 June 1997

Source : LLOYDS LIST, 13 JUNE, 1997,; CHEMISTRY IN BRITAIN AUGUST, 1997.
Location : , UK

Injured : 4 **Dead :** 0

Abstract

A fire occurred at an ink blending factory.
Hundreds of people were evacuated after a massive fire at a chemical plant when drums of printing inks exploded sending black clouds over the town. All 3 production units destroyed.
An investigation into the incident found that the probable cause of the fire was due to a faulty heater.
The fire destroyed 50% of the building and approximately 100 tonnes of printing ink, 90 tonnes of varnish and 30 tonnes of solvent.
A loss of £1.17 M (1997) was estimated.
[fire - consequence, explosion, evacuation, damage to equipment, mechanical equipment failure, normal operations, injury]

Lessons

[None Reported]

1114810 June 1997

Source : ICHEME
Location : , TURKEY
Injured : 0 **Dead :** 1

Abstract

A shift supervisor received severe burns and later died after a flexible hose used to transfer hydrogen to the catalytic reformer was overpressured and caught fire.
Hydrogen is supplied from three modules each consisting of 12 x 1m3 cylinders at 150 bar (2205 psig) pressure. Each cylinder is fitted with a needle valve and the twelve are connected together with steel tubing. Each module has a filling connection (with no pressure regulator) and a discharge connection equipped with a pressure regulator and a pressure safety relief valve set at 14 bars (206 psig) pressure. The Cat Reformer has two hydrogen connecting points to the recycle gas compressor's discharge line which is normally used to charge the unit. Only one of these connecting points is fitted with a pressure relief valve in addition to the PSVs fitted to the individual modules. Each hydrogen module is connected to the Cat Reformer's injection points with 1 inch flexible steel hoses from the outlet of the H2 module's pressure regulator. On June 9, 1997, No. 1 and No. 2 hydrogen modules were connected to the recycle gas compressor using the correct outlet points after the pressure regulators. No.1 module was emptied and replaced by No.3 module. Hydrogen from No.2 module was still connected to the injection without the PSV and 3 cylinders had emptied into the unit. The normal sequence of hydrogen injection is to open the block valves starting at the recycle gas compressor downstream from the injection point and then open the valve on the hydrogen module after the regulator. Whenever the operation is stopped these block valves are closed in the reverse sequence. On June 10, the process operators continued to empty No.2 module (9 cylinders were left). They noticed that the pressure in the unit was building up too slowly. The Shift Supervisor decided to switch the flexible hose from the end, after the regulator on the module, to the module's filling line which is not equipped with a regulator. The switch over was authorized under a cold work permit and carried out by maintenance department personnel who warned the Shift Supervisor against it. Six cylinders were then emptied one by one by the area operator in 35 minutes and the unit was pressured up to 7 bars (103 psig) . The area operator then closed the cylinder needle valve at the hydrogen module followed by the three block valves on the filling line to the recycle gas compressor. As the Cat Reformer's pressure decreased and as the area operator had other tasks in hand, the Shift Supervisor decided to discharge the remaining three cylinders alone. Failing to remember that the block valves downstream to the compressor were shut, he opened a cylinder discharge needle valve and the module's filling valve. The flexible steel hose was subjected to the full cylinder pressure of 150 bar. The hose connection flew off and hit the Shift Supervisor causing him to faint from a broken shoulder bone. The hydrogen immediately ignited whereupon the Shift Supervisor became exposed to flames.
It was discovered that process operators had used the module's filling line connection before whenever they had difficulty with the pressure regulator at the module's proper discharge connection.
The pressure regulator and some needle valves were dismantled. Broken pieces of Teflon seats from the needle valves were blocking the pressure regulator's passage ways. The needle valves were damaged due to over tightening with wrenches. The shift supervisor was wearing a cotton shirt with trousers (pants) made of special material at the time. Although these suits (jacket and trousers) are issued to all process personnel, many complain about wearing the complete suits in hot weather.
There is no operating procedures manual covering the discharge of hydrogen from the modules to the plant. Only one of the connection points to the recycle gas compressor has a PSV fitted upstream of the block valves.
Flexible hoses used for the transfer of hydrogen from the modules to the plant had been tested to 70 barg (4 times their normal working pressure) when they were originally received from the supplier. They had not been tested since. These hoses were placed in store when not being used for hydrogen transfer.
The immediate cause of the accident was the use of the wrong connection at the hydrogen module which bypassed the pressure regulator.
Major contributory factors to the accident were the absence of a pressure relief valve at the recycle compressor's injection point upstream of the isolation valve and failure to operate the system valves in the correct sequence
[material transfer, overpressurisation, fire - consequence, fatality, operation inadequate]

Lessons

The following recommendations were made:
1. Non routine (startup, shutdown, etc.) and maintenance activities must be included in the periodic hazard analysis (e.g., HAZOPS) of process units.
2. Stepwise operating instructions must be available for all high risk activities.
3. Changes to normal operating practices must be subject to a formal "Management of Change" review with the appropriate level of management approval.
4. The failure to apply the Management of Change to the bypassing of any critical safety device (in this case the pressure regulator) without the appropriate level of authority in writing should be identified as a "Near Miss" and investigated in respect of its potential severity.

8888 07 June 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG.
Location : West Virginia, USA

Injured : 2 **Dead :** 1

Abstract

A rail transportation incident. A freight train carrying hazardous chemicals rammed into a coal train, two engines and 13 cars derailed and burst into flames, one person was killed and two injured.
[fatality, fire - consequence, derailment, collision, chemicals unknown, injury]

Lessons

[None Reported]

8809 07 June 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.

Location : ,

Injured : 2 **Dead :** 1

Abstract

A rail transportation incident. A transportation freight train carrying hazardous chemicals crashed into a coal train. The freight train burst into flames as its two engines and 13 of its cars derailed. Homes within a half-mile radius of the crash site were evacuated for 24 hours. One freight crew member was killed and two were injured but there were no injuries on the coal carrier.

Tank cars carrying bleach, sulphuric acid and ammonium nitrate were initially reported to be on fire at the scene. The sulphuric acid was transferred and a car partially loaded with hydrogen peroxide was removed.

A tank car carrying acetaldehyde continued burning through to the next day.

[fire - consequence, collision, derailment - consequence, evacuation, fatality, injury]

Lessons

[None Reported]

8890 04 June 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. FAIR PLAY.
Location : Nanjing, CHINA

Injured : 0 **Dead :** 0

Abstract

A fire and explosion occurred on a marine tanker with 19,700 tonnes of crude being unloaded. The tanker and one barge sank at anchorage.
[fire - consequence, unloading, sinking]

Lessons

[None Reported]

8791 June 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.
Location : , UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred on a chemical ink manufacturing plant which completely destroyed all three factory units on site. A warehouse and laboratory were unaffected. Rapid response by the fire brigade and an effective evacuation meant that there were no casualties.
[fire - consequence, processing]

Lessons

[None Reported]

8871 25 May 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.
Location : , OFF SHINGAPORE

Injured : 3 **Dead :** 2

Abstract

A marine transportation incident. An explosion and fire occurred in the engine room of a tanker laden with crude oil.
[fire - consequence, fatality]

Lessons

[None Reported]

8902 22 May 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.
Location : , SINGAPORE

Injured : 0 **Dead :** 0

Abstract

A large part of a waste treatment and tank cleaning depot was destroyed by fire due to a burst incinerator exhaust pipe igniting vapours.
[fire - consequence]

Lessons

[None Reported]

8862 20 May 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. REUTER.
Location : , KASAKHESTAN

Injured : 0 **Dead :** 0

Abstract

A carrying a satellite crashed back to earth 48 seconds after launch causing an explosion and fire.
[fire - consequence]

Lessons

[None Reported]

8793 12 May 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.
Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred in an alkylation unit releasing a mixture of propane, isobutane and HF (hydrofluoric acid/hydrogen fluoride) from a ruptured feed line. The HF was dispersed into the atmosphere by the fire's updraft. An estimated 20 barrels of HF was diluted by fire fighters.
Tests did not indicate an HF release in the surrounding neighbourhood.
[fire - consequence, leak, spill]

Lessons

[None Reported]

1115011 May 1997

Source : ICHEME
Location : , USA

Injured : 0 **Dead :** 0

Abstract

At 04:45 hrs., a tube leak was discovered in a naphtha treater furnace. The furnace was built in 1958 with one and a quarter percent chrome aluminised tubes. Most of the tubes were replaced with 5% chrome in the late 1950s and early 1960s because of tube failures due to overheating. The tube that failed was a 1960 replacement tube. The designed firing rate was 47.9 MM BTU/Hr. Presently, it runs at 71.5 MM BTU/Hr. This change in operating conditions went through the "management of change" procedure in February, 1997. Although the furnace would not have meet the companies recommendations for burner to tube spacing in a new installation, it was determined to be an acceptable safe operation if tube skin temperatures were monitored and kept under 925 degrees F (496.1 degrees C).

Over the past year, the refinery had started the implementation of a furnace management program on this particular furnace. Some of the items addressed were burner maintenance and adjustment, additional instrumentation and calibration with operator training. Improvement was noted in its operation since then, but the furnace tube failed anyway.

Prior to the incident, the operation of the furnace and process unit were normal. The furnace tube leak occurred in a bottom row tube of the south coil. Smoke was detected coming from the convection heater stack at 04:45 hrs. by two supervisors as they were exiting the control room's south door. The furnace tube leak was verified by a supervisor who, was able to see the smoke coming out of the naphtha treater furnace stack and the flames in the fire box. He warned others to stay away from the furnace. Several operations personnel went on to the eastside deck to verify the leak, but because of the flames in the box they were not able to see where the leak was. They went to the westside deck and were able to view inside the box, then left the furnace area. Less than a minute after their departure, at about 04:58 hrs., according to the process alarm, the tube massively failed and engulfed the furnace structure in flames. For the operations personnel who had been on the furnace deck, this was truly a "near miss" event.

The fire alarm was sounded, security was called to page the emergency response team, and the fire department was summoned. A decision was also made to shut down the other units. The furnace was quickly isolated (about 05:15 hrs.) and the fire was contained to the furnace area and under control within 20-30 minutes.

Total loss was about $3 million (£1.7 million) (1997). Business interruption accounted for $2.2 million (£1.2 million) (1997) and property damage $0.8 million (£0.6 million) (1997). The naphtha treater furnace was recommissioned on May 24, 13 days later.

An investigation found that the failed tube, which was a 5 Cr tube, was coked locally in between two burners closest to the east end of the furnace (south pass). A tight adherent layer of coke, about a quarter inch in thickness, was inside the tube located on the fire side of the tube. This layer of coke could be expected to raise the temperature of the tube close to 300 degrees F. This led to longer term overheating and eventual longitudinal bulging. A crack occurred causing the initial release of naphtha into the firebox. This was followed a few minutes later by the tube being ripped open circumferentially releasing 600 psig naphtha into the furnace. This type of failure is not typical, but is more likely to occur in high pressure services.

[heating, furnace, tube, furnace tube, overheating, tube failure, fire - consequence, rupture]

Lessons

The following recommendations were made:

Continued flame impingement on tubes in any hydrocarbon furnace will lead to localised coking and eventual tube failure. Management of change procedures must be applied when changes to materials are proposed, or when duty beyond original design is required.

Tube leaks in furnaces operating at high pressure are likely to have a sudden and catastrophic failure. Attempting to make further visual inspections is a significant risk.

Emergency response plans should be regularly tested, and include the communications and "call out" systems.

Process operators must be trained in the actions to be taken following a tube rupture.

8867 09 May 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. LLOYDS LIST.
Location : , SOUTH CHINA SEA

Injured : 0 **Dead :** 0

Abstract

A marine transportation incident. A fire occurred when a coastal tanker carrying gasoline collided with a cargo ship and sank shortly afterwards. Eight crew rescued.
[fire - consequence, collision, sinking]

Lessons

[None Reported]

1135707 May 1997

Source : LOSS CONTROL NEWSLETTER, 1997,; CHEMICAL HAZARDS IN INDUSTRY, OCTOBER 1997.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

A fire resulted from the failure of a large pump. 50% of production was lost as a result of the incident. The company makes hexamethylene diamine for the production of nylon. The fire dramatically affected nylon fibre supplies for a couple of months. The cause of the pump failue is thought to have been due to metal fatigue.
[fire - consequence, pump failure, product loss, operational activities]

Lessons

[None Reported]

1158006 May 1997

Source : ICHEME
Location : , UK
Injured : 0 **Dead :** 0

Abstract

A fire occurred in a powder degassing bin on a petrochemical plant. This resulted in shut-down of production for 12 days and extensive damage to the bin. This was despite correct operation of the bursting discs protecting the system following an initial explosion. The damage was caused by the subsequent fire. The decision was made not to recommission the damaged bin and only operate with the remaining units in the medium term.
No evidence was found for abnormal operation prior to the incident or for production of increased quantities of powder fines.
The investigation blamed a weak powder explosion caused by an incendive discharge. It was found that some of the socks fitted to the degassing bin bag filters were of the wrong material. These were specified as containing 5% of conductive threads. Examples were found with both 0% and 2%. The material had been changed by the supplier without notification. There were also weaknesses in the earthing arrangements of the damaged bin. Some internals were also found to be missing from valves on the discharge side of the degassing blower. Finally some inadequacies were found in the emergency standing orders which led to nitrogen not being used to quench the fire. There was also some delay in alerting the site Emergency Response Team.
[fire - consequence, plant shutdown, damage to equipment, operation inadequate, design or procedure error, normal operations, container

Lessons

1. Purchasing arrangements were inadequate to ensure supply of technically correct material and should be improved.
2. The reliance on conductive content, even if it had been adhered to, was not enough to ensure performance. A standard measure of resistivity was needed.
3. The emergency standing instructions should be improved to cover fires.
4. The bursting discs operated correctly.
5. The response of the operating team and respective fire services was satisfactory.
6. There was some confusion in alerting the site Emergency Response Team.

8877 05 May 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG. REUTER.
Location : , MEXICO

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a solvent , the fire was brought under control in one hour.
[fire - consequence]

Lessons

[None Reported]

8875 04 May 1997

Source : HAZARDOUS CARGO BULLETIN, 1997, AUG.
Location : , CHINA

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred at a chemical factory sewage treatment plant.
[fire - consequence, processing]

Lessons

[None Reported]

1134104 May 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , CHINA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred when unauthorised welding set fire to a vat of paint. A large tank of chemically polluted water also exploded.
[fire - consequence, human causes]

Lessons

[None Reported]

8970 May 1997

Source : CNN INTERACTIVE, US NEWS STORY PAGE, JULY, 1997. THE ASSOCIATED PRESS, (http://www.cnn.com).
Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred at a refinery causing at least two tank fires. No injuries were reported.
It was not known what was burning so nearby residents were warned to stay in doors because of smoke from the blaze.
[fire - consequence, refining]

Lessons

[None Reported]

8969 May 1997

Source : CNN INTERACTIVE, US NEWS STORY PAGE, JULY, 1997. CABLE NEWS NETWORK INC, (http://www.cnn.com).
Location : Arkansas, USA

Injured : 16 **Dead :** 3

Abstract

A fire and explosion occurred in a chemical packaging plant releasing a plume of black toxic smoke, forcing hundreds of people to evacuate homes and businesses.
The cause of the fire is believed to have been a smouldering bag of pesticide which caught fire and ignited the explosion.
The chemicals involved were azinphosmethyl, methyomyl and thiophante. All are considered poisonous. Azinphosmethyl is an insecticide that is more toxic to insects than it is to humans and thiophante is a fungicide used to control parasitic worms in animals.
Population totalling about 18,000 were told to stay indoors.
[fire - consequence, fatality, fume, toxic fumes]

Lessons

[None Reported]

8984 May 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.
Location : , ITALY

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a galvanic electroplating workshop. The fire was caused by an electrical fault but was exacerbated by polypropylene storage tanks which ignited. The tanks had not been treated with flame retardants. Other tanks made from PVC and iron coated did not burn or leak. An additional source of ignition was the transparent tunnel (in glass reinforced polyester) installed to provide better environmental protection for the operators.
[fire - consequence, electrical equipment failure]

Lessons

[None Reported]

8976 May 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.
Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred due to metal fatigue in a pump on a amethylenediamine unit. No injuries were reported.
[fire - consequence]

Lessons

[None Reported]

8985 May 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.
Location : , GERMANY

Injured : 0 **Dead :** 17

Abstract

A fire occurred at an airport involving construction materials used to form an intermediate ceiling. Coated expanded polystyrene (EPS) sheets were used for the ceiling. Seventeen people died from carbon monoxide poisoning.
[fire - consequence, fatality]

Lessons

[None Reported]

8979 May 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.
Location : Chongqing, CHINA

Injured : 0 **Dead :** 12

Abstract

An explosion and fire occurred in a waste water treatment area of a neoprene unit of a chemical factory.
[fire - consequence, processing, fatality]

Lessons

[None Reported]

8980 May 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.
Location : Tyneside, UK

Injured : 3 **Dead :** 0

Abstract

An explosion and fire occurred in an acetylene store at a dockyard.
[fire - consequence, storage]

Lessons

[None Reported]

8944 30 April 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, JUL.
Location : Tirana, ALBANIA

Injured : 0 **Dead :** 22

Abstract

A weapons depot exploded causing fire. Munitions at the depot were stored in underground tunnels. Most of the people killed were inside the tunnel when it exploded, flames spread to adjoining tunnel.
[storage, fire - consequence, explosion, fatality]

Lessons

[None Reported]

8946 30 April 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, JUL.
Location : Renfrewshire, UK

Injured : 1 **Dead :** 2

Abstract

An explosion and fire occurred killing two workers and seriously injured a third. Investigation suggests that a metal part of a test-probe, which was being inserted into a ring main unit, possibly to check for a fault on an 11kV cable, became detached and fell into live busbars at the bottom of the oil tank within the unit. This could have caused an internal short circuit leading to the explosion and fire.
[fire - consequence, fatality, injury]

Lessons

Users of oil filled ring main units are advised to ensure that the test probes are verified and maintained at all times.

8978 29 April 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, OCT.
Location : Bletchley, UK

Injured : 4 **Dead :** 1

Abstract

A fire occurred on a chemicals plant. The plant blends chemicals for plastics, rubbers and adhesives products. The fire which involved the chemical calcium peroxide killed one person and injured four others.
[fire - consequence, fatality, unknown chemicals, injury]

Lessons

[None Reported]

8790 29 April 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.
Location : Buckinghamshire, UK

Injured : 1 **Dead :** 1

Abstract

A fire broke out at a chemical works killing one person and injuring an other. The incident occurred in a plastic manufacturing plant which produces dispersions, gutter seals and antistatic sealants and coatings.
A violent deflagration inside a nearly closed mixing pot ejected burning material out of the feed opening and spread the fire to other parts of the factory. The chemicals being mixed were calcium peroxide and chlorinated paraffin. The fire, which it is thought may have been preceded by an explosion, spread rapidly across the workroom, killing one employee who was some distance from where the initial fire broke out. A second man was injured and was detained in hospital. The accident investigation will focus on determining the cause of the fire and why it spread so quickly across the workroom.
[fire - consequence, fatality, processing, injury]

Lessons

[None Reported]

4057 10 April 1997

Source : ICHEME
Location : , SOUTH KOREA

Injured : 0 **Dead :** 0

Abstract

An explosion occurred when construction workers dug up a pipeline. Flames shot 50 ft into the air. Telephone lines and part of a subway under construction were destroyed as a result. A crane is believed to have sparked the blast when it hit a gas pipe left standing in the centre of the work site. 500 firefighters were involved in the incident.
[drilling/digging/ploughing vehicles, natural gas, leak, fire - consequence]

Lessons

[None Reported]

3088 04 April 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , GERMANY

Injured : 0 **Dead :** 0

Abstract

A fire started when a mixture of isopropyl alcohol and a solvent ignited ignite due to an electrostatic spark during the mixing of the two substances. Leaking solvents were responsible for the extension of the blaze to the production unit.
[fire - consequence]

Lessons

[None Reported]

2714 04 April 1997

Source : LOSS CONTROL NEWSLETTER, FEB, 1997.
Location : , JAPAN

Injured : 0 **Dead :** 0

Abstract

A fire occurred when ethylene was released from safety valves after pressure built up inside a reactor. The fire was controlled within 5 minutes.
[fire - consequence, safety relief valve, high pressure, operational activities]

Lessons

[None Reported]

8977 01 April 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , SINGAPORE

Injured : 0 **Dead :** 0

Abstract

A fire involved a large quantity of oil in the production area. This was the third incident at the refinery in two weeks. All maintenance work was suspended [fire - consequence

Lessons

[None Reported]

9497 01 April 1997

Source : LOSS CONTROL NEWSLETTER, FEB, 1997.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

A fire resulted from ignition of a natural gas leak from a 4 inch pipeline on the platform which was linked to a drilling rig. Two supply vessels equipped with water cannons fought the fire. All personnel were evacuated prior to the fire. No environmental damage occurred.
[fire - consequence, evacuation]

Lessons

[None Reported]

1197712 March 1997

Source : ICHEME
Location : , UK

Injured : 0 **Dead :** 0

Abstract

A static discharge occurred whilst a solvent with a flash point of -2degrees C, was being transferred to a drum. This caused ignition of the drums contents, the fire spread to two adjacent drums. The fire was quickly extinguished.
[material transfer, fire - consequence]

Lessons

[None Reported

1109705 March 1997

Source : ICHEME

Location : ,

Injured : 0 **Dead :** 0

Abstract

A minor explosion was heard in the crude unit area of this refinery. Smoke was seen from the vacuum tower overhead pipe.

On March 2, 1997, shutdown for maintenance turnaround commenced. The vacuum unit was depleted of oil, water washed/flushed and steam purged according to the shutdown/steam out checklist. A hydrant hose was connected to the suction side of the light vacuum gas oil pump ready for water wetting of the vacuum column. On March 4, 1997, the vacuum tower was steamed out. On March 5, 1997, the vacuum tower steaming was cut off. No water wetting was carried out immediately on the vacuum tower as the average tray temperature was still high around 90 degrees C (194 degrees F). At 8:20 am a cold work permit was issued for the installation of system blinds on the vacuum tower. At 8:30 am: A cold work permit was issued for installation of blinds on a number of heat exchangers, removal of the covers and the pulling of tube bundles. At 2:45 p.m. the vacuum tower overhead condenser (shell side) piping spool piece (40 inch) was taken out so as to facilitate the removal of the shell. At 3:15 pm a minor explosion was heard. Smoke was seen from the open flange on the tower's overhead line. All turnaround work was stopped. The Fire Brigade was alerted to stand by on site. Nitrogen was injected into the overhead line within a few minutes of the incident as it was thought there was a fire in the tower's overhead line. The tower top temperature started to fall immediately after the N2 injection. A water hoses were connected to the B-structure foam line at ground level and at the top platform of the condensers and water was injected into the open end of the tower's overhead line. At 3:45 pm It was observed that the vacuum tower (151E) tray temperatures continued to rise. Water was then injected via the top light vacuum gas oil reflux line through the pump suction. The tray temperatures dropped immediately after the water was introduced. At 4:00 pm The tower condenser overhead line temperature showed signs of increasing. A steam hose was connected to the inhibitor pump discharge bleeder and steam was introduced through the three quarter inch line to the overhead line. The overhead line temperature dropped after the steam was introduced. At 6:00 pm arrangements were made to install a 40 inch end flange to the overhead pipe's open end.

The following are the findings from an investigation of the incident:

· As per normal operating practice, water wetting of the column would only have commenced after the average tray temperature had cooled to below 60 degrees C.

· The planned column wetting arrangement (water was connected to the suction side of the light vacuum gas oil pump to be injected via the reflux line) was adequate.

· A cold work permit was issued for a number of heat exchangers including the vacuum tower's, overhead condensers 159CA/CB for installation of blinds, removal of heat exchanger covers, and the pulling of tube bundles. The 40 inch blinds should have been installed at the inlet nozzle on the shell side of the heat exchangers before any work on the heat exchangers had be carried out.

· No specific permit was issued for the removal of the shell side of heat exchanger 159CB or associated inlet piping spool piece. According to a mechanical technician, it was verbally communicated.

· The spool piece was taken off to facilitate the removal of the shell side of condenser/heat exchanger 159CB.

The open end of the 40 inch overhead line after the spool piece was removed was not fitted with a full face blind. This resulted in large ingress of air into the vacuum tower. The immediate cause of the minor explosion and fire in the vacuum tower was the autoignition of the pyrophoric iron sulfide from the ingress of air prior to the column wetting procedure.

[fire - consequence]

Lessons

The following recommendations were made

1. Both the Issuing Authority and the Performance Authority for the Work Permit System must discuss and understand in detail the exact job scope so that blinding is undertaken in the correct sequence of the maintenance preparations.
2. Operations Department should carry out the water wetting of the vacuum column as soon as practical.
3. Safety briefings on "Pyrophoric Iron Sulfide" should be carried out just prior to turnarounds.

Lessons Learned

A preparation of plant for maintenance procedure (a controlled document) must be strictly followed.

All parties involved in preparation of equipment for maintenance must be aware of the exact sequence of tasks to avoid auto ignition of pyrophoric iron sulfide.

8999 March 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : ,

Injured : 0 **Dead :** 0

Abstract

A fire occurred at an oil refinery whilst down for maintenance. No injuries were reported.
[fire - consequence, refining]

Lessons

[None Reported]

3291 26 February 1997

Source : LLOYDS LIST, 27 FEB, 1997,; ECN 3-9 MARCH 1997
Location : , GERMANY

Injured : 0 **Dead :** 0

Abstract

A fire broke out during the demolition of an empty storage tower/building. The fire, caused by blow torch sparks, was brought under control within an hour.
[fire - consequence, storage equipment, hot work]

Lessons

[None Reported]

8801 19 February 1997

Source : LLOYDS LIST, 28 FEB, 1997,; LOSS CONTROL NEWSLETTER, JAN, 1997.
Location : , RUSSIA

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a storage tank containing hexachloromelamine occurred during maintenance repair work. Chlorine release from the tank when workers tried to extinguished the fire with water.
[fire - consequence, storage tanks, gas / vapour release]

Lessons

[None Reported]

1133119 February 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , INDIA

Injured : 0 **Dead :** 0

Abstract

Blowout at crude oil well caught fire and covered a 3,000 sq metre area. Flames lept 30-40 metres into the air. Two villages were evacuated. The drilling rig collapsed following the fire. Capping was not expected to be completed for about 60 days.
[fire - consequence, evacuation, exploration]

Lessons

[None Reported]

1133013 February 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , NEW ZEALAND

Injured : 0 **Dead :** 0

Abstract

A fire occurred at the top of a large 10 sq. metre mound of sulphur. A toxic cloud of sulphur dioxide release spread over the nearby town but was contained within an hour to the immediate site.
[gas / vapour release, contamination, fire - consequence, storage, environmental]

Lessons

[None Reported]

1133209 February 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

A break in a 26 inch natural gas pipeline sent a huge fire ball visible 30 miles away. There was also an apparently unrelated break in the pipe 220 miles away. The ruptures were caused by stress on the pipeline created by land movement.
[fire - consequence, earth movement, transportation]

Lessons

[None Reported]

1133302 February 1997

Source : LOSS CONTROL NEWSLETTER, 1997.
Location : , RUSSIA

Injured : 0 **Dead :** 0

Abstract

An explosion of natural gas sent flames 30 metres into the air. The fire took 5 hours to extinguish. A similar fire occurred on the same stretch of pipeline six days earlier. Investigations suggest both incidents were caused by faulty pipeline construction.
[fire - consequence, transportation, human causes]

Lessons

[None Reported]

1123831 January 1997

Source : FIRE PREVENTION 325, OCTOBER 1999.
Location : , UK

Injured : 0 **Dead :** 0

Abstract

An explosion occurred within the production line of an aerosol plant causing a fire and injuring three workers. A call to the fire brigade was done immediately after the explosion occurred.
The brigade managed to contain the fire to the packing area, which contained large quantities of cardboard and plastic.
The Health & Safety Executive carried out an investigation and ascertained that after being filled with butane gas, the cans were placed in a warm water bath of approximately 55 degrees C for a few minutes to raise the pressure in the cans from 3 bar to 7-8 bar. At this pressure if there was a weakness in a can then it would show and the gas would vet to fresh air.
To eliminate the problem of the water overheating a device raised the cans out of the water at a pre-set temperature. There was a second with a thermostat that monitored the water's temperature.
It is thought that on this occasion the first device was set too high a temperature and due to a modification earlier in the day, the thermostats had been bypassed. These circumstances resulted in excessive pressure in the aerosol cans and a number of them split, releasing a gas cloud that appears to have travelled outside the immediate vented area to a source of ignition.
[fire - consequence, modification procedures inadequate, high pressure, rupture, leak, normal operations, aerosol propellant]

Lessons

[None Reported]

9026 23 January 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, AUG.
Location : Memmingen, GERMANY

Injured : 0 **Dead :** 0

Abstract

A fire caused poisonous gas to pour into the centre of the town. The gas cloud contained traces of cyanide and ammonia. The fire spread to three nearby houses and four nearby apartment blocks were evacuated. The fire started in a factory hall where cleaning fluids were being produced and spread to another building. Arson is the probable cause.
[fire - consequence, gas / vapour release, evacuation, processing, cyanide fumes]

Lessons

[None Reported]

1132612 January 1997

Source : LLOYDS LIST, 15 JAN, 1997.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

A fire which broke out in refinery burnt itself out without causing injuries or environmental damage. Water was brought to site after company's own water pumps failed. The fire was located in a pressurised blending unit containing flammable gas took about 5 hours to burn out after fuel source was shut off. [fire - consequence, refining]

Lessons

[None Reported]

8878 09 January 1997

Source : LOSS CONTROL NEWSLETTER, JAN, 1997.
Location : , AZERBAIJAN

Injured : 0 **Dead :** 0

Abstract

A fire began in the basement of the offshore platform when diesel storage tanks burst into flames during drilling operations. Fifty people were evacuated. [evacuation, fire - consequence]

Lessons

[None Reported]

1106903 January 1997

Source : ICHEME
Location : , FRANCE
Injured : 2 **Dead :** 0

Abstract

A fire broke out at gas oil hydrodesulfurization unit. The fire was caused by a leak of gas oil and gaseous products from the flange of a temperature control valve. The fire, restricted to the reactor section, was put out within 35 minutes by the refinery fire brigade. Two operators were injured while manoeuvring an extinguisher, but did not incur a lost time accident. The incident occurred following gasoil feed upset in the late morning, heavy rain in the afternoon and a hailstorm at about 22:30 hrs. The fire resulted in damage to control valves, piping, cables and associated heat exchangers.
[flange, valve, refining, rain, design inadequate, inspection inadequate, fire - consequence, flange failure, injury]

Lessons

Wafer type valves which, by design, are installed by "insertion" are unreliable and liable to leak.
All wafer valves to be identified and a risk assessment carried out to review their continued suitability in service.
Critical flanges need to be identified and regularly inspected, following an established procedure.
The investigation team concluded that the incident was caused by the following factors:
1. Inherent design weakness of the wafer type valves.
2. The poor condition of the flanges on the valves and piping.
3. Thermal shock imposed on the valves due to severe weather conditions (rain and hailstorm) and process upset earlier on in the day.

1132302 January 1997

Source : LLOYDS LIST, 3 JAN, 1997.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

About 336,000 gallons of propylene oxide was being transferred from a barge to a 535,000 gallon tank when a fire erupted. The fire was contained to the tank and extinguished in an hour.
[material transfer, marine transport, fire - consequence]

Lessons

[None Reported]

7615 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.
Location : Dorset, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a plating factory. Firefighters wearing breathing apparatus and chemical protection suits were sent into the factory to find the core of the fire and gauge the danger of the chemicals. It was known that some of the chemicals reacted with water, others would produce highly toxic gases if involved with fire and others were known to be marine pollutants. Therefore, the fire had to be tackled with minimum amounts of water.
The presence of cyanide and the risk of chemical explosion prompted the evacuation of about 300 people from the surrounding area. The intensity of the fire forced firefighters to retreat outside the building and continue operations from there. The fire was contained on the first floor area and extinguished.
Investigation showed that the cause of fire was the overheating of an electrical rectifier, used to convert AC supply to DC for the electroplating process.
Estimated loss was £1,000,000 (1997).
[fire - consequence, toxic gas, cyanide fumes]

Lessons

[None Reported]

8478 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.
Location : ,

Injured : 1 **Dead :** 0

Abstract

LPG gas which leaked during tanker filling caused an explosion and fire at a depot. One worker who was loading the tank into the vehicle was burned and needed hospital treatment. A further 200 people were evacuated.
[fire - consequence, burns, road tanker, evacuation]

Lessons

[None Reported]

111461997

Source : ICHEME

Location : ,

Injured : 0 **Dead :** 0

Abstract

When attempting to reinstate a utilities area HVAC system after a full power outage, it was found that the fans could not be started because of initiation of smoke detectors within the duct. Upon investigation, it was found that the heater bank had been energized, the fans were not running, and heat build-up was substantial and had melted/ignited nearby gas detectors and filters.

The control logic should have prevented power being supplied to the heaters unless the fans were running. High temperature protection devices should also have tripped the heater. All control/enable circuits were checked and found to be operating correctly. However, on checking the thyristors, 2 out of 3 were found to have failed in the "made" (closed) position. This allowed voltage to the heaters, effectively bypassing the control circuits. The trip logic was checked and it was found that smoke detection within the duct or vent fan failure did not trip the feeder to the heater. Trip action relied on the thyristor controller, rather than opening the supply contactor.

[operational activities, filter, process control & instrumentation, control failure, fire - consequence]

Lessons

The following recommendations were made:

HVAC systems should not use a component that cannot be relied upon to fail "safe" (e.g., thyristor) as a primary means of isolation.

The power supply to the heater should be isolated directly in the event of a duct fire/over temperature.

Control or electrical supervisors should check their HVAC systems to satisfy themselves that existing trip action is adequate and would have prevented this incident. They should also check that existing thyristors in their HVAC control systems have not failed in the closed position, as this may not be apparent when the system is operating. Control or electrical engineers involved in new projects should ensure that there is an independent shut down mechanism for HVAC equipment, especially for packaged units.

124321997

Source : ICHEME

Location : ,

Injured : 0 **Dead :** 0

Abstract

A gas release occurred through the body of a non-return valve on a process unit. The non-return valve shaft blew out causing the release and subsequent fire.

[gas / vapour release, fire - consequence, mechanical equipment failure]

Lessons

[None Reported]

8796 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, NOV.
Location : Louisiana, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred outside a main production area and burned for 45 minutes. Only minor damage was sustained and no damage to the production equipment occurred.
[fire - consequence, processing, damage to equipment]

Lessons

[None Reported]

988 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, SEP.

Location : ,

Injured : 0 **Dead :** 0

Abstract

A hot oil heat transfer fluid was released under pressure through an orifice in the piping circuit causing a fire. The leak created an atmosphere of various fluid which was ignited by a hot light filament.

[material transfer, fire - consequence, hot surface, heat transfer oil]

Lessons

[None Reported]

114961997

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 1999.
Location : , USA

Injured : 46 **Dead :** 1

Abstract

A leak of flammable mixture of hydrocarbons and hydrogen from a ruptured pipeline occurred resulting in an explosion and fire. One person was killed and forty six injured.
An investigation into the incident found that management and supervisory staff did not make sure that emergency procedures were followed.
[fire - consequence, fatality, management system inadequate, injury]

Lessons

[None Reported]

111541997

Source : ICHEME

Location : ,

Injured : 0 **Dead :** 0

Abstract

A flash fire occurred as a driver was preparing to load his truck. Evidence suggests that a static spark ignited residual gasoline vapours in the truck's vapour return pipe and vapour recovery hose as the latter was in the process of being connected up to the truck. The fire was extinguished by closing the cover of the truck's vapour recovery pipe and by a second driver using a hand-held fire extinguisher. There were no injuries to employees and no damage to the loading rack equipment.

The driver had pulled under the loading rack, set the truck's brake and connected the earthing/grounding wire. The weather was clear and dry (temp 80 degrees F) (27 degrees C) (humidity 27-32%). The driver was wearing the correct personal protective equipment.

The system had shown a green light indicating it was safe to start to attach the vapour return hose. The system was subsequently tested and found to be in good working order on both the loading rack and on the truck. The system is "self-checking" and the green light denotes satisfactory earthing and grounding which permits the truck to load product. However, the system does not indicate that the product loading hose and the vapour recovery hose are electrically continuous and grounded/earthed. The loading rack electrical structure ground/earth was tested and found to have less than 1.0 ohm resistance to true ground/earth. The overhead vapour recovery system piping was electrically bonded to the loading rack structure and no stray currents were found. The vapour recovery collection pipe on the truck's tank was properly attached and electrically bonded to the trailer. However the vapour return/recovery hose did not have an embedded static wire and was not electrically bonded to the loading rack structure. Continuity testing of the loading rack's product loading and vapour return/recovery hoses was not included in the facility's preventative maintenance plan. It could not be determined how the static charge accumulated in the vapour recovery hose.

The second driver also found that the operating handle on the truck mounted fire extinguisher used to extinguish the flares was difficult to depress due to an accumulation of road grime.

[fire - consequence, loading, road transport, lack of earthing, electrical]

Lessons

All parts of the road truck loading system must form a continuous electrically conductive path including the vapour return/recovery piping/hose arrangement.

8949 1997

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, JUL.
Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a 12,500 barrel storage tank. The fire occurred following the transfer of 8000 barrels of propylene oxide from a barge to the storage tank. No damage was caused to surrounding tanks and pipelines.
[fire - consequence, material transfer, storage tanks]

Lessons

[None Reported]

1132410 December 1996

Source : LLOYDS LIST, 7 JAN, 1997.
Location : , USA

Injured : 0 **Dead :** 0

Abstract

A small fire occurred offshore on a platform, cut production of natural gas by 42 million cubic feet and 21,800 barrels of oil per day. The fire was extinguished immediately but production would be stopped for 2 to 3 months.
[fire - consequence]

Lessons

[None Reported]

8699 01 December 1996

Source : SEDGWICK LOSS CONTROL NEWSLETTER, ISSUE 1, 1996.
Location : La Plata, ARGENTINA

Injured : 0 **Dead :** 2

Abstract

A flare knockout drum on plot overfilled and liquid slug ruptured flare line leading to major fire. Numerous pipelines BLEVE'd (Boiling Liquid Expanding Vapour Explosion). Main propane bullet protected by water deluge. Fatality.
[fire - consequence, overflow, processing]

Lessons

[None Reported]

8651 27 November 1996

Source : LLOYDS LIST, 1996, DEC, 3.
Location : Lima, PERU

Injured : 0 **Dead :** 12

Abstract

Fire in fireworks factory when keg of gunpowder exploded. Fatality.
[explosion, fire - consequence, processing, black powder (gunpowder)]

Lessons

[None Reported]

8650 22 November 1996

Source : LLOYDS LIST, 1996, NOV, 25. EUROPEAN CHEMICAL NEWS, 1996, DEC, 9.
Location : Litvinov, CZECH REPUBLIC

Injured : 0 **Dead :** 0

Abstract

An explosion and fire occurred in storage tanks at refinery.
[fire - consequence, refining]

Lessons

[None Reported]

8718 18 November 1996

Source : LOSS PREVENTION BULLETIN, 136, 7-12.
Location : English Channel,

Injured : 33 **Dead :** 0

Abstract

A rail transportation incident. A heavy goods vehicle shuttle travelling from France to the United Kingdom stopped in the south running tunnel about 19 km from the French portal with a fire on board. Large quantities of smoke emitted from the fire rapidly engulfed the amenities coach at the front of the train. There were thirty one passengers and two crew members in the coach who all suffered from smoke inhalation which made their evacuation to the safety of the service tunnel extremely difficult.
Some of the passengers and the driver were evacuated on to a rescue train which had been stopped in the north running tunnel adjacent to the incident train. The remaining passengers and crew, after medical treatment, were evacuated via the service tunnel transport system to local hospitals in France.
While passengers were receiving medical attention, fire fighting crews began a difficult fire fighting operation involving over 450 personnel from both the French and UK emergency services. The fire was eventually extinguished some seven hours later. Parts of the train and a section of the tunnel were extensively damaged and operations through the tunnel were suspended for a considerable period.
[fire - consequence]

Lessons

The incident illustrated graphically a number of points, such as:
1. The effects of smoke in the confines of a tunnel can quickly induce severe anxiety and panic for anyone exposed to the incident.
2. Toxic fumes can build up rapidly and the acute effect can disable passengers and staff exposed in a very short period of time.
3. It is vital to locate the exact position of a train stopped in a tunnel to facilitate rapid rescue.
4. Early fire detection is essential in order to halt further traffic and initiate emergency plans.
5. An efficient evacuation procedure is necessary and staff should be trained in its use.
6. In the event of a fire, smoke is rapidly moved through the tunnel by the piston effect and this must be considered in the development of the emergency plan.
7. Effective communication systems are necessary to direct the rescue operations and to allay the fears of the passengers.

8469 11 November 1996

Source : OIL AND GAS JOURNAL, 1996, NOV, 25.
Location : , MEXICO

Injured : 4 **Dead :** 19

Abstract

An explosion occurred in a gasoline storage tank attributed to faulty valve. About 100,000 bbl of leaded and unleaded gasoline burnt out of control for more than 36 hours, destroying 2 of 6 storage tanks. More than 5,000 people were evacuated from adjacent residential area. Fatality.
[fire - consequence, evacuation, valve failure]

Lessons

[None Reported]

1108907 November 1996

Source : ICHEME
Location : , FRANCE
Injured : 0 **Dead :** 0

Abstract

An off-site crude unit charge pump operating in parallel with another, caught fire from the mechanical seal about one and a half hours after a common alarm had sounded. The initially small fire spread to the adjacent pumps and the crude unit was shut down for 24 hours until one of the pump's electrical wiring and instrumentation could be repaired. The cause of the vibration leading to the seal failure is either motor bearing failure or coupling failure due to loss of alignment, and there was evidence of cavitation an hour before the initial vibration alarm.
On this refinery the Crude Distillation Unit control room is fed from three identical crude oil feed pumps (A), (B), (S) located off-site in the crude tank farm area about 1 km from the unit. In normal operations two pumps are running in parallel with one spare. Each pump is fitted with a common alarm for six bearing temperatures (two on the electric motor, four on the pump itself) and a vibration detector. At the time of the incident (A) and (S) were running. Analysis of flow recordings and tank levels shows a reducing flow rate as tank level (1) fell. This was a usual event and the new tank (2) was placed in service at 05:50 hrs., about an hour before the first common alarm. Vibration analyser charts show evidence of cavitation in (S) at 05:50 hrs. and this disappeared after the tank change. The common alarm sounded in the control room at 06:48 hrs. Because no vehicle was available and because the alarms were considered unreliable, it was left to the day operator to check the alarm on his rounds, about one and a half hours later. By this time the pump operation had deteriorated seriously, crude was leaking and the fire developed. It was promptly extinguished by the fire crew but the crude unit was shut down until the electrical wiring for one of the other pumps was restored allowing start-up.
Two potential immediate causes have been identified. These are:
1. Rupture of the coupling membranes.
2. Failure of the bearing on the coupling side of the motor due to lack of oil or mechanical misalignment.
[fire - consequence, mechanical equipment failure, excessive vibration, design or procedure error, fire - consequence, refining, pump bearing, plant shutdown, lubrication failure]

Lessons

The following recommendations were made:
1. Operators must respond to alarms, no matter if they may be nuisance alarms.
2. Equipment does have a limited performance capacity, and operating at extremes places operations at risk.
3. Monitoring devices must be maintained in proper working order, especially those for remote operating areas where operator surveillance is less frequent.
4. Mechanical integrity must be maintained by use of the correct part of the equipment, as designed by the equipment supplier.

8474 06 November 1996

Source : EUROPEAN CHEMICAL NEWS, 1996, NOV, 11.
Location : Northumberland, UK

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a plant making ink resins and curing agents.
[fire - consequence, processing]

Lessons

[None Reported]

8648 November 1996

Source : LLOYDS LIST, 1996, NOV, 13,; THE GUARDIAN, 1996, NOV, 11.
Location : , MEXICO

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a fuel storage facility after explosion in tank containing gasoline. A second tank was also involved. 1000 people evacuated.
[fire - consequence, evacuation]

Lessons

[None Reported]

8473 24 October 1996

Source : EUROPEAN CHEMICAL NEWS, 1996, NOV, 4.
Location : Sakai, JAPAN

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a refinery causing shortage of xylene.
[fire - consequence, refining]

Lessons

[None Reported]

1113512 October 1996

Source : ICHEME
Location : , USA

Injured : 0 **Dead :** 0

Abstract

A 6 inch untreated/raw naphtha line failed catastrophically near the base of the vacuum tower and the outflow autoignited. Both the reformer and the naphtha hydrotreater depressured in less than 15 minutes through the ruptured pipe. The resultant torch fire and subsequent fires from leaking flanges and pipe failures burned for approximately 10 hours. Two flare connections failed which contributed significantly to the duration of the fire as the plant was being shutdown and depressured to the flare system. Property damage is estimated at $10 million (£5.9 million) (1996). Commercial loss is estimated at $20 million (£11.9 million) (1996) as units, not directly affected by fire, were shutdown for weeks and the vacuum tower was down for over two months. An environmental release of FCC catalyst affected areas outside the plant, as the various units were shut down.

Untreated naphtha from the crude units were combined into a single stream prior to introduction into the naphtha hydrotreater. The failure occurred in the line from one of the crude units, downstream of the last exchanger and prior to the point where the two streams join. The naphtha line was at normal conditions prior to the incident at approximately 450 psig and 600 degrees F (317 degrees C). There were no indications from any of the alarms or any of the nearby employees that there was any problem with the line immediately prior to the fire. The piping was originally installed in 1965 and specified as aluminised (or "Alonised" as it is referred to) carbon steel piping. "Alonising" is an old process, no longer in common use for process piping, performed mainly to enhance the resistance of steels to high temperature, high sulfur environments. Although this piping was in service for over 30 years, sections of this same line near the failure had experienced only slight-to-moderate pitting and had retained nearly its original wall thickness.

[pipeline failure, fire - consequence, damage to equipment, autoignition, processing]

Lessons

The following recommendations were made:

1. Ensure that potential corrosion problems are adequately addressed with appropriate expertise and level of management.
2. Develop an action tracking system for all recommendations resulting from investigations, HAZOPS, audits, etc.
3. Re-evaluate piping inspection program.
4. Consider outside review of mechanical integrity program to share and incorporate best practices.
5. Replace alonized carbon steel pipe in high temperature/high sulfur services.
6. Consider amending emergency response plan to include call-out of personnel to assist in operational shutdown of units in major emergencies.
7. Emergency response drills should consider shutdown and isolation procedures and review of location of valves and switches.
8. Review the procedures in place for the emergency operation center and staging area including the need for a checklist and registration of first responders.
9. Develop a site specific plan for industrial hygiene exposure assessment on and off site during emergencies.
10. Review the adequacy of stationary fire protection in heavily congested areas.
11. Review the location, identification and accessibility of emergency isolation valves and switches.
12. Review the adequacy of existing emergency communication and notification systems within the refinery.
13. Make certain inspection thickness monitoring locations are sufficient to detect localized corrosion.
14. Conduct external audits of inspection programs and associated data management systems every 5 years to ensure continual mechanical integrity improvement and sharing of best practices.
15. Review adequacy of fire protection systems in congested areas and particularly for flare lines.
16. Check drainage in plant areas to remove expected quantity of fire water.
17. Ensure that all emergency systems are clearly identified and accessible.
18. Additional operational assistance is required in major emergencies to secure the safe shutdown or operation of other units.

8649 12 October 1996

Source : LLOYDS LIST, 1996, NOV, 23.
Location : Virginia, USA

Injured : 0 **Dead :** 0

Abstract

A desulphurisation unit at refinery was shut down after a fire in the unit's furnace.
[fire - consequence, refining]

Lessons

[None Reported]

8642 07 October 1996

Source : LLOYDS LIST, 1996, OCT, 9.
Location : , TAIWAN

Injured : 100 **Dead :** 8

Abstract

A major fire occurred in a chemical plant. Fatality.
[fire - consequence, processing]

Lessons

[None Reported]

8641 October 1996

Source : LLOYDS LIST, 1996, OCT, 2.
Location : , UK

Injured : 0 **Dead :** 0

Abstract

A major explosion and fire occurred at chemical plant causing the release of a cloud of toxic smoke which caused the closure of motorways.
[fire - consequence, gas / vapour release, processing, toxic fumes]

Lessons

[None Reported]

8470 06 September 1996

Source : OIL AND GAS JOURNAL, 1996, SEP, 16.
Location : California, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred in a platinum reformer resulting from a leak of gasoline at a pump. Plant back on line within a week.
[fire - consequence, processing]

Lessons

[None Reported]

8636 01 September 1996

Source : LLOYDS LIST, 1996, SEP, 3.
Location : Antwerp, BELGIUM

Injured : 0 **Dead :** 0

Abstract

Warehouse of polyethylene caught fire and collapsed.
[fire - consequence, warehousing]

Lessons

[None Reported]

12792September 1996

Source : CHEMICAL HAZARDS IN INDUSTRY, JUNE 2000,; SAF. MANAGE. (LONDON), NOV 1998, 27.

Location : ,

Injured : 1 **Dead :** 0

Abstract

A flash fire and explosion occurred inflicting severe burns to a painter. The incident occurred as the painter was working in an enclosed space and had been supplied with an ordinary halogen lamp. The halogen lamp ignited fumes.
The company was fined £10,000 (1998).
[fire - consequence, hot surface, safety procedures inadequate, injury]

Lessons

[None Reported]

8635 24 August 1996

Source : LLOYD LIST, 1996, AUG, 28,; NATIONAL TRANSPORTATION SAFETY BOARD, 1998, (http://www.ntsb.gov).
Location : Lively, Texas, USA

Injured : 0 **Dead :** 2

Abstract

A transportation incident. An 8-inch diameter steel LPG pipeline transporting liquid butane ruptured sending a butane vapour cloud into a nearby residential area forcing an evacuation.
Two residents were killed when the entered the vapour cloud in a vehicle sparking off an explosion.
Loss of product occurred worth approximately $217,000, (1996).
It is thought the incident occurred due to corrosion.
[explosion, evacuation, fire - consequence, fatality, product loss]

Lessons

[None Reported]

9027 19 August 1996

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, AUG.
Location : Lancashire, UK

Injured : 0 **Dead :** 0

Abstract

An exothermic reaction caused a fire and subsequent spill from a distillation process vessel. The vessel contained 4000 kg of solvents used in paints and printing inks.
[fire - consequence]

Lessons

[None Reported]

8631 14 August 1996

Source : LLOYDS LIST, 1996, AUG, 17.
Location : , CROATIA

Injured : 2 **Dead :** 1

Abstract

A fire occurred at a refinery which was started at an oil pump but was extinguished after 18 minutes. Fatality.
[fire - consequence, refining]

Lessons

[None Reported]

8405 08 August 1996

Source : ICHEME

Location : ,

Injured : 0 **Dead :** 0

Abstract

Heater tube rupture in a high pressure hydrogenation unit. As a result of an operational upset, the helix coil in the process heater of the 1st stage of the high pressure hydrogenation unit ruptured due to a no flow situation over a prolonged period of time. Tthis was followed by a fire. There was damage to equipment and product loss.

Operators had made adjustments to the system in an attempt to protect the catalyst. Make-up compressors were used to purge the system free of oil with fresh hydrogen.

The cause of this incident was that operating instructions' suggestion to protect the catalyst did not set out exactly how to do it, and the operators did not understand that the system was in a lock-in situation.

[fire - consequence, faulty instructions, processing]

Lessons

Operating instructions to cover emergency situations need to be clear and reflect what is actually possible. Operator training needs to go deeper than just discussing instruction

requirements; e.g., explaining the significance of situations such as no-flow, limitations of temperature indication under no-flow conditions, and the need to seek advice from more senior staff if in doubt. Overriding of trip systems must only be done with the specified level of authorisation.

8639 07 August 1996

Source : THE GUARDIAN, 1996, AUG, 8,; CHEMICAL HAZARDS IN INDUSTRY, SEPTEMBER 1999.
Location : , UK

Injured : 0 **Dead :** 2

Abstract

An explosion and fire destroyed an adhesives factory. The incident occurred whilst workers were emptying 205 litre drums containing highly flammable liquids into a 1500 litre vessel by hand. The company was fined £100,000 (1999). Three years previously, the company had begun risk assessment, but had never completed it.
[processing, fatality, material transfer, fire - consequence, safety procedures inadequate]

Lessons

The case highlights the need to comply with Management of Health and Safety at Work Regulations 1992. (Chemical Hazards In Industry, Sept 1999).

8621 06 August 1996

Source : LLOYDS LIST, 1996, AUG, 9.
Location : , FRANCE

Injured : 1 **Dead :** 0

Abstract

A fire caused by an explosion in an agricultural chemicals storage depot sent a toxic cloud over the town.
[fire/explosion, fire - consequence, gas / vapour release]

Lessons

[None Reported]

8627 04 August 1996

Source : LLOYDS LIST, 1996, AUG, 5.
Location : , BULGARIA

Injured : 6 **Dead :** 3

Abstract

A fire occurred in a refinery which was caused by a leak in pipe. Fatality
[fire - consequence, refining]

Lessons

[None Reported]

8632 03 August 1996

Source : LLOYDS LIST, 1996, AUG, 17.
Location : California, USA

Injured : 0 **Dead :** 0

Abstract

A fire destroyed a plastics company estimated at $2.5 million (1996). Fire started in plastics storage area.
[fire - consequence]

Lessons

[None Reported]

8624 27 July 1996

Source : LLOYDS LIST, 1996, AUG, 1.
Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred in an ethylene pipeline which damaged the pipeline and electrical installations on ethylene plant.
[fire - consequence, damage to equipment, processing]

Lessons

[None Reported]

8633 24 July 1996

Source : LLOYDS LIST, 1996, JUL, 31, AUG, 9, AUG, 21.
Location : Volgograd, RUSSIA

Injured : 0 **Dead :** 0

Abstract

A serious fire occurred in a storage area which was not extinguished until 9th August. Fire started in an area containing waste material.
[fire - consequence]

Lessons

[None Reported]

8619 22 July 1996

Source : LLOYDS LIST, 1996, JUL, 26.
Location : Quebec, CANADA

Injured : 0 **Dead :** 0

Abstract

A fire roared throught a foam plastic plant.
[fire - consequence, processing]

Lessons

[None Reported]

8628 18 July 1996

Source : LLOYDS LIST, 1996, AUG, 9.
Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a refinery due to a failed flange and relief valve .
[flange failure, valve failure, fire - consequence, refining]

Lessons

[None Reported]

8615 13 July 1996

Source : LLOYDS LIST, 1996, JUL, 16.
Location : Texas, USA

Injured : 0 **Dead :** 2

Abstract

An oil well explosion and fire occurred. Fatality.
[fire - consequence]

Lessons

[None Reported]

8612 09 July 1996

Source : LLOYDS LIST, 1996, JUL, 10.
Location : Yorkshire, UK

Injured : 0 **Dead :** 0

Abstract

An explosion occurred in a hydrogen storage tank followed by fire.
[fire - consequence]

Lessons

[None Reported]

8613 08 July 1996

Source : LLOYDS LIST, 1996, JUL, 10.
Location : Gebze, TURKEY

Injured : 0 **Dead :** 0

Abstract

An fire occurred on an ethyl alcohol storage tank.
[fire - consequence]

Lessons

[None Reported]

8610 04 July 1996

Source : LLOYDS LIST, 1996, JUL, 6.
Location : Chechen, RUSSIA

Injured : 0 **Dead :** 0

Abstract

A huge fire occurred in a chemical plant which appeared to be spreading towards the refinery.
[fire - consequence, refining]

Lessons

[None Reported]

8608 03 July 1996

Source : LLOYDS LIST, 1996, JUL, 5.
Location : Ohio, USA

Injured : 5 **Dead :** 8

Abstract

A fire engulfed a firework store caused by arson. Fatality.
[fire - consequence, fireworks, storage]

Lessons

[None Reported]

8602 18 June 1996

Source : LLOYDS LIST, 1996, JUN, 24.
Location : Rostov, RUSSIA

Injured : 0 **Dead :** 1

Abstract

Oil leaking from a broken seam on a pipeline spilt onto an electric welding apparatus and consequently sparked a fire during repair work. 70,000 cubic feet of oil spillage. Fatality.
[fire - consequence]

Lessons

[None Reported]

8603 16 June 1996

Source : LLOYDS LIST, 1996,
Location : , GERMANY

Injured : 0 **Dead :** 0

Abstract

A fire occurred at a chemical plant which cost Dm 117 million.
[fire - consequence, processing]

Lessons

[None Reported]

8609 14 June 1996

Source : LLOYDS LIST, 1996, JUL, 5.
Location : Samara Region, RUSSIA

Injured : 0 **Dead :** 0

Abstract

Oil in two settling tanks attached to pipeline caught fire.
[fire - consequence]

Lessons

[None Reported]

1036411 June 1996

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.
Location : New Jersey, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred which was limited to one tank at a depot containing 3-4 m gals of gasoline.
[fire - consequence, near miss, storage tanks]

Lessons

[None Reported]

2573 06 June 1996

Source : LLOYDS LIST, 1995, JUN, 7.
Location : Zhuhal, Southern China, CHINA

Injured : 40 **Dead :** 2

Abstract

Powerful explosion in polyester reactor on fourth floor of the building in a factory. The equipment was recently constructed and was undergoing testing when explosion occurred. A fire ensued which was quickly extinguished. Fatality.
[reactors and reaction equipment, fire - consequence]

Lessons

[None Reported]

1036104 June 1996

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.
Location : Texas, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred on a storage tank which contained the gasoline additive, methyl tertiary-butyl ether. The blaze was apparently started by lightning during a severe thunderstorm. The fire was extinguished after 7 hours.
[fire - consequence, storage tanks]

Lessons

[None Reported]

1036502 June 1996

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.
Location : Magdeburg, GERMANY

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. An explosion caused two wagons carrying vinyl chloride to catch fire leaving a toxic cloud over the area.
[fire - consequence, gas / vapour release]

Lessons

[None Reported

8462 31 May 1996

Source : EUROPEAN CHEMICAL NEWS, 1996, JUN, 17, NOV, 4,; WASTE ENVIRONMENT TODAY, VOL. 19, PAGE 506, 1996, JUN, 12.
Location : Magdeburg, GERMANY

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. Derailment and explosion of four of 18 rail tankers, each carrying 50 tonnes of vinyl chloride which were consumed in the fire. Schools nearby were closed for a week. Pollution of ground water over 46,000 km2 area with dioxins and other contaminants was reported.
[fire - consequence, contamination]

Lessons

[None Reported]

8459 25 May 1996

Source : EUROPEAN CHEMICAL NEWS, 1996, JUN, 3.
Location : Wisebaden, GERMANY

Injured : 0 **Dead :** 0

Abstract

A fire in a cooling tower spread to two adjoining towers causing damage estimated at $324,000 (1996).
[fire - consequence, damage to equipment]

Lessons

[None Reported]

8458 19 May 1996

Source : EUROPEAN CHEMICAL NEWS, 1996, JUN, 3.
Location : Alabama, USA

Injured : 0 **Dead :** 0

Abstract

A rail transportation incident. A fire started around midnight in a rail tanker car containing sodium hydrosulphite.
[fire - consequence]

Lessons

[None Reported]

8456 18 May 1996

Source : EUROPEAN CHEMICAL NEWS, 1996, MAY, 27.
Location : Normandy, FRANCE

Injured : 0 **Dead :** 0

Abstract

Lightning struck a glyoxal plant and set it on fire. The fire was brought under control quickly and nitric oxide emissions were contained within the plant.
[fire - consequence, processing]

Lessons

[None Reported]

1035717 May 1996

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.
Location : California, USA

Injured : **Dead :**

Abstract

A fire occurred on one of the coking drums at a 100,000 bpd refinery was under control in 2.5 hours and extinguished in 4 hours. Two coking drums on the 56,000 bpd coker were put out of service. The mutual aid support activated by the contingency plan from the public and industry fire brigades in the area was highly praised.
[fire - consequence, refining]

Lessons

[None Reported]

8413 14 May 1996

Source : ICHEME

Location : ,

Injured : 0 **Dead :** 0

Abstract

A vacuum unit had been shut-down for a planned overhaul. Steam-out of the vacuum column was completed, with the top and bottom manway doors opened. Early the following morning glowing hot spots were noticed on the outside of the insulation at a level just above the bed. There was damage to equipment. It was found that an exothermic reaction of pyrophoric material ignited combustible material present. Several possibilities exist within the system that could produce iron oxide corrosion scale.
[maintenance, fire - consequence, cracking]

Lessons

Pyrophoric iron sulphide must ALWAYS be assumed to be present in CDU, VDU, FCC, Coker and Visbreaker fractionators.
No matter how good the steaming out procedure, all CDU, VDU, FCC, Coker and Visbreaker fractionators must be assumed to contain combustible material.

1035907 May 1996

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.
Location : Alabama, USA

Injured : 0 **Dead :** 0

Abstract

A fire occurred in the heat treating unit of the crude unit. Damage was minor.
[fire - consequence, distillation unit]

Lessons

[None Reported]

9024 03 May 1996

Source : CHEMICAL HAZARDS IN INDUSTRY, 1997, AUG.
Location : ,

Injured : 0 **Dead :** 0

Abstract

A fire and explosion occurred in a consignment of lithium battery waste in a 45 gallon drum container. The material which caught fire had been stored on site for five months should have been destroyed within one week of arrival.
[fire - consequence, storage]

Lessons

[None Reported]

1035426 April 1996

Source : LOSS CONTROL NEWSLETTER, ISSUE 2, 1996.
Location : Okinawa, JAPAN

Injured : 0 **Dead :** 0

Abstract

A fire occurred on a fuel oil desulphurisation plant of refinery
[fire - consequence, refining]

Lessons

[None Reported]

9999 25 April 1996

Source : LOSS CONTROL NEWS LETTER, 2/96.
Location : Grozny, RUSSIA

Injured : 0 **Dead :** 0

Abstract

An oil well, one of the largest in the area, was set alight by machine gun fire. Business Interuption loss estimated at US$ 0.3m (1996) per day.
[fire - consequence, processing, terrorism]

Lessons

[None Reported]